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A comparative study of students' perceptions of their classroom environments

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Abstract

The study compared two groups of third year university students' perceptions of their actual classroom environments. The sample comprised 140 students drawn from two separate classrooms (N= 66 and N=74). The participants were undergraduate education students enrolled for a third year compulsory module, Education III, and were taught by two different lecturers at an institution of Higher Learning in South Africa. The lecturers were both female but with different lecturing experiences. Students' perceptions of their actual classroom environments were measured using the College and University Classroom Environment Inventory (CUCEI). Although there were differences in the perceptions of students from the two groups, the difference was, however, not statistically significant. An open-ended question was included in the CUCEI to probe further. The quantitative findings suggest that the students perceived their classroom environment positively. The qualitative findings revealed both positive and negative classroom experiences. Participation through oral presentations and discussions, academic as well as emotional support were applauded. In contrast excessive workload, tight time-schedules, large classes and hearing difficulties were reported. The study has shed insights into students' lived experiences and concerns about the course and strategies to deal with large classes have been suggested.

Keywords: classroom research; reflection; student teachers; large classes

INTRODUCTION

Studies on classroom environments have either focussed on the physical classroom environment or at the social and psychological classroom environment. This study has focussed on the perceptions of students' actual classroom learning environments. It is befitting at this stage to look at what constitutes a classroom learning environment and what could be achieved by conducting classroom research.

A classroom learning environment is viewed as an ecological system of personal relationships and the sum of activities, actions and interactions in the classroom community. A lot can be studied through classroom research. Research by Evans, Harvey, Buckley, and Yan, (2009) and Matsumura, Slater, and Crosson, (2008), for example, has shown that the learning environment in classrooms can be conceptualized and measured; different sub-groups within classrooms may have different perceptions of the learning environment; and students' perceptions of the classroom environment have effects on student academic, cognitive and affective outcomes, attitude, self-concepts and physical and psychological well-being. Specifically, a positive classroom learning environment is closely related to students' enhanced academic achievement, constructive learning experiences, and reduced emotional problems; while a negative classroom climate is associated with undesirable educational outcomes (Gazelle 2006; Matsumura et al. 2008; Teodorovic 2011).

Literature indicates that the initial focus of classroom environment research was on primary and secondary schools, a practice which saw the development of a number of instruments for the school. The most widely used instruments in secondary schools from the literature are: *The Classroom Environment Scale*, the *Learning Environment Inventory*, *Individualised Classroom Environment Questionnaire* and the *My Class Inventory*. All these instruments are based on Moos's work which stresses three essential areas of classroom environment namely: relationship, personal growth, and system maintenance and change. These and subsequent research instruments on classroom environment have been aligned to these three dimensions or combinations thereof (Fraser 2002).

Classroom environment instruments have four distinct forms which measure (a) student perceptions of actual classroom environment, (b) student perceptions of preferred classroom environment, (c) teacher perceptions of actual classroom environment, and (d) teacher perceptions of preferred classroom environment. The preferred forms are concerned with goals and value orientations and measure perceptions of the classroom environment ideally

liked or preferred. Having these four different forms has enabled classroom environment scales to be used for a range of research and practical applications (Matsumura et al. 2008; Teodorovic 2011).

These instruments have not been widely used in the South African context. The few known studies include the one by Aldridge, Fraser and Ntuli (2009) who used the instrument: *What is happening in this classroom* (WIHIC) to in-service teachers registered in a distance learning programme in South Africa. The instrument was adapted for use in primary schools in South Africa (translation of English into isiZulu) for primary school learners. In a study in Cape Town another instrument was translated into both Afrikaans and isiXhosa.

It is against this background that the study used one of the instruments that was developed to measure classroom learning environments. The main aim of the study was to assess and compare how two groups of student teachers perceive their actual classroom learning environments. The study sought to answer the following research questions.

- How do the two groups of third year pre-service students perceive their actual classroom environments?
- In which of the seven categories of the CUCEI are there areas of concern?
- What are the implications of student teachers' perceptions for teacher educators?

METHODOLOGY

Research design

The study employed an exploratory case study design.

Participants

The participants were 140 third-year pre-service students at an institution of Higher Learning in South Africa. The sample comprised 36 males and 104 females. The students were registered for an undergraduate degree in education. The subject under investigation was a compulsory module, Education III which is a third major for all education students.

Instrument

The original College and University Classroom Environment Inventory (CUCEI) was used as the data gathering instrument in this study. The CUCEI comprises seven scales, *personalisation, involvement, student cohesiveness, satisfaction, task orientation, innovation, and individualisation*, each scale with seven items. Students' perceptions of their actual classroom environment were measured using a four-point Likert-type scale with the alternatives of strongly agree, agree, disagree and strongly disagree. The instrument was adopted and adapted for use to determine its suitability to a South African Institution characterised by large class sizes. Added to the instrument were open-ended questions to probe further and in line with Altaf (2015) who argues that these instruments can be used in conjunction with other data gathering instruments such as interviews.

Ethical Issues

Permission to conduct the study was sought and was granted by the Central University of Technology, Free State. The consent of the students to participate in the study as well as that of the lecturer to use the students was also sought. The students were assured of the anonymity and confidentiality with which their responses would be dealt. They were informed and assured that the aim of the study was to improve classroom practice and that their responses would contribute towards the achievement of that purpose.

Data collection

The questionnaires were administered by the lecturers immediately after the lecture.

Data Analysis

Data were analysed to generate both descriptive and inferential statistics.

RESULTS

Sample profile

Table 1. Sample profile (N=140)

Gender	Group 1	Group 2	Total
Male	14	22	36
Female	52	52	104
Total	66	74	140

Student perceptions of their actual classroom learning environments

Table 2. Students' perceptions of their actual classroom environment (N=140)

		Class A		Class B	
		N=66		N=74	
	Statements	Means	SD	Means	SD
	PERSONALISATION				
1	The lecturer considers students' feelings	3.18	0.74	3.74	0.65
8	The lecturer talks individually with students.	2.15	0.88	2.31	1.03
15	The lecturer goes out of his way to help students.	3.00	0.97	3.12	0.90
22	The lecturer helps each student who is having trouble with the work.	2.75	0.99	3.10	0.90
29	The lecturer always moves around the classroom to talk with students.	2.53	1.06	2.46	1.02
36	The lecturer is interested in students' problems.	3.21	0.92	3.54	0.67
43	The lecturer is friendly and considerate towards students	3.48	0.76	3.48	0.88
Overall Mean		2.90		3.11	
	INVOLVEMENT	Class A		Class B	
		Means	SD	Means	SD
2	The lecturer listens rather than talks	2.68	0.96	2.56	0.92
9	Students put effort into what they do in class.	2.89	0.93	3.51	3.45
16	Students do not 'clock-watch' in this class	2.41	1.072	2.43	1.03
23	Students in this class pay attention to what others are saying.	3.22	0.76	3.26	0.75
30	Students always present their work to the class.	2.11	0.94	2.13	0.82

37	There are opportunities for students to express opinions.	3.29	0.91	3.25	0.74
44	The lecturer does not dominate class discussion	2.69	1.07	2.14	0.86
Overall Mean		2.76		2.75	
		Class A		Class B	
	STUDENT COHESIVENESS	Means	SD	Means	SD
<u>3</u>	The class is made up of individuals who know each other well.	2.72	1.105	2.26	0.96
10	Students in this class know each other by their first names	2.18	1.065	1.93	0.82
17	Students make friendships easily in this class.	3.05	0.98	2.86	0.86
<u>24</u>	Students get an ample chance to know each other in this class.	2.92	0.92	2.67	0.99
<u>31</u>	It takes a short time to get to know everybody by his/her first name in this class.	2.26	1.09	1.97	1.02
38	Students in this class get to know each other well	2.56	0.92	2.25	0.89
<u>45</u>	Students in this class are very interested in getting to know other students.	2.98	0.83	2.79	0.99
Overall Mean		2.67		2.39	
		Class A		Class B	
	SATISFACTION	Means	SD	Means	SD
4	The students look forward to coming to classes.	2.78	0.89	3.29	0.77
<u>11</u>	Students are satisfied with what is done in class	2.79	1.045	2.97	0.79
18	After the class, the students have a sense of satisfaction	2.86	0.926	3.19	0.76
<u>25</u>	Classes are worth attending.	3.71	0.72	3.69	0.74
<u>32</u>	Classes are exciting	3.31	0.846	3.43	0.73
39	Students enjoy going to this class.	2.88	0.84	3.11	0.81
46	Classes are interesting.	3.21	0.75	3.23	0.88
Overall Mean		3.08		3.27	
		Class A		Class B	

	TASK ORIENTATION	Mean	SD	Mean	SD
5	Students know exactly what has to be done in this class.	3.00	0.80	3.46	0.65
12	Getting a certain amount of work done is important in this class.	3.45	0.729	3.51	0.67
<u>19</u>	The group is often focussed in this class and always stick to the point.	2.71	0.947	2.89	0.81
<u>26</u>	This class is always organized.	3.70	0.687	3.66	0.80
33	Class assignments are clear such that everyone knows what to do.	2.98	0.92	2.87	1.00
<u>40</u>	This class always starts on time.	2.03	1.22	1.97	1.11
47	Activities in this class are clearly and carefully planned	3.32	0.86	3.47	0.73
Overall Mean		3.03		3.12	
		Class A		Class B	
	INNOVATION				
<u>6</u>	New ideas are always tried out in this class.	2.11	0.927	2.12	0.82
<u>13</u>	New and different ways of teaching are always used in this class.	2.29	0.86	2.24	0.78
20	The lecturer always thinks of innovative activities for students to do.	2.67	1.00	2.96	0.82
27	The teaching approaches used in this class are characterized by innovation and variety.	2.86	0.96	2.97	0.78
<u>34</u>	The seating in this class is arranged differently each week.	1.97	1.14	2.21	1.20
41	The lecturer often thinks of unusual class activities.	1.98	0.826	1.97	0.87
48	Students seem to do the same type of activities every class.	2.66	0.91	2.63	0.93
Overall Mean		2.36		2.44	
		Class A		Class B	
	Individualisation	Means	SD	Means	SD
<u>7</u>	All students in the class are expected to do different activities at different times	2.02	0.99	1.81	0.98
14	Students are generally allowed to work at their own pace in this class.	2.05	0.87	2.45	0.96
21	Students have a say in how class time is spent.	2.11	1.06	2.23	1.08
28	Students are allowed to choose activities and how they will work.	1.76	0.89	1.93	0.86
35	Teaching approaches in this class allow students to proceed at their own pace.	2.31	0.92	2.55	0.94

42	There is ample opportunity for a student to pursue his/her particular interest in this class.	2.84	0.979	2.59	0.90
49	Students decide on what will be done in our class	1.55	0.79	1.42	0.72
Overall Mean		2.09		2.14	

Table 3. Summary descriptive statistics

		CLASS A		CLASS B	
		Mean	Rank order	Mean	Rank order
	Personalisation	2.90	3	3.11	3
	Involvement	2.76	4	2.75	4
	Student Cohesiveness	2.67	5	2.39	6
	Satisfaction	3.08	1	3.27	1
	Task orientation	3.03	2	3.12	2
	Innovation	2.36	6	2.44	5
	Individualisation	2.09	7	2.14	7
	Overall Mean	2.70		2.75	

Qualitative Data

Students' responses to the open-ended question provided some of the answers to the picture that is depicted by the quantitative data. Both positive and negative experiences were reported. Lecturer B was found to be very strict than lecturer A. However, students enjoyed being in their classrooms.

What the students want. The responses clearly indicated that students have certain needs or concerns that needed attention. The first issue that emerged was audibility of the lecturer as the following extract indicates:

The voice of the lecturer is a bit low. Sometimes we cannot hear what she says. Class size contributes to the lecturer not being loud enough for all students to hear.

Their preferences involved availability of notes, written assignments and class discussions. The students wrote: *"Notes must be available on time," we need written assignments instead of tests, and would like more class discussions to be used.* In addition, the students needed

“more time to prepare for the tests because of course workload. They needed to be informed on time on “what to focus on for the tests as this will help alleviate pressure and reduce failure”.

DISCUSSION

Students in both classes viewed their classroom learning environments positively.

Although the mean scores for the different categories are comparable the mean scores for class B are relatively higher in the categories of personalisation, satisfaction, task orientation, innovation and individualisation.

Class A showed a slightly higher mean for involvement and a high mean score for student cohesiveness (M=2.67) against a mean score of (2.39) for class B. In class A all students are registered for a degree specialising in Languages whereas class B consists of students from different areas of specialisation (EMS, Computer Science, Natural sciences and Technology). This is a diverse student group.

In both classes student satisfaction was ranked high, followed by task orientation, personalisation and involvement. In both classes individualisation was ranked the least. This can be attributed to large classes. While the students in both classes are satisfied with their classroom learning environments, they still feel that the lecturers are task oriented.

It is important to note that, under satisfaction, the students perceived their classroom learning environments as worth attending, exciting and enjoyable. This is commendable as research has shown that a positive learning environment affects students’ cognitive developments and academic achievements (Evans, Harvey, Buckley, & Yan, 2009; Matsumura, Slater, & Crosson, 2008). Student satisfaction was followed by task orientation.

Students perceived the lecturers as task oriented. Task orientation is good in so far as class activities are clear and well organised. It can also be bad if it stifles students’ creativity. There could be many contributing factors here such as large classes, tight work schedules and adherence to deadlines for submission of the test marks, examination papers and examination marks. Considering that the participants in the study are pre-service teachers, organisation and planning of classroom activities is very crucial as they will be expected to do the same

with their future students. Adherence to tight work schedules would not be much of a problem if class sizes were reasonable.

CONCLUSION

The student teachers in the study generally perceived their classroom environment as positive. This is commendable. The large numbers of students in the class, the tight teaching schedule of the university environment is stifling the lecturer's use of innovative ideas, and the lecturer is forced to be task oriented. University lecturers have to be trained to be innovative within the context of large classes

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A dichotomous model of education for practitioners in conflict-affected contexts: schools as new villages

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Abstract

This paper presents a model of education for application in conflict-affected contexts. There is an increasing interest, in both academic and development communities, in closing the gaps that exist between theory and practice in educational development in conflict-affected settings. Our model was developed within a theoretical framework of complexity science and critical theory and was derived from an empirical research project from Northern Uganda that employed the methodology of phenomenography. The model is termed “dichotomous” as it proposes that children’s learning is both organic (i.e. a natural human trait) and institutional as it is driven and developed by formal education. Within this model, schools are seen as villages: environments that provide opportunities and engender cultures for learning. Local teachers are identified as co-creators of these cultures, environments and opportunities, and as agents of change. Learning experiences are viewed as opportunities for enhanced growth through active learning, emotional rehabilitation and exposure to healthy models. Belief systems are core to this educational model, as knowledge is generated from culture.

Introduction

In the last decade, literature pertaining to education in conflict-affected areas of the world has identified a gap between, on one hand, the theorising of academics, who purport the need for renewal through education and, on the other, the practical approaches of organisations such as the World Bank, which has a focus on the reconstruction of schools (cf. Barakat, et al. 2013; Brannelly, Ndaruhuste & Rigaud, 2009; Karpinska, Yarrow & Gough, 2007; Paulson & Rappleye, 2007). In recent years, there have been attempts to close this gap (e.g. UNESCO's *Theoretical framework for Analysing the Contribution of Education to Sustainable Peacebuilding*, Novelli, Lopes Cardozo & Smith, 2015) but there remains an urgent need to develop educational models that link theory to practice and provide utility for practitioners. This paper makes a contribution in this process.

A model was developed from a consideration of complexity science and critical theory and an empirical research study that was conducted in Northern Uganda (Willis, 2016) where schools were acting as new villages and teachers were serving in parental roles after decades of civil war. In the Northern Ugandan study it was found that teachers conceptualised children's learning as simultaneously organic and institutional. That is, indigenous participants perceived learning to be a process that naturally occurs in family and community environments (organic) as well as a schooling process (institutional). This organic-institutional dynamic is explained further below.

Accordingly, the model of education for peace in conflict-affected contexts that we propose in this paper is termed "dichotomous" as it makes provision for both the organic and institutional elements of education. We propose an adaptive model for creating enabling conditions for education and positive social change after physical conflicts (Figure 2). The model has been developed on the premise that healthy children develop physically, intellectually and emotionally if they are situated in productive, secure, stable and supportive environments. Thus, it considers the contributions education can make to the health of learners and their learning environments as well as the health of the wider community. Rather than trying to change or control people or institutions in post-conflict contexts and hoping that they reciprocally change each other, the focus of the model is on the creation of physical, intellectual and emotional conditions to enable the people and their environments and cultures to develop together. This premise is significant in educational development settings where until recently the dominant experience has been the imposition of foreign curricula and schooling regimes (c.f. Barakat, et al. 2013; Novelli & Lopes Cardozo, 2008).

Before the dichotomous model is presented, literature pertaining to (i) education during and after conflict and (ii) education as peace is reviewed, and we highlight the potential contributions that the proposed new model could make to these bodies of knowledge. In addition, the theoretical framework and methodologies that informed the development of the model (i.e. complexity science, critical theory, and phenomenography) are defined, conclusions are drawn concerning its limitations, and opportunities for future research are identified.

Education during and after conflict

Children's education suffers terribly in conflict-affected areas, especially with increased targeting of civilians in the 21st century (UNDP, 2005). The World Bank (2005) described conflict as the complete reversal of development. Seitz (2004) identified three detrimental consequences of violent conflict on education:

1. impact on children through loss of relatives, physical abuse, rape, and displacement from homes and villages;
2. impact on school attendance due to dangerous travel conditions or loss of financial means; and
3. impact on educational institutions by way of physical damage from conflict, destruction of resources, displacement, or occupation by warring factions (pp 21-30).

These three detrimental and often catastrophic consequences cannot be overstated. In the last two decades, progress toward UNESCO's Education for All (EFA) goals has been achieved as the number of primary and lower secondary aged children out of school world-wide has fallen from 204 million (19% of the population) in 1999 to 121 million (12% of the population) in 2012 (UNESCO, 2015). However, the benefits of this progress have not reached conflict-affected countries as in these areas 36% of primary and lower secondary school aged children were not in school in 2012 including 12.6 million in sub-Saharan Africa, 5.3 million in South and West Asia, and 4 million in the Arab States (UNESCO, 2013). For education reform to be successful and for these numbers to decline it must articulate with broader struggles for social and economic change, both nationally and internationally (Tikley, 2004). The dichotomous model in this paper extends the roles of schools and teachers beyond the constraints of timetables, geographic locations and age groups.

Education for peace

The importance of education to stabilise conflict-affected areas is well documented. If "violent conflict is the most brutal suppression of human development" (UNDP, 2005, p. 151) then it is possible that education is an antidote to the effects of war (Willis & Nagel, 2015) and instrumental in the promotion of peace. Machel (2001) described education as the fourth pillar of humanitarian response, accompanying food and water, shelter, and health care.

Nevertheless, education is never politically neutral. Schools can either contribute to violence or prevent it through: i) the uneven distribution of education to create or preserve privilege; ii) the use of education as a weapon of cultural repression; and iii) the production or doctoring of textbooks that promote extreme political and social bias and violence (Novelli & Lopes Cardozo, 2008).

Until recently, an identified gap existed in the education for peace literature that separated the theorising of academics and the practical work of aid organisations such as the World Bank (Barakat, et al. 2013; Brannelly, Ndaruhuste & Rigaud, 2009; Karpinska, Yarrow & Gough, 2007; Paulson & Rappleye, 2007). In response to this, Novelli et al. (2015) proposed the 'four R' theoretical framework for UNESCO for education and sustainable peacebuilding in conflict-affected areas: Redistribution of resources for equity, Recognition of diversity, promotion of equitable Representation, and Reconciliation of past hurt through forgiveness.

When considering education in conflict-affected contexts, knowledge and values are not necessarily synonymous. Davies (2013) pointed out that teaching landmine safety does not stop people laying landmines any more than drug education closes down cartels, or HIV/AIDS education stops promiscuity. Hence, there is an urgent need to develop an education for peace model that demonstrates the practical importance and outcomes of values and beliefs. Feuerstein, Feuerstein and Falik (2010) articulated this relationship by explaining that knowledge is often generated from belief systems. They used the example of whether or not educators believed that learners' minds were modifiable, explaining that belief in the possibility led to the generation of knowledge about how to create learning opportunities. A lack of belief would lead to other less productive judgments and actions. Hence, knowledge

comes from belief systems, and more often than not belief systems are symbiotic with values: they complement each other. Thus, it is essential in conflict situations to develop a model of education that considers, challenges and, in some instances, recreates belief systems. The education model proposed in this paper positions belief systems and humanitarian values at its core.

The theoretical framework behind the development of the model

The development of the dichotomous model of education for schools in conflict-affected contexts was undertaken within a theoretical framework of complexity science, critical theory, and the methodology of phenomenography. Davies (2013) purports complexity science as a starting point for critical analysis of conflict-affected education, because it takes account of agents of change, random events and interactions that catalyse unpredictable shifts. Davies (2013) gives heed to chaos theory in educational development where chaos is considered to be an extremely complex and dynamic web of information rather than an absence of order. The model proposed in our article does not completely align with chaos theory, but rather proposes another non-linear approach, that of an organic system where growth and change are possible, given favourable conditions. Nevertheless, this model also acknowledges that growth can be both functional and dysfunctional. For example, an educator would hope and possibly assume that schooling would enrich the lives of the children and the surrounding local community, but history tells us that schooling has at times been used to cultivate prejudice and hate (cf. Novelli & Lopes Cardozo, 2008). Therefore, an organic model makes provision for the complex and often unpredictable nature of education where both good and bad outcomes may arise and even coexist.

Critical theory also acknowledges the importance of values in any inquiry and tries to identify and define them and the political and social ideologies to which they belong (Punch & Oancea, 2014). Accordingly, critical theory can give credence to social and political hegemony by providing empirical evidence (Jacobs, 2006) and is suspicious of the constructed meanings that culture bequeaths us (Crotty, 1998). Critical theory complements an interpretivist research paradigm, to which the methodology of phenomenography belongs.

A phenomenographic methodology (Marton, 1981) supports the reflexive and dynamic nature of qualitative research (Burns, 2000; Lichtman, 2006) and open-ended questions and methodologies. The defining aspect of phenomenography, and one which differentiates it from phenomenology, is the construction of a mental model that integrates the categories of description into a metaphoric illustration. Phenomenography is particularly suited to educational research due to its dependence upon experience and its practicality for solving pedagogic problems (Marton, 1988; Marton and Booth, 1997); and it is further suited to cross-cultural research as local themes and metaphors can be used to describe findings. The dichotomous model of education for peace in conflict-affected contexts was developed from a phenomenographic model of children's learning from Northern Uganda (Willis, 2012), which is depicted in a simplified form in Figure 1.

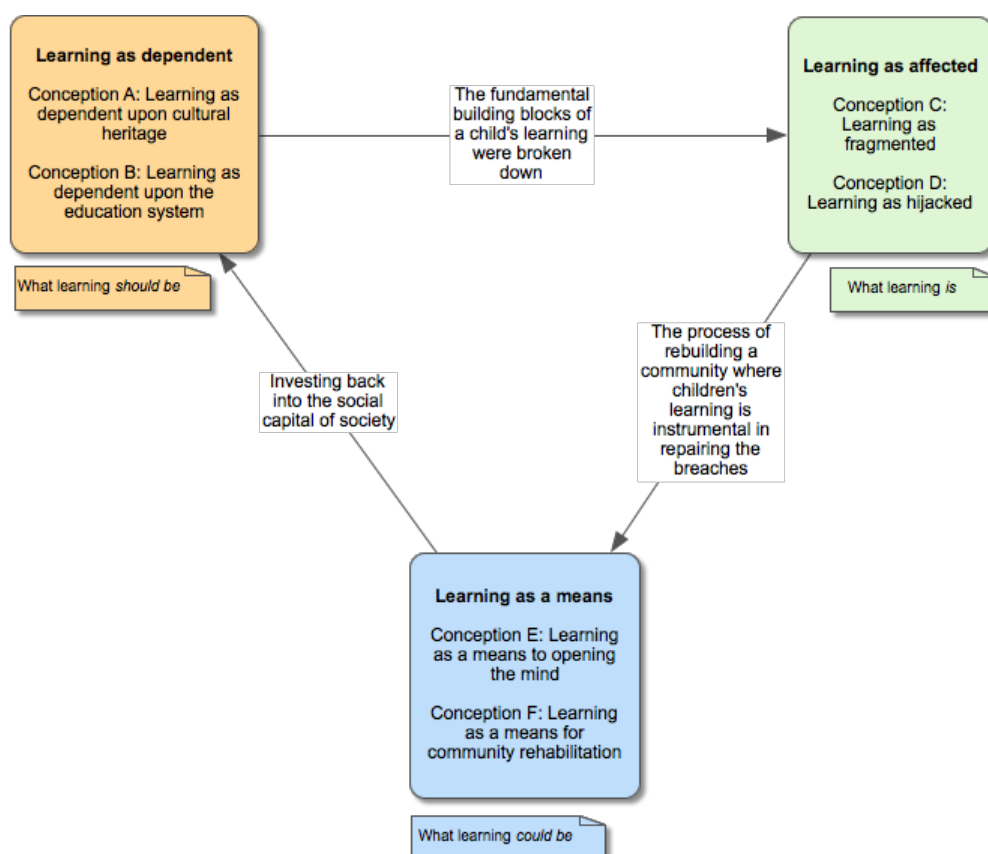


Figure 1. A simplified version of a model of learning from Northern Uganda (Willis, 2012).

A dichotomous model (organic and institutional) of education for peace in conflict-affected contexts

It is proposed that education in conflict-affected areas should be viewed as both organic and institutional. Education is an organic non-linear process that succeeds or fails in response to conditions. Education is institutional as it involves a complexity of social interactions that occur within an educational organisation that affect positively or negatively the process of learning.

The dichotomous model of education was developed from a model of learning based on empirical research in Northern Uganda where schools were acting as new villages. The schools were loci for government and community initiatives, and places where teachers took on the responsibilities of educating children and parents after conflict (Figure 1; Willis, 2012). The passing down of generational wisdom was severely disrupted by war (over half the population of Uganda was under the age of 15 at the time of the study due to the effects of war) and schools and teachers were attempting to fill the absence of adults and parents in society. Schooling systems compensated to an extent for breakdowns in society (Willis, 2016) by teaching children routines and reinstating rituals in a multi-age community. Many teachers conducted home visits, expanding the role of the school into the wider community to include parent education and championing the value of education. Schools were also disseminators of government programs including HIV/AIDS education and the packed lunch initiative which taught parents about the importance of sending children to school with food. Furthermore, it was found that teachers played a significant role in the social and psychological rehabilitation

of children and that education was a beneficial intervention for symptoms of stress and trauma (Willis & Nagel, 2015).

From this empirical research, and considerations of educational development literature, a model of education for peace in conflict-affected contexts has been developed (Figure 2).

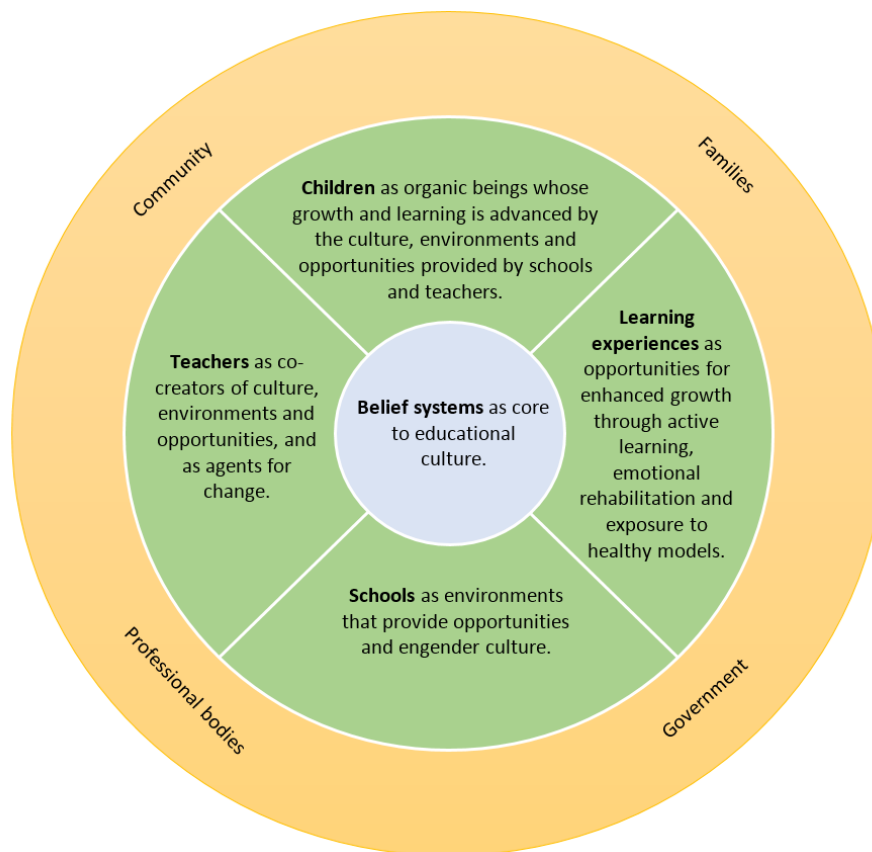


Figure 2. A dichotomous model (organic and institutional) of education for peace in conflict-affected contexts.

The model describes education as a complex organic and institutional interplay between students, teachers, environments, opportunities and culture. The elements of this model are herein extrapolated and considerations for practitioners are presented.

Schools as institutional environments that provide opportunities and engender culture

The dichotomous model of education views schools as institutional environments that provide opportunities for growth, both individual and communal. Furthermore, schools are also institutional loci for complex interactions across ages, belief systems, ethnicities, tribes and genders in which democratic discussion and debate can occur and critical thought should be encouraged and evaluated: schools should be environments that engender culture. This organic-institutional dynamic needs to be managed by practitioners if it is to realise its full potential. An overbearing institutional regime may impede natural childhood development although an unfocussed haphazard approach may restrict the recovery and development of the school community. There is a balance to strike, and the balance will be different for each setting.

When viewing schools as organic institutions, schools leaders should ask themselves six important questions: (i) how are we creating culture and environments conducive to growth; (ii) are there elements in our culture or environment that stunt growth; (iii) what opportunities for learning are we providing our students; (iv) what obstacles to opportunities need to be removed in our institution (e.g. unequal distribution of resources or segregation); (v) how are we positively impacting culture and environments in our wider community; and (vi) what opportunities do we have to educate parents?

Teachers as co-creators of culture, environments and opportunities, and as agents of change

The dichotomous model views teachers as co-creators of culture, opportunities and environments that maximise productivity. Teachers are also agents of change: they invest time, knowledge and experience into the cultural foundations of their communities to promote peace. Furthermore, teachers reactively protect, educate and counsel students to minimise threats to their education in conflict-affected environments – hygiene, HIV/AIDS, and mental health education are paramount in these settings. Teachers must also tend to the core education business: creating opportunities for active learning experiences and, where necessary, adapting the curriculum to best meet the current and future needs of their students. Viewing teachers as co-creators of culture, opportunities and environments defines them as proactive agents of change rather than mere disseminators of information.

Notwithstanding the proactive view of teachers as co-creators, environments can be harsh and at times negate the well-intended efforts of teachers. In many instances, teachers in conflict-affected settings do not have access to the resources they need (e.g. curriculum documents or electricity) to manage and improve the disrupted environment.

Practitioners must ask: (i) what opportunities for learning am I creating; (ii) how am I promoting a culture of peace in the community; (iii) what can I change in the environment so that students can better learn; (iv) which students need more exposure to certain opportunities; (v) which students need to be better positioned in the environment and helped to overcome the impacts of conflict; and (vi) which students need extra protection from threats?

Learning experiences – opportunities for enhanced growth

The dichotomous model of education views learning experiences as transactions between students, teachers and the opportunities and environments that have been created within that culture. Three kinds of experiences are discussed.

Active learning. Rather than didactic, knowledge transfer practices, learning experiences are viewed as opportunities for growth where students can investigate, pose questions, debate, and exercise higher order and critical thinking. Learning experiences are both organised and incidental, and they are expedited by more knowledgeable others (Vygotsky, 1978) and expanded by collaboration (Lave & Wenger, 1991).

Teachers should consider using Socratic questioning, inquiry-based learning, debates, discussions, problem solving based learning, and creative projects. By engaging in these activities, students will learn positive learning dispositions of persistence, flexibility, connecting previous knowledge to new information, empathy, and collaboration (Costa & Kallick, 1996).

Children's learning is the primary outcome of education in the dichotomous model; it is the productive yield. This is an important distinction as many other seemingly positive outcomes could thwart a focus on learning. For example, covering curriculum materials does not always equate to children learning, therefore covering materials is not considered a productive yield if students have not progressed in learning. A focus on active student learning (as discussed in the previous section) will include delivering the curriculum, but if the primary focus is on covering the material then student learning is not guaranteed. Thus the importance of learning as the productive yield is apparent.

Practitioners must ask: (i) how am I creating opportunities in my lessons for students to actively engage in learning; (ii) how can I reduce didactic methods of teaching where students are passive recipients of information; and (iii) how am I promoting higher order thinking?

Emotional rehabilitation. Learning experiences are more than intellectual transactions. Neuroscientist John Medina (2009) asserts that information that is processed emotionally persists for longer in the memory and is recalled with greater accuracy than information that is processed neutrally. This has significant implications for children who have suffered the effects of conflict and are suffering from post-traumatic stress disorder. Under these circumstances the processing of information may be impeded by psychological disorders (Willis & Nagel, 2015). Conflict-affected education literature increasingly discusses emotional domains of learning, including reconciliation and forgiveness (Davies, 2013; Novelli, Lopes Cardozo & Smith, 2015) as pertinent in positive and productive education experiences. Findings from the Northern Ugandan study explicate the criticality of positive school environments in establishing healthy norms for living and learning (Willis & Nagel, 2015).

Practitioners should/must ask: (i) how am I positively engaging students' emotions to facilitate meaningful learning and lasting memories; (ii) am I provoking negative or destructive emotions that are counterproductive to learning; (iii) which students need access to trauma rehabilitation programmes; and (iv) what can I do to model healthy emotions and restore hope to my students?

Exposure and sensitisation – learning by proximity. Sensitisation as an education practice (Kandel, 2013) was frequently referred to in the Northern Ugandan study when participants discussed educating parents using radio programs. This non-associative process, where repeated exposure to stimulus evokes response, complements the ideas of organic learning, in the sense that a student grows according to culture. Therefore, the power of positive presence cannot be underestimated in conflict-affected settings. Practitioners should be encouraged to understand that their very presence in a community is a positive influence, even though it may be immeasurable and unpredictable.

By acknowledging sensitisation as a learning process, practitioners can ask questions pertaining to UNESCO's four R questions (Novelli, Lopes Cardozo & Smith, 2015): i) how am I promoting *reconciliation*; ii) how am I *recognizing* diversity but promoting equality; iii) how am I acknowledging history, but also presenting a vision for a peaceful future; iv) how am I promoting equal *representation* (gender, class, and ethnicity); and v) how am I *redistributing* resources so all my students can fully participate?

Children as organic beings whose learning can be advanced by educational institutions

The dichotomous model views children as organic beings whose growth and development can be modified (Feuerstein, Feuerstein & Falik, 2010) and advanced by education opportunities.

Learning is a human trait (Bruner, 1966) and occurs with or without formal education. However, when learning takes place within a productive environment and positive culture the social and educational yield is likely to be greater.

Practitioners should ask themselves five important questions: (i) how do I view children's learning (Leach & Moon, 2008); (ii) do I view the human mind as modifiable or as fixed (Dweck, 2006; Feuerstein, Feuerstein & Falik, 2010); (iii) am I teaching for student growth, or just getting through the material; (iv) what do I do that might send negative (anti-growth or anti-peace) messages to my students; and (v) what steps am I taking to expedite student growth?

Belief systems – the core of educational culture

The dichotomous model views belief systems as core to educational culture, as they determine what is valued, who is empowered and who is marginalized. Knowledge stems from belief systems (Feuerstein, Feuerstein & Falik, 2010). For example, if girls are thought to be less intelligent than boys, then knowledge and practices will be formed around this marginalizing belief. Or, if one believes certain people to be more valuable to society than others, then schemes of knowledge that support prejudice and/or discrimination will be formed. This understanding is critical in education, especially in conflict-affected contexts where divisions have resulted in war.

The Northern Ugandan study (Willis, 2012) and others (Barkarat, et al., 2013; Novelli, Lopes Cardozo & Smith, 2015; Rwantabagu, 2010) explicates the importance of values and belief systems in cultural restoration and renewal after conflict. Indigenous values including “the child is for everybody” (Willis, 2016, p.152), “education is the responsibility of the entire adult population” (Rwantagau, 2010), and “you never go alone in Africa” (Willis, 2012, p. 153) often need to be re-established after the social interruptions associated with war. Furthermore, because of a dearth of parental figures in conflict-affected contexts, active indigenous education (around the fireplace, in the garden, out in the field) where cultural identity and roles are learned, often becomes the responsibility of schools. Schools build culture around lunchtime meal routines, in kitchen gardens and at times of prayer, as well as classroom lessons. Through these cultural transactions, values and beliefs are personified.

Practitioners must ask: (i) what values do I want to promote in my practice; (ii) what beliefs need to be reinforced; (iii) what beliefs need to be challenged; (iv) what beliefs should be formed around distribution of resources, recognition of diversity and equality, representation in decision making process, and reconciliation between peoples (Novelli, Lopes Cardozo & Smith, 2015); and (v) how can we personify healthy cultural values by creating spaces, routines or habits?

Conclusion

The dichotomous model was created because there is an urgent and growing need for models of education for peace that have utility for practitioners and that are adaptive, reflexive and enabling across multiple contexts. Our model is non-linear in that it takes account of the dynamic and unpredictable nature of education in conflict-affected contexts. An important feature of this model is that it was developed from practice and drawn from Ugandan teachers' experiences in an area of violent and destructive conflict. An opportunity now exists for the model to be applied across multiple contexts so its efficacy and transferability can be ascertained. The primary intended outcome of the dichotomous model is student learning and its success should be measured by student performance, graduation rates and teacher satisfaction and how these outcomes impact the recovery of the local community. A strength

of our model is that it has scope for diverse application across different conflict-affected environments. Although no two conflict-affected environments will be identical, the principles underlying the creation of cultures and environments that promote health and social, educational and economic recovery and growth are transferable.

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**A PROGRAM FOR DEVELOPING CREATIVE BRAIN LEADERSHIP
FOR TAIWANESE PRINCIPALS**

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ABSTRACT

This study was conducted in informative research approach. The primary focus is on helping Taiwanese school principals enhance their creative traits by applying Neuro-linguistic Programming and Brain Gym/Exercise during the training courses. Neuro-linguistic Programming provides strategies for people to reset their beliefs by asking questions, which means applying language. Language is an essential part of the process we use to understand the world and express our beliefs. Research methodology included quantitative and qualitative methods. Researcher has collected data from 312 online samples and conducted 21 interviews to receive more details regarding the weaker and the preferred creative traits of these school principals. The results have shown that the weaker traits are Flexibility, Originality, Wide Range of Interests, and Independence. Their preferred traits are Passion of Work, Motivation and Goal Setting. Researcher developed a training program, CREATIVE Brain Leadership Program and had 9 school principals exam it. The main feedback from these school principals is, “this is probably the very first program developed that is based on brain research for school leadership.” Their recommendation is that this program is very valuable to be implemented in both the new principal preparation training and the head of department training courses.

Keywords: creativity, brain, leadership, creative, traits, training

Background and Significance of Study

Every few hundred years throughout Western history, a sharp transformation has occurred. In a matter of decades, society altogether rearranges itself — its worldview, its basic values, its social and political structures, its arts, its key institutions. Fifty years later a new world forms. And the people born into that world cannot even imagine the world in which their grandparents lived and into which their own parents were born (Drucker, 1995, p. 75).

Taiwan education was highly centralized, up until 1964, principals were assigned by separate city or county bureau of education. Until 1998, principals were selected at the national level based on a written and oral exam. Those who passed these exams, as well as a subsequent training course, were assigned to schools. After being assigned, principals were virtually free from ongoing systematic evaluation and could essentially serve for life. Starting from 1999, an evaluation component was added to the process when the legislature amended the nation's Compulsory Education Law. Besides the exams and training, the principal candidates must be evaluated regularly by the local county or city committee, which includes members from different parties, such as bureau of educational personnel, parents (at least one-fifth of the membership), teachers, education experts, and community representatives (Shouse & Lin, 2010). In order to find the right solution to the education issues or problems, several Taiwanese government ministers need to collaborate to solve local educational problems. The Ministry of Education (MOE) then suggested forming the Council on Education Reform in 1994.

Education reform started in 1995 after the Council on Education Reform (CER) was formed in Taiwan, which led to several great changes in the education system, reflecting the strong demands of developing partnership between the local government and the community, as well as educational reforms in a global perspective. Another secondary school principal mentioned several main changes in education in Taiwan including the decentralization of central authority to school-site level related to decision-making, namely 'educational deregulation (jiào-yù-sōng-bǎng)', a new education/politics system has been formed, school management moved from top-down, high authority to more like transformational leadership, curriculum reforms included the 'One Standard, Multiple Textbooks (yì-gāng-duō-běn)' and the 'Nine-Year Integrated Curriculum (jiǔ-nián-yí-guàn)', classroom instruction shifted more toward differentiation (H. C. He, interview, December 21, 2010).

At current time, Taiwan education is facing many different changes as mentioned before, administrative change, curricular change, instructional change, teacher training change, etc. These changes fall into the first order change, mentioned in Marzano, Waters and McNulty (2005). In order to get deeper change, you have to capture the energy, ideas, and commitment of teachers and principals. It takes leadership—a certain kind of leadership—to do this (Fullan, 2004).

The significance of this study is to find out principals' creative traits in terms of leading people and school affairs. There is not enough research done in this area in Taiwan, and yet it is more and more important to identify good leaders from the beginning. After the process of selecting school principals has been changed in Taiwan, it overemphasizes on the knowledge-based performances. There were times that the people who passed the written exam, oral exam and training, but still could not deal with all the situations happening in the school or the society. Therefore, there is a need to develop a creative brain leadership program of enhancing creative traits for school principals to assess and train themselves and their team members, implementing in their professional development program, or for the MOE committee to evaluate the newly appointed principals to see if they are suitable for the position. Most important is that this program might help school principals become transformational leaders to lead the education reforms in Taiwan, and to make a difference in the new generation.

The Purpose of the Study

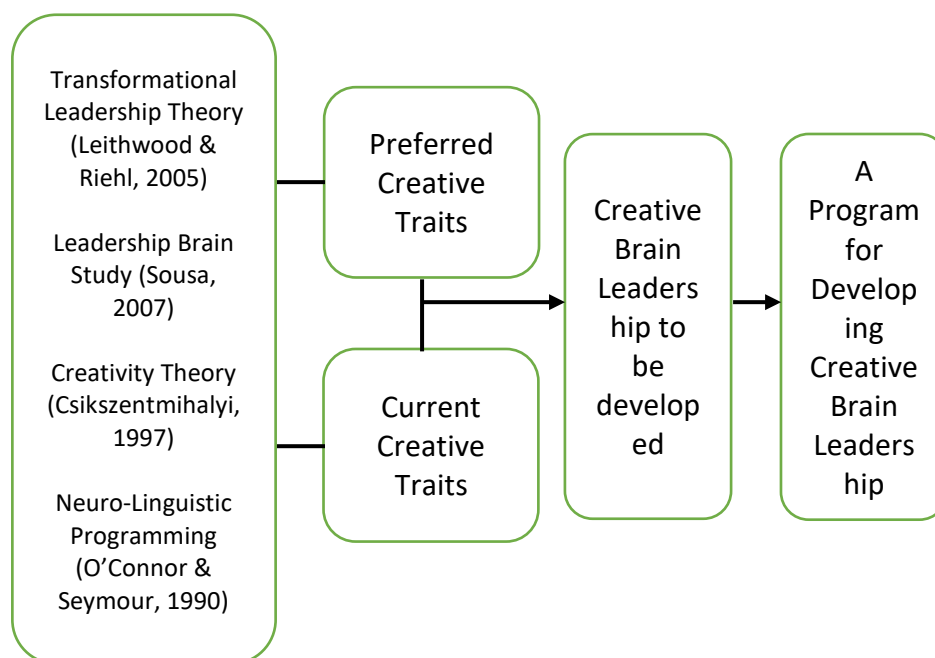
With limited resource and authority, the school principals have to become more creative in terms of leading and reforming their schools. There is a need to develop a creative brain leadership program to enhance creativity skills for educational leaders in Taiwan. In order to support the newly appointed principals (NAP) and the experienced principals as well, to develop a program for enhancing creativity skills related to the transformational leadership is very crucial to the education in Taiwan.

1. To explore the current context of creative traits of principals in Taiwan
2. To identify the preferred creative traits demonstrated by the principals in Taiwan
3. To develop a creative brain leadership program of enhancing principal's creative traits

The Conceptual Framework of the Study

The conceptual framework in this study is to develop a creative brain leadership program from cognition development and neuro-linguistic programming researches to enhance school principals' creative traits in order to apply better thinking and coaching skills at their work. From the theoretical framework, we know that if individual enhances his/her five major cerebral forces, it's going to help him/her solve problems or handle conflicts. Find out what the creative traits are among these principals, and developing a creative brain leadership program to help school principals increase their creativity skills at their work places. The conceptual framework is illustrated below, which shows the process of this study (See Figure 1).

Figure 1: Conceptual Framework



Review of the Related Literature

In this chapter, literature review includes part A, B, C, D and E. Part A contains the leadership theories, such as the transformational leadership, creativity, and brain leadership, part B includes brain theory, such as brain researches, brain gym and exercises. Part C

contains the education context in Taiwan. Part D is the Neuro-Linguistic Programming theory, and part E involves in research related, such as brain and leadership, overall school effectiveness research and the cognition development, in order to find out the connections between the creative principalship and the transformational leadership. Therefore, in this chapter, those theories, relevant concepts, and related research findings and results are discussed and presented through the following topics:

- A. Leadership Theory
 - a. Transformational Leadership
 - b. Creativity and Brain Leadership
- B. Brain Theory
 - a. Brain Research
 - b. Make Your Brain from Good to Great
 - i. Age-Proof Your Brain
 - ii. Brain Gym
- C. Education Context and Research in Taiwan
 - a. The Education System in Taiwan
 - b. The Education Reform in Taiwan
 - c. The Principalship in Taiwan
 - d. Educational Leadership Researches in Taiwan
- D. General Coaching Theory
 - a. Neuro-Linguistic Programming Theory
- E. The Related Research
 - a. The Brain and the Leadership
 - b. Overall School Effectiveness Research
 - c. The Cognition Development

Research Methodology

This study has applied two types of triangulation, which focused on the following questions:

1) What are the current context of creative traits of principals in Taiwan? 2) What are the creative traits preferred for a selected sample of Taiwanese principals? 3) What kind of creative brain leadership skills could be utilized to help boost the weak traits and enhance the strong traits? The methodological triangulation involving the use of both quantitative and qualitative methods were utilized. The data triangulation used different sources of information (elementary, middle and high school principals). The overall design of the study is focused as follows (Table 1).

Table 1: Summary of the Research Process

Research Objective	Source of Data or Sample	Data Collection Method or Research Instrument	Data Analysis	Expecting Result
To explore the current creative traits of principals in Taiwan	Book/ Documentary 312 school principals in Taiwan	Theory Reviews Questionnaire: the Assessing Your Creative Traits	Frequency and mean analysis based on a 5- point Likert scale, using mean to determine the lowest three traits	The current creative traits were identified.
To identify the preferred creative traits demonstrated by the	21 School Principals in Taiwan	Interviews using open-end questions generated based on eight creative	Qualitative content analysis of current research and practice	The difference was identified.

principals in Taiwan		traits		
To develop a creative brain leadership program of enhancing principal's creative traits	9 educational experts in Taiwan Results from the questionnaire and the interviews	- Applying the CREATIVE Brain Leadership Program to these 9 school principals - Seeking for their feedback and recommendations by answering interview questions	Focus group Content analysis of current research and practice	The CREATIVE Brain Leadership Program is developed.

Results, Discussions and Implementations

The perception data was determined in eight ways by 5-6 following statements: Flexibility, Passion of Work, Originality, Goal Setting Wide Range of Interests, Intelligence, Motivation, and Independence. Data was collected through 47 items in which survey described their behaviors using a 5-point choice scale that range from a 1 (Never) to a 5 (Always). The mean displayed in each table about their behaviors in performing creative traits (Table 2). The results of the research objective one showed that the lowest three traits are "Independence", "Originality" and "Wide Range of Interests".

Table 2: The Mean of the 8 Creative Traits

Creative Trait	Mean
Flexibility	4.04893
I'm willing to listen to unusual solutions offered by others.	4.29680
When looking for solutions to problems, I prefer variety to quantity.	4.25810
I constantly change to accommodate change.	4.20000
I try to give teachers and staff enough time to generate a variety of ideas for solving problems.	4.14190
I understand that the solutions to some problems may have to wait until the next school year.	3.39680
I am happy to implement solutions offered by others.	4.00000
Passion of Work	4.31667

I enjoy going to work each day.	4.41940
I am passionate about my work.	4.48060
I commit myself to those principles I believe in.	4.55480
I often lose track of the number of hours I spend on my job.	3.82580
I consider myself as an effective role model to my staff.	4.40650
I am persistent when it comes to solving problems.	4.21290
Originality	3.93280
I look for creative ways to solve problems.	4.13870
I encourage teachers and staff to explore new ways to solve old problems.	4.02580
I enjoy pursuing “what if” types of questions.	4.19680
I enjoy deviating from routine.	2.89680
I tend to get input from lots of sources when solving a problem.	4.17740
When forming a committee, I want to have a wide variety of views represented.	4.16130
Goal Setting	4.29570
I have a clear vision of my goals for this school.	4.57100
I communicate my goals for this school to the teachers and staff.	4.30970
The goals of our school organization are achievable within a reasonable time frame.	4.06450
I have a clear vision of this school’s mission.	4.47420
Major initiatives must be consistent with the school goals I have set.	4.12900
I am able to complete the work that is directed toward my goals.	4.22580
Wide Range of Interests	3.97330

I am curious about a lot of different things that can affect this school.	4.19680
Intellectual play is as important as intellectual work.	4.15160
I have a wide range of interests outside of my job.	3.75810
I can draw on my experiences outside my job to solve job-related problems.	3.92580
I support and give credits to others who have creative ideas.	4.46130
I seek out conventional solutions to problems only as a last resort.	3.34650
Intelligence	4.18117
I analyze potential solutions for their advantages and disadvantages.	4.24190
I display intellectual curiosity.	4.19350
I take chances.	4.28060
Listening to others is one of the most important parts of my job.	4.27740
I look at my work as play.	4.04520
When I have to solve a problem, I ask questions.	4.04840
Motivation	4.23600
I am passionate about my own ideas.	4.17100
I have self-confidence.	4.20970
I encourage others to understand my views.	4.10320
I share my ideas with others enthusiastically.	4.31940
I encourage people to challenge their ability, to go beyond what they think they can.	4.31290
By setting a good example, I move people to do good things.	4.30000
Independence	3.49484

I prefer to work alone.	2.79030
I am not comfortable with arbitrary rules.	3.70320
Site-based management makes a lot of sense to me.	4.14840
I enjoy taking risks in my job.	3.50000
I do not feel like I have to make the same decisions that my fellow administrators do.	3.33230

The results of research objective two are described below.

The finding from this group is that the lowest three traits are Independence, Wide Range of Interests and Flexibility. The scores of these three traits fall between 15.6 to 24. Another group of school principals were from the north of Taiwan. The results from the questionnaires show that their lowest four traits were Independence, Flexibility, Passion of Work and Wide Range of Interests. The number of principals whose have Passion of Work and Wide Range of Interests for their lower score was both a 3. The scores fall between 16.8 to 24. To compare these two groups, the only difference was that those principals who work in the north Taiwan have Passion of Work to be their weaker trait, while those in Changhua City/County don't (Table 3).

Table 3: The Weaker Traits of 21 Taiwanese School Principals

Area	Weaker Trait	Number of Principals	Score Range
Changhua Area	Independence	9	15.6-22.8
	Wide Range of Interests	5	19-24
	Flexibility	3	23-24
Northern Taiwan	Independence	11	16.8-24
	Flexibility	5	19-24
	Wide Range of Interests	3	22-24
	Passion of Work	3	23-24

Besides, finding out their weaker traits, the researcher also asked which traits these principals think are needed for their work (Table 4).

Table 4: The Preferred Creative Traits of 21 Taiwanese School Principals

Principal	Preferred Creative Traits - Prioritized
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Code				
ESC1	Originality	Flexibility	Passion of Work	*Wide Range of Interests
ESC2	Flexibility	Goal Setting	Passion of Work	
ESC3	Flexibility	Passion of Work	Originality	
MSC1	Passion of Work	Motivation	Goal Setting	
MSC2	Passion of Work	Motivation	Goal Setting	
MSC3	This principal couldn't decide the top three preferred traits.			
HSC1	Motivation	Goal Setting	Originality	
HSC2	Goal Setting	Motivation	Passion of Work	Flexibility
HSC3	Passion of Work	Motivation	Originality	
EST1	Goal Setting	*Passion of Work	Flexibility	
EST2	Intelligence	Motivation	Flexibility	
EST3	Goal Setting	Wide Range of Interests	Originality	Intelligence
EST4	Wide Range of Interests	Flexibility	Originality	
EST4	Wide Range of Interests	Originality	*Passion of Work	
MST1	Passion of Work	Motivation	Intelligence	
MST2	Passion of Work	Goal Setting	Intelligence	

MST3	Passion of Work	Goal Setting	Intelligence	
HST1	Intelligence	Goal Setting	Passion of Work	
HST2	Passion of Work	Goal Setting	Flexibility	
HST3	Goal Setting	Passion of Work	Motivation	
ES/MS/HS-Hsinchu	Flexibility	Passion of Work	Goal Setting	Intelligence & Independence

*Wide Range of Interests is one of ESC1's weaker traits. *Passion of Work is one of EST1's and EST5's weaker traits.

A finding from this table was that all the school principals would choose their stronger or strongest traits to be their preferred traits. There were only three school principals chose one of their weaker trait to be the one that they thought it's important to their job, and maybe to improve it.

The results from question one and two have shown that most of the Taiwanese school principals have hard time being creative at the school settings, being able to think outside of box when planning school events or programs, having difficulties to free themselves to try or learn new things, and being struggled to be more independent in terms of carrying out governmental projects (Sousa, 2007). The CREATIVE Brain Leadership Program is a tool that helps these school principals to be able to think from different perspectives and to find out solutions in a more efficient and effective manner. This CREATIVE Program is also helpful for school principals to apply for training their HODs and teachers, basically, it can be used as a coaching tool.

Researcher found that to enhance all these traits is to apply coaching skills to help people make clear visions of where they were and where they are heading to (O'Connor & Seymour, 2002). Applying Brain Gym exercises is another way of stimulating people's brain, helping people think outside of box, so they are able to find novel solutions. Researcher then applied brain researches in the field of creativity, brain gym and Neuro-Linguistic Programming to compile a program listed below and created a diagram to show the process of this program (Table 5) (O'Connor & Seymour, 2002; Sousa 2007; Brown & Fenske, 2011; Buzan, 2007). The following program was developed based on the research finding of literature reviewed. A Focus Group was established to validate the applicability of the program.

Title: CREATIVE Brain Leadership Program

C - Clarifying own creative traits

R - Reflecting on own behaviors when interacting with people

E - Enhancing weaker traits

A - Accelerating preferred traits

T - Targeting on solutions

I - Ignoring details of the problem

V - Verifying goals, options, and resources

E - Escalating to action to get achievement and celebrate

Table 5: CREATIVE Brain Leadership Program

Clarifying own creative traits				
Objective	Method/activity	Time/ Timeline	Assessment	Resource
To identify stronger and weaker creative traits	Assessing Your Creative Traits (Modified-bilingual) Sharing how they feel about the results Reflecting on their personalities and leadership styles	At the beginning of the training/ workshop (15-20 minutes)	Questionnaires to find out their traits Providing prompting questions to help participants understand the meaning of strong or weak traits	*The Leadership Brain - How to lead today's schools more effectively *Creativity Book *The Winner's Brain
Reflecting on own behavior when interacting with other people				
Objective	Method/activity	Time/ Timeline	Assessment	Resource
To be aware of self body languages	A. Videotaping one's interaction with the others Going through the clips and taking notes to see own self's behavior B. Or showing the participants a video with no volume to see if they can identify their emotions	After the participant finished the assessing creative traits (20-30 minutes)	Reflection paper Participants are required to write a short reflection after he/she analyzed the clips.	*Introduction of NLP *Neuro-Linguistic Programming Workbook for Dummies *NLP Workbook *The Winner's Brain
Brain Gym - Super Brain Yoga (3-5 mins, demonstrating how to do it and explaining why)/it could be other brain exercises, such as the 7-Minute Mind Makeover				
Enhancing weaker traits				
Objective	Method/activity	Time/ Timeline	Assessment	Resource
To create a better self awareness of the weaker	Looking into the details of the weaker traits, to review the definition of	After the first Brain Gym exercise (15-20	Post-test questionnaires Re-taking the Assessing Your Creative Traits	*The Leadership Brain - How to lead today's schools more

traits Originality Wide Range of Interests Independence Flexibility	these traits Applying prompting questions to redo the process mentally	mins)	after the training/worksh op	effectively
Accelerating preferred traits				
Objective	Method/activity	Time/ Timeline	Assessment	Resource
To identify the representational systems Passion of Work Goal Setting Motivation	Looking into the details of the stronger traits, to review the definition of these traits Applying prompting questions to recall the positive experiences mentally	After the enhancing weaker traits exercise (15-20 mins)	Post-test questionnaires Re-taking the Assessing Your Creative Traits after the training/worksh op	*The Leadership Brain - How to lead today's schools more effectively
Brain Gym - No dominant Hand Exercise (3-5 mins)/other brain exercises				
Targeting on solutions				
Objective	Method/activity	Time/ Timeline	Assessment	Resource
To find out solutions	Step One: Identify the goal Step Two: Identify the current situation Step Three: Identify options to move forward Step Four: Moving to action Moving to Verifying Goals, Options, Resources (G. O. R.)	After the second Brain Gym exercise (20-25 mins)	Written work on goals and current situation Participants will need to write down their goals, current situation, options they have, and the next step to put their plans in actions.	*Introduction of NLP *Neuro- Linguistic Programming Workbook for Dummies *NLP Workbook
Ignoring the details of the problem				
Objective	Method/activity	Time/ Timeline	Assessment	Resource

To be able to leave the problem's details aside	Redirecting the participants to focus on the solutions	Throughout the process of the training	Action plan Examining the participants' plans afterward	*Introduction of NLP *Neuro-Linguistic Programming Workbook for Dummies *NLP Workbook
Brain Gym - Drawing different shapes in the air (2-3 mins)/other brain exercises				
Verifying goals, options and resources (G. O. R.)				
Objective	Method/activity	Time/Timeline	Assessment	Resource
To create a plan to reach the goals	Applying the 9-Step: Positive: What do you want? Evidence: How do you know that you are succeeding/have succeeded? Specifics: Where, when and with whom? Resources: What resources do you have? Control: Can you start and maintain this outcome? Ecology: What are the wider consequences? Identity: Is this outcome in keeping with who you are? How do your outcomes fit together? Action plan: What to do next?	After the 3rd Brain Gym exercise (30-35 mins)	Complete action plan with reflection of their success Examining the participants' complete plans afterward	*Introduction of NLP *Neuro-Linguistic Programming Workbook for Dummies *NLP Workbook
Escalating to the action to get achievement and celebrate				
Objective	Method/activity	Time/Timeline	Assessment	Resource
To determine an action	Mapping out the steps of the action plan	After verified their goals	Observation and follow up meeting	*Introduction of NLP *Neuro-

plan	Specifying persons in charge Listing resources available	(15-20 mins)	Observing how the participants share their action plans with relevant staff Scheduling follow-up meetings, online discussions or observation dates	Linguistic Programming Workbook for Dummies *NLP Workbook
Brain Gym - Memory Activity (5-10 mins)/other brain exercises				
Final discussion - Feedback from participants, scheduling additional meetings/activities if needed (10-15 mins)				

**Time duration of this training/workshop: minimum of 2.6 - 3.5 hours, which could be divided into two sessions, 1.5 - 1.75 hours/session.

Researcher has described each step of this CREATIVE Brain Leadership Program in the following sessions.

Clarifying own creative traits:

If a leader understands his own creative traits, he could be more aware of when and how to perform a certain trait at a certain situation (Sousa, 2007). The assessment tool used in this research could be part of the NAP (Newly Appointed Principal) Training Course and/or HODs and Grade-level Teacher Leaders training courses to help the new school principals, HODs and teacher leaders to know themselves better in terms of being a creative leader to face and deal with all the changes in schools or the world.

Reflecting on own behaviors when interacting with people:

A good leader should build the awareness of how much his behavior would impact others' emotions, behaviors and performances (O'Connor, 2001; Brown & Fenske, 2011). Knowing your own body language and tonality and applying them carefully, will help build good rapport between you and others. If there is good rapport, there's trust. If there's trust, then you'll be able to create a Win-Win relationship and situation. As a school leader, it is important to help people determine 'Who we are'. Who you are determines what you see, how you see others, how you view life, and what you do (O'Connor & Seymour, 2002).

Enhancing weaker traits:

There are 8 creative traits in the leadership brain theory. They are Passion for work, the ability to mix personal and professional energy and enthusiasm, Independence, the ability to initiate and sustain autonomous thought and action, Goal setting, the ability to select a task and complete it, Originality, the ability to develop novel approaches in problem solving, Flexibility, the ability to adapt to new situations and ideas, Wide range of interests, shows interest in a variety of subjects and participates in events, Intelligence, beyond an IQ of 120, Motivation, the need to achieve in all attempted activities and to self-evaluate. With the definitions, we can help ourselves boost our weaker traits. There are certain prompting questions to help us think through the situations and find out alternative solutions to the issues. The final goal is to make sure that the school principals are not only showing certain creative traits more obviously. Ideally, they should show all the creative traits as much as

they can, which would reflect on their test results. If in each trait, they have reached 25 and above, that means they perceive themselves as always exhibiting this trait (Sousa, 2007).

Accelerating preferred traits:

In NLP the ways we take in, store and code information in our minds - seeing, hearing, feeling, taste and smell - are known as representational systems.

Seeing - Visual System

Hearing - Auditory System

Feeling - Kinesthetic System - External K: tactile sensations (touch, temperature and moisture)

- Internal K: remembered sensations, emotions, and the inner feelings of balance and bodily awareness, known as the proprioceptive sense, which provide us with feedback about our movements (vestibular system in the inner ear) (O'Connor & Seymour, 2002).

People experiencing strong inner emotions are also less vulnerable to external pain (O'Connor & Seymour, 2002). Our behavior is generated from a mixture of internal and external sense experience. What is surprising is that when we think, we tend to favor one, perhaps two representational systems regardless of what we are thinking about. We are able to use them all, and by the age of 11 or 12 we already have clear preferences. Many people can make clear mental images and think mainly in pictures. Others find this viewpoint difficult. They may talk to themselves a good deal, while others base their actions mostly on their feel for a situation. Therefore, in order to accelerate our strong/preferred traits to overcome our weaker traits, people have to understand themselves better, to know how they can create different and proper filters for different situations.

If you are a person tend to rely on pictures to retain information, it will be very helpful to create your own diagrams of graphics to help you think through plans, like a mental rehearsal. Some people prefer to go to the actual setting and feel the necessary materials before they can organize things accordingly, which indicated their preferred representational systems are both visual and kinesthetic. This strategy can be practiced from time to time, the more you know about yourself, the more creative you'll become (O'Connor & Seymour, 2002).

Targeting on solutions:

There are four steps that help us focus on the solutions, instead of the problem.

Step One - Identify the goal, and make it very clearly by asking the following questions,

- What do you want to achieve?
- If you had already met your desired outcomes, what would you see, hear, or feel?
- What do you want specifically?
- What does the outcome give?
- On a scale of one to ten, how important is it to reach this goal?
- If you reach your goal, how would you know?

Step Two - Identify the current situation by asking yourself these questions,

- What is the current situation now?
- Where are we today?
- What are the resources we have now?

Step Three - Identify options to move forward by thinking about the following questions,

- What have you tried so far?
- What has worked so far? What hasn't worked?
- What other options do you have at this time?
- What other options available at this time?

Step Four - Moving to action by considering these questions,

- What resources or support do you need to move forward?

- On a scale from one to ten, how close are you to reaching your goal? Ten means you have reached it.
- What do you need to do next to reach ten, if you haven't reached your goal?
- What do you need to do next, after reached ten?
- What is the first thing you need to do? What's the second thing you need to do?
- When will you take action on these points?

The more you practice these steps, the better you're going to be able to focus on solutions instead of problems. This process helps regenerate the connections in our brain. Applying positive and proper language to coach ourselves is a strong tool to change our behaviors and mindsets (O'Connor, 2001).

Ignoring details of the problem:

There are researches showing how human beings tend to be harsh on themselves (Ready & Burton, 2008). Most of people see the problems or troubles whenever they encountered one. It needs some practice to move from the negatives to the positives. Our brain is trainable if we give it a chance, besides, changing oneself is always easier than changing others. Leading by examples is based on this principle as well.

When coaching people, we need to ask questions that guide them to think about useful resources and options, possible solutions. The questions mentioned above are what we can ask while coaching our team members. Instead of asking, 'What's wrong?', 'How long has it gone on for?', 'When did it start?', 'Whose fault is it?', 'Why haven't you solved it yet?', it is much useful to think about problems in terms of contribution and ask (O'Connor, 2001):

'What was the other person's contribution towards that problem?'

'What was my contribution towards the problem?'

'How did those contributions add up to the problem?'

Verifying goals, options, and resources (G. O. R.):

The more you are clear with your goal, the more possible that you'll reach it. How to structure your outcomes? There are nine questions you need to ask when working with outcomes. These are known as 'the well-formed conditions'. When you have thought them through, then your outcome will be realistic, achievable and motivating. These conditions apply best to individual outcomes (Ready & Burton, 2008; O'Connor, 2001; O'Connor & Seymour, 2002)).

1. Positive: What do you want?

Outcomes are expressed in the positive. This is nothing to do with 'positive thinking' or 'positive' in the sense of being good for you. Positive here means 'directed towards something you want' rather than 'away from something you wish to avoid'. How do you turn a negative into a positive outcome? By asking, 'What do I want instead?' and 'What will this do for me?'

2. Evidence: How do you know that you are succeeding/have succeeded?

You will need to have a measurable outcome. There are two kinds of evidence: 1. Feedback as you progress towards the outcome. How will you know you are on track? 2. Evidence for having achieved the outcome. How will you know that you have got it? By asking:

'How will I know that I am on course towards my outcome? What am I going to measure?'

'How will I know when I have achieved this outcome? What will I see, hear or feel?'

3. Specifics: Where, when and with whom?

Where do you want this outcome? There may be places and situations where you do not want it. For example, you may want to increase productivity in certain departments only. When do you want it? It is important to have it in the right spot at the right timing. Here are questions you can ask yourself to be more specifically.

'Where specifically do I want this?'

'When specifically do I want this?'

‘In what context do I want this?’

4. **Resources:** What resources do you have?

Listing your resources, which fall into five categories, objects, people, role models, personal qualities, and money, some are more relevant than others, depending on your outcome.

5. **Control:** Can you start and maintain this outcome?

How much is under your control directly? What can you do and what do others have to do to get this outcome? Who will help you? How can you motivate them to actually want to help you rather than feeling they have to help you? Ask: ‘What can I do directly to get this outcome?’, ‘How can I persuade others to help me? What can I offer them that will make them want to help?’

6. **Ecology:** What are the wider consequences?

More questions to ask yourself:

What time and effort will this outcome need? Who else is affected and how will they feel? What will you have to give up when you achieve this outcome? What is good about the present situation? What do you want to keep? What else could happen when you get your outcome? The more you asked yourself these questions, the clarity of your vision will be higher.

7. **Identity:** Is this outcome in keeping with who you are?

This actually can be applied to both the individual and organizational level. To personal level, asked yourself, ‘What does working in this project accomplish for me?’ If the answer is to gain valuable experience, then there may be other projects, or training and consulting might be more suitable and valuable.

This is also true at the organizational level. Each company has its culture and a set of core values that define its identity. Company outcomes need to be aligned with this corporate self. Branding yourself based on something you’re inexperienced will not be a wise move.

8. **How do your outcomes fit together?**

‘How do you eat an elephant? One bite at a time.’ (O’Connor, 2001, p.p.15)

Any machine is made of small parts. Our expected outcomes could be big or small, but there are still parts in them. When the outcome is large, setting smaller outcomes could help overcome some obstacles. Ask yourself, ‘What prevents me from achieving this outcome?’ On the contrary, if the outcome is too small, you might lose your motivation and be stuck in the details only. Ask, ‘What does this small outcome get for me?’ Try to connect the details to the larger, more motivating outcome.

9. **Action plan:** What to do next?

Once you have gone through these questions, then you are ready to act or delegate. When working with a team, make sure you provide a bigger picture to the team members.

Therefore, they are able to connect their tasks with the larger project. You also need to provide support to them in order to help them think outcomes through for themselves, which will ensure that their tasks are aligned with yours.

Escalating to action to get achievement and celebrate:

Once you found out your own creative traits by using the creative trait assessment tool, you need to again, reflect on your own behaviors while communicating with people (Ready & Burton, 2008). Applying NLP strategies to enhance your weaker traits, such as applying mental rehearsals, and to accelerate the stronger traits. You have to focus on the solutions, not to be trapped in the problems or details. It will be very helpful to structure your outcomes based on what options and resources you have in the present moment. You will need to resolve your musts, find out the minimum/maximum times, and leveraging the pros and cons. The next step will be committing to the most important things and schedule them, listing out the timeline, the expected outcome of each goal, etc. It will be useless if everything is just on the paper, so get up and take action to complete and achieve your goals. It is also very

important to celebrate after you've achieved your goals, so you are able to get more energy (O'Connor & Seymour, 2002).

Recommendations

All of the nine school principals felt that this program should be in the Newly Appointed Principals training process and/or the training courses for Head of Department and Grade-level Teacher Leaders. After trying this program, most of them recommended to run it as a long term training course, not just a workshop for 3 to 4 hours. They recommended to offer this program to all the school principals regularly, both new and experienced. Especially, to those new principals' mentor, Master Principal, will be very useful. All of these principals would like to apply this program to their HODs and Grade-level Teacher Leaders to help them become potential school principals.

The program indicated in this dissertation should be an introduction workshop. There should be a lot of follow-up meetings, trainings, discussions after the initial workshop. These principals suggested that the Master Principal should also go and observe how the new principal implement his action plan, be able to provide feedback, or help him find and move to the right direction.

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A Research on the Expectations of University Students Going To the Fitness Center

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Abstract

Aim

The aim of this research is to examine the expectations of the individuals going to the fitness centers and the level of satisfaction of these expectancies.

Method

The research was prepared in a manner consistent with the relational screening model.

A survey form developed by Duran (2013) composed of data that includes the expectations of the individuals going to the fitness center and Personal Information Form that was designed by the researchers, have been used for collecting data. A total of 128 voluntary students participated in the study; 44 being female students (%34,38) and 84 being male students (%65,62).

For the analyses of the data; Portable IBM SPSS Statistics v20 package software was used. Since there is not a normal distribution of the data non-parametric tests were performed. Chi-Square test was used in pairwise comparison to explore whether or not expectations of the students differed in terms of personal characteristics. Significance level was accepted as 0.05.

Findings and Result

It is understood that the subjects participating in this study meet the expectations from the fitness centers. The level of education and knowledge of the trainers in the fitness centers were significantly higher in terms of female participants than male participants. It was seen that male participants were significantly more likely to perform sports than female participants.

Key Words: Expectations, Fitness Center, Students

A study of improving business students' financial literacy by using virtual stock exchange

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Abstract

While stock market is becoming one of the important parts in economic world, it is still unpredictable. Financial literacy, accordingly, is significant because it can consist of any program that addresses the knowledge, attitudes, and/or behavior of an individual toward financial topics and concepts. This study is attempted to exploit the techniques of big data to design a virtual stock exchange (VSE) to strengthen business students' financial literacy by accumulate their hands-on experience of stock trading. This research is a pilot study. This study would like to propose guidelines for instructors to visually diagnose students' investment achievement. It is expected that having a useful solution can help instructors lessen burdens as they evaluate students' achievements. Results of this pilot study help to create guidelines to design a complete experiment and serve as feedbacks for us to establish appropriate instruments. Besides, the results help academics and practitioners better understand the feasibility of the big data enhanced VSE based on the participant's perception toward its user interface.

Keywords: Big data, Financial literacy, Virtual stock exchange, Experiential learning

Introduction

When companies want to raise money, called capital, to expand their businesses or provide additional services, they may issue, or offer, stocks, bonds or both stocks and bonds for public sale. A stock offering invites investors to buy an ownership position in the company while a bond offering invites them to make a loan in exchange for the promise of repayment in full plus a certain rate of interest for the use of the money. Currently, three of the largest and most important stock exchanges are the New York Stock Exchange, the Stock Exchange in London, and the Tokyo Stock Exchange. The business of these exchanges is to serve as marketplaces for the buying and selling of stocks. To buy and sell stock, an individual usually needs to have an account at a brokerage firm, also known as a broker-dealer. When establishing a relationship with a brokerage firm, the individual has options in terms of how to place orders to buy and sell securities. One option is to give orders to a stockbroker at the firm who will execute instructions on your behalf. You may also want to trade with online through a trading platform, where the firm's technology systems route your order to the appropriate market or system for execution.

A trading platform is a software through which investors and traders can open, close and manage market positions. Trading platforms are frequently offered by brokers either for free or at a discount rate in exchange for maintaining a funded account and/or making a specified number of trades per month. If the shareholder decided he no longer wanted to own those stocks, he could try to sell them to another investor who might want to own part of that company. This is the essence of the stock market because it is where investors invest in new companies, or they buy and sell stocks (or shares) if they can agree on a fair price. With the advance of internet, individuals can now place orders directly through online trading platform. Online trading has given anyone who has a computer, enough money to open an account and a reasonably good financial history the ability to invest in the market. Individuals don't have to have a personal broker or a disposable fortune to do it.

So far, we know a stock exchange is a marketplace for the buying and selling of stocks, and a trading platform is a software for traders to place orders. However, to become a successful trader, it is crucial that individuals become familiar with the tools of trading, the theory behind it and the daily reports that drive market shifts. Like all businesses, the stock market operates on a system of supply and demand. When purchasing stock, a trader's hope is that other traders become more eager to own a share of that company over time. When the stock's popularity increases, traders will compete to own it and bid up the sale price. In theory, a rising share price is the result of improvements in the firm's value and potential, also known as its fundamentals. In reality, stock prices change for any number of reasons, only some of which investors are able to predict.

Learning to trade begins with education. Reading the news and financial websites, listening to podcasts and watching investing courses are all excellent ways to gather information. Joining a local investment club will give you the opportunity to discuss your education with more experienced traders. A list of some recommended resources is available at the end of this article. However, reading is no substitute for experience. A zero-risk way to practice new skills is with a virtual stock exchanges (Willis, 2008). Many virtual stock exchanges accordingly are proposed in order to create an environment so that traders could practice their how to correctly choose stocks (Hastings, Madrian, & Skimmyhorn, 2012; Hastings & Mitchell, 2011). In such case, undergraduate students might have sufficient opportunities to express their ideas, to practice their skills to choose an appropriate stock share.

In this study we were attempted to propose a solution for instructors to quickly and effectively assess students' performance of investment. It is expected that having a useful solution can help instructors lessen burdens as they evaluate students' achievements (Hu, Huhmann, & Hyman, 2007; Hung, Mihaly, & Yoong, 2010; Van Rooij, Lusardi, & Alessie,

2011). Briefly speaking, the framework of virtual stock exchange is the first step for students to improve their skills based on the feedbacks. However, investment has its proficiency. Many indicators used to evaluate an investor's competencies so that the students can receive constructive feedback and comments. This study would like to propose guidelines for instructors to visually diagnose students' investment achievement. Accordingly, the aim of study includes proposing a solution to sustain visual diagnosis, evaluating the feasibility and plausibility of the solution and suggesting the implications for practitioners.

Literature review

Generally, there are two main schools of thought regarding how to choose stocks. The first, called fundamental analysis, relies on the use of a company's financial reports and public statements to analyze the health of the business. Balance sheets, income statements, yearly and quarterly earnings, and news releases from the company are all important tools for a fundamental analysis. Fortunately, those reports are easily searchable online, as are tutorials on how to read them, such as those offered by stock exchange. Market and industry trends, media publications and historical analysis also play a role.

The second school of investing is called technical analysis. Technical analysts believe that swings in stock prices follow patterns that traders can learn to detect and profit from. Technical analysis is not as widely accepted or practiced as fundamental analysis. However, many traders use a combination of the two techniques to choose stocks. Choosing a company with sound fundamentals and then occasionally trading on a technical indicator is a safer strategy than relying only on technical indicators.

Online trading offers unique benefits. One of the clearest advantages of online trading is the reduction in transaction costs and high fees associated with traditional brick-and-mortar brokerage firms (Seaton & Boyd, 2008). Traditional brick-and-mortar brokers might require appointments, either online, over the phone or in person, just to initiate a trade. In the world of online trading, a lower cost does not necessarily mean a shoddy product. Many of today's online trading companies offer customers an impressive suite of tools to help optimize trades (Tao, Cheng, & Sun, 2009).

Although online trading has its enticing features, it has some negative aspects.

Easier to invest too much too fast: Because online trading is so easy — basically pushing a button — there is the risk of making poor investment choices or overinvesting. Although it takes just a nanosecond to make a trade, real investment decisions require time. Investors who are not used to fast-moving markets can get caught up in the excitement. Before they know what hit them, they can end up losing a lot of money. Online investors can protect themselves by understanding the stocks they are buying and setting up safeguards in fast-paced markets.

No personal relationships with brokers: By and large, online traders are on their own. They don't have a broker to help them navigate the uncertain waters of the stock market. From getting help on how to create an investment strategy to understanding how the results of feedback mechanisms affect the market, online traders are left to their own devices. For some, this kind of autonomy can be unsettling. Experts often stress the importance of research, particularly for new traders. You need to learn as much as you can about the companies in which you invest. Stock exchange filings are a great place to start. Public companies are required to submit detailed information to the stock exchange on a regular basis, including details about company finances, potential conflicts and risk factors. The public can access this information online.

Addictive nature: Trading stocks can be like gambling for some people. The trader speculates on the result of something — such as a company's performance — and then bets money that the speculation will be correct. Online traders can experience a certain high when trading that

is similar to what people experience when gambling. Some investors choose short-term trading strategies that involve investing in risky stocks offering the potential for large gains but also significant losses.

Before deciding to buy or sell any stock, you should thoroughly research the company, its leadership and its competition (e.g., Nurmi, *et al.*, 2009; Stewart, Osborne, & Read, 2009). Sites such as Yahoo! Finance offer excellent compilations of news stories, financial statements and stock price histories (called charts) that provide insight into the company. Stock sites also display professional analysts' ratings of a given stock, indicating whether that analyst advises a trader to buy, hold or sell a stock. Examining the records of those analysts may help you assign value to their opinions.

Taken together, it is believed that students could exploit the skills in a more effective way, as long as an appropriate support is available. In this study, we consider that a visual analysis that reflects how a student makes investment decision might be a solution. According to previous statements, students need to take care both fundamental analysis and technical analysis while choosing stock shares. That means students have to learn these analysis tools before making any decision. This can be a difficult practice for students because in real stock exchange a wrong investment decision means losing money.

Framework of virtual stock exchange

Based on Vygotsky's (1980) perspective, ZPD (Zone of Proximal Development) theory suggests that students would learn better when there are more skilled counterparts to emulate. Vygotsky's ZPD emphasizes his belief that learning is, fundamentally, a socially mediated activity. Vygotsky's scaffolding is assistance of some kind that enables students to complete tasks they cannot complete independently. More specific, students cannot do independently, but can do when helped by more competent individuals. It is the process of providing different levels of support, guidance, or direction during the course of an activity.

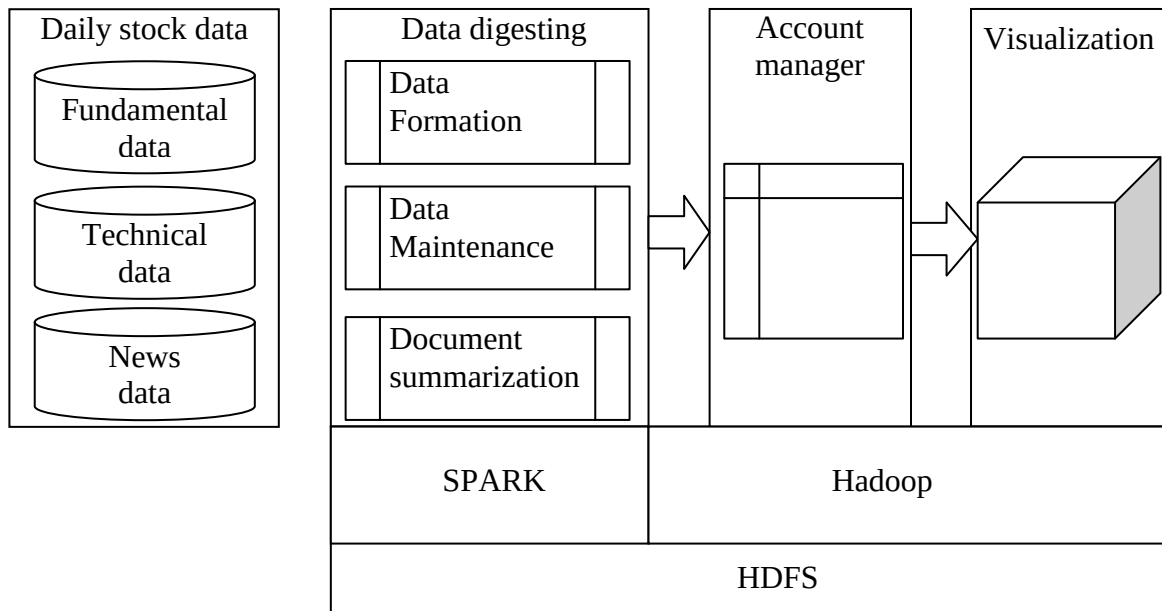
In this regard, suggesting a feasible and plausible solution for students to effectively receive feedbacks regarding their knowledge of fundamental analysis and technical analysis is significant. Visual analysis usually reveals much information for instructors and students because they can easily compare the achievement of the good and bad. As the comparison is easy, students might be able to quickly choose whom they can emulate, in order to improve their own skills based on the stereotype. In this regard, this notion is in line with Vygotsky's perspective.

The quickly growing trend of financial advisors utilizing advanced algorithms, is part of a much larger trend of our entire society using "Big Data" solutions for a diversified pool of needs, including predicting credit risk, demand for goods and services, querying social networks to gauge market sentiment, machine readable format company reports, discounts and advertising targeting as well as many more applications. By incorporating popular types of convergence averages and moving averages that have been traditionally used to forecast assets for many years with more sophisticated technology and genetic algorithms, professionals are now capable of building complex and intelligent algorithms that can make these predictions more accurate and efficient. Even when financial bubbles and market corrections lurk, a proper understanding of how the markets function plus a vigilant risk management strategy has always been necessary to survive in the financial wilderness.

Big Data, or extremely large data sets, are being extensively used to identify patterns, trends and predict the outcome of certain events. The data can be both structured and unstructured. An often associated definition of Big Data is in its 3Vs: Volume, Velocity and Variety (Laney, 2001). Volume relates to the amount of data being collected and storing it. Velocity is the speed with which the data is sent or received while Variety relates to the different formats of data in the market. Based on the 3Vs of big data, financial organizations and retail

traders can extract a great deal of information which help them in their trading decisions. With the help of big data it is easy to analyze the hot stocks as per how other people approach what stocks. In addition, with the help of big data and hadoop we have a map and reduce system with which we are able to deduce the interests of other people in respective stocks.

Figure 1. Framework of bigdata enhanced VSE



This framework is used to generate initial testing models over a test sample of data. The goal of this phase is to validate the accuracy of the algorithm as well as to fine-tune the fitness function, which represents the actual goal of the algorithm expressed as a mathematical function.

Conclusions

The purpose of this study was to first test the feasibility of using big data techniques in investment of stock shares. It is supposed to be useful because the way of visual analysis is intuitive and friendly so that it could be interesting to draw the participants' attention. Because the relative few chances for business students to practice their skills, an effective way for instructors and students to stimulate the learning achievement might be helpful. Not only the feasibility of the solution proposed in this study, but also its plausibility is the aim of this pilot study.

Every investor has their own strategy, such as particular fundamentals they tend to be fond of and level of risk they are willing to accept. These types of analysis alone are becoming outdated and more effective investing tools have become evident to lending a helping hand in increasing portfolio performance. The investment of stock shares have already recognized the benefits of these advanced mathematical models as they play a significant role in their ability to perform, regardless of the overall market environment. Computer-based algorithms, which can analyze many stocks simultaneously and determine quantifiable founded objective predictions, are becoming increasingly more popular to investors as an improved strategy for optimizing returns and mitigating prospective risk. There still is no flawless way of picking stocks but utilizing advanced algorithms based on Big Data predictive analytics in conjunction with reasonable risk management and fundamental analysis can potentially help improve portfolio performance for retail and professional investors alike.

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A study of piano teaching methods and learning motivation of Higher Normal Colleges in Shaanxi China

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Abstract

Since the art of piano playing has been developed in China, researchers have paid much attention to piano teaching in normal colleges. Piano teachers make every effort to continually influence students to study and innovate, and pay much attention to the enhancement of student's learning motivation. However, there are few empirical studies of piano teaching theory and its influence on students' learning motivation. Therefore, the aim of this research is to explore the teaching methods commonly applied, as well as the traits, advantages and disadvantages of those methods in order to determine if they can increase students' learning motivation. Interviews and questionnaires were applied to investigate piano teachers and students in three normal universities in Shaanxi Province, China, and the results show that direct instruction, demonstration teaching, practice method and discovery teaching were all methods used by the teachers. However, discovery teaching increased learning motivation much less than the other instructional approaches.

Key Words: normal colleges, piano teaching methods, learning motivation, direct instruction, demonstration teaching, practice method, discovery teaching

1. Introduction

Piano teaching has received much attention since the advent of modern pianos in early 18th-century Europe (Burkholder & Grout, 2014). Teaching students to play the piano in music education is a complex task, which is different from knowledge-based teaching. It can rather be described as practice-based teaching, which involves the history and interleaved mechanisms of many theoretical similarities and differences (Lai, 2016). China's piano education was born along with the wide spread of piano instruments. After a series of transformations, including the replacement of the old with the new, the baptism of internal and external wars, and the change in cultural education, piano teaching activities were regarded as being an important course in music education and were given the attention and opportunity for development (Qi & Xinjian, 2006).

The teaching contents and curriculum of China's musical education are currently undergoing an intensive reform program implemented by the Ministry of Education for the 21st Century. There is also a new round of the revised undergraduate catalog, which contains the formation and issue of teaching programs, thus providing an opportunity for the construction of a piano teaching system. This educational reform of the piano education course becomes more important because this course is not only an indispensable tool for teaching the art of music, but it is also essential for enhancing teachers' music education skills.

Xun , Defang, & Bo (2013) propose developing students' comprehensive musical ability and creativity with a special focus on attempting to build a multi-level, three-dimensional "Guidance" breakthrough "in order to teach and promote learning" This teaching model is intended to scientifically promote a change in teaching in order to establish a new, more reasonable and perfect music curriculum education system.

In response to China's 18 large Third Plenary report requirements for teachers: "to further enhance the level of ethics and professional level of teachers," teachers in Normal Universities need to improve their teaching level, cultivate and adapt to the new requirements of Education Personnel (Qinde & Xiaofang, 2013). It is time for piano teachers in normal colleges and universities to propose their concept of the requirements of new teaching methods. In piano studies at normal universities, there are students at all stages of preparation; at the same time, there are corresponding teaching methods to guide them to learn to play the piano. Self-monitoring and self-regulation cannot only greatly enhance the efficiency of piano learning for students in terms of learning to learn, but can also help to explore student's personal potential and enable them to better adapt to social development. Therefore, the aim of this study is to explore the advantages and disadvantages of teaching methods and their characteristics, and the relationship between teachers' 'teaching methods and students' learning motivation in higher normal universities.

Based on the purpose of this study, the corresponding research questions are as follows:

1. What teaching methods are commonly used by piano teachers in Higher Normal Universities in Shaanxi province of China?
2. What are the characteristics, advantages and disadvantages of the various teaching methods?
3. How do the teaching methods influence the learning motivation of students who are majoring in music education in Shaanxi normal universities?

2. Research Methods

The data for this study is collected using two methods, one of which consists of in-depth interviews. Since the professional-related issues of piano teaching are more abstract due to the particularity of the discipline, one-on-one non-structured interviews are considered to be more conducive to teachers' expressing their points of view. The other method consists of a questionnaire survey containing prepared questions based on the results of the interviews and literature to investigate the influence of different teaching methods on students' learning motivation. The survey will be based on convenience sampling and the feedback will be combined with the facts of self-evaluation. The questionnaires will mainly contain closed questions in a menu-style, which is conducive to quantitative statistics and processing. In terms of the framework of the study, the independent variables are gender, school, grade, age, and pedagogy. The teaching methods include lecture-based teaching, conversational teaching, instructive teaching, demonstration teaching, practicing teaching, law, practical

teaching method, problem-based teaching method, etc., and the dependent variable is the two motives for learning, namely, expectations and value.

2.1 Participants

Teacher groups: The participants in this study were 10 piano teachers from Shaanxi Normal University, Xianyang Normal University and Weinan Normal University.

Student groups: A total of 533 music students responded to the survey, including some from the above three colleges and universities.

2.2 Tools

The research tools for this study were interviews with teachers and a student questionnaire. The questions in the interviews related to the piano teaching methods used in normal universities and the student questionnaire as the "College Students' Piano Learning Motivation Questionnaire". This was based on the "motivation (motivated learning strategies) model designed by Pintrich et al (1989), who proposed that students' learning process comprises two elements, namely, motivation and cognition. They introduced a "Motivated Strategies" MSLQ for a Learning Questionnaire", translated from Chinese as a "incentive learning strategy scale", which included those two elements of motivation and cognition with the addition of a third element, namely, resource management.

Pintrich, Smith, McKeachie et al mainly based their motivation scale on the work of Eccles (1983) to put motivation into an "expectancy value" mode, and organized recent research on learning motivation. Thus, the construct of the motivation scale included the components of "value (value)" and "expectation" (expectancy). This scale was useful for measuring students' motivation for a general orientation course and it was duly revised by Jingji & Binglin (1992).

Since 1989, when Pintrich, Smith and McKeachie et al first compiled the "motivation scale" (Learning And Strategies for Learning Questionnaire) "MSQL" and the "motivation scale" have been developed and modified. This scale has become the most empirically supported theory; therefore, its structure is confirmed.

To meet the needs of this research, the MSLQ of the "motivation scale" becomes "MSLQ", and the motivation scale is adapted to measure students' motivation to learn to play the piano by analyzing the scale results. The scale consists of two parts, namely, expectation value, which contains "intrinsic goal orientation", "extrinsic goal orientation" and "work value". This part includes "learning control beliefs" and "self-efficacy" and "expectation of success". In addition to background information, students' motivation to learn to play the piano will be assessed using a five-point Likert scale, with which students are familiar. It involves the presentation of various statements and the respondents are required to state their level of agreement with those statements by choosing a level on the scale between 1 and 5 with higher scores indicating the greater ability of this teaching method to motivate students to learn. The questionnaire contains 12 such statements.

3. Analysis

3.1 Results of interviews with Teachers

10 piano teachers from three teachers' colleges in Shaanxi Province participated in a one-to-one interview to determine their degree of professionalism in adapting their teaching method to respond to the repertoire of students in the actual teaching process. Although there are seven methods of teaching students to play the piano, including the conversation teaching method, instructional method, demonstration teaching method, practice teaching method, appreciating teaching method, practice teaching method, discovering problem teaching method, the ones most likely to be used are the "instructional teaching method", "demonstration teaching method" and "practice teaching method", according to the results of the students' questionnaire survey.

Most of the teachers identified five teaching methods that they were most likely to use during the course of piano teaching and these were discussed in the interviews. The advantages and disadvantages of these five teaching methods and their influence on students' learning motivation are summarized below.

Table 1 Characteristics of Teaching Method and Influence of Learning Motivation

Method	Characteristic	Strengths & Weaknesses	Influence on learning motivation
Teaching method	This teaching method enables students to master the knowledge quickly	The advantage is that it is fast and clear to explain the knowledge and technical problems to students; the disadvantage is that the lack of interaction makes it difficult to mobilize students' enthusiasm and practical ability.	In terms of attitude, the ability of students to think and be motivated to learn is better than with other teaching methods
Guidance teaching method	The guidance teaching method can enhance students' perception, understanding and retention of what they have learned.	The advantage is that it is conducive for students to master piano playing skills and enable them to play skillfully; the disadvantage is that it is more abstract, which is not conducive for students' reflection.	Suitable for students who are strongly motivated to learn.
Demonstration teaching method	This teaching method is designed for difficult key teaching. It is intended to eliminate students' anxiety and feeling of rejection by deepening their impression of how to play the piano.	The advantage is that students can learn more about how to play, deepening their impression; the disadvantage is that the goal cannot be achieved quickly through the practice of learning objectives.	Can arouse students' interest in learning, giving them a strong motivation to learn.
Practice teaching method	This method is designed to enable students to achieve an in-depth understanding of the knowledge and cultivate the ability to play through repeated practice.	The advantage is that students can quickly master the essentials in the classroom; the disadvantage is that it is likely to cause fatigue and frustration.	Stimulates students' motivation to learn in a short time.
Discovery teaching method	This method enables students to take the initiative by asking questions, arouses their enthusiasm to study, enhances their ability to self-study and promotes a spirit of exploration.	The advantage is that it stimulates students to take the initiative, to reflect on the establishment of learning objectives and methods to resolve problems; the disadvantage is that it is likely to cause frustration and other psychological tension.	Most likely to stimulate students' motivation to learn.

Most of the teachers surveyed found that the "Discovery Teaching Method" and "Guided Teaching Method" were better able to stimulate students' motivation to learn in the classroom at the same time, so that students recognized the defects and problems in their piano playing, thus stimulating their motivation to practice more. Lin Ying, a teacher from Weinan Teachers' College, said: "Discovery teaching in the classroom can be more intuitive so that students learn about their shortcomings and errors and then take the initiative to consciously solve their problems, thus stimulating the power of learning to play the piano."

Meanwhile, Li Liang, a teacher from Xianyang Normal University, observed that, when using this teaching

method, "the piano teacher can mobilize students' enthusiasm to learn by assisting them to analyze the learning content and find their own level of understanding to achieve deep-seated learning." The strength of the interaction between teachers and students means that students are fully integrated into the learning process, which helps to inspire and motivate them to play the piano.

Some of the teachers believed that the "demonstration teaching method" was best able to motivate students to learn to play the piano. Teaching based on demonstration can motivate students and arouse their curiosity and imagination, but capacity is also a challenge for the teacher.

According to Ma, a teacher from Shaanxi Normal University,: "this is one of the most commonly-used teaching methods to stimulate students to learn to play the piano. They listen to the teacher and observe the repertoire with the awareness of a specific image. This not only enhances the aestheticism of the music, but teachers also like to play, so this stimulates students' desire to learn to play and increases their thirst for knowledge; therefore piano teaching cannot exist without demonstration teaching."

The "conversational teaching method" was judged to more easily make students lose their motivation to study compared to other teaching methods and it was perceived to lack the ability to stimulate students' enthusiasm to learn the piano curriculum. Zhang Lige, a teacher from Weinan Teachers' College, proposed that "teachers can use the conversational method to communicate properly with students, but talking is not the most effective method to motivate them to learn to play the piano.

3.2 Reliability and validity

In this study, the Cronbach α coefficient was 0.915, and the Cronbach α coefficients were 0.866 and 0.856, respectively. Since these were all within an acceptable range, the various factors were found to be reliable and representative.

Table 2 Reliability of piano learning motivation

Variables	Cronbach alpha coefficient
Value part	.866
Expected part	.856
Gross Scales	.915

Based on the collected valid questionnaires, the KMO values of the student value component and the value component were 0.884, respectively. Barlett's spherical test was significant, showing a significant relationship among the variables and the number of factors selected in this study. The total factor was 65.603%, and the expected value was 0.886. After extracting four factors, the total explanatory variable was 60.811%.

3.3 Analysis of Questionnaire

485 of the 533 questionnaires distributed were completed and returned and found to contain valid answers, giving a retrieval rate of 90.9%. Based on the responses to this piano learning motivation questionnaire, the students' background factors were firstly subjected to a statistical analysis and the results are shown below.

Table 3 Statistical analysis of background variables

Variables	Group	Number of people	Percentage
Gender	male	138	29.2%
	Female	335	70.8%
School	Shaanxi Normal University	163	34.5%
	Weinan Normal University	190	40.2%
	Xianyang Normal University	120	25.3%
Teaching method	Teaching method	69	14.6%
	Guidance teaching method	126	26.6%
	Model teaching method	118	24.9%
	Practice teaching method	96	20.3%
	Discovery teaching method	64	13.5%

The questionnaire data was then analyzed using a one-way ANOVA, and significant differences were found in the intrinsic goal orientation of using different teaching methods, as shown in Table 4 below.

Table 4 Target-oriented ANOVA analysis of the effect of different teaching methods

Teaching method	Mean	Standard deviation	<i>F</i>	LSD test
A Teaching	3.7246	.75749	2.855*	A>E
B Guidance	3.7460	.76222		B>E
C Model	3.6843	.63163		C>E
D Practice	3.7682	.63167		D>E
E Discovery	3.4297	.63382		

* $p < .05$

The intrinsic goal orientation of using different teaching methods was $F=2.855$, $p < .05$. This indicated that the method of discovery learning could best enhance students' motivation to learn as opposed to other teaching methods. The extrinsic goal orientation according to the LSD method is shown in Table 5 below.

Table 5 ANOVA analysis of the effect of different teaching methods on extrinsic goal orientation

Teaching method	Mean	Standard deviation	F Value	LSD test
A Teaching	3.3659	.98573	3.752**	A>E
B Guidance	3.4782	.77073		B>E
C Model	3.6335	.66158		C>E
D Practice	3.7786	.68908		D>E
E Discovery	3.5742	.70102		

* $p < .01$

The extrinsic goal orientation using different teaching methods was ($F=3.752$, $p < .05$), showing a significant difference compared to the LSD method, but the method of discovery learning could still motivate students to learn more than other teaching methods.

According to the data analysis, the use of different teaching methods made no significant difference to "work value" ($F=2.418$, $p > .05$). The results of the ANOVA analysis in terms of using different teaching methods to affect "internal control beliefs" are shown in Table 6 below.

Table 6 Analysis of different teaching methods on internal control beliefs

Teaching method	Mean	standard deviation	F Value	LSD test
A Teaching	3.3768	.98856	3.180*	C>A
B Guidance	3.4921	.77778		D>A
C Model	3.6377	.65257		D>B
D Practice	3.7604	.69766		E>A
E Discovery	3.5977	.72047		

* $p < .05$

There were significant differences in the ability of different teaching methods to affect "internal control beliefs" ($F=3.18^*$, $P < .05$). The demonstration method was found to be better than the teaching method, the practice method was found to be than the teaching and guidance method, and the discovery method was found to be better than the teaching method.

The results of the ANOVA analysis of the effect of using different teaching methods on students' "self-efficacy" are shown in Table 7 below.

Table 7 ANOVA analysis of the effect of different teaching methods on students' self-efficacy

Teaching method	Mean	Standard deviation	F Value	LSD test
A Teaching	3.4420	1.00472	3.022*	C>A
B Guidance	3.4861	.77994		C>B
C Model	3.6992	.66951		D>A
D Practice	3.7566	.69851		D>B
E Discovery	3.5977	.72322		

* $p < .05$

There was a significant difference in the effect of using different teaching methods on students' "self-efficacy" ($F=3.022$, $p < .05$). According to the LSD post-test comparison, the demonstration method was better for motivating students to learn than the teaching and guidance method, and the practice method was better than the teaching method and demonstration method.

The results of the ANOVA analysis of the effect of different teaching methods on students' "expectation of success" are shown in Table 8 below.

Table 8 ANOVA analysis of the effect of different teaching methods on students' expectation of success

Teaching method	Mean	standard deviation	F Value	LSD test
A Teaching	3.7391	.73068	2.650*	A>E
B Guidance	3.7183	.80249		B>E
C Model	3.7097	.61842		C>E
D Practice	3.7500	.63867		D>E
E Discovery	3.4258	.63882		

There was a significant difference between the effect of different teaching methods on students' "expectation of success" ($F=2.650$ $p < .05$) compared with the LSD method. The method of finding problems was found to motivate learning more than other teaching methods.

Based on the questionnaire analysis, there were significant differences in the learning motivation variables among the five kinds of piano-teaching methods after a post test. Because the work value was removed because of these differences and the external locus of control was not significant, there were also significant differences among the other variables.

A cross-comparison analysis was made based on the qualitative analysis of the data from the interviews

and the quantitative analysis of the questionnaire data. This was divided into two aspects. Firstly, the most commonly-used piano teaching methods in Shaanxi normal colleges were found to be guidance, demonstration, practice, teaching and discovery. The results of the teachers' interviews and the students' questionnaires were basically identical. Secondly, the ability to motivate students to learn was found to be based on teaching methods.

Table 9 Summary

Method	Teacher interview	Student questionnaire
Teaching method	The teaching method is able to strongly motivate students to learn.	In terms of motivation to learn, the teaching goal, intrinsic goal, external goal orientation, and expected, this method success is better than the discovery method
Guidance teaching method	The guidance method is suitable for students who are already strongly motivated to learn	In terms of learning motivation, the guidance method is better than the discovery method
Demonstration teaching method	This method can stimulate students' interest in learning and arouse a strong motivation to learn	In terms of learning motivation, intrinsic goal orientation, external goal orientation, and expected success, this method is better than the discovery method
Practice teaching method	Practice can stimulate students' motivation to learn in a short time	In terms of learning motivation, intrinsic goal orientation, external goal orientation, expected success, this method is better than the discovery method
Discovery teaching method	The discovery method is the most likely to stimulate students' motivation to learn	The discovery method is superior to the teaching method in terms of control belief

4. Discussion and suggestions

In this study, 10 piano teachers from three normal universities in Shaanxi province participated in one-to-one interviews to discuss the various teaching methods they currently use. Teachers will normally choose a suitable teaching method based on their own conditions or track requirements, but the most frequently-used methods were found to be the guiding teaching method, the demonstration teaching method, practice teaching, the teaching method and the discovery teaching method. The less used methods were the conversation teaching method, the appreciation teaching method and practice, and the practice teaching method. The interviewees generally agreed that the conversation teaching method was ineffective in terms of teaching students to play the piano, since it was not conducive to mobilizing their enthusiasm or stimulating their motivation to learn.

The appreciate teaching method was less likely to be used in the daily teaching of the piano, especially because poor students could not be expected to significantly improve their appreciation of piano works to reach the required level. It was only suitable where there was a need to improve the expression of the music repertoire.

In terms of the practice teaching method, this was deemed to be unsuitable for most normal university students with a weak foundation. Firstly, practice teaching requires students to have a good performance level and a mature repertoire. They can then practice for a longer period to improve. Therefore, using this method for daily teaching has little effect because students tend to motivate their own incentive to learn (Yawen J, 2003).

485 valid students' questionnaires were collected. The questionnaire was based on asking the students,

"what kind of teaching method do you usually find acceptable in piano lessons?" 26.6% of the respondents chose the guidance teaching method, 24.9% chose the demonstration teaching method, 20.3% chose the practice teaching method, 14.6% chose the teaching method, and 13.5% chose the discovery teaching method. This was consistent with the results of the teachers' interviews, when it was found that the most commonly used teaching methods were guidance, followed by demonstration, and once again, practice.

The research objective was to determine which piano teaching methods teachers in Normal Universities in Shaanxi province generally utilize to increase their students' motivation to learn, reduce their lack of interest and give them a deep understanding of the topic they are learning, which simply equates with learning motivation.

The results of the questionnaire survey showed that each teaching method was different in terms of the two dimensions of learning motivation, and the influence of the variables was different. Individual teachers thought that the "discovery teaching method" could make students aware of their lack of learning in a short period of time, and this would stimulate their motivation to learn and practice. However, the results of the student questionnaire indicated that the "discovery teaching method" was less effective than the other teaching methods in terms of the three variables related to "internal and external goal oriented" and "expectation of success". The students thought that the "discovery teaching method" would affect their self-confidence in learning to play the piano, or would have no significant effect on goal orientation and learning to play the piano. Therefore, it is worth piano teachers reflecting on the use of heuristics in the process of teaching and the teaching method of encouragement, since it seems that the discovery teaching method can easily damage students' self-confidence and enthusiasm if it is not used carefully.

Based on the results of this study, some suggestions can be made for the teachers' colleges and the piano teachers: 1. 2 schools to encourage teachers to communicate and learn. 3 increase the all-round motivation of students. 4 to create a good campus academic atmosphere.

In terms of suggestions for future studies, these could be based on the systematic research of the overall influence of the piano teaching methods used in domestic normal universities on students' motivation and future learning problems. This could verify the effect of the teaching method or use of experimental teaching on students' learning motivation to propose better teaching methods for future piano teachers. In addition, in-depth research could also explore piano teaching in comprehensive universities in each area or professional music schools in order to understand whether different problems in different regions influence students' motivation to learn in piano education.

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ADMINISTRATIVE AND FINANCIAL CHALLENGES ENCOUNTERED BY THE PUBLIC UNIVERSITIES IN SRI LANKA.

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ABSTRACT

The heralding of the university system in Sri Lanka with a single university in 1942, currently comprises of 15 universities. The University Grants Commission being its pinnacle. This paper will explore and critically review the pressing administrative and financial issues in public universities in Sri Lanka.

Unlike in advanced higher education systems in the Commonwealth countries, there is no normative funding system for public universities. Instead the recurrent funding among individual universities is immensely based on historical levels and the capital funding is based on negotiations between individual institutions.

Attracting a pool of talented staff is a major issue. Offering low basic salaries hinders the advent of talented MBA/engineering degree holders whereas private sector rich with attractive salaries and fringe benefits is in the forefront.

Figures reveal that the percentages of those who left were more than those appointed in years 2011 and 2013 in the Administrative, Finance and Administrative Others category. 10% left due to resignation.

The present management and administrative capacity of universities are comparatively underdeveloped in recently established universities in the lagging regions. Sadly till 2013, there were no professors in the Uva Wellassa and South Eastern Universities.

Providing spacious offices and absenteeism are other pressing concerns.

Keywords: Administrative, financial, challenges, public universities, Sri Lanka

Introduction

The roots of the modern university system in Sri Lanka dates back to 1921 when a University College, the Ceylon University College was established at the former vicinities of Royal College, Colombo affiliated to the University of London. However the beginning of modern Higher Education in Ceylon was in 1870 when the Ceylon Medical School was established.

At present, the university system in Sri Lanka beginning with a single university in 1942, currently comprises of 15 universities operating under the Universities Act

No: 16 of 1978. At the pinnacle of this system is the University Grants Commission (UGC). Thus the university system in Sri Lanka continues to exist with all of the typical problems of a state owned monopoly.

This paper will explore and critically review the pressing administrative and financial issues in Public Universities in Sri Lanka.

Methodology

This assignment draws heavily from UGC's statistical reports and uses annual report data and tables published by various public universities of Public Universities in Sri Lanka. Further The Towers of Learning: Performance, Peril and Promise of Higher Education in Sri Lanka, South Asia Region, World Bank, book too was immense help to gather data.

Review of Related Literature

In a study by Chandrasiri (2003) government expenditure on Higher Education was found as 0.53 of the GNP. Further the increase in expenditure on Higher Education was 1.8 times between the years 1983 and 1997. Besides, this is quite low by the standards of developing countries, particularly compared with the Asian region countries.

For example, in 1995, the commitment of public current spending on Higher Education was 12.2% of total public current spending in Sri Lanka as against 13.7%, 13.2%, 19.4% and 16.8% by India , Pakistan, Thailand and Malaysia respectively (UNESCO, 1998 cited in Chandrasiri, 2003)

Thus it is necessary that alternative sources of funding covering both public and private sector need to be developed at least to maintain the present status of the Higher Education sector in Sri Lanka.

Further the University Education system in Sri Lanka is confronted with severe dearth of quality inputs such as libraries, laboratories, scientific equipment, science, medical and engineering equipment and materials.

According to Chandrasiri (2003), his findings reveal these important points: Firstly as the cost structure of Universities is heavily influenced by remuneration to both academic and non-academic staff and hence it is less responsive to cost control measures.

Secondly, Universities in Sri Lanka have been heavily dependent on state funds and have put little effort in generating income from non-government sources.

When consider recurrent expenditure, it comprises four major cost items: general administration and staff services, academic services, welfare services and maintenance services. Cost per student will decrease as the student enrolment increases due to economies of scale. Thus according to work by Chandrasiri (2003), it has been found that the quality and commitment of non-academic cadres have deteriorated significantly as they are least affected by modern management techniques and continue to function in a protected segment of the labour market. For instance, half of available vacancies for promotion are reserved for internal staff and they are heavily protected by University sector Trade Unions.

In addition this study reveals that a 10% increase in non-academic staff may increase the unit cost of undergraduate programmes by 6%. Even after contracting out some incidental secondary activities such as janitorial and security services, there has been a disproportionate increase in non-academic cadre costs of universities over the past.

When consider capital expenditure, this study done by Chandrasiri (2003) bring to light that the resource allocation mechanism is highly centralised and inflexible as the central government allocates a block grant to the UGC on annual basis to be distributed among universities based on normative criteria. For instance one challenge the Dean, Head of a department or a Senior professor faces is s/he has no power to hire a research assistant even on temporary basis. Further a Dean or Head has less authority to approve a payment (can approve payments only up to Rs10000 and Rs7500 respectively) whereby triggering massive delays and discouraging development oriented initiatives at the faculty and departmental level. The works of Chandrasiri (2003), further suggests, that each department should be given freedom to use the internally generated resources on approved items for the improvement of quality of Education without much restriction.

Since Universities are faced with severe dearth of funds, University Education is heavily underfunded. Five different sources of revenue generation are suggested in the works carried out by Chandrasiri (2003), namely students and their parents, industries/services, alumni and other philanthropists and international sources. International experience varies from country to country with respect to the use of these strategies.

The use of tuition fees as a strategy to shift costs from the government to students/parents has been in place in many developed and less developed countries. Evidence also shows that every year at least 2500 students from Sri Lanka go abroad for Higher Education by paying full educational expenses in foreign currency.

Studies done brings to light that demand for education quality is greater among the wealthy households, families with better educated parents and those with fathers in higher level occupations.

And such findings impart evidence in support of cost sharing mechanisms to generate additional funds.

In addition, more and more developing countries like Vietnam, Chile, Jordan and Republic of Korea have been swinging costs from the tax payer to parents and students in the form of tuition fees. These countries share of income from student fees account for 22%, 36%, 40% and 46% of recurrent expenditure respectively¹.

Furthermore, work done by Chandrasiri (2003) reveals that the composition of University entrants shows that at least 25% of them are upper middle and high income segment of the population and the students from these families are in a position to share the private costs of University Education. In fact the top 20% of income receivers in Sri Lanka account for 53% of total national income. And hence the introduction of cost-sharing mechanisms would be a positive step towards expanding University Education by reallocating subsidies granted to wealthy socio-economic groups to the poorest. In this context, a student loan scheme is another strategy by which costs could be shifted to users, while maintaining accessibility. According to the world bank report, in 1994, developed and developing countries have used this approach although their experiences have been disappointing. The positive experience of countries like Columbia shows that such mechanisms are effective with suitable collection schemes and with appropriate interest rates.

Another option for this is mobilization of donations and endowments from alumni and private industry. Further international cooperation is one of the most important non-government funding source. However, this cannot be treated as a system wide initiative as it is limited only to a few faculties of well established universities.

Entrepreneurial orientation at University level is another potential avenue for non-governmental funding, as it fosters the development of a market oriented institutional culture and helps to establish cooperative links with the industry in terms of training opportunities for students etc. But this was seriously kerbed by various administrative and financial regulations.

¹The Towers of Learning: Performance, Peril and Promise of HE in Sri Lanka, SAR Region, World Bank: July 2009

Findings

The Ministry of Higher Education (MHE) and the University Grants Commission (UGC) are faced with a superfluous administrative workload due to the number of operational decisions that need to be taken, and this ultimately limits their time and attention for high level policy matters. Entrepreneurialism, initiatives and creativeness are reduced in universities because of central controls and the prerequisite to obtain approvals. Delays can also accumulate while the central institution makes decisions.

For instance, when a teacher or an officer is applying for leave s/he should submit the application to the Academic Establishments Branch of the respective University, one week before the departure and this application should be submitted to the UGC two weeks before the departure, thus a leave application needs to be submitted at least three weeks ahead the departure date and such approvals that need to be taken might put the respective teacher or officer not accepting a valuable training opportunity etc in the event when s/he is informed about it at the last minute. Further external activities such as postal delays will aggravate the situation worse. Thus this is an issue faced by public universities that needs to be addressed.

Similarly new projects that need to be approved takes a longer time to get the approval from the relevant authorities mainly from UGC.

Secondly, although the governance of universities is built on the commonwealth model, it has missed some of the modern developments which are considered and included in this model. For example, unlike in more advanced higher education systems in the common wealth countries like UK, Australia and Canada, there is no normative funding system for public Universities in Sri Lanka. Instead recurrent funding among individual universities is largely based on historical levels and capital funding is based on negotiations between individual institutions.

The institutional structure of Higher Education Institutions(HEI) in Sri Lanka is characterized by a greater degree of involvement by central authorities than is common in more advanced higher education systems in other countries. As a result, the present management and administrative capacity of universities are comparatively weak and underdeveloped, particularly in the case of more recently established , new universities in the lagging regions, like northern and eastern province.

One administrative concern that University staff considers as extreme central control is the centralized administrative service which allows the administrative staff to be transferred within the university sector.

Thus the staff changes table, Figure 2 shows that transfers have occurred in the years 2013 and 2014, only in Administrative, financial & admin other category, not in other categories of staff.

This is 20% and 50% out of those who left in the years 2013 and 2014, which is a considerable amount that needs to pay attention. Furthermore, UGC has detailed control over all staff appointments below the level of Assistant Professor, Registrar and Bursar.

	2011		2012		2013		2014	
	New Appointments	No. Left	New Appointments	No. Left	New Appointments	No. Left	New Appointments	No. Left
Academic	24	19	29	22	32	14	22	15
Academic Support	6	4	4	5	7	1	10	6
Administrative, Finance, Administrative others	4	9	11	8	4	10	8	6

Figure: 1 Staff changes at University of Colombo during the years 2011-2014

Source: Annual report – University of Colombo

	Academic		Academic Support		Administrative, Finance, Administrative others	
	2013	2014	2013	2014	2013	2014
Transfers	-	-	-	-	2	3
Release	1	1	-	-	-	-
Retirement	-	11			7	1
Resignation	9	3	1	5	1	2
Vacation of post	2	-	-	-	-	-
Termination	-	-	-	-	-	-
Interdictions	-	-	-	-	-	-

Figure: 2 Staff changes(in detail) at University of Colombo during 2013 and 2014.

Source: Annual report – University of Colombo

Further Sri Lanka underinvests in Higher Education in comparison to middle-income countries and other developing countries, whereby a substantially smaller portion of Sri Lanka's wealth and a smaller portion of its total public budget is spent on education than its competitors².

Asian countries as a whole under-invest in education. Despite the fact, Sri Lanka invests less in education than the South Asian average. Since Sri Lanka faces a different fiscal environment in the contemporary global economic context, there is less room to expand public funding for the higher education sector over the short run.

Another issue most public universities are confronted with is attracting a pool of talented staff. For instance, the Works Engineer or a Junior Executive officer starts with a basic salary of Rs 26020. Such low salaries are difficult to attract a person who has an engineering degree or a MBA holder to the post of Junior Executive category, as the private sector offers more fringe benefits and attractive salaries for the same qualifications. As a result, lack of adequate talented professionals exist in the public university system.

According to the staff changes table, Figure 1 & 2, it shows compared to the new appointments done in the Administrative, Finance & other category, more than those who were appointed in the years 2011 and 2013, the percentages of those who left are more. Furthermore Figure 2, reveals, out of those who left 10% have left due to resignation. This percentage has increased to 33% in the year 2014 in this category of staff. Besides another reason these staff changes occur as all these staff categories seek for greener pastures.

² The Towers of Learning: Performance, Peril and Promise of HE in Sri Lanka, South Asia Region, World Bank: July 2009

	2011	2012	2013
University of Colombo	16.6	19.9	18
University of Peradeniya	16.4	17.6	17
University of Sri Jayawardanepura	16.1	17.1	17.8
University of Kelaniya	21.4	20.8	19.4
University of Moratuwa	15	16	14.2
University of Jaffna	11.1	9.7	6.1
University of Ruhuna	12.9	15.7	14.1
Eastern University of Sri Lanka	1.1	1	0
South Eastern University of Sri Lanka	0	0	0
Rajarata University of Sri Lanka	3.7	3	2.7
Sabaragamuwa University of Sri Lanka	5.5	4.5	3.6
Wayamba University of Sri Lanka	11.4	9	7.7
Uva Wellassa University of Sri Lanka	0	0	0
University of Visual & Performing Arts	8.1	9.6	11.5
Open University of Sri Lanka	6.2	6.5	6.9

Figure3- Professors as a percentage of the academic & academic support staff

The Figure 3, shows few numbers exist as professors in the public university system. Further according to the data till the year 2013 there were no professors in the Uva Wellassa University and South Eastern University. In addition when consider lecturers who are PhD holders, professors including senior professors and associate professors another problem is they seek for greener pastures as foreign countries offer more lucrative opportunities for them than Sri Lanka. Further when consider University of Peradeniya, the data reveals that 17% professors exist out of the whole academic and academic support staff category, which is a very small population for a reputed well established university in Sri Lanka and in the world. Further the data shows that this value has reduced from 17.6% which was recorded in the year 2012.

Similarly, at the University of Moratuwa who produces mostly engineering graduates, the academic staff which consist of PhD professors have decreased from 16% to 14.2% in the years from 2012

to 2013, which is a vast shrinkage. Thus it shows more and more qualified staff seek greener pastures as they offer lucrative salaries, which is a major challenge that the administrators have to deal with.

Refer annexures I, II and III

In addition, another significant administrative challenge is the staff changes that occur in the public universities in Sri Lanka. When analysed it can be seen that most staff changes due to retirement has caused a major problem in the public university system. For instance, in the year 2014, in University of Colombo 73% of those who left with respect to the academic staff is due to retirements. Thus every year a major portion of educated PhD holders, i.e. professors retire due to completion of 65th birthday. Although lecturers are recruited as probationary etc to fill these cadre positions, it is difficult to find suitable persons that of similar to those who retired, which is a major challenge which the administrators have to address at the present context.

Further it has been also observed that those who go on study leave do not come back after completing their respective study periods in foreign countries. Thus another administrative issue that administrators are faced with is to find another suitable person to fill the cadre position, which ultimately results in more financial cost burden and time consuming activities to the university as to advertise, shortlist, interview etc. apposite persons to that post.

Also with the continuously increase of enrolment of students and introduction of modern course units with the staggering and synchronising of batches in the same faculty and examinations being conducted on a semester basis, it has been extremely difficult to accommodate all these exams in the present halls. Most of the time, in some universities due to space problems, examinations have to be conducted during vacation period of other faculties or by cancelling lectures in order to use the lecture halls for examinations. These ad-hoc arrangements have had a negative impact to students which is another issue faced by administrators of most established universities with regard to providing accommodation facilities.

Year	1990	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
Student - staff ratio	13.9	14.1	14.6	15.5	15.0	15.8	16.2	16.6	17.6	17.1	17.8

Figure4: Student staff ratio in University education

Source: University Statistics 2013, UGC

As this Student-teacher ratio has increased Figure 4, shows one teacher needs to address 18 students as to the year 2013, in contrast which was 15 students in the year 2005.

Also with the increase of new admissions, the rural students are in search of hostel facilities. As mentioned earlier, the established universities in this context need to look for more hostels in order to facilitate and to accommodate the students increasing demand for such.

In addition the number of employees (not including teachers) too have increased over the years, and thus providing spacious offices is a heightened problem. And also providing infrastructure facilities such as computers and office equipment etc too will increase the capital costs of the respective university.

Year	1990	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013
No. of Employees	7,687	11,486	13,269	13,859	14,119	14,549	15,412	15670	15,926	16,235	16733

Figure 5 - No of employees

Source: University Statistics 2013, UG C

In addition, providing training for the non-academic staff too is time consuming and is a costly process to the respective university.

Furthermore another challenge which the administrators are faced with is the poor work culture among the staff. For instance, absenteeism is one of the major issues administrators are faced with as most of the non-academic staff take leave superfluously, most often.

Conclusion and Recommendations

The public universities enjoy immense authority. Greater devolution of powers to public universities can be considered and cogitated in several areas. For instance, the promotion of academic staff, the determination of academic salary particularly in shortage subjects, the recruitment of non-academic staff, the development of fresh courses, the creation of new academic positions within a standard budget and decisions regarding the governance structure of the institutions. Thus by bestowing greater responsibility and accountability matters that need to be addressed, to the respective university, within a shorter period it can be addressed ultimately speeding up the process by taking accurate and timely action.

Since there is diminutive room to expand public funding for the higher education sector in the short run, additional creative avenues to complement state funding are necessary and unavoidable.

Moreover, due to the income earned through research and consultancy services, extension and short courses and fees from postgraduate and undergraduate degrees and diploma and certificate courses ,the budgeted state funds should not be reduced In addition revenue raising activities needs to be

developed and also whatever cost savings generated, need to be available for re-investment within the university.

Further specific measures should be taken to obtain services of eminent professionals who get retired at the age of 65. For example, by conducting workshops to the probationary lecturers their know-hows and standards can be improved. Universities will need to attract new talent to replace this workforce and at the same time build a new workforce structure that can support new business modules and deliver increased productivity.

Thus as higher education markets become increasingly competitive and consumer driven, public universities need to deepen their commercial skills and capability both in administrative and academic workforce.

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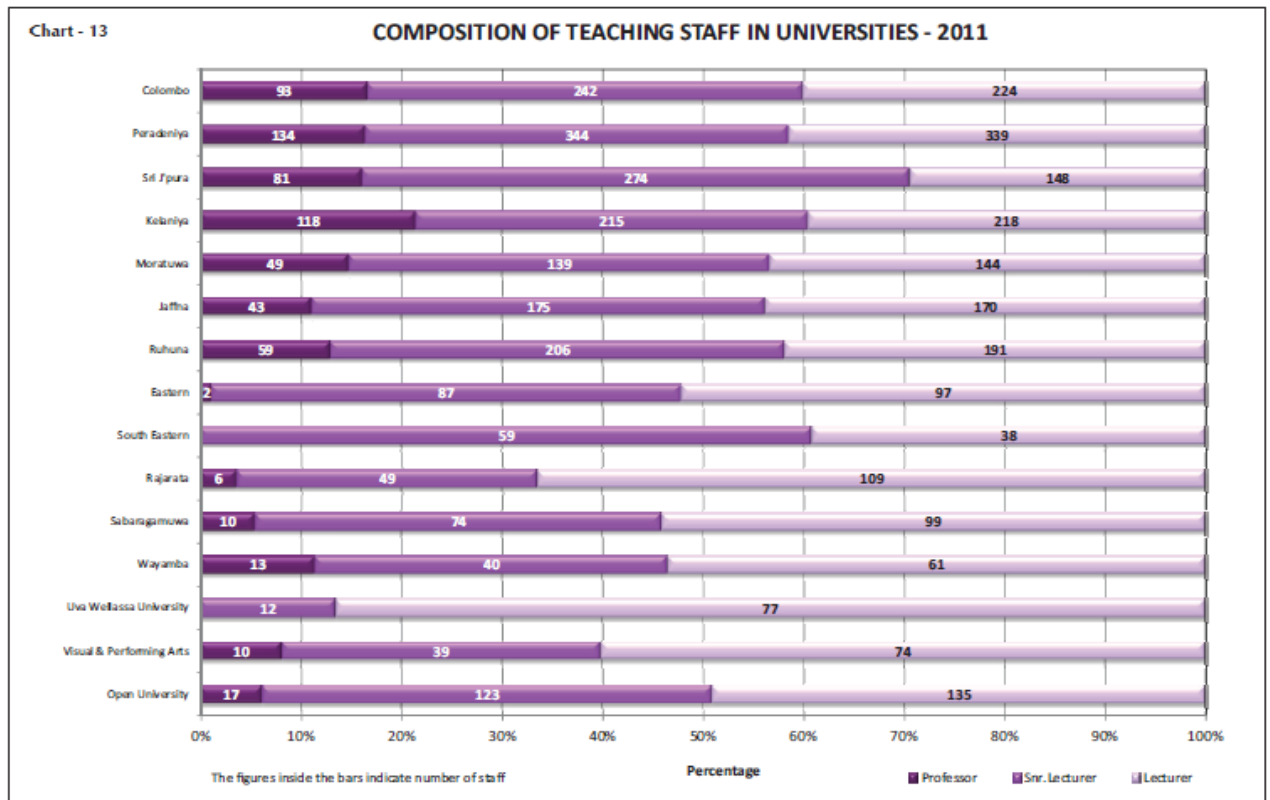
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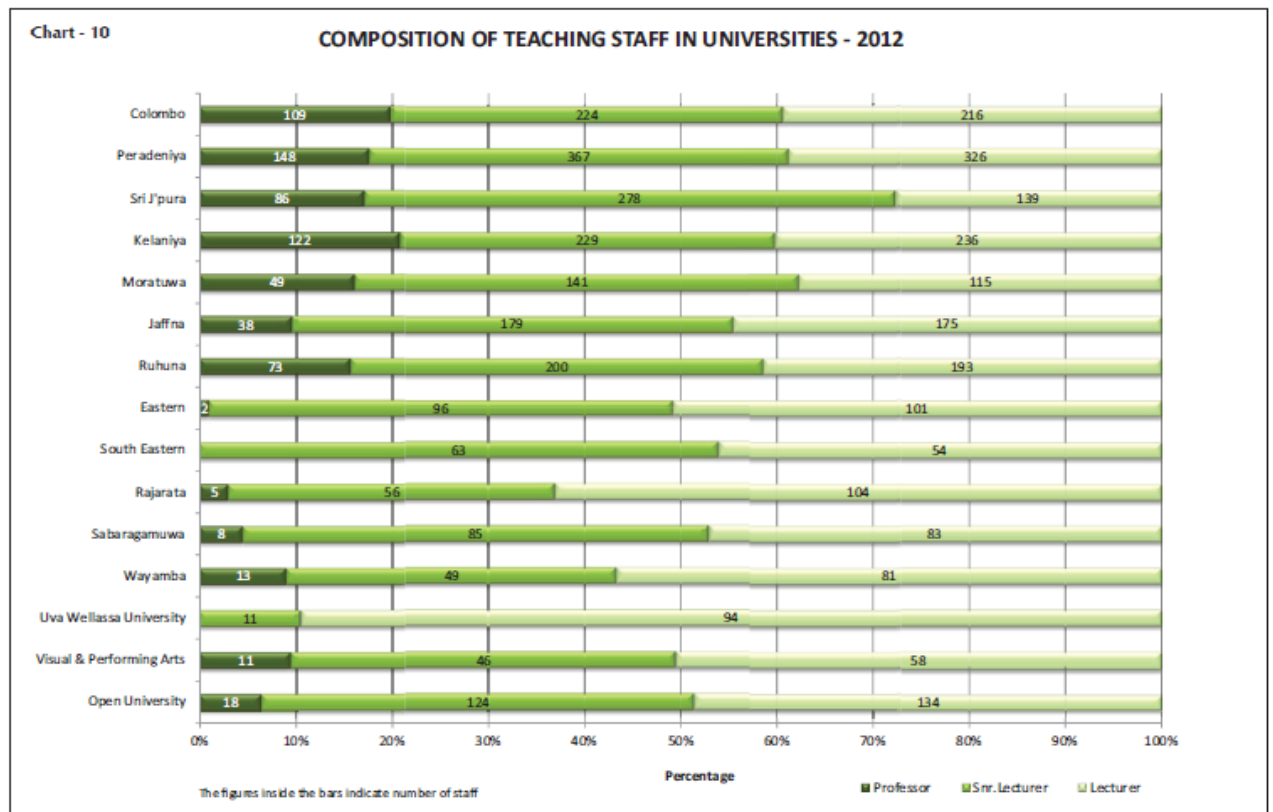
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Annexure I



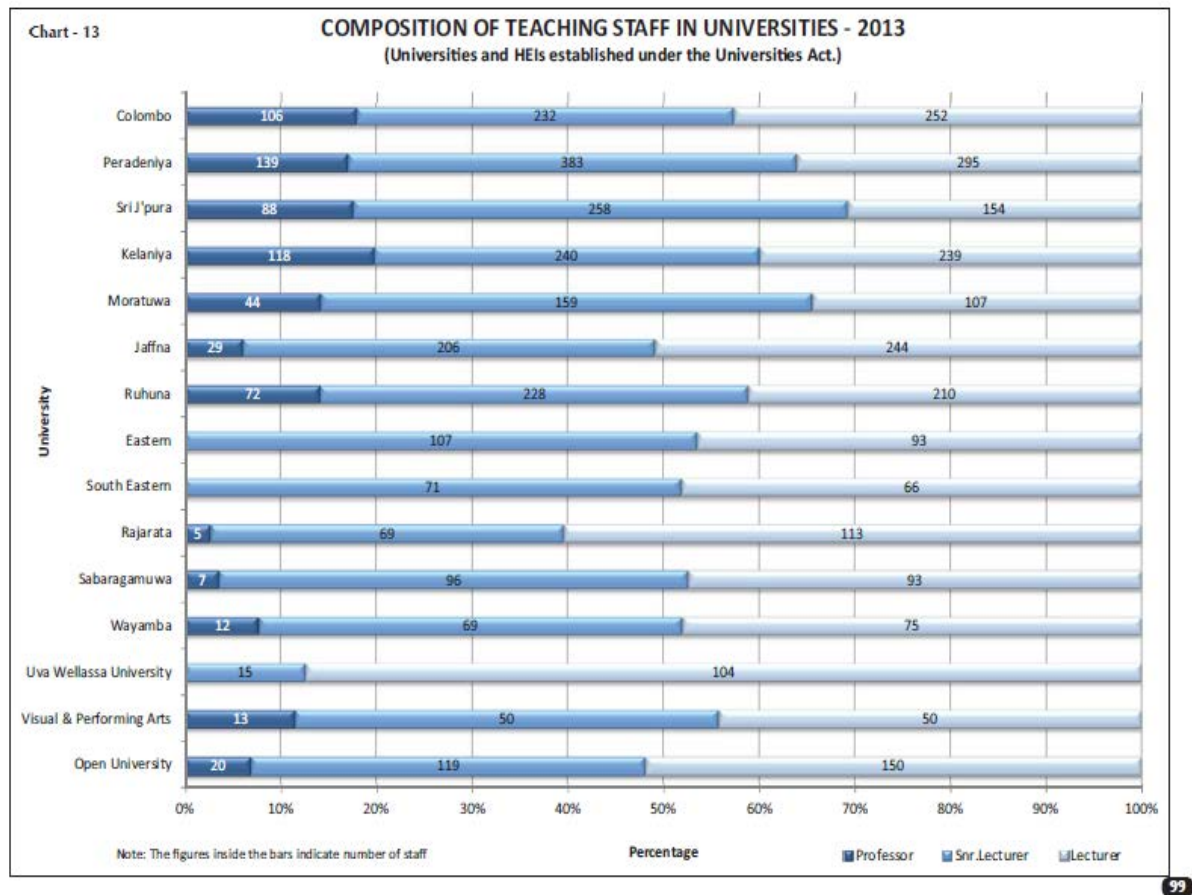
Source: University Statistics 2011, UGC

Annexure II



Source: University Statistics 2012, UGC

Annexure III



Source: University Statistics 2013, UGC

AKO PAKEKE

An indigenous heutagogical model for tertiary teaching

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Today, there is an absence of literature about Māori and indigenous heutagogical principles and practices and what constitutes good teaching within tertiary organisations. The term andragogy has been in use for many years and was first proposed by Alexander Kapp, a German teacher in 1883. During the 1980s, the term was regenerated by Malcom Knowles who proposed a set of andragogic principles and characteristics. However, heutagogy, is the preferred term for this paper as it is more conducive with a Māori worldview and involves self-determined learning and autonomy. The term Ako Pakeke has been chosen for the hypothesised model as it simply means, Māori adult teaching and learning. In a Māori worldview teaching and learning are inseparable and reciprocal with teacher becoming the learner and vice versa at various stages of the teaching and learning process. These concepts are explored and critically analysed in this paper. This paper introduces a hypothesised model for effective tertiary teaching in a Māori context. Although Māori concepts and principles are at the forefront of the model for tertiary teaching, international research is used to support and validate the model as a suitable framework for indigenous tertiary contexts.

Key words: Māori, indigenous, heutagogy, andragogy, worldview, Ako (teaching and learning), Ako Pakeke (Māori adult teaching and learning).

Introduction

Globally, tertiary teachers need to be aware of effective andragogical or heutagogical practices and principles to give their adult students a greater chance of success at tertiary level. In Aotearoa New Zealand and in a Māori tertiary environment the Māori world view dominates. In addition, the cultural needs and aspirations of the students are acknowledged and enhanced with the principles and practices of Ako. Ako is the Māori term for the principal of teaching and learning and involves a reciprocal relationship between teacher and student. The context in which the researcher works in is steeped in a Māori world view and Ako is the guiding principle. Indigenous models of adult teaching and learning are few although there have been many indigenous models of health and education for school aged children. The model hypothesised in this paper has not been tested however the underlying cultural principles of the model are well documented and need no validation from a Māori perspective.

All models or frameworks have theoretical underpinnings and the Ako Pakeke model is no different. The model is underpinned with heutagogy and Ako. Heutagogy is a concept derived from the theoretical concept of andragogy and Ako is the Māori preferred pedagogy. A visual representation of the model was first hypothesised by the researcher in 2015 and published in the Māori language in McFarland & Black (2015) for a Māori only audience. It has since been refined, renamed and theoretically enhanced. The model displayed in this paper has been visually altered for clarity and understanding but the cyclic diagram remains to represent the interconnectivity and inseparability of the concepts.

The Lifelong Learning ‘Gogs’: Andragogy, heutagogy and pedagogy

The ‘Gogs’ as outlined in the title above is synonymous with the three phases of lifelong learning. As mentioned in the abstract, andragogy is not a new term or concept. Instead it was first proposed in 1883. Malcom Knowles, an American adult teacher who regenerated the concept of andragogy to explain the characteristics and principles of adult learning. The term most widely used in education sectors is pedagogy, however pedagogical practices and principles are implemented by teachers of children, not adults. Therefore, the correct term to explain the characteristics and principles of adult learning before heutagogy was ‘andragogy’. According to Henry (2009), although Knowles (1984) regenerated this term for the adult learning process, it was used previously by Lindeman (1926) another American adult educator who made significant contributions to the area of adult education. Knowles (1990) suggested that ‘pedagogy is bad for adults and andragogy is better, that pedagogy is for children and andragogy is developed for adults’ (Wilson, 2014, p.96).

Smith’s (2008) study suggested that pedagogy is used and relied upon in tertiary organisations and not andragogy which is inclusive of the multiple intelligences concepts. It is the belief of the researcher that the reliance of pedagogy as a guide for tertiary teachers is unacceptable given the obvious differences between adult learners and children. Elizabeth (2009) stated the following about Knowles’s andragogy, “Based on humanistic psychology, Knowles’s version of andragogy presents the individual learner as one who is autonomous, free and growth orientated” (p.67). Another term used for the adult learning process is ‘heutagogy’ or as Hase and Kenyon (2013) suggest ‘self-determined learning’. Proposed first in 2000 by Hase and Kenyon, the authors suggest that,

“The essence of heutagogy is that in some learning situations, the focus should be on what and how the learner wants to learn, not on what is to be taught. Hence, this approach is very different from the more formal and traditional way of ‘teaching’ people. In heutagogy, the educational process changes from being one in which the learned person (teacher, tutor, lecturer) pours information into the heads of learners, to one in which the learner chooses what is to be learned and even how they might learn it” (Hase and Kenyon, 2013, p.5).

The concept of heutagogy is similar to student centred learning where the interest of the learner is paramount. The self-determined learning ensures the content is relevant to the learner and the teacher becomes the facilitator. Heutagogical practice creates the space for reciprocity and this aligns to the Māori preferred pedagogy of Ako. Andragogical principles and practices are used in many tertiary organisations and these principles are well documented (Elizabeth, 2009; Findsen & Formosa, 2012; Henry, 2009; Knowles, 1984; Lindman, 1926; Smith, 2008; Wang, 2014; Wilson, 2014). Furthermore, many researchers have found that the prior learning experiences of the adult learner contribute to their learning experiences at tertiary level. Usher and Edwards (1994) support this and state that experiential learning, which is learning that takes place outside of the formal structured education system is valuable. Many indigenous peoples and indeed people globally, will have experiential learning experiences. For many Māori experiential learning will occur within the home, the sub-tribal communities and the wider tribal community. These experiences may include kapa haka or Māori performing arts, hunting and harvesting, fishing and general life skills for survival, especially if they reside within rural Māori communities. Other indigenous communities will have similar experiences. For example Dewey (1897) as cited in Smith and Knapp (2011), states that ‘education proceeds by the participation of the individual in the social consciousness of the race’ all learning starts with the home environment. When a child is old enough they will be introduced to various parts of the community. It is no different for Māori and indigenous peoples as they will be educated by their tribal cultural groups.

Ako: Māori preferred pedagogy

The Māori concept of Ako is also well known amongst Māori academics. For example, Hemara (2000), Mead (2003), Nepe (1991) and Pere (1984) detail traditional methods of teaching and learning. Pere (1984) maintains that Ako is the preferred framework for teaching Māori children. Andragogy is not a new topic for the researcher, instead several previous publications include the Ako concept of teaching and learning (see Ferguson & Werahiko, 2009; Ferguson, 2010; 2014; 2015).

Reciprocity is at the forefront of the Ako pedagogy. Ako is evident in a teaching and learning strategy called Tuakana/Teina. Tuakana means older sibling of the same sex while Teina means younger sibling of the same sex (Nepe, 1991). In an educational context, the strategy involves grouping the older students with the younger ones to support and enhance the learning experience. The older student learns how to teach or facilitate the learning of the younger student who in turn is guiding the older student in the teaching process (Ferguson, 2010). Ako “encompasses many aspects of āhuetanga Māori (Māori epistemology or Māori ways of knowing and doing) including wairuatanga or spirituality (Ferguson, 2010, p.69).

Nepe (1991) believes that the inherent values in western philosophy is the belief that learning and development is cognitively based but Māori believe that learning and development occurs through the ‘wairua’ (spirit) and that the mind is only one part of the wairua. Indigenous perspectives support this notion of holistic teaching and learning (See Archibald, 2008; Cajete, 2000; Hele, 2013; Nichol, 2011).

The model hypothesized in 2015 included common elements that are evident in many Māori models today. The image below represents the model hypothesized in 2015:

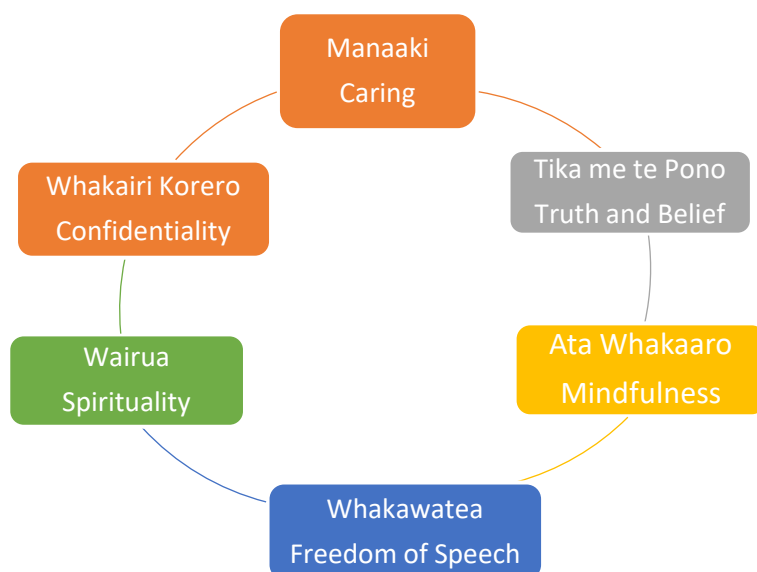


Figure 1 AKO RANGATIRATANGA MODEL 2015

The Ako Pakeke model is a mix of the Māori preferred methods of teaching and learning and heutagogy. Unlike the visual representation of the 2015 model above, the revised version includes Whaikoha (respect), Whakatenatena (Encouragement), Whakamana (praise) and Mātauranga (knowledge).

The researcher is confident that the visual representation of the model below and all of the principles is the recipe for successful teaching and learning in an indigenous adult educational environment. It must be noted that the majority of these elements or principles are well known within Māori society and as mentioned, they can be found in many Māori models today. Furthermore, the researchers’ personal observations is a culmination of 10 years of teaching experiences with Māori adults in a Māori tertiary environment. Although a bold statement to declare that this model not only works with Māori students but also with other indigenous students, the researcher is confident that with information from previous case studies, her own observations and a holistic approach to teaching adults, the model is logical. However, interviews with other Māori and indigenous adult educators will further strengthen and validate.



Figure 2: Ako Pakeke Model Revised Visual Representation

Rationale: Ako Pakeke Indigenous heutagological model for tertiary teaching

The Ako Pakeke model consists of ten principles. These principles are common in the Māori worldview and as mentioned previously, can be found in many of the Māori models of health and education. All principles in this model, like most Māori models or frameworks, are interconnected and are inseparable. The koru or fern is used in the middle to represent the continuous development of Māori education in Aotearoa New Zealand. The word ‘Pakeke’ has been added to the title as it means ‘adult’.

Manaaki – Caring/Wairua – Spirituality

The first principle of the model is Manaaki. Manaaki or Manaakitanga literally means to be caring. In a Māori adult teaching and learning environment the ability to manaaki or care for your students is paramount. Caring comes in many forms and includes, looking after the spiritual, physical, emotional and mental needs of your students. The mode of delivery at the Whare Wānanga or Māori University in the degree programme the researcher teaches in includes a mixed mode style of content delivery. This includes students staying on campus for four or five days. An example of manaaki in this instance is the ability of staff to house, feed and nurture the students and create an ambience and comfort level for students to learn. Caring for the spirit of the students involves the recital of karakia (incantations) before and after classes. Caring for the emotional or mental aspects varies from student to student depending on their personal circumstances.

It is well documented that adult students enter study with a range of personal issues and at times these issues can manifest into obstacles or excess baggage that impacts on the students' ability to successfully complete their studies. For example, Slotnick, Pelton, Fuller and Tabor (2005) found that "frequently family and friends are opposed to the student's education pursuits" and situational barriers like home and work responsibilities hinder the progress of the student (p. 61). Kaiako (Teachers) are often the sounding boards for these students with issues and depending on the severity of the problem, all adult teachers need to be able to make the necessary referrals to the appropriate agencies. Adult students are motivated to succeed by various things. Hase and Kenyon (2013) suggest that it is motivation and desire that make the emotional commitment to learning and this aligns with a heutagogical approach. As Māori we are emotional beings and caring for students emotionally and spiritually enhances the relationship between student and teacher. The wairua or spirit of the person is just as important as the other parts as noted by Mason Durie (2003) and his Te Whare Tapa whā model (Four corners of the house) for health and wellbeing. Te Whare Tapawha model encompasses four domains of wellness, wairua (spiritual), hinengaro (mental), tinana (physical) and whānau (family) (Durie, 2003).

Tika/Pono – Truth and Belief

Teaching the truth to students especially indigenous truths are integral to eliminate the colonised truths that were taught during the researcher's years at school. The traditional method of learning as suggested by Freire (1970) called the Banking Model, proposed that the learning process consisted of 'the learner as an empty bank to be filled with knowledge by the all-knowing teacher' (cited in Saudelli, 2016, p.37). In addition Freire argues that this model is 'dehumanizing' for both teacher and learner and that 'pedagogy should envisage the learner as co-creator of knowledge and active contributor to meaning-making' Saudelli, 2016, p.37). An example of the learner as an empty bank to be filled with knowledge resonates with the researcher's own education. For example, it was taught that Captain Cook and Abel Tasman were the first people to discover Aotearoa New Zealand. However, Māori know this to be an untruth as our oral traditions reveal the truth about discovery, sea voyages and settlement among Māori. These traditions have been well documented (Best, 1925; Mead, 2003; Ngata, 2004; Sorrenson, 2013).

In a tertiary classroom setting guidelines need to be set with the student regarding assignments, due dates etc. As teachers all have a belief in what they teach, they must be mindful that their beliefs may not necessarily be the beliefs of the adult students. Unlike children, adults come into tertiary study with a wealth of experiences so it is best to ascertain the beliefs of the students first before 'preaching' our own truths. As mentioned it is important to acknowledge the prior experiences and knowledge the adult student brings to tertiary classrooms as many researchers have previously stated (Elizabeth, 2009; Findsen & Formosa, 2012; Foucault, 1980; Henry, 2009; Knowles, 1984; Lindman, 1926; Smith, 2008; Wang, 2014; Wilson, 2014; Usher & Edwards, 1994).

Āta Whakaaro – Mindfulness

Similar to the pedagogical approach to teaching and learning, prior experiences of the students should be acknowledged. In a Māori context getting to know the whakapapa or genealogy of your students is important for the Kaiako. It reveals a lot about the student and their intergenerational skills or traits. It is no different in a Māori adult teaching and learning environment. From the researcher's personal observations, teachers have to be mindful of

certain behaviours some adult students display in the classroom as these often are pre cursors to what could be happening on the home front or within the student's workplace. As mentioned in the previous section on Manaaki, adult teachers are often the recipients of the many woes of the adult student. Community responsibilities are often a commonality amongst Māori adult students, indeed for all students. Similar to most indigenous people, Māori have an iwi (tribe), a hapū (subtribe) and a whānau (family). Indigenous adult students might hold positions within their community which place extra pressure on them while they try to complete studies. A mindful adult teacher or educator would be culturally responsive to the needs of these students. To be culturally responsive is to first, acknowledge the culture, the language and the customs. A Māori adult teacher might have non-Māori students in their class. For the non-Māori student in the researchers' context, they are the minority culture in the classroom. Similar to most indigenous cultures the classroom environment can be uncomfortable for the minority culture as discussions often include accounts of the aftermath or the impact of colonisation and assimilation on Māori people. Whilst the comfort level of some students might not always be at an all-time high, Kaiako must ensure that all students understand that to move forward in this new world, we must look to our past for guidance.

Whakawātea – Freedom of Speech

Adult students need to feel safe enough to speak freely without fear of judgement. Historically child teacher interaction consisted of the child sitting quietly while the teacher taught. Heutagogical practices involve the student determining the learning and taking control in the adult classroom. In traditional Māori society education in Whare Wānanga or the higher houses of learning was tohunga led (tohunga - high priest) and students did not have the freedom of speech they have today (Smith, 2011). Unlike traditional ways of teaching and learning, freedom of speech is encouraged in classrooms with Māori students as a result of the political climate and change within education in Aotearoa New Zealand. Contradictory to traditional andragogy, sometimes the adult student needs to vocalise their feelings and more often than not challenge the information shared by the teacher. Adult students will often self-correct when they have made mistakes. For this process to occur naturally, it is not acceptable to correct them in front of the class. This is not an indigenous or Māori perspective alone but the researcher can recall this practice in her own teacher training. The adult educator at the time was insistent that a pūkenga (expert teacher) would not single students out in front of the class (Kruger, T. 1998, personal communication). Self-advocacy without singling students out in the classroom is preferable. Empowering self-advocacy is conducive with the heutagogical model where autonomy and self-determined learning is paramount.

Whakairi Kōrero – Confidentiality

As an adult educator, the researcher feels that this principle is one of the most important. As mentioned previously, adult students confide in their teachers about various issues and obstacles they experience during study. In addition, students might do this as a whole class discussion. There is an old Māori proverbial statement that says, “whai muri i te kōrero, me whakairi kōrero ki ngā pakitara o te whare” which means, after the discussion, the discussion should be hung on the walls of the house (Ferguson, 2015 cited in McFarland & Black, 2015). Traditionally, Māori would meet in the Wharehau (meeting house) to discuss and debate important issues. The Wharehau was usually carved, with panels of decorative carvings representing ancestors adorning the walls. Hanging the discussion with the ancestors

meant that it would stay with the ancestors and not be discussed outside of the Wharenuī (Ferguson, 2015). Using this analogy in the contemporary classroom today is an indication to students that any personal or emotional issues discussed in the classroom stays in the classroom, protecting the privacy and confidentiality of the students. It must be mentioned here that this is a basic principle of confidentiality and privacy and that all tertiary teachers should be adhering to as the principle is not confined to the Māori space alone.

Whakamana – Praise/ Whakatenatena – Encouragement

Praise and encouragement are two strategies that all teachers should aim to practice on a daily basis with their students. The aspirations of adult learners are important and the teacher should always encourage these aspirations. According to McGrath (2009), praising motivates the adult learner. McGrath (2009) continues, “In the instance where students are encouraged to discuss examples, they are praised for their contribution and not mocked by either the lecturer or other students for their views on a particular issue” (p. 104). Espisito (2005) suggests providing adult students with constructive criticism. However, he insists that praise should be provided regularly. This is a cross cultural strategy used today with all learners. In traditional Māori Whare Wānanga (Houses of higher learning), different methods were used to encourage students to succeed (See Smith, n.d). Similar to the other principles, this principle is inseparable to the others. For example, praise and encouragement results in respect, caring for one’s teachers and fellow students etc.

Whaikoha – Respect

Respect is not an indigenous behaviour alone. All students from all cultures want to be respected and valued as do all teachers. In a Māori tertiary environment, acknowledging the families, sub-tribes and tribes the students hail from is not only a form of respect but is also manaakitanga and mindfulness on the part of the teacher. Again, respect is interconnected with the other principles. According to Knowles (1975), adult learners and their lived experiences need to be respected. Many adult students enter degree programmes with a wealth of experience and sometimes these experiences exceed those of the teacher. In a Māori tertiary environment many adult learners are more culturally advanced in language and customs than the teacher. In this instance, learning becomes reciprocal with the teacher also learning from the student. On many occasions the researcher has had the adult learners family members sit in on classes. Respecting and acknowledging family of the students is equally important as when Māori attend Whare Wānanga they are more often than not representing a range of people including their sub-tribe and tribal groups as well as their immediate family members.

Mātauranga - Knowledge

One of the most important attributes a teacher can possess, is their knowledge base. If a teacher’s knowledge base is minimal, then minimal knowledge is all the teacher can pass onto their students. If the knowledge base of the teacher is broad, then the students are fortunate to be the recipients of this type of knowledge base. Professional development for teachers has become the norm and this is needed in all sectors of education. St.George & Bourke (2008) found that teachers who are involved in their own research, can reflect on their own practice and improve their teaching with new knowledge and understanding. In a Māori Whare Wānanga today and in teacher education programmes, teachers need to be culturally competent as well as having up to date knowledge of the New Zealand Curriculum.

Summary

This paper has introduced a revised heutagogical hypothesis of the Ako Pakeke Model. The establishment of Kohanga Reo (language nests), Kura Kaupapa Māori (Māori medium schools), Wharekura (Māori medium secondary schools) and Whare Wānanga (Māori Universities) are the direct result of the self determination of Māori for their own education system. The inseparability of the principles in Māori models for education and health mean that the spiritual, physical, emotional and mental needs of the adult learner are enhanced. The koru or furling frond image is appropriate as this represents the life cycle of all living things. The Ako concept is pivotal to the success of the model as a framework for adult teaching and learning as reciprocity is a Māori culturally preferred 'Gog'. The absence of interview data means that this model is still a work in progress. As there are only two Wānanga (school of learning) and one Whare Wānanga (house of higher learning), the researcher will interview colleagues from the Whare Wānanga and an indigenous adult teacher to further enhance and validate this model.

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An intervention to motivate youth to participate in the implementation of holistic ECED program; situation analysis from Nawabshah, Pakistan's perspective.

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ABSTRACT:

The aim of this study was to assess professional readiness in Early Childhood educator & care takers to modify their behavior and attitude in support of the requirement of 3-6 years learners.

Presently in most of the Public schools in Sindh the performance of early childhood educators is following conventional methodology which is resulting in poor mental and physical health of students and teachers and developing an unmotivated crowd with no interest in learning.

With extensive short term frequent training sessions for nine months with close monitoring; basic requirements which are unconventional from the perspective of Pakistan have been implemented, according to the needs of students and later its outcomes were recorded.

METHODOLOGY

The program has been developed for the teachers of 02 government/public ECED Centers in Nawabshah Sindh Pakistan as their professional in service trainings. The sample comprised of 80 students and teaching staff of 7. The age range of students is 3-6 years, while learning facilitators aged between 21- 30 years.

The research design is descriptive in nature which comprises of observations and questionnaire formats with convenient sampling of students teachers and parents.

RESULTS:

The study results showed that proper leadership and timely interventions in the process of teaching learning can enhance the performance of facilitators in terms of child handling with an enhanced learning outcome of students with motivation and interest.

This study has partially involved parents to assess their observation regarding changes in behavior and attitudes of their children towards school environment.

After seeing the impact of interventions Government of Sindh has decided to replicate the structure and strategies of these centers for further 400 units to be developed in Sindh province.

Keywords: unconventional interventions, facilitators of learning, professional development & students' learning

Introduction:

Having a big scarce of good teachers especially in the public sector is now a dream especially if we talk about Sindh in specific. Teachers do not have any issues with their professional attitude infact they are not handled properly due to bad governance, favoritism, and improper distribution of awards and rewards.

Having the same scenario in this study the variables were the interest and motivation level of teachers considering their professional growth.

A group of teachers were selected randomly to get trained on certain standards to improve professionalism in them. After executing extensive trainings these teachers have shown great improvement in their behavior and attitude towards their work. This will remain sustainable as it was not linked with monitory reward. After eight months of observation another group of 08 teachers was inducted in the group and the energy level was well transmitted to the new comers as well.

Parents are more into communication with teachers and school, confidence is building up in children. These children belong to the lowest tier of income group and hardly can afford three times meal.

Early Childhood Education in Pakistan:

In Pakistan, pre-primary education, although present in the public school system till 1970s was never a formalized program. There was a virtual absence of public policy, commitment and investment in early childhood education till the late 1990s. No investments were made in the recruitment or training of ECE teachers; in curriculum development; or in the formulation of any other ECE learning materials. After the commitment to early childhood care and development activities as one of the six “target dimensions” of EFA at the World Education Conference (1990), this dimension began to regain prominence among policymakers in Pakistan.

According to the National Plan of Action, over 40,000 ECE centres were to be established during 2001-15, and over 3,000 ECE teachers were to be trained and recruited annually in the public sector – a total of 51,000 teachers during the period 2001-15. This, too, has not been implemented. Besides the funds released by the federal government to the provinces for ECE under the Education Sector Reforms (ESR) in 2001/02-2002/03, no specific allocations have been made in the provincial budgets for this purpose.

In Pakistan, however, early childhood education has, greatly benefited from the investments made by the private sector extending good quality pre-primary education services. In these schools, well-equipped playgroup, Montessori or kindergarten sections are run regularly on a commercial basis, but this is limited mostly to urban areas.

There is an urgent need for improvement in pre-primary education which can be achieved by transforming the present pre-primary (katchi) offered in the government schools into good quality ECE with separate classroom, trained teacher and required materials.

Quality of ECE The quality of education is directly related to the quality of instruction in the classrooms. The teacher is considered as the most crucial factor in imparting quality education. The atmosphere of ECE classrooms would be made attractive and child friendly and play methods will be introduced in ECE classes.

The provinces still do not know that a curriculum exists for ECE classes. They are not aware of the importance of Early Childhood Education. Some donors and NGOs are catering to the needs of this vital age group but they are working in isolation and with no proper coordination with in themselves as a result the impact of their efforts is not visible.

The children in this age bracket are taught in the traditional style through a primer which is not age appropriate. They are assessed according to the traditional system. The teachers are not trained in handling this age group.. We need to have qualified and trained teachers to carry on effective implementation of the ECE Curriculum.

Situation Analysis:

Just enrolling younger children in school is not Early Childhood Education; rather, it is the overall development of the child. Physical, mental, social, emotional and spiritual growth is crucial in a child's overall development. ECE provides a holistic education, starting from what the child knows and building his self esteem and confidence. Over 20 years of international research shows that high-quality Early Childhood Education must be holistic, nurturing, consistent, hands-on, stimulating, exploratory, and integrate interactive learning across the curriculum.

The most important component in quality Early Childhood Education is a caring classroom with a trained teacher and age appropriate learning material. The effects of quality early intervention are many these include higher intelligence scores, higher and timelier school enrollment, less grade repetition and lower dropout rates, higher school completion rates, higher levels of academic achievement (ECE graduates are better developed), improved nutrition and health status, improved social and emotional behavior and improved parent child relationship.

Quality early childhood education helps build confidence, competence and skills in a child. For the five decades after independence, public policy, commitment and investment in Early Childhood Education in Pakistan has virtually remained non-existent. There have been no attempts to improve the quality of the traditional informal preprimary sections in public sector school system. No investment was made in the past in recruitment or training of Early Childhood Education teachers; in curriculum development, or in the formulation of any other ECE learning material.

Despite all these efforts the quality of Early Childhood Education could not be improved and it remained confined to traditional methods due to following reasons:

- 1 No mechanism to ensure dissemination and implementation of ECE curriculum at national level.
- 2 Lack of involvement of parents and community
- 3 Absence of learning material
- 4 Absence of trained teachers

Situation of teachers and care takers for young children in Sindh (The province where Nawabshah is situated)

Trained staff, Curriculum, Textbooks, and Teaching-Learning Aids ECE in Sindh is yet to emerge as an important or priority area. Major issues in Pakistan's early childhood education sector are as follows:

- Access to ECE : Lack of realization and awareness among community and parents regarding importance of ECE.
- Due to poverty and lack of access to basic social services, a majority of children under five years of age are suffering from malnutrition, poor health and lack of access to safe drinking water and adequate sanitation. This is adversely affecting attendance and learning outcomes in pre-primary and higher levels of education.
- Quality of ECE : Quality of pre-primary services is lacking. In the public sector, there is no separate classroom for ECE, the teachers are not trained; and there is a dearth of teaching and learning materials in classrooms.
- Financing of ECE:
ECE is the lowest priority of the federal and provincial governments. Budgetary allocations to ECE are virtually non-existent. Funds allocated for ECE under Education Sector Reforms are inadequate to cater the needs of around 7 million children of the pre-primary age group.
- Adequate investments are required for physical infrastructure, teaching and non-teaching staff; and learning and teaching materials to transform the public sector pre-primary katchi classes into good quality ECE.
- Coordination of ECE: Lack of coordination amongst different service providers for ECE is a serious issue which is resulted in duplication and wastage of resources. There is no mechanism to share the experiences. Spatial planning needs to be replaced by integrated planning.
- Governance of ECE: There is a lack of clear-cut policy, laws and rules for ECE. Although pre-primary education (katchi class) has been recognized in the current National Education Policy as part of formal system extending elementary education from katchi to Grade VIII, yet practically no considerable measures have been undertaken to implement the policy provision with the exception of development of ECE curricula.
- Despite the provision of establishment of ECE centres and recruitment and training of ECE teachers in the National Plan of Action (2001-15) for EFA, no steps have been taken to implement these measures.
- Provinces, districts communities and schools lack the capacity to plan, implement and monitor ECE programs. Training facilities neither for teachers nor for managers/administrators are available.
- Data/ statistics and facts and figures related to ECE are almost neither regular nor comprehensive. Research in ECE is another most neglected area.

Recent social changes have challenged traditional views of childhood and child rearing:

- 1) the changing socio-economic role of women,
- 2) growing ethnic diversity of developed countries, and
- 3) changing views on (early) education and the purpose of (early) education.

The last two changes have important consequences for what is expected of those who work with young children.

In the year 2015, SZABIST an NGO under its trust initiated the establishment of ECED centre one of its kind and trained already present government teachers who were not only unprofessional in their work but also have no idea of handling young children.

- The school accommodated around 90 students in its first admissions in September 2015.
- Set the environment
- Trained the staff
- Managed day to day running of the school

Although research emphasizes the high relevance of adequate staff initial education and continuous professional development opportunities, large differences occur between countries in terms of which qualifications are being asked of ECEC practitioners. Opportunities to participate in professional development and in-service training also vary greatly across countries and between education and child care in split systems. The qualification requirements vary from no formal education at all to a specialized bachelor's or even master's degree, and professional development and training ranges from being compulsory to being based on voluntary will in combination with no additional funding for training (OECD, 2006).

Importance of teachers' education:

Staff qualifications/education/professional development → pedagogical quality → child outcomes

The main importance of staff lies in their effect on the process and content quality of ECEC2 (Sheridan, 2009; Pramling and Pramling Samuelsson, in press 2011). The training and education of ECEC staff affects the quality of services and outcomes primarily through the knowledge, skills and competencies that are transmitted and encouraged by practitioners. It is also considered important that staff believe in their ability to organise and execute the courses of action necessary to bring about desired results (Fives, 2003).

Qualifications can matter in terms of which skill sets and what knowledge are recognised as important for working with young children. The skills and staff traits that research identifies as important in facilitating high-quality services and outcomes are:

Good understanding of child development and learning;

- Ability to develop children's perspectives;
 - Ability to praise, comfort, question and be responsive to children;
 - Leadership skills, problem solving and development of targeted lesson plans; and
 - Good vocabulary and ability to elicit children's ideas.
- However, it is not the qualification per se that has an impact on child outcomes but the ability of better qualified staff members to create a high-quality pedagogic environment that makes the difference (Elliott, 2006; Sheridan et al., 2009).

There is strong evidence that enriched stimulating environments and high-quality pedagogy are fostered by better qualified staff; and better quality pedagogy leads to better learning outcomes (Litjens and Taguma, 2010).

Methodology used for this study:

This is a short termed observational research of qualitative nature, it included a controlled group of students ,teachers and parents.

An extensive training was designed initially for 15 days and weekly refresher sessions were planned for four months followed by pre training and post training questionnaires. Observation checklists were used for checking the attitude and behaviour of trainees with the students and their consciousness regarding the environment they are working in. A survey was done to assess the views of parents regarding the changes in their children and change in the attitude of teachers with them and their children

Data is analysed and the results show that:

Teachers became more:

- Punctual towards the time line
- Task oriented
- Soft and loving towards children
- More calculative towards future tasks
- Planning for the upcoming activities
- Welcoming for parents and children
- Exhibit good communication skills
- Creative and innovative
- Critical and problem solving
- Health conscious for self and students
- Consciousness towards hygiene of self, environment and children

This results interprets that only providing training is not enough rather continuous encouragement and mentoring is of more importance. In the same way values and morals are not theoretical in nature they need practical demonstration and so the professionalism this would help the teachers to adapt to the environment and work with passion and dedication towards the results instead of having a time oriented job culture without any achievement

Students shown the following:

- More confident while walking and talking
- Creative and expressive
- Inquisitive
- Mannering
- Clean and health conscious
- Vocal and expressive
- Enjoyment for work
- Decision makers
- Exhibit choices likes and dislikes
- Focused and better concentration

Parents became more:

- Health conscious
- Supportive
- Conscious of their language and behaviour
- Showed a lot of interest in visiting school

Discussion

With special reference to the situation in Sindh where implementation of policy decided in favour of ECD is in process of implementation. This study was a pilot project to assess the

performance of children and educators when the project started and after providing them with professional support the positive changes observed in the behaviour and attitude of both. Educators become conscious of child's health and hygiene, interest and developmental needs of students and showed involvement in parents to support the process for child's long term interest in self learning.

After completing one cycle it was observed that parents became more conscious of their children's diet, hygiene, health and putting in efforts to give quality time to them. Attitude of teachers before and after towards children; working environment.

This pilot project is going to be replicated in 400 such centers in the year 2017-18.

Analysis of Reading Comprehension and Mathematical Ability and Its Relationship in Academic Performance in Mathematics

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ABSTRACT

The research study focused on the analysis of reading comprehension and mathematical ability results in National Career Assessment Examination (NCAE) and its relationship with Grade 10 students' academic performance in Mathematics of Eugenio Cabezas National High School, SY 2016-2017. The study was conducted from September 01, 2016 to December 01, 2016. The researcher used total enumeration of the population size in selecting 122 participants of the study. This research utilized descriptive and inferential statistics. Descriptive statistics was utilized to identify students' reading comprehension and mathematical ability results in NCAE and academic performance in Mathematics, while the inferential statistics was used to determine the relationship of reading comprehension and mathematical ability in academic performance of students in Mathematics. The researcher used NCAE's Certificate of Rating and Form 138 to identify student's reading comprehension and mathematical ability results, and academic performance in Mathematics. Data were gathered, interpreted and analyzed; the statistical tools utilized in analyzing and interpreting the data included the weighted mean, standard deviation, Pearson product moment correlation coefficient, and multiple regressions. The results showed that both reading comprehension and mathematical ability have significant relationship in academic performance in Mathematics. The results revealed low average reading comprehension and mathematical ability. It also manifested satisfactory academic performance of students in Mathematics. The findings suggested that reading comprehension and mathematical ability are both moderately small positive correlated to academic performance of students in Mathematics. It was also suggested that reading comprehension and mathematical ability are both predictors of students' academic performance in Mathematics. Based on the findings of the study, the researcher concluded that the stronger the reading comprehension and mathematical ability the higher the students' academic performance in Mathematics.

Keywords: *NCAE, Reading Comprehension, Mathematical Ability, Academic Performance in Mathematics*

Rationale

Mathematics education is one of the priority concerns of the Department of Education (DepEd) in the Philippines. The dreary state of mathematics achievement of high school students was evident in the results of international, national, regional and even local mathematics tests. According to the paper published by The Manila Times (2009), the last time we participated in international surveys like the 2003 Trends in International Mathematics and Science Study (TIMSS), the Philippines ranked 34th out of 38 countries in HS II Math. In addition, we were left at the bottom while struggling at a passing level locally. In 2008, even with only the science high schools participating in the Advanced Mathematics category, the Philippines ranked lowest among 10 countries. More seriously, we have ranked consistently among the lowest in the past years.

Many educators and researchers have been very interested in improving the students' performance in both English and Mathematics subjects. Thus, several studies were conducted to identify the relationship between mathematics and reading.

One of the major factors in development is Mathematics education and it has long been recognized, prompting nations to include and emphasize this in their national agenda. An alarming observation of Filipino students reveals that they excel in knowledge acquisition but fare considerably low in lessons requiring higher order thinking skills. According to the journal published by Asian Academic Research Journal of Social Sciences and Humanities (2013), how students learn and how to measure student performance in these areas are thus a priority concern of policy makers and educators worldwide. It is undeniable that most of the high school students are performing poorly. The low comprehension level accompanied by discouraging achievements of the students in Mathematics has become a cause of great concern of our country and has worried the concerned educationists.

Looking particularly into the NAT results, DepEd singled out low reading competence as a primary factor for the failure of public school students in mathematics (Rimando, 2006). Thus, appropriate measures were made to improve students' academic performance in English and Mathematics. Some of these measures included implementing various reading programs of the DepEd, training of mathematics teachers, and strengthening the use of English language as a primary medium of instruction in all public institutions of learning at the secondary level (Arroyo G. M. Executive Order 210: Establishing the policy to strengthen the use of the English language as a medium of instruction in the educational system). Notwithstanding all these government efforts to improve the quality of mathematics performance as well as reading skills, the problem on these two areas still persist.

It is in this regard that the researcher being a Mathematics teacher analyzes the reading comprehension and mathematical ability results in NCAE and its relationship with Grade 10 students' academic performance in Mathematics.

The result of this research may be used as the basis for the development of a program focusing on strengthening reading comprehension skills and mathematical ability, and improving students' academic performance in Mathematics.

Literature Review

National Career Assessment Examination

National Career Assessment Examination (NCAE) as cited by Llego (2016) is an aptitude test geared toward providing information through test results for self-assessment, career awareness and career guidance of junior high school students of the K to 12 Basic Education Program (BEP).

NCAE is a test or exam that is taken by all the 3rd year or grade nine students all around the Philippines in both private and public schools (Martin, 2015). In addition, the test is the same and conducted in the same time nationally.

As cited by Llego (2016), NCAE was developed to foster the highest quality of education in the Philippines by regulating and monitoring the flow of students to post secondary institutions of learning and their potential contribution to national development.

According to Llego (2016), the domains measured in NCAE are General Scholastic Aptitude (GSA), Occupational Interest Inventory for Students in Secondary Schools (OISSS), Aptitude for Academic Tracks, and technical-vocational aptitude (TVA). He added that GSA contains scientific ability (SA), reading comprehension (RC), verbal ability (VA), mathematical ability (MA), and logical reasoning ability (LRA). It has appeared that most of the crucial skills were included specifically, the reading comprehension and the mathematical ability.

The student who took the NCAE will receive their COR (Certificate of Rating) after few months from the date they take the exam. COR contains the report on how the examinees performed in the test which is presented in a graph alongside the Standard Scores and Percentile Ranks, the descriptive rating of the Percentile Rank is also included while the overall GSA and TVA scores are reported along with scores in the subtests. The GSA score is the average of the standard scores in these areas: SA, RC, VA, MA and LRA. Reporting of results for Humanities and Social Sciences (HUMSS) Strand, Science, Technology, Engineering and Mathematics (STEM) Strand, and Accountancy, Business and Management (ABM) Strand will be in Standard Score and Percentile Rank. Likewise, the TVA score is the composite of the CA and VMS scores. On the other hand, the level of preference for each area of occupational interest is displayed based on percentage score which is as follows: high (76-100), moderate (51-75), low (26-50) and very low (0-25). It is also stated that the examinees can gauge their individual strengths and weaknesses in every domain/area measured based on the test results (Llego, 2016).

Reading Comprehension

According to Woolley (2011), reading comprehension is the process of making meaning from text. The goal therefore is to simultaneously extract and construct meaning through interaction and involvement with written language. Literacy skills are very important in school (and in life); the stronger that students' reading comprehension skills are the greater their chances of achieving academic success (Oxford Learning, 2010).

Comprehension strategy instruction, including multiple reading strategies, have been justified in being beneficial to helping learners become strategic readers and improve their reading comprehension (Klapwijk, et al., 2012). In addition, many studies sought for improving reading comprehension to strengthen language subjects' skills. However, scarce interest has been paid to link the reading comprehension to other skills especially, mathematical abilities, which may be interrelated to each other.

Mathematical ability

Mathematical ability is the ability, whether learnt or perceived as natural capability to process numerical data and conclude a mathematical calculation based on that data (Pam, n.d.). Sinick (2015) postulates that mathematical ability is best conceptualized as the ability to recognize and exploit hidden structure in data. He suggests also that abstract pattern recognition and verbal reasoning ability are necessities in improving mathematical ability.

As cited by Borovik and Gardiner (2006), different mathematical traits appear at different ages. To develop a pupil's mathematical abilities effectively, one must tap into these abilities at appropriate times. A comparison can be made with language learning: almost every 7 year old child can master a foreign language with ease, though for an adult it could be an almost impossible task. Similarly, there are periods in a child's development when he or she is may respond to formal procedures and algorithms, and there are times when they can be excited by the discovery of a new mathematical activity: generalization (Borovik and Gardiner, 2006).

Academic Performance

Academic performance generally refers to how well a student is accomplishing his or her tasks and studies. However, there are quite a number of factors that determine the level and quality of students' academic performance, such as actual classroom tasks and assignments which covers (a) in-class seatwork and homework, (b) quizzes and tests, and (c) essays and reports (Gatchalian, 2015).

Similarly, in the journal published by Asian Academic Research Journal of Social Sciences and Humanities (2013), academic performance refers to how students deal with their studies and how they cope with or accomplish different tasks given to them by their teachers. It is the ability to study and remember facts and the capability to communicate acquired knowledge verbally or down on paper, which are commonly measured by means of grades. Academic performance, which is measured by the examination results, is one of the major goals of the school. Schools are established with the aim of imparting knowledge and skills to those who go through them and behind all this is the idea of enhancing good academic performance.

Relationship of Reading Comprehension and Mathematical Ability in Academic Performance

As cited in Oxford Learning (2010), students find it a challenge to interpret word problems—figuring out exactly what the problem is asking them to do, and the steps that they need to complete to find the answer. Thus, for the students to interpret word problems reading comprehension is a prerequisite skill. If students have low levels of reading ability they could have problems dealing with mathematical word problems and may lead them to poor grades in Mathematics.

Over the past decades, many studies have been conducted about reading comprehension and mathematical ability. Presented here is one which sought the relation between reading comprehension skills and mathematical problem-solving skills of fourth year high school students of Tagaytay City Science National High School. This study investigated the significant relationship between students' reading comprehension skills and mathematical problem-solving skills. The study of Matel (2013) derived the data from three sources: students' questionnaire, researcher-made test on mathematical problem solving, and Gates-Mac Ginitie Reading Test. Results yielded by both quantitative and qualitative analyses of students' data, revealed good reading comprehension skill level of students and fair problem-

solving skills level of students. The findings also indicated significant relationship between students' reading comprehension skills and mathematical problem-solving skills. The researcher concluded the paper by suggesting for development of practices that respond to improving reading comprehension skills which may increase the level of mathematical problem-solving skills.

Similarly, in the empirical study of Imam, Mastura, and Jamil (2013), it reported on private school students' reading comprehension skills and their academic performance in Mathematics. Informed by the issues on deteriorating performance of Filipino students in the national and international mathematics tests for the last decade, and how the Department of Education attributed this problem to students' poor reading comprehension, this study addressed the question whether the six elements of reading comprehension have relationship to academic performance of students in Mathematics. A competency-based achievement test was administered to a total of 666 students belonging to the randomly selected first year classes from 18 public and private high schools. Statistical analyses of the scores revealed that students in private schools performed better in reading comprehension skills and mathematics than their counterparts. More so, the study found out that reading comprehension skills were insignificantly correlated to private school students' mathematics performance, however, the case is different in public schools wherein three skills namely understanding vocabulary in context, getting main idea, and making inference surfaced to have connection with mathematics. The paper concluded that the overall students' reading comprehension skills were not significantly correlated to mathematics performance. Hence, the poor mathematics performance could be explained by other factors not related to reading comprehension skills.

Accordingly, in the study of Korpershoek, Kuyper, and van der Werf (2015), it aimed to investigate the relation between students' reading ability and their achievements in advanced mathematics, physics, and chemistry when controlling for their mathematical ability. The study population included 1,446 Dutch secondary school students who had taken their final examinations in these subjects. Using multivariate multilevel models, the study revealed that both math and reading ability were positively related to the examination grades on mathematics, physics, and chemistry. This relation was equally strong for boys and girls. This relation was neither moderated by students' sex, nor by students' ethnicity (Dutch versus non-Dutch origin). The present study enriches our understanding of reading comprehension skill and academic performance of students in Mathematics.

In the study of Nizoloman (2013), it investigated the relationship between female senior secondary school students' mathematical ability and achievement level in mathematics in five (5) out of eight (8) local government areas in Bayelsa State Nigeria. This study adopted multi-stage sampling technique. Data were collected from a sample of 121 female students from rural and 141 female senior secondary school students from urban schools which were randomly selected using the simple random sampling method both at the Local Government, and at the school level. Two research questions and instruments were raised for the study. The instruments used in the study were Student Mathematical Ability Test (SMAT) and Mathematical Achievement Test (MAT). Results indicated that there was a positive significant relationship between mathematical ability and achievement in mathematics. Other results revealed that mathematical ability has a significant effect on achievement in mathematics. Based on these findings, Nizoloman (2013) recommended that government should provide schools with facilities that will develop and sustain students' mathematical ability as it is a good predictor of students' achievement in mathematics.

Cimmiyotti (2013), sought in his study, the correlation between academic performance in reading and academic performance in mathematics at the primary level. The research data included 95 student performances from grades two, three, four, and five. The reading performance was based on three assessment components which included comprehension, fluency, and vocabulary. The mathematics performance was based on summative assessments conducted at intervals during the 2011-2012 academic year as well as the results from the STAR test. Statistical analyses of the study indicated that a correlation did exist between reading and mathematics performance at the early elementary level when including grades two through five. Examining each grade level individually yielded similar results. Other results revealed correlation at grades three, four, and five. However, there is no correlation at second grade between reading and mathematics performance. The correlation also appeared to grow in strength at higher grade levels.

Research Questions

This study was generally conducted to analyze reading comprehension and mathematical ability and its relationship in academic performance in Mathematics.

Specifically, the study sought to answer the following questions:

1. What are the results of reading comprehension and mathematical ability in NCAE, and academic performance in Mathematics of the students?
2. Is there a significant relationship between reading comprehension and students' academic performance in Mathematics?
3. Is there a significant relationship between mathematical ability and students' academic performance in Mathematics?
4. Is reading comprehension a predictor of students' academic performance in Mathematics?
5. Is mathematical ability a predictor of students' academic performance in Mathematics?

Scope and Limitation of the Study

The study focused on the analysis of reading comprehension and mathematical ability results in NCAE and its relationship with Grade 10 students' academic performance in Mathematics of Eugenio Cabelas National High School, SY 2016-2017.

The study was limited on the Grade 10 Junior High School students only. Its main purpose was to analyze the reading comprehension and mathematical ability results in NCAE and its relationship with grade 10 students' academic performance in Mathematics.

Research Design

The investigation used descriptive and inferential statistics. The researcher used mathematical ability and reading comprehension as independent variables, and academic performance in Mathematics of students as dependent variable. The samples underwent NCAE. Upon receiving the Certificate of Rating, the results of reading comprehension and mathematical ability were taken from it, and the academic performance of students in Mathematics from Form 138.

Sampling

The research used total enumeration of the population size. All Grade 10 students of Eugenio Cabelas National High School (School Year 2016-2017) are part of the study. Thirty-seven (37) Ginto, Forty-one (41) Safiro and Forty-four (44) Dyamante students with a total of 122 respondents. The respondents are combination of male and female.

Data Collection

This research was conducted from September 1- December 1, 2016.

The instrument used to collect data is the Certificate of Rating of NCAE. The researcher collects only the data needed for the specific objectives of the study.

Another part of the instrument is the Form 138 to determine the students' academic performance in Mathematics of Grade 10 students S.Y. 2016-2017 of Eugenio Cabelas National High School.

Data Analysis

The following statistical measurements were used in analyzing the data.

1. Mean and standard deviation. They were used to find the reading comprehension and mathematical ability result in NCAE, and academic performance in Mathematics of students.
2. Pearson Product Moment Correlation Coefficient. It was used to find out if there is a significant relationship between reading comprehension, and mathematical ability in the students' academic performance in Mathematics.
3. Multiple Regressions. It was used to determine whether reading comprehension and mathematical ability predict students' academic performance in Mathematics

Results and Discussion

Table 1

Reading comprehension result in NCAE

Variable	Mean	Std. Deviation	Descriptive Rating
Reading Comprehension	47.85	27.04	Low Average

Descriptive Rating	
Excellent	99 +
Very High	98 – 99
Above Average	86 – 97
Average	51 – 85
Low Average	15 – 50
Below Average	3 – 14
Poor	1 – 2
Very Poor	0 – 0.99

Table 1 shows the mean score and standard deviation of students' reading comprehension result in NCAE. The students have mean score of 47.85 and 27.04 standard

deviation. Based on the descriptive rating from NCAE's Certificate of Rating, the students' reading comprehension mean score obtained low average.

Table 2

Mathematical ability result in NCAE

Variable	Mean	Std. Deviation	Descriptive Rating
Mathematical Ability	40.64	23.43	Low Average

Table 2 reveals the mean score and standard deviation of students' mathematical ability result in NCAE. The students have mean score of 40.64 and 23.43 standard deviation. Based on the descriptive rating from NCAE's Certificate of Rating, the students' mathematical ability mean score is low average.

Table 3

Academic performance of students in Mathematics

Variable	Mean	Std. Deviation	Descriptor
Academic Performance in Mathematics	80.55	4.83	Satisfactory

Descriptors	Grading Scale
Outstanding	90 – 100
Very Satisfactory	85 – 89
Satisfactory	80 – 84
Fairly Satisfactory	75 – 79
Did not Meet Expectations	Below 75

Table 3 shows the mean score and standard deviation of academic performance of students in Mathematics. The students have mean score of 80.55 and 4.83 standard deviation. Based on the descriptors of Form 138, the students' mathematical ability obtained satisfactory.

Table 4*Relationship of reading comprehension and academic performance in Mathematics*

Variable	Pearson <i>r</i>	<i>p</i> – value	Interpretation
Reading Comprehension	0.485	0.000	moderately small positive correlation

*0.05 level

*significant

Correlation Coefficient

-1.00
 -0.76 to -0.99
 -.051 to -0.75
 -.026 to -0.50
 -0.01 to 0.25
 0.00
 0.01 to 0.25
 .026 to 0.50
 .051 to 0.75
 0.76 to 0.99
 1.00

Interpretation

Perfect Negative Correlation
 Very High Negative Correlation
 High Negative Correlation
 Moderately Small Negative Correlation
 Very Small Negative Correlation
 No Correlation
 Very Small Positive Correlation
 Moderately Small Positive Correlation
 High Positive Correlation
 Very High Positive Correlation
 Perfect Positive Correlation

Based from the table above, the overall test of relationship between reading comprehension result and academic performance in Mathematics of the respondents yielded a correlation coefficient of 0.485 with a p-value of 0.000 which is significant at 0.05 level. This result implies that reading comprehension is moderately small positive correlated to academic performance in Mathematics. It also suggests that there is a significant relationship between students' reading comprehension skills and mathematical problem-solving skills as cited by Matel (2013).

Table 5*Relationship of mathematical ability and academic performance in Mathematics*

Variable	Pearson <i>r</i>	<i>p</i> – value	Interpretation
Mathematical Ability	0.463	0.000	moderately small positive correlation

*0.05 level

*significant

Table 5 presents the relationship of mathematical ability and academic performance in Mathematics. Results show that there is a correlation coefficient of 0.463 and having calculated a p-value of 0.00 which is significant at 0.05 level. It suggests that mathematical ability is moderately small positive correlated to academic performance in Mathematics. This supports the study conducted by Nizoloman (2013). It can also be attributed to Early Developmental Theory which illustrates that language skills are believed to develop number concepts to have an association to numerical skills (Imam, et al. 2013).

Table 6*Predictors of Academic performance in Mathematics*

	<i>Coefficients</i>	<i>p – value</i>	<i>Adjusted r²</i>
Intercept	74.94	0.00	
Reading Comprehension	0.063	0.00	0.3029
Mathematical Ability	0.064	0.00	

*0.05 level

*significant

Table 6 reveals the predictors of academic performance in Mathematics of students. Reading comprehension yielded a correlation coefficient of 0.063 with a p-value of 0.00 which is significant at 0.05 level. It implies that for every one unit increase in reading comprehension is an additional of 0.063 unit in academic performance in Mathematics. It also indicates that the higher the reading comprehension, the higher the academic performance of students in Mathematics. This supports the journal published by Oxford Learning (2010), which says that the stronger the students' reading comprehension skills are, the greater their chances of achieving academic success. Thus, reading comprehension is a predictor of academic performance in Mathematics.

On the other hand, the mathematical ability has a correlation coefficient of 0.064 with a p-value of 0.00 which is significant at 0.05 level. It reveals that for every one unit increase in mathematical ability is an additional of 0.064 unit in academic performance in Mathematics. It also suggests that the stronger the mathematical ability, the higher the academic performance of students in Mathematics. It confirms to the study of Nizoloman (2013) that the mathematical ability is a good predictor of academic performance of students in Mathematics.

Within the same table (Table 6), it can be noted that 30.29% of variation around the mean of academic performance in Mathematics is explained by reading comprehension and mathematical ability.

While this may be a significant finding, the reading comprehension and mathematical ability accounts for only a small percentage of the variance around the mean of academic performance of students in Mathematics. This observation means that there are other factors that need to be addressed to increase the academic performance of students in Mathematics. But improving the reading comprehension and mathematical ability of students is a good start.

Conclusion

The following statements were drawn from the results of the study:

1. Students' reading comprehension and mathematical ability of students are both low average.
2. Students' academic performance in Mathematics is satisfactory.
3. There is significant relationship between reading comprehension and academic performance in Mathematics.
4. There is significant relationship between mathematical ability and academic performance in Mathematics.

5. Reading comprehension and mathematical ability are both moderately positive correlated to academic performance in Mathematics.
6. The stronger the reading comprehension of the student, the higher the academic performance in Mathematics and it also signifies that reading comprehension is a predictor of academic performance in Mathematics.
7. The stronger the mathematical ability of the student, the higher the academic performance in Mathematics and it also signifies that mathematical ability is a predictor of academic performance in Mathematics.
8. Aside from reading comprehension and mathematical ability, there are other factors which may affect the academic performance of students in Mathematics.

Recommendation

Based on the outcomes of the study, strengthening both reading comprehension and mathematical ability of the students can increase the academic performance of students in Mathematics of Grade 10 students of Eugenio Cabezas National High School for the school year 2016-2017. The following recommendations are given:

1. Teachers are encouraged to use holistic and strategic intervention in strengthening both reading comprehension and mathematical ability to improve academic performance in Mathematics.
2. A write-shop may be conducted to create lesson exemplars that lead teachers to integrate topics addressing both reading comprehension and mathematical ability without going far from learning competencies.
3. Trainings may be conducted for Math teachers, addressing the integration of reading comprehension in teaching Mathematics to improve academic performance in Mathematics.
4. Similar researches may be conducted in the school with larger sample to ascertain whether reading comprehension and mathematical ability are good predictors in academic performance in Mathematics.
5. Further studies may also use different instruments and other factors to generate the results of this study.

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**AWARENESS, ACCEPTABILITY, UNDERSTANDING AND PERCEPTION OF
THE BULACAN AGRICULTURAL STATE COLLEGE’S VISION AND MISSION,
GOALS OF ITS INSTITUTES AND OBJECTIVES OF ITS PROGRAMS**

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ABSTRACT

This study determines the extent of awareness of the respondents on the vision and mission of the Bulacan Agricultural State College, goals of its five institutes and objectives of its sixteen programs (VMGO) and how these are disseminated; evaluates the stakeholders’ level of acceptability and understanding of the VMGO; and assesses the degree of perception of the stakeholders pertaining to VMGO’s clarity and consistency, congruence and attainability.

Results show that all stakeholders of the College are moderately aware of the VMGO. It is also highly acceptable and highly understandable whether the stakeholder is an administrator or faculty, non-teaching staff, student, parent or guardian, alumni or a member of BASC community. The study also reveals that the stakeholders strongly agreed in the perception that the VMGO statements are clear, consistent, congruent and attainable.

A significant difference in the responses of stakeholders occurs as to the extent of awareness, level of acceptability or understanding and degree of perception on VMGO.

Keywords: Awareness, Acceptability, Understanding, Perception, Vision, Mission, Goals and Objectives

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INTRODUCTION

Rationale

In every organization, the vision, mission, goal and objective (VMGO) is regarded as an indispensable part of the strategic management process. Everything in the institution is vindicated only to the extent that it realizes its vision and mission [1].

State colleges and universities (SUC) in the Philippines are government institutions that have four-fold functions. These are instruction, research, extension and production; foremost among the four is instruction. Thus, the key purpose for the existence of colleges and universities is to teach and serve the students. Hence, every educational institution must have to have its own VMGO to give direction and guidance in the performance of the duties and responsibilities.

Like any other SUC in the country, the Bulacan Agricultural State College (BASC) has VMGO that leads not only the members of the faculty and non-teaching staff, but all its stakeholders: students, parents, academic and industry partners, alumni and other members of the surrounding community.

BASC has been offering relevant courses and providing opportunities for the students to develop into a competent graduate for more than six decades now. It periodically undertakes accreditation process which assesses its educational activities, in whole or in part and seeks an autonomous judgment from experts in the academe so as to confirm if the College considerably realizes its VMGO and to evaluate if it is mostly equal in quality with other SUCs. Accreditation is BASC's primary means of assuring and improving academic quality.

In line with this accreditation, the researchers conducted this study to determine the extent of awareness, level of acceptability and understanding and degree of perception regarding VMGO's clarity and consistency, congruency with activities, practices, projects and operations and attainability of the BASC stakeholders.

Objectives

This study determines the extent of awareness, level of acceptability and understanding and degree of perception of the stakeholders pertaining to VMGO's clarity and consistency, congruency to activities, practices and operations and attainability of the vision and mission of the BASC, goals of the five institutes and objectives of its sixteen programs.

Specifically, it sought to:

1. determine the extent of awareness of the stakeholders regarding the vision and mission of the BASC, the goals of its institutes, and the objectives of its program;
2. analyze the stakeholders' level of acceptability and understanding of the vision and mission of BASC, the goals of its institutes, and the objectives of its program;
3. assess the degree of perception of the stakeholders with regards to VMGO's clarity and consistency, congruency to activities, practices and operations and attainability; and

4. determine if there are significant differences on the responses of the different groups of stakeholders regarding their awareness on VMGO, understanding and acceptability of the VMGO, and perceptions on VMGO's clarity and consistency, congruency to activities, practices and operations and attainability.

Hypothesis

The study was guided by the hypothesis that stakeholders' extent of awareness, level of acceptability and understanding and degree of perception on clarity and consistency, congruency to activities, practices and operations and attainability of the vision and mission of the College and the goals of the institutes and the program objectives mean scores has no significant difference.

METHODOLOGY

Conceptual Framework

Accreditation necessitates the institution to state its vision and mission and to define in concrete terms the indicators to show that these statements are being achieved [2]. Ensuring that stakeholders have clear awareness of what they must do to achieve the objective is an effective tool for making progress. The extent of their awareness and level of acceptability and understanding confirms their support to the different programs of the college.

The conceptual framework of this study is depicted in the form of paradigm of Input – Process – Output (IPO) style shown in Figure 1.

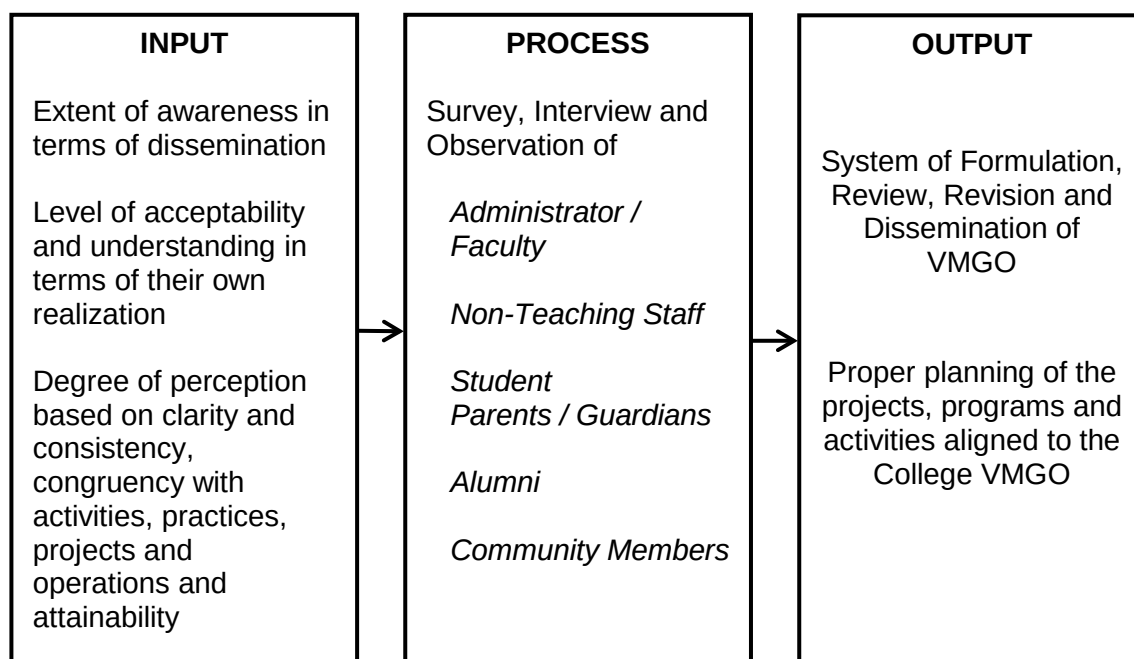


Figure 1. Paradigm of the Study

The first frame, the input, is the current extent of awareness in terms of communication media used in the dissemination of VMGO; the level of acceptability and understanding in terms of their own realization, and; the degree of perception of the stakeholders based on the congruency and attainability in terms of activities, projects and programs.

The second frame, the process, is the survey, interview and observation among the internal stakeholders: administrators, faculty members, non-teaching staff, and students, and; the external stakeholders: parents, guardians, alumni, and those from the industries, linkages and cooperating agencies.

The third frame, the output, is the system created for the formulation, review, revision and dissemination of VMGO, and; the proper planning of the projects, programs and activities aligned to the college VMGO.

Materials and Methods

This study utilized the descriptive mixed method research design which involves the quantitative-descriptive and the qualitative-descriptive design which aims to understand the quantitative result derived from the survey questionnaire and corroborates the data collected using the interview and observation conducted and generalizes the qualitative findings.

The respondents of the survey were the 500 BASC stakeholders during the second semester of Academic Year 2015-2016, who were grouped as follows: (a) administrator or faculty member, (b) non-teaching staff, (c) student, (d) parent or guardian, (e) alumni, and (f) community members (academic and industry linkages, and other cooperating agency). Stratified random sampling has been used in the study because it generally produces more precise estimates of the population [3].

An interview was also conducted as the questionnaire has been distributed to solicit the opinion and viewpoints of the stakeholders regarding the VMGO and the college operations and activities. This is being considered in giving noteworthy recommendations for the study. Meanwhile, observation of the stakeholders, programs, projects and activities was done by the researchers. This way, understanding the results of the conducted survey is facilitated.

The data collected were tabulated and analyzed using MS Excel. Appropriate statistical tools were employed in the data analysis. In particular, mean was used to determine the level of awareness on VMGO, analyze the level of acceptability and understanding of the VMGO, and assess degree of the perceptions of the stakeholders. The single factor one-way analysis of variance (ANOVA) was employed to determine the differences on the responses of the different group.

To better understand the quantitative data, the following scale and interpretations were used:

Response	Mean	Awareness	Acceptability	Understanding	Perception
5	4.2 – 5.00	Highly Aware	Highly Acceptable	Highly Understandable	Strongly Agree
4	3.4 – 4.1	Moderately Aware	Moderately Acceptable	Moderately Understandable	Moderately Agree
3	2.6 – 3.3	Aware	Acceptable	Understandable	Agree
2	1.8 – 2.5	Slightly Aware	Slightly Acceptable	Slightly Understandable	Slightly Disagree
1	1.0 – 1.7	Not Aware	Not Acceptable	Not Understandable	Disagree

RESULTS AND DISCUSSIONS

Figure 2 shows the distribution of the respondents per group. Out of the 500 respondents, 17 or 4% are the administrator/ faculty members; 7 or 1% are non-teaching staff; 350 or 70% are students; 62 or 12% are parents / guardians; 22 or 4% are alumni; and 43 or 9% are members of the community.

**Bulacan Agricultural State College's Stakeholders
2nd Semester, A. Y. 2015 - 2016**

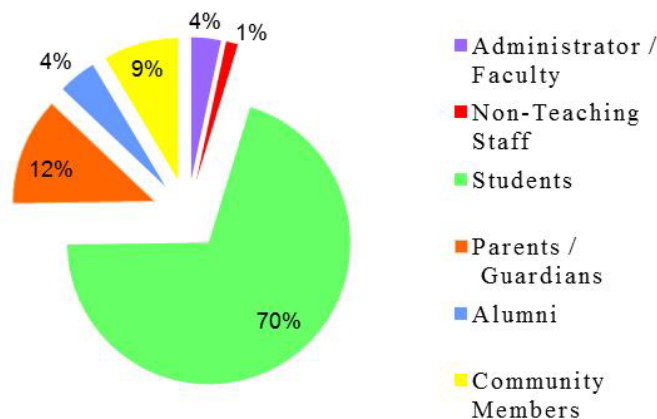


Figure 2. Distribution of the Respondents

Extent of awareness of the stakeholders regarding the VMGO

Table 1 shows that all stakeholders are moderately aware of the vision and mission of BASC, goals of the institutes and objectives of the programs. A closer look at the table reveals that the community members garnered the lowest overall mean, 3.85, although it is still interpreted as moderately aware.

Table 1. Extent of awareness of VMGO

Statement	Administrator / Faculty (n = 17)	Non - Teaching Staff (n = 7)	Students (n = 350)	Parents / Guardians (n = 62)	Alumni (n = 22)	Community Members (n= 43)	Weighted Mean (n=500)
Vision and Mission of BASC	4.90	5.00	4.08	4.50	4.14	3.81	4.16
Goals of the institute	4.90	4.57	3.79	4.31	3.86	3.91	3.92
Objectives of the program	4.90	4.57	3.93	4.27	3.68	3.84	4.00
Overall	4.90	4.71	3.93	4.36	3.89	3.85	4.03

Based from the informal interview conducted to the different stakeholders, particularly the members of the community, said that they see the VMGO statements in the different strategic location of the college during their visit, but admitted that they do not pay much attention to it. Parents, on the other hand, said that they read the BASC's vision and mission written in the student manual and program invitations brought by their children. Some of them noticed the goals of the institute and objectives of the program, but were so busy to focus on its meaning.

Table 2 shows the extent of awareness on the dissemination of VMGO and all stakeholders are highly aware that VMGO are extensively circulated - it is printed in manuals and other materials, it is being broadcasted in different media particularly in the social networking site: Facebook. VMGO are also distributed to different institutions where BASC

gained linkages. But a closer look at the table reveals that non-teaching staff and alumni garnered the lowest means of 4.00 and 4.05 respectively and interpreted as moderately aware.

Table 2. Extent of awareness on the VMGO dissemination

Statement	Administrator / Faculty (n = 17)	Non - Teaching Staff (n = 7)	Students (n = 350)	Parents / Guardians (n = 62)	Alumni (n = 22)	Community Members (n= 43)	Weighted Mean (n=500)
VMGO are printed in catalogs, manuals and other materials.	4.24	4.43	4.21	4.65	4.55	4.37	4.31
VMGO are broadcasted in media and/or internet / website	4.29	4.57	4.24	4.63	4.23	4.49	4.32
VMGO are widely disseminated to the different agencies, institutions, industry sector and the community as a whole.	4.86	4.00	4.55	4.52	4.05	4.51	4.53
<i>Overall</i>	4.46	4.33	4.33	4.60	4.28	4.46	4.39

Some non-teaching staff commented that they have little knowledge that BASC distributed calendars to different agencies with printed VMGO in it.

Level of acceptability and understanding of the stakeholders regarding VMGO

Table 3 shows the level of acceptability of the VMGO for all stakeholders. As gleaned from the table, the vision and mission of BASC, the goals of the five institutes and the objectives of the sixteen programs are highly acceptable to all stakeholders, with an overall weighted mean of 4.87.

Table 3. Level of acceptability of the VMGO

Statement	Administrator / Faculty (n = 17)	Non - Teaching Staff (n = 7)	Students (n = 350)	Parents / Guardians (n = 62)	Alumni (n = 22)	Community Members (n= 43)	Weighted Mean (n=500)
Vision and Mission of BASC	4.71	5.00	4.90	4.97	4.95	4.91	4.87
Goals of the institute	4.86	5.00	4.94	4.97	4.50	4.79	4.89
Objectives of the program	4.67	5.00	4.88	4.97	4.59	4.79	4.85
<i>Overall</i>	4.75	5.00	4.91	4.97	4.68	4.83	4.87

In the interview conducted, all stakeholders agreed that the VMGO statements will not be written and displayed in the classrooms, tarpaulins, billboards, programs and invitations, brochures and many other means if it is found erroneous by the Board of Trustees.

Table 4 shows the level of understanding of all stakeholders of BASC. These groups highly understood that the VMGO serve as criteria by which programs are developed, learning experiences are systematized, institutional procedures and materials are chosen and systems of evaluation are verified. They also highly understood that these statements serve as the College ultimate guide and that it gives meaning to its efforts. Likewise, the stakeholders have the responsibility of realizing the College's VMGO in their own capacity.

Table 4. Level of understanding of the VMGO

Statement	Administrator / Faculty (n = 17)	Non - Teaching Staff (n = 7)	Students (n = 350)	Parents / Guardians (n = 62)	Alumni (n = 22)	Community Members (n= 43)	Weighted Mean (n=500)
VMGO serve as criteria by which programs are developed, learning experiences are systematized, institutional procedures and materials are chosen and systems of evaluation are verified.	5.00	5.00	4.97	4.88	4.55	4.35	4.95
VMGO serve as the College ultimate guide and give meaning to its efforts.	5.00	5.00	4.94	4.50	4.50	4.79	4.87
Responsibility of realizing the VMGO in their own capacity.	5.00	5.00	4.88	4.59	4.59	4.79	4.84
<i>Overall</i>	5.00	5.00	4.93	4.66	4.55	4.64	4.88

One alumnus recalled how he and his classmates memorized the very long vision and mission of BASC. These statements were recited by students when they ask for their adviser's signature in their semestral clearance. He said his teacher constantly tell them to memorize the vision and mission statements by heart so they will easily recall it the next time they recite it. Memorizing VMGO by heart can be easily done when it is well understood.

Degree of perception of the stakeholders regarding VMGO

Table 5 shows the degree of perception of all stakeholders regarding VMGO's clarity and consistency, congruency and attainability.

All stakeholders strongly agreed that the VMGO is clear and consistent with the college educational and legal mandate and expected outcomes in terms of competencies, technical skills, research and extension capabilities, moral character and discipline, critical thinking skills and cultural and aesthetic values.

Likewise, all stakeholders strongly agreed that these statements are congruent with the actual educational practices and activities of the college and these are the bases of all BASC's operations. As to the attainability of the VMGO, all stakeholders strongly agreed.

Table 5. Degree of perception with regard to VMGO

Statement	Administrator / Faculty (n = 17)	Non - Teaching Staff (n = 7)	Students (n = 350)	Parents / Guardians (n = 62)	Alumni (n = 22)	Community Members (n= 43)	Weighted Mean (n=500)
On clarity and consistency	5.00	5.00	4.90	4.50	4.55	4.37	4.85
On congruency	5.00	5.00	4.94	4.31	4.23	4.49	4.83
On attainability	5.00	5.00	4.88	4.27	4.05	4.51	4.78
<i>Overall</i>	5.00	5.00	4.91	4.36	4.28	4.46	4.82

Differences of the stakeholders' awareness, acceptability and understanding and perception of the VMGO

As shown in Table 6, all $F > F_{crit}$, which means that the null hypothesis is rejected. There is significant difference in the responses of all stakeholders in the survey conducted. The administrator/faculty, non-teaching staff, student, parent/guardian, alumni and community members have different responses in their extent of awareness, level of acceptability and understanding and degree of perception.

Table 6. ANOVA on the differences on the responses of the stakeholders regarding VMGO , $\alpha=0.05$

Statement	Sources	Sum of	Mean	<i>F</i>	<i>p-value</i>	<i>F crit</i>
		Squares	Square			
Extent of awareness	Between groups	2.081	0.416	85.368	0.000	4.387
	Within groups	0.029	0.005			
	Total	2.11				
Level of acceptability	Between groups	0.284	0.057	14.254	0.003	4.387
	Within groups	0.024	0.004			
	Total	0.308				
Level of understanding	Between groups	0.444	0.089	53.875	0.000	4.387
	Within groups	0.010	0.002			
	Total	0.454				
Degree of perception	Between groups	1.448	0.290	91.478	0.000	4.387
	Within groups	0.019	0.003			
	Total	1.467				
Overall	Between groups	0.583	0.117	3.685	0.030	3.106
	Within groups	0.380	0.032			
	Total	0.963				

The aforementioned result is similar to the study conducted at the Batangas State University by Castillo [4] that there is a significant difference between the responses regarding their awareness, acceptability and understanding of the VMGO. As to the BASC stakeholders' perception of VMGO in terms of clarity and consistency, congruence to activities, practices and operations and attainability, the result is very different.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study, the following conclusions were drawn:

- All stakeholders, i.e. faculty/administrators, non-teaching staff, students, parents/guardians, alumni and those members of the community, are moderately aware of the vision and mission of BASC, the goals of the five institutes and sixteen program objectives.
- All stakeholders, i.e. faculty/administrators, non-teaching staff, students, parents/guardians, alumni and those members of the community are highly aware that VMGO are widely disseminated - it is printed in manuals and other materials, it is being broadcasted in different media; in social networking site.
- The vision and mission of the Bulacan Agricultural State College, the goals of the five institutes and the objectives of all sixteen programs are highly acceptable and highly understandable to all stakeholders. The VMGO serve as criteria by which programs are developed, learning experiences are systematized, institutional procedures and materials are chosen and systems of evaluation are verified. They also highly understood that these statements serve as the College ultimate guide and that it gives meaning to its efforts. Likewise, the stakeholders have the responsibility of realizing the College's VMGO in their own capacity.

- All stakeholders strongly agreed that the VMGO is clear and consistent with the college educational and legal mandate and expected outcomes in terms of competencies, technical skills, research and extension capabilities, moral character and discipline, critical thinking skills and cultural and aesthetic values. Likewise, all stakeholders strongly agreed that these statements are congruent with the actual educational practices and activities of the college and these are the bases of all BASC's operations. As to the attainability of the VMGO, all stakeholders strongly agreed.
- There is significant difference between the responses of all stakeholders regarding their extent of awareness, level of acceptability and understanding and degree of perception. The administrator/faculty, non-teaching staff, student, parent/guardian, alumni and community members have different responses in their extent of awareness, level of acceptability and understanding and degree of perception.

In view of the foregoing results and conclusions, the following recommendations are made:

- The College and the institute concerned should continuously work for the awareness, acceptability and understanding of the vision and mission, goals, and program objectives, respectively.
- The concerned officials and personnel should still work for the widest dissemination of the VMGO through various forms of communication media. The social networking sites may be explored for the dissemination of the VMGO.
- Should the College find it necessary to revise the vision and mission or the goals and objectives, representatives of all groups of stakeholders should be encouraged to participate.
- The administrators, faculty members, and staff assigned to conduct educational activities should make sure that the students or the community understand that such activities are to be undertaken for the realization or attainment of some goals and objectives.
- Assessment on the awareness and acceptability of the VMGO by the stakeholders should be done periodically.

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Climate Change and STEM Education in Indonesia

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Abstract

This paper is based on a literature review or secondary data to give outlook about climate change and STEM education in Indonesia. Nowadays, the climate change has become a main issue in the world. Many countries give more attention for what happen related to the earth. Climate change has caused extreme weather and some disasters in some countries. In Indonesia, climate change has given some implications for humans and nature. STEM (Science, Technology, Engineering, Mathematics) education has been a priority for Indonesia's government to be developed in the school's curriculum. In this case, STEM education aims to provide knowledge to the students about what really happen around them. They should know that the environment around them occurs significant changes and it will impact the future for sustainable development. Through STEM education, the students are stimulated to think problem-solving, critically and creatively about climate change and its implications for the world, especially in Indonesia. Some subjects taught in the school's curriculum should contain the integration of STEM and climate change. For future, the students will understand what climate change implications to Indonesia and know the solution should be done to overcome it.

Keywords: Climate change, STEM education, curriculum, students

Introduction

Nowadays, the climate change has become a main issue in the world. Many countries give more attention for what happen related to the earth. Climate change has caused extreme weather and some disasters in some countries. It is caused by global warming where there is increasing of temperature of the earth surface [Supriyanto, 2003]. Climate change is a key priority in international development [Blum & Bangay, 2010]. Since the 21st century, the earth's surface rise of 0.8°C [Sainfeld, 2011]. An increase in temperature of the earth lead to the melting of ice around the world, especially at the poles of the earth and raise the temperature of the sea [National Geographic, 2016]. Further impact of the melting of the polar ice is sea level rise, drowning islands and cities on the waterfront, flooding and erosion in coastal areas, the occurrence of large wind and the other [Susanta & Sutjahjo, 2007].

Curriculum 2013 has been implemented in Indonesia. It encourages the students to think critically and creatively through scientific method i.e. observe, ask, try, process, present, conclude, and create [Ministry of Education and Culture, 2013]. This new curriculum has been also revised so that it has had more improvement in implementing education.

For understanding climate change, the students should be taught through contextual approach occurs around them. STEM (Science, Technology, Engineering, Mathematics) education is suitable to be implemented for understanding climate change problem in the world especially Indonesia and its impact for environment around them. It has been also used to be integrated in some aspects e.g. STEM-D (Science, Technology, Engineering, Mathematics, and disaster) [Sampurno, Sari & Wijaya, 2015], and integrating Geographic Information System (GIS) and STEM [Ercan, 2016]. Thus implementing STEM education to understand climate change will be effective and useful.

Literature Review

Climate Change

Climate change is the long-term shift in weather patterns in a the specific region or globally. Climate change Refers to changes in the region's overall weather patterns, Including precipitation, Temperatures, cloud cover, and so on. Human activity contributes the greatest cause of climate change in addition to natural factors. Climate change is the caused by human activities that have resulted in an Increased concentration of greenhouse gasses in the atmosphere like carbon dioxide, methane, water vapor, ozone, nitrous oxide [Yun, 2011].

Greenhouse gases are gaseous molecules in the earth's atmosphere that can absorb infrared radiation and can increase the temperature of atmospheric. Without greenhouse gasses, the earth's surface temperature would be as low than 19°C . Thus, greenhouse gasses keep the temperature of earth's surface in 33°C . However, the atmospheric concentration of greenhouse gases have significantly increased over the past 150 years due to human activities and this increase is considered the main reason for global warming and impact to climate change[Yuliastuti, 2008]. Human activities such as the use of transport contributing significantly to the increase of CO_2 in the earth's atmosphere [Ecolife, 2011]. In addition, other activities such as deforestation, burning of forests and peatlands, changes in construction in wetlands, use of fossil fuels also help to increase the concentration of greenhouse gases in the atmosphere[Salim, 2010].

STEM Education

STEM education has been more popular in Indonesia in recent years. Many investments has been done to disseminate STEM so that it will be interesting for teachers and students [Han, Capraro & Capraro, 2014]. STEM education is also an approach to teaching and learning everywhere between two or more in components STEM or between a component STEM which other disciplines [Becker & Park, 2011]. Thus, in this paper STEM education is used to integrate climate change understanding as a concept of learning activity in the classroom.

Indonesia's School Curriculum

According to Tanner and Tanner [1995] curriculum is a “plan or program of all experiences which the learner encounters under the direction of a school”. Indonesia has had new curriculum since 2013 called Curriculum 2013. This curriculum emphasizes the students to explore their potential to produce excellent work.

Discussion

Today, environmental and climate change become a most interesting issues in all of the world. United Nations [2015] has entered problem of climate change and its impact on the agenda in 2030 for Sustainable Development Goals (SDGs). One of the targets is to improve education, increase awareness of the human and institutional capacity on climate change mitigation, adaptation, harm reduction and early warning.

Climate change understanding can be integrated in STEM education. STEM concept can explain what climate change is and what its impact to the world especially for Indonesia context.

Below are the six steps to implement climate change understanding through STEM education adapted from STEM-D [Sampurno, Sari & Wijaya, 2015]. Those are:

Observing

In this step the students are divided on some groups. The students observe the phenomena around them. The phenomena can be observed through videos or directly around them. In this step, the students observe the STEM concepts related to climate change.

Identifying and Planning

In this step students identify the problems from the phenomena they have observed, make hypothesis and develop strategies to solve the problems. The students have to make and prepare planning research work. Research work has to be contextual with condition around them. Climate change phenomena around them become main issue that they have to solve.

Discussion

The students make discussion about what they have made about their planning research work. Each group presents their work.

Question and Answer

In this step after making a discussion another group should make a question to the group who has presented their work. The questions or suggestion should be constructive to make improving in critical thinking and creative thinking.

Elaboration

The students present their result in variously. Each group makes a collaboration to each other. So that, the ideas about solution in climate change understanding on STEM concepts can be shared.

Reflective

In this step the STEM concept is cleared up related to climate change phenomena. The student's basic knowledge (STEM concept) is confirmed so that there is no misconception. So, the climate change phenomena in Indonesia is analyzed using STEM concept.

Some subjects that are suitable for teaching climate change understanding e.g. physics, chemistry, mathematics, geography, and economics. But some subjects have also several aspects that can be integrated with climate change understanding. The most important thing is STEM concept should be integrated on it.

Curriculum 2013 contains four things: spiritual attitudes, social attitudes, knowledges, and skills [Peraturan menteri pendidikan dan kebudayaan Republik Indonesia nomor 59, 2014]. The social attitudes teach the relationship of an individual with the environments around him/her. In the aspect of knowledge teach the attitude of cognitive or knowledge of both pieces of knowledge of science, mathematics, technology related to the environment i.e. climate change and its impact to the sustainability of the world.

The student's achievement of climate change understanding can be assessed by authentic assessment, self assessment, and competency test. Authentic assessment is assessment done comprehensively for assessing input, process, and output of instruction [Kementerian Pendidikan dan Kebudayaan Republik Indonesia tentang penilaian proses, 2013]. While Self assessment is reflective assessment that the student do by him/herself based on several criterias [Kementerian Pendidikan dan Kebudayaan Republik Indonesia tentang penilaian proses, 2013]. For knowing students' cognitive achievement is assessed by competency test. It is conducted to know the attainment of student's competency and it covers several basic competencies that represent core competency [Kementerian Pendidikan dan Kebudayaan Republik Indonesia tentang penilaian proses, 2013].

Conclusion

Climate Change has been main issue now. Thus, the understanding of climate change through education is needed. The global climate change case cannot be solved alone, it should be solved by working together. STEM education is an approach to achieve the goal of Indonesia's school curriculum and also SDGs of United Nation.

For future, the students will understand what climate change implications to Indonesia and know the solution should be done to overcome it. The goal of this education is forming a personal understanding of the environment and have the capacity to act in saving the environment and addressing the impact of climate change.

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CORRUPTION IN TURKISH HIGHER EDUCATION- A STUDENT PERSPECTIVE

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Abstract

It has been two years since a newspaper article which reported the corruption in Turkish academia was published referring to paid-to-be-published articles by Turkish academicians (Kaplan, 2014). According to this news, Turkish academicians launch a journal, with two “parts”. Part A is dedicated to natural sciences while Part B is social sciences based. A paper published by one of these gets citations from both Part A and Part B. So when you actually look at it, an ordinary paper gets more citations than Science. This is just an example of the corruption in Turkish academia. This article aims to demonstrate the hidden parts of higher education in Turkey with the help of anonymous students and information gathered by a well-known Turkish collaborative hypertext online-dictionary called Eksi Sozluk.

Keywords: higher education, students, corruption, academia.

INTRODUCTION

As a senior student studying at Dokuz Eylul University, I experienced lots of things not only at my home university but also at University of Coimbra, Portugal as an Erasmus exchange student and then a nationwide exchange student at Kocaeli University. However I will not generalize the things I experienced, rather add them up to the comments from both my classmates and authors of Ekşi Sözlük, which is a nationwide known website in which everybody has a voice.

Turkish education system is made up of two main parts. They are formal and non-formal. Formal education starts with non-obligatory pre-school education, followed by a mandatory primary school of 8 years and then again non-obligatory secondary education of 4 years. (MEB, 2011). Once students graduate from secondary school, they prepare for Turkish Higher Education Entrance Exam. After the exam, they get accepted to universities across the country. There are currently 183 universities in Turkey according to YÖK (The Council of Higher Education)'s official website. However, the abundance of universities does not make Turkish higher education viable. There are serious problems within the system. Akyol and Arslan (2014) say that the lack of financial, executive and academic autonomy in universities because of YÖK's ineffective management cause them not to function properly. Eventually, a generation lost in educational-tangle appears at this stage: students who do not have critical thinking skills, who are not creative and motivated. However, what I observe is, it is not only YÖK's regulations' or students' fault but also academicians.

STUDENTS' VOICE

Students like me, every day of the academic year complain about the way how we study, if it really means studying across the country. Not just the students, scholars like Celal Şengör also addressed these problems. Şengör said there were no "universities" in this country (Sönmez, 2015). Turkish linguist Sinan Bayraktaroğlu and Şengör were mostly critical of students studying at top Turkish universities who did not understand English when they gave lectures. ("Teke Tek Özel", 2016) On their English, which is my field, there are also studies why English teacher training courses are not effective. Gürkan points out the lack of pre-service training, opportunities to study abroad and monitoring pre-service teachers' English proficiency levels frequently (Gürkan, 2012).

Bayraktaroğlu says (as cited in British Council, 2016):

"...YDS (Language Proficiency Test Administrated in Turkey) cannot measure an English teacher's language proficiency. This information is also included in the Oxford report. The report says the large majority of state school teachers are at an A2 level in English. It's absolutely tragic."

Why do we hardly learn anything at higher education in Turkey? Is it only students' fault? First of all, we need to look at the requirements of getting an MA in Turkey. According to YOK, one should meet the requirements below to study in a post-graduate program in Turkey: an ALES (Academic Personnel and Postgraduate Education Entrance Exam) score above 55/100 (not necessarily required for non-thesis programs) accompanied by other non-requisite factors as GPA, written test and/or oral interview.

It indicates that there is no language barrier for the ones who wish to study a graduate program. However later if they want to study a Doctorate program, they have to get 55/100 in YDS or an equivalent test.

Universities generally ask for GPA, ALES score and YDS score for a general evaluation later to be followed by an oral interview and/or a written test. YDS is only on paper and tests grammar and reading. As a result of that, many of the graduate students cannot speak a foreign language, or simply follow a scientific seminar. I had a friend who was studying an MA in Nursing. She was a hardworking student however had a problem she wanted me to help with. She said that her lecturer wanted her to add references in English to her dissertation but she was not able to do it because she did not know English. Another example comes from my faculty: A lecturer who was about to become an associate professor asked me to translate her article's summary into English. How can a scholar who does not speak the lingua franca do research effectively? It can be really time-consuming, expensive and dull if one tries to translate everything into his mother tongue. Besides, if you are an associate professor you must know English -in this case English- enough to research for academic purposes. According to YOK, one should get at least a 65/100 score in YDS to become an associate professor. Moreover in an international conference I attended, some of the Turkish professors made it clear that they did not know English, it was so evident that some people couldn't stop themselves from laughing. It means that there is a serious language problem not only among students themselves, but also the academicians.

From a thread created in Ekşi Sözlük on university lecturers' English levels, entries follow as:

... Why do they make us translate the articles they need to read into Turkish?

("akademisyenlerin sadece İngilizce bilmesi", 2016)

"... I say 'unfortunately' because I have witnessed lecturers who have been teaching for years making students translate journals and articles into Turkish during semester or as a part of their thesis..."

("akademisyenlerin sadece İngilizce bilmesi", 2010)

In another thread:

"...the conference was international and presentations were to be given in English however our vice-rector was speaking in Turkish. Not because he was an enthusiast of Turkish of course..."

("türk tipi akademisyen", 2015)

Apart from the language proficiency which is considered crucial for scientific research, there is a significant lack of reflective teaching among university lecturers. There are many ways to elicit student feedback: choosing a class advocate for concerns, creating a discussion forum in Blackboard to allow students to post their feedback, eliciting mid-semester written, anonymous feedback... (Cortes, 2006) For my part, even though most of the lecturers I met during my studies in Turkey supported a 'reflective' way of teaching, none of them seemed to have any reflective approach in their teaching. As a part of English Language Teaching department, we learned how

vital and useful reflective teaching is. Ironically, lecturers themselves did not want to do this in the first place. But on behalf of Turkish students, here are the most common complaints I have seen/heard throughout my life as an undergraduate student:

- Teaching is teacher-oriented, not student-oriented: As a Turkish academician Özgür Bolat says:

“...I thought there was nothing to learn from students. In Turkey, teachers gave lectures. We sat and took notes, memorized them when we had exams...” (Bolat, 2012)

From a thread in Ekşi Sözlük:

“... the man (lecturer) literally reads the slides of PowerPoint...”

(“slayt üzerinden ders anlatan üniversite hocası”, 2016)

From another thread:

“Many of them are not different from the teachers in primary and secondary schools. They make you memorize formulas...”

(“türk tipi akademisyen”, 2013)

The situation is not different in my perspective. Teacher is the sole center of class while students are here to listen to them. This was not the case in University of Coimbra for most of the part. For a good example: in North American Culture class, our lecturer usually showed us a piece of art related to a historical event or an important philosophical approach, then she asked us to interpret it. Then she started giving information on the issue, the rest was up to us. There was a discussion each week and we were the center of this class. When I complained about this issue in Turkey during a class to my lecturer he said he really tried to have a student-centered class with students discussing and talking, but it eventually failed because his students asked him when he was going to teach. Apparently, students used to experience teacher-centered class so much that they automatically regard this kind of teaching a waste of time or a pointless activity.

- Bullying

Bullying by instructors is a neglected area. (Marraccini, 2013) According to a survey carried out in a university in the USA, %51 of the college students endorsed seeing another student being bullied by an instructor at least once and %18 endorsed being bullied by an instructor. (Marraccini, 2013)

Bullying is one of problems that Turkish students face. Although many of the bullying incidents are kept secret, we can see people posting online about the things they’ve experienced and suffered.

I have also been bullied by my instructors. The key factor here lies in the fact that there is no way to prevent it. Especially if it is verbal bullying. Because if you are constantly being told a “useless”, “stupid”, “ignorant”, and “a person who cannot be a teacher” you start to think of reporting this problem. However, people around you say that you should not report him/her because s/he can give you bad grades and you fail or simply say come on, you have just one year left at that university,

you will not even see him/her next year, just go with it. But it is not right if we live in a truly democratic country.

A friend of mine who studies at a private university in İstanbul also experiences a similar thing, this time a lecturer says that my friend and her classmates cannot even advance in their field or even pass the exams if they do not bow down to him or if they do not do whatever he says in the class.

Another example comes from an anonymous friend whose lecturer reportedly gives them grades based simply on what he thinks about a student. He threatens them and also says that he has friends in the university's administration and nobody can report him because of their bad grades. There are students who take the same lesson in another university during summer or even some students move to another city to complete their studies in a different university.

- Promoting memorization instead of learning

Lecturers tend to make students memorize things rather than actually learning. Reading from a variety of sources is not encouraged. Instead, only the materials that they give us can be adequate for our success in class. Different ideas are not appreciated. Their academic judgment should transfer to us without questioning. Analyzing and criticizing are generally avoided. This makes students become uncritical and deprived of creativity.

Discussion

Like many other developing countries, Turkey has its own challenges in many areas. Education is one of them. In this case, there are problems in budget, autonomy and freedom of universities as places of liberty. Up to this point of time, scholars highlighted these problems. However, these were not sufficient. We need to get into the reality, the real Turkish university environment to detect further problems. As I experienced myself and most importantly learned from my peers, there are also problems concerning our lecturers. These can be listed as following:

- Some lecturers/professors exaggerate their skills.
- Often adopt a teacher-based teaching model which can be dull.
- Follow a strict lesson plan which restricts students' creativity.
- Bully their students
- Be unfair when assessing students' exams.

To avoid these problems and have a better education system, I think lecturers should often assess their classes with appropriate classroom assessment techniques. They should ask what we feel about their teaching and be open-minded and mature to receive negative criticism. Academic staff should not be privileged. YÖK should take precautions to hear the voice of university students. Lecturers should also be evaluated on their teaching. Apart from this, memorization is still a reality in Turkish universities. Students should learn with modern education. Self-learning and learner autonomy should be encouraged. Unfortunately some lecturers seem so selfish regarding this. In addition,

language requirements of graduate programs should be updated. Academic staff who are capable of doing extensive research in English (as an international language) should be appointed. YDS exam does not test speaking, listening or writing skills but merely grammar and reading. Even though exams like TOEFL and IELTS provide testing of four language skills, they are considered to be too expensive and difficult to handle. Thus, most of the graduates rather take YDS exam. As a result of this, we have low-quality lecturers. YDS test should contain the other skills of language.

Conclusion

In this paper, I tried to reflect the mind-set of Turkish university students with their comments and stories including mine. I showed some of the obstacles we face as students, and then gave some suggestions to existing problems. There is a lack of studies on bullying in higher education in Turkey therefore it calls for action.

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COST BENEFIT ANALYSIS OF TECHNICAL EDUCATION INVESTMENT IN KENYA, A CASE OF MANUFACTURING INDUSTRIES IN KENYA, AFRICA

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Technical Vocational and Educational Training (TVET) is yet to produce adequate and skilled middle level human resource required to meet the demands for national development in Kenya. That notwithstanding, the enrolment in these levels vary yet the government of Kenya needs to achieve a ratio of 1:3:12:60 against the ideal ratio of 1:2:4:16 for technologists, technicians, crafts persons and artisans respectively. The pertinent question therefore this paper sought to address was: Why is the skill imbalance continuing? Could it be that some levels of TE are more profitable than others and therefore preferable? The objective was to establish the individual Rates of Return (Cost –Benefit Analysis) based on the different levels of Technical Education. The hypothesis tested the significant difference in rates of returns accruing to an artisan, a craftsman, technician and a technologist in manufacturing industries in Thika, Kenya. A sample size of 276 respondents was used. Stratified and simple random sampling techniques were used to select the respondents. Human capital theory was employed to show how earnings increase with additional levels of Technical Education. Regression analysis was used. Findings of the tested hypothesis revealed that there was a significant difference in rates of return across the four levels. The paper recommends that the national government should introduce free Technical Education for the first three levels and increase bursary to students as an incentive.

Key words: Private Rates of Return (PRR), Levels of Technical Education (TVET), Investment

Developing a program composition support manual: Instructions regarding the composition of novice video producers

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Abstract

Owing to the popularization of video distribution infrastructure such as YouTube, everyone can publish videos. Video content created for educational purposes is also increasing. It is expected that teachers, curators, and others will begin creating a large number of videos. Thus, it will be necessary to train individuals who can produce video content. This study discusses a method of supporting thinking regarding the composition of video content for developing human resources capable of producing video content.

We clarified where novice video producers stumble in the composition of video content. We analyzed the composition of video content that students learning video production at our university created. We saw that it is difficult for beginners to understand how to construct scenes and how to refine the contents of each scene.

We proposed the creation of a program composition support manual that would allow novice video producers to consider the composition of video content by imitating compositions prepared in advance.

In the proposed manual, novice video producers select the prepared program composition patterns and determine their program composition while imitating a given pattern. A total of 48 program compositions were prepared.

We conducted an evaluation of 33 students using the proposed manual. We demonstrated that it was possible to create good program composition using the proposed manual.

However, some students told us that “Content is hard to think of” and “The composition that I want to make cannot be found” in the manual. In the future, we will increase the usability of the manual and create more compositions of video content, of which we only have a sample.

Keywords

Video produce, program composition support manual, video composition pattern

1. Introduction

The spread of video distribution infrastructure over the Internet such as YouTube has enabled everyone to publish video content. The creation and use of video content is increasing in the field of education, as well as in other fields. It is expected that teachers, curators, and others will continue to produce videos in the future.

The production of video content requires planning, considering the video's composition, shooting, editing, and among other related steps. All these tasks, including the consideration of the video's composition require experience[1,2,3]. Since beginners in video production have no experience in this area, it is impossible for them to consider the composition of their video content appropriately. This study describes a method for beginners deliberating the video's composition.

2. Structure of video contents

Figure 1 indicates the concept employed to structure video content. As shown in the upper part of Figure 1, video content combines a plurality of content (scenes) to constitute one final product. Each scene has a topic. This topic can be an introduction of something, interview with someone, or one of a host of other possibilities. Moreover, scenes are elements in an introduction, deployment, or conclusion, which play a large role in a series of programs by combining several scenes.

The introduction attracts the audience to the program. It can provide an overview of the last program, introduce the kind of content that will begin in the subsequent section, or pose a question to the audience.

The deployment conveys specific content. It is the content that the video's creator wants to present. This content presents the largest number of scenes and is largest in the deployment portion; further, the proportion of the total time is also high.

The conclusion contains the content that the video creator wishes to fall at the end. It may cover previous content, discuss ideas for the future, or summarize the given content.

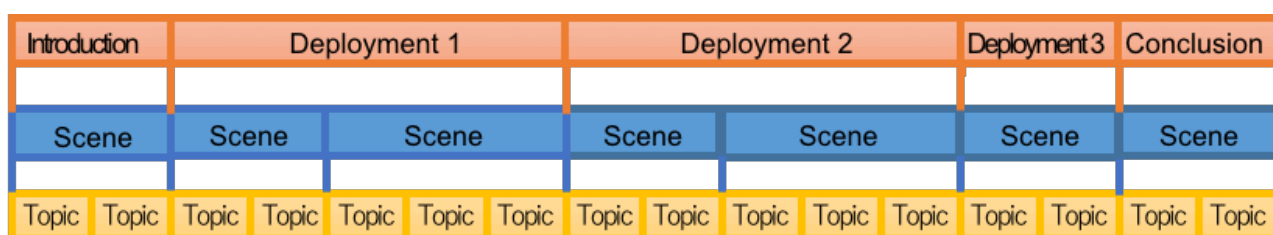


Figure 1. Structure of video content

3. Analyzing video composition of creators who are beginners

We examined beginners in video production to determine whether they stumble at any point while creating the composition of their videos. We analyzed the composition of video content created by our students who were beginning to learn about television production at our university. Specifically, we analyzed how the composition of a video is altered as you pass through three stages. The initial composition of the video is termed as the initial stage, the middle stage represents a modification of this based on the teacher's feedback, and then there was the final stage, where the video is complete.

Figure 2 indicates the method of program analysis. Each scene in the video was represented by one square figure. In this one scene, if the detailed content of a scene is related to the content of the previous scene, it is placed in a vertical relationship to that scene. If it is a transition to other content, it is placed sideways.

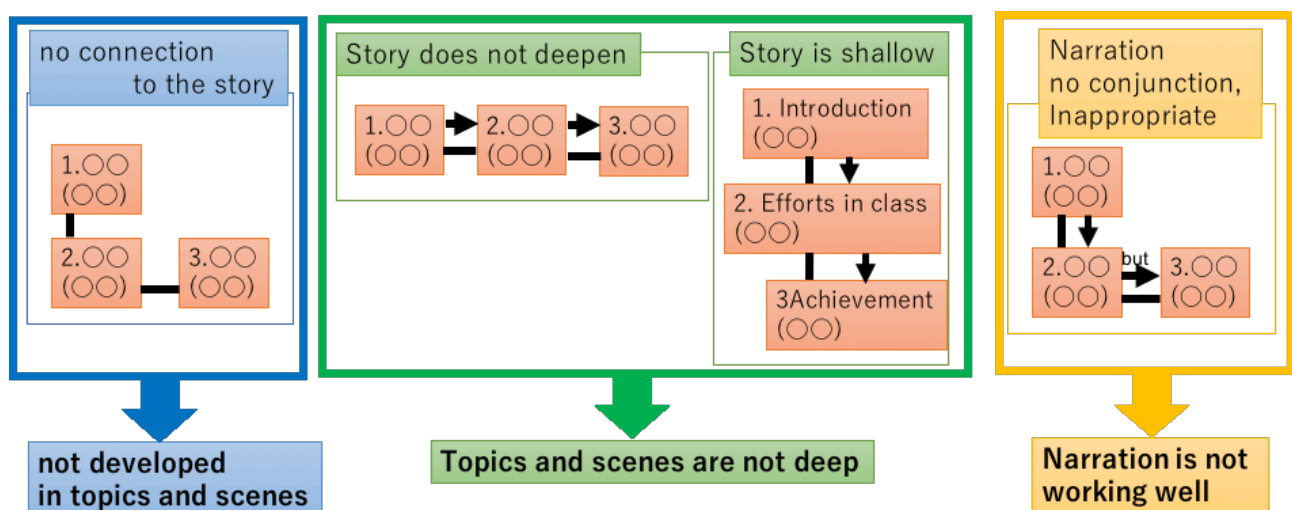


Figure 2. Method of program analysis

The results of the analysis are provided.

Case 1:

Initial stage:

Overall, many topics are considered in this video. Thus, an in depth coverage of the content cannot be provided because each topic cannot be discussed in detail. Furthermore, it has not yet been decided what is intended to be conveyed in each scene. Therefore, it is unclear what the composition of the program will convey as a whole. Overlapping parts exist.

Middle stage:

The number of topics has been reduced from the initial stage. It is possible to understand each topic one at a time. For this reason, compared with the initial stage, it is certain what the video producer wants to show in each scene. However, the intention being conveyed through each scene is still ambiguous. Overlapping parts also exist.

Final stage:

Considering each scene in its entirety has become a possibility. It becomes evident what the video creator intends to convey through the scene. The content is also organized to ensure that there were no overlapping scenes.

Case 2:**Initial stage:**

Overall, It is possible to understand the scenes and topics they thought to some extent. However, each scene or topic is not shown or examined in an in-depth manner. However, the thoughts that the video producer intends to convey through the entire video is understood, although it is not certain what he intends to convey through each scene.

Middle stage:

The development of the scenes has improved. However, scenes are still not dealt with in an in depth manner, so the content is not profound. The content remains superficial. There are some places where it could have been better by altering the order of the topics in scenes.

Final stage:

The thoughts that the video creator intended to convey are entirely evident through the composition. However, what the creator intends to convey through each scene remains superficial.

The results of this analysis reveal that beginners in video production must study the following aspects:

- How to decide where to introduce detail, where to change the topic, and the design of the entire video content.
- Further, how to refine topics in each scene.

We have discovered that these are difficult points to master. The following section describes methods for instruction in these points.

4. Program composition support manual

To support the work of beginners deliberating video composition, we propose a method of imitating the configuration by imitating the configuration of the video considered in advance. This is the same method by which a painting student can study composition and coloring by capturing a picture of a famous painter and using it to improve his or her own work.

To support beginners in video production, we developed a program composition support manual[4]. Figure 3 indicates a part of the manual.

Introduction ○○○○				Commentary
Reference camera angle	Important camera angle	Contents	Narration	Contents ○○○○○
What kind of angle of view to shoot	Be sure to shoot the angle of view	What kind of content should I include	What kind of narration is good	Narration ○○○○○
Examples of actual TV programs				Camera angle ○○○○○
Camera angle	Contents	Narration		
Example of camera angle of actual television program	Examples of contents on actual TV programs	Examples of actual narration of TV programs		

Figure 3. Program composition support manual

In the proposed manual, the video creator who is a beginner decides a model video for the content he or she intends to create from the prepared video composition patterns. By considering the introduction, deployment, and conclusion prepared in the program pattern, the student's thoughts on the composition of the video are stimulated. The proposed manual contains samples of video composition, and video production beginners consider the composition of their videos by imitating the composition of samples.

1. The creator selects the video composition pattern that he or she intends to create. In this video composition pattern, 48 patterns are prepared. These are divided into two categories: hobbies and everyday life. Hobbies are production patterns that extract the traits of the main character based on their hobbies, whereas patterns of everyday life extract the traits of the main character by being closely related to their everyday life.

2. By selecting a video composition pattern, about three or four examples of composition are shown for each video composition pattern. The creator can select the most desirable video content from among these, the closest to what they intend to create or the one that has something that they want to convey the most.
3. A narration is created according to the example composition that describes the content and its contents. In the example, cuts that must be recorded at the time of shooting are indicated. Thus, the manner of shooting the scene is also considered.

5. Evaluation

Using the proposed program composition support manual, we conducted an evaluation experiment to examine the manner in which the composition of videos would progress with its use. The subjects were 33 students attending lectures on video production at our university. They were given the task of creating documentaries on certain people and were asked about the composition of their videos.

In the evaluation experiment, we evaluated the videos they created and evaluated the questionnaire.

The evaluation of videos produced by the subjects on three levels, with reference to whether it communicates what they intended to convey and whether they understood the content of a given video. In all, 13 individuals rated their product as good, 10 individuals rated it as normal, and 10 individuals rated it as bad. Since evaluations of projects that did not use the program composition support manual for the same task were accorded 4 ratings of good, 8 of normal, and 13 of bad, it is evident that good ratings increased with the use of the manual.

We conducted a questionnaire to the subjects. In all, 32 individuals responded to the questionnaire: 29 (82%) individuals used the program composition support manual when working on their tasks, and 24 individuals answered that they determined what they intended to convey using the manual. The evaluations of the content of 24 videos and the above-mentioned video content were cross-tabulated, and the results were 11 ratings of good (45%), 6 of normal (24%), and 7 of bad (29%). It appears that subjects who had utilized the manual had better video compositions.

Students were questioned regarding which aspect of the manual was easy to use. Responses are as

follows: “It was good because I wanted to find examples of composition.” “I obtained hints when I was in trouble.” “It was good to have many patterns.” Other students, who found it difficult to use, responded as follows: “Imagining what is written in the program composition support manual is hard.” “I cannot find something in what I wants to tell.”

In the evaluation experiment, we provided a reference video composition pattern, and the effectiveness of the program composition manual, which stimulates configuration thinking while imitating it, was demonstrated. Students had the following opinions: “The amount of information is so large that it is hard to use.” “The pattern of video composition is small.” It is necessary to modify these points in the future.

6. Conclusion

In this paper, we proposed a program composition support manual to support work in video compositions based on content patterns. In an evaluation experiment, the effectiveness of the program composition support manual was indicated. In the future, we will improve the program composition support manual based on the results of the questionnaires.

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Developing the Mathematical Mind

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Abstract

Mathematics, though exquisitely beautiful, could pose an intimidating challenge to many, especially young people. How shall we then make them appreciate the elegance and beauty of Mathematics? This paper shall consider some innovative ways to teach mathematics to the younger minds and make them develop an enthusiastic mind for mathematics by themselves. There shall be four main parts to this paper, as to four different ways of approaching the teaching of mathematics. Firstly, how to approach mathematics through the abstraction, for abstraction lies at the heart of mathematics. Very simple examples shall be considered that would make children think an ordinary thing in an abstract way. It can be seen that it would be immensely helpful in their future if they develop a mind to think abstractly. Secondly, approaching mathematics through puzzles. Puzzles can be a very useful tool to teach children to develop a mathematical mind. There could be many ways to solve a puzzle and it shall be demonstrated how to solve it in a more mathematical way. Here an example shall be considered, a puzzle though deceptively simple yet brings about a beautiful and unexpected mathematical solution. Thirdly, even mathematical jokes can be used as a way to convey mathematical ideas. Indeed one can see that only those who are very clear about the mathematical concepts will be in a position to appreciate the mathematical humor. We shall consider few examples here as well. Finally, how to appreciate the mathematics in everyday life. There are so much of mathematics around us even in some unexpected things and some ways to implement this in real life shall be discussed. This would help the children to observe pattern by themselves and think mathematically about the problems that they need to solve. Thus this paper proposes some different ways to reach the younger minds and make them develop a deep affection and love towards mathematics and help them to be able to think mathematically, for they are the ones who will be carrying the knowledge to the future.

Introduction

The word 'Mathematics' strikes a kind of strange fear into the hearts of some, if not many children. Many children do not perform well in mathematics and even among those who perform well, some do not understand the essence of mathematics. It is true that mathematics is a subject which is very abstract in nature and not every child who encounters mathematics would be a Gauss or a Ramanujan but still there is so much beauty in mathematics which can be enjoyed by many if it is taught in the right way. The challenges that are faced by the teachers when they teach mathematics and some ways to rectify them are discussed in this paper.

Challenges

One of the main reasons that children find mathematics tough and not something to be enjoyed like some other subjects is due to the way of teaching. But before rushing in to blame the teachers for this, we ought to consider some of the constraints that they face. In the daily 'Times of India' dated 17th August, 2014, appeared an interview of the Fields Medal winner Manjul Bhargava. He has said that the teaching of mathematics in India is robotic and insisted that we make it creative and that children should be exposed to its beauty early. But the problem is that the educational system in India for the most part is mark oriented. The more mark you get the easier it is for you to get admitted into colleges and universities. Richard Courant notes that the teaching of mathematics has sometimes degenerated into empty drill in problem solving and though it may develop formal ability but may not lead to real understanding or greater intellectual independence [6]. Of course there are exceptions since some of the most prestigious institutions in India like the Indian Institute of Technology and some other institutes do not consider only the marks that students obtain as the qualification to enter their institutions but they conduct their own highly competitive examinations to check the ability of the student. But this isn't the case mostly. There are schools which insist that students get the full mark in subjects like mathematics and sciences and even the pattern of examination is more about testing the memory power of the students rather than their abilities to comprehend the concepts. Teachers would be obviously pressurized to produce a good result and would be in a hurry to finish the topics that they have to teach soon so that the students can start studying the same thing over and over again and rote learning is in practice in many schools. No wonder the children do not develop any serious affection towards mathematics or get a chance to appreciate its beauty.

How to rectify this?

Now some ways shall be considered that can be implemented in the teaching that would make children see mathematics in a new way and it would help to kindle their

desire to learn mathematics passionately. Four methods will be discussed through which we can approach this goal.

I. The Method of Abstraction

It is in abstraction lies the real beauty of mathematics. But a word of caution here! We have to be clear what we mean by abstraction here, without getting too technical since the term abstraction has different meanings in relation to mathematics [5]. Here let us consider the term in a way to mean more like sort of a generalization. Consider the following example at the very elementary level of mathematics to make things clear. Suppose when a kid is asked to prove that the sum of two even numbers is always even, what is a good way to teach the kid to approach this proof? For this the child must be very clear in understanding what an even number is and we shall see that when a concept is defined and understood clearly, the solution would come easily. The child may try some examples like $2+2$, $6+8$, and so on and find that the result is always even. But this is not considered a proof in mathematics. Suppose that the child has a clear idea what an even number is that is any integer that can be exactly divided by two. Or it can be put this way, any integer that can be written in the form of $2n$, where n is an integer. This is where the beauty of generalization begins. No longer, importance is given to the individual numbers no matter how big they are and how many numbers can be found, but rather in a general way of writing down an even number. Now the proof can proceed. Let us call the two even numbers as a and b , again the principle of generalization. This signifies that the proof holds good for any two even numbers. Now since both a and b are even, write $a = 2m$, and $b = 2n$, where n and m are integers. Now adding a and b we get $a+b = 2(m+n)$. Since m and n integers $m+n$ is also an integer which would imply that the sum $a+b$ is for sure an even number. Though this is a very elementary example, introducing the concept of generalization at the very early level would help the young child to grasp the nature of mathematics and the way it is done.

II. Mathematics through puzzles

Puzzles can be a very good place to make the children get a glimpse of the real world of mathematics. Bela Bollabas, a senior research fellow at Trinity College, Cambridge writes that recreational mathematics can sharpen skills and that the collection of problems have been the stock-in-trade of mathematicians for centuries [1]. In fact the very field of Graph Theory has its origin in a puzzle which was solved by Leonhard Euler [3]. There could be many different ways to solve a puzzle but all of them need not be very elegant. An elegant solution is something that mathematicians care so much about. Now consider this puzzle. There is a room with four corners (why four? Must it always be four?) and there are certain number of rats in the first corner and there is a cat which catches some number of rats(say x) and the remaining when they go to the second corner they double in their number. The cat again comes to the second corner and catches the same number of rats here, that is x . The remaining become three times in their number when they reach the third corner and the cat again catches x and the remaining become four times in their number still the cat comes to the fourth corner and catches the same number x . But the puzzle is that there is no remaining rat. So what was the number of rats in the beginning and how many rats did the cat catch?

There could be many ways to solve this problem. One good way is solving it backwards. This is not a very difficult problem and can be solved easily and what must get

our attention is, how to proceed. Suppose the proof begins from the end, one thing to notice is that the number of rats that the cat catches must be equal to the number of rats in the fourth corner and one more clue is that it must be a multiple of four. That's a right place to begin. Noticing that it must be a multiple of four narrows down our search very much. Solving, the solution is obtained as the number of rats were 41 and the number that the cat caught was 24.

This is where the puzzle ends and mathematics begins. It can be easily observed that 41 and 24 is the smallest possible solution and any integer multiple of them would be a solution as well. Going one step further ask the question why must it be four corners? Why not three or hundred? To pose the problem in purely number theoretical way, one must find a pair of integers (x,y) such that subtracting y from x and doubling the result and subtracting y again then tripling the result and subtracting y again and so on till one arrives at the difference as zero. And one can obtain different pairs of (x,y) depending on the number of corners that we choose. Denote the pairs as β_n where n denotes the number of corners. The solution is straight forward and first few solution pairs are, $\beta_2 = (3,2)$, $\beta_3 = (5,3)$, $\beta_4 = (41,24)$, $\beta_5 = (103,60)$. For the general case one obtains the solution as $a/nk = \sum 1/n!$, where a is the number of rats and nk is the number of rats that the cat ate. When the number of corners tend to infinity the solution ratio approaches $e-1$.

Such a simple looking puzzle has such a beautiful elegant pattern behind it! The teachers can spend at least one period in a week to make the kids work out puzzle and help them develop their problem solving skills and for the senior classes they can give some projects which can be the generalization of any simple puzzle. Problem solving is a very important skill in mathematics and it must be taught very early on.

III. Mathematics through jokes.

This might be surprising for many and they might wonder how jokes could be helpful in teaching mathematics. Consider this shortest joke in mathematics 'Let epsilon be less than zero'. It may not be a joke, though anyone who chuckle must definitely be a mathematician they say. Why is that so? Technical jokes actually go directly to the heart of a concept and only those who are strong in it will be in a position to appreciate it.

Now consider this famous joke. An astronomer, a physicist and a mathematician are on a train in Scotland. The astronomer looks out of the window, sees a black sheep standing in a field, and remarks, "How odd. All the sheep in Scotland are black!" "No, no, no!" says the physicist. "Only *some* Scottish sheep are black." The mathematician rolls his eyes at his companions' muddled thinking and says, "In Scotland, there is at least one sheep, at least one side of which appears to be black from here some of the time." Funny as this could sound, this joke sheds light on a very important thing in mathematics. The nature of mathematical thinking and mathematical proof. A mathematician never comes to a conclusion based on inadequate data. The teacher can spend some time explaining to the kids how do mathematicians work and how do they think.

Consider another joke, 'A mathematician and a physicist agree to a psychological experiment. The (hungry) mathematician is put in a chair in a large empty room and his favorite meal, perfectly prepared, is placed at the other end of the room. The psychologist explains, "You are to remain in your chair. Every minute, I will move your chair to a position halfway between its current location and the meal." The mathematician looks at the psychologist in disgust. "What? I'm not going to go through this. You know I'll never reach

the food!" And he gets up and storms out. The psychologist ushers the physicist in. He explains the situation, and the physicist's eyes light up and he starts drooling. The psychologist is a bit confused. "Don't you realize that you'll never reach the food?" The physicist smiles and replies: "Of course! But I'll get close enough for all practical purposes!"

This joke beautifully explains the difference between the nature of physics and mathematics. The mathematician believes that no matter how many times you divide a length into two it will never become zero. The physicist knows this too but he knows in real world he can of course get closer to the food quickly. The use of jokes will not only help the children understand the concept better but will also make the teaching and the classroom atmosphere more lively and interesting.

IV. Mathematics in everyday life.

One comes across so many things in everyday life without even realizing how much mathematics is involved in those things. Thought it is true that one need not be so aware of all the applications of mathematics to be a mathematician but it will help us to appreciate the beauty of mathematics and also its immeasurable use in everyday life. It is easy to find so many examples around us. The very internet and the communications use so much of mathematics. The teacher can introduce these concepts to the children without too much technical details and to senior classes with some technical details after they have been exposed to the relevant concepts. It would be immensely helpful if the teacher could demonstrate how one may find mathematics in nature with beautiful examples like the connection between golden ratio and nature.

Learning mathematics with its historical background would be very helpful for the children to see the way that mathematics developed. For example the teacher can conduct a small lecture as to how geometry developed from the time of Egyptians, Babylonians and then how it took a beautiful axiomatic approach with the Greeks till the present time. The teacher can give tiny projects to group of students to make a presentation regarding the mathematics that we see in everyday life. When the students work by themselves while making their presentation, they can learn things in a more interesting and an involved way.

Kids can be encouraged to observe things we see around us in a mathematical way and try to work it out. For example the teacher may think of some usual everyday thing and ask the children to see if they could find any mathematical pattern in it. Mathematics though very abstract in its nature need not be so aloof from us and the kids must be made aware of the fact that we can find mathematical concepts almost in everything from buying grocery to very advanced telecommunication systems. Since understanding a concept is very crucial in mathematics, Mulwa notes that Students' understanding of a concept can be developed further by considering the counter-examples [2]

Conclusion

Thus in this paper some ways have been discussed through which mathematics can be made interesting and appealing to children. One can list many other ways like encouraging the kids to read the biographies of great mathematicians which would inspire them very much and encouraging them to also read books other than their textbooks. There are many popular level books which are written for interested audience without being too technical, which also can be read by senior classes. Ian Stewart writes, ‘ Schools not just yours, Meg, but around the world –are so preoccupied with teaching sums that they do a poor job of preparing students to answer(or even ask) the far more interesting and difficult question of what mathematics is’.[4] He is very correct in what he says. Asking the right question in mathematics is considered as important as, if not more important than solving it. Teachers ought to make sure that they encourage children to ask questions. If not for the questions the great mathematicians asked, there wouldn’t have been this much progress in mathematics. One should always remember that the great mathematicians too were once children. The teachers at the school level have a huge responsibility in shaping and developing the mathematical minds for the future.

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**Differentiated Instruction in the Context of College Learning:
A Case Study of Saint Dominic Students**

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Abstract

The ultimate goal of teachers in classroom is students' learning. Teachers are considered successful if they are able to make students effectively learn what are taught inside the classroom. Without students' learning, it is time that teachers look for alternative ways or approaches to ensure classroom learning. One of the important reasons why students do not effectively learn inside the classroom is their inability to follow or catch up with teaching instruction.

Some teachers forget the fact that students are different in many aspects such as in their learning skills, previously acquired knowledge, interests, motivation as well as needs in the classroom. Students particularly when they are grouped inside the classroom, have their own distinctiveness, specificities, or peculiarities. It is then the duty of teachers to recognize and identify these distinctiveness, specificities, or peculiarities and adjust their teachings according to students' different or distinctive levels of skills, previously acquired knowledge, behavior, interests, motivation and needs.

Differentiated instruction (DI) is essentially what this is all about. It is a pedagogical approach whereby teaching is adapted to each of the specific characteristics students have inside the classroom. Differentiated learning is tailoring the way teaching is delivered to students. It is applied particularly to instructional **contents**, **process**, and **product**, used by teachers, so that educational services are effectively delivered to meet the diverse needs of students (Tomlinson, August, 2000).

Differentiated instruction, which in turn allows differentiated learning, hence is about recognizing differences among students. Since teachers' ultimate goal in classroom is learning, DI is one way of making sure that students would catch up, adapt, be interested and hence learn what they are taught, given their own individual specific characteristics.

Key Words: Differentiated Instruction, Contents, Process, Product, Skills, Knowledge, Behavior, Motivation, Needs

Introduction

No two students are perfectly alike. Some are fast-learners, some are slow-learners. Each student has his or her own specific skills, knowledge, and behavior inside the classroom. And teachers should be able to identify and recognize these distinctiveness and specificities to be able to adjust their teaching accordingly.

What is Differentiated Instruction (DI)?

Teachers' ultimate goal in classroom is students' learning. Teachers are successful if they are able to make students learn what they are taught in the classroom. Without learning, it is time that teachers would search for other ways by which they could effectively teach students. One of the ways by which teachers can teach well their students is through so-called Differentiated Instruction (DI).

This is what so-called Differentiated Instruction (DI) is all about. It is a pedagogical approach whereby teaching is being adapted to each of the specific characteristics students possess while inside the classroom. Differentiated teaching is tailoring instruction with regard to **contents**, **process**, and **product**, so that educational services are effectively delivered to meet the diverse needs of students (Tomlinson, August, 2000).

In both the primary and secondary levels of education, since teachers' ultimate goal in classroom is learning, DI also allows differentiated learning. DI makes sure that students would learn what they are taught, given their own individual specific characteristics. This is why DI is indeed opposed to 'one-size-fits-all' approach to teaching, whereby teachers use the same method of delivering classroom materials and assessing students inside the classroom, as they treat all such students one and the same (Sifakis, 2013).

Since teachers are able to recognize differences among students through DI, they use methods or assessments that meet the specific needs of students. The result is greater motivation, interest or satisfaction among students, knowing that they are not left alone in learning. Likewise, DI ultimately creates the best experience for lifelong learning inside classroom not only on the part of the teachers but also on the part of the students as well (Sifakis, 2013). Through DI hence, teachers are able to effectively deliver teaching instruction while the students get to absorb them fully.

In What Instructional Levels is DI Conducted?

Differentiated Instruction is usually done by differentiating teaching approaches according to the different levels of skills and knowledge of students in the context of **content**, **process** and **product** (Nordlund, 2006; Sifakis, 2013). In the case of **content**,

teachers can adjust their **lesson plan** or teaching materials to the level of skills of each of the students. To do this, teachers can classify their students according to skill levels.

For teaching **process**, teachers can adjust the activity or process by which they deliver teaching materials to their students. This for instance can be done by adapting the method of teaching to the particular needs of the students. Thus teachers can use externally motivating instructional facilities to enhance teaching and fit these to the specific needs or situational learning of each of the students (Zwiers, 2008; Snowman, McCown and Biehler 2012; Sergio, Licauco & Garcia, 2015). Teachers in turn can use motivating instructional method, i.e., memorable images or sceneries that would readily be interesting for each of the students.

In the case of teaching **product**, which essentially is the expected outcome/s of instruction, teachers can distinguish different learning outcomes for each kind or group of students. Through product differentiation, teachers can adjust their assessment depending on the students' level of skill or knowledge to achieve specific learning outcomes. Incidentally, assessment can refer to tools or mechanisms used to systematically gather information about students' learning progress so as to create informed decision about students' learning (Walvoord, 2017).

How Are Students Differentiated to Adjust Teaching?

To adjust accordingly instructional contents, process and products, students can be classified as a way of differentiating them. There are many ways that students may be classified, some of which are on the basis of: 1) their age; 2) racial or family background; and 3) learning styles (Nordlund, 2006). Hence by knowing the age of the students, teachers would be able to determine the psycho-motor skills and capacity of each of the students subject to learning.

Also, by understanding racial or family background of students, teachers would also be able to know recognize their behavioral characteristics. Likewise, by identifying the learning styles of the students, teachers would be able to know each of the students' peculiarities, i.e. personal attitude and behavior, level of motivation, preference for studying, materials they use to study, etc. As a result teachers can appropriately adjust their instructional materials, methodology or assessment.

Thus, as an example in real situation, there are students who are considered more introvert or those that do not usually mingle with their classmates during the conduct of classroom activities. In most cases, it will be observed that the more appropriate approach relevant for introverted learners, is student-centered classroom learning (greater 'scaffolding') rather than the teacher-led classroom teaching (less 'scaffolding') because most of the time, they are not likely or they are hesitant to ask questions or participate in active discussions (Lawrence, 2015). Likewise, for extroverts, who mingle more with their classmates when classroom activities are being conducted, a more teacher-led classroom teaching is observed to be more appropriate since such students would naturally participate

in class and are inclined to prefer a more active, dynamic and more participative class discussion (Lawrence, 2015).

But students are more commonly classified into three levels of knowledge such as *Exemplary, Competent and Developing* (Brown University, 2017). Depending on the phase of learning, exemplary students are considered ‘fast learner’, average students are ‘average learner’ while developing students are ‘slow learner’. To apply differentiated learning, teachers should be able to differentiate their teaching either in the context of content, process or product.

In this study, students are differentiated according to whether they are exemplary, competent and developing. Such classification was derived by grouping of students according to their past performances. Differentiated instruction in turn is applied within the context product or mainly on the assessment of these students.

Main Questions

The main question for this research is: How does DI in terms of differentiated assessment affect the classroom performance of students?

The sub-questions are:

- a) Using differentiated assessment does the general performance of students improve or worsen?
- b) Using undifferentiated assessment, does the general performance of students improve or worsen?

Methodology

Triangulation of research methods. In this study, *triangulation* is used to combine two methodological approaches, namely, *case study approach* and *grounded theory approach*. Typically, triangulation involves the use of two research approaches to strengthen the validity of findings in the study (Laws, 2004; Yin, 1984).

On the one hand, conducting a case study is like conducting investigation on a specific phenomenon in ‘a real-life’ situation (Yin, 1984). On the other hand grounded theory is intended to strengthen findings from case study, by deriving essential information from experiences of participants in the study (Tobin & Begley, 2002.). Through the use of case study, the researchers have gone through the experiences of student-participants. Through the use of grounded theory, the researchers generated an explanation (theoretical) on the process, action or interaction in the experiences of the students on whether DI has indeed helped in improving learning of college student.

Sampling method and collection of data. Using stratified sampling, two sets of sample-students were subject to a case study. The two sets of sample-students belong to two corresponding classes, being taught by one of the authors in the study. The sample students in each of the two classes are classified into *Exemplary*, *Competent* and *Developing*.

Differentiated Assessment. An assessment of learning through corresponding test was then administered to students in both classes. The test papers for each class were divided into three sets, *difficult*, *standard* and *easy*, which were distributed respectively to *exemplary*, *competent* and *developing* students. The resulting scores and average of such scores for the exemplary, competent and developing students were then computed and taken for each class. An interview was also conducted in relation to the results. Salient points of the interview were then taken and compiled.

Undifferentiated Assessment. Another test papers were distributed to the students in both classes. This time, the test papers were all one and the same and that no classification was made whether they are difficult, standard or easy. The resulting scores and average of such scores for the exemplary, competent and developing students were then computed and taken for each class. An interview was also conducted in relation to the results. Salient points of the interview were then taken and compiled.

Findings (Initial)

Based on the (initial) findings, it was proven that:

1.) Using differentiated assessment, the average scores of the students in both classes were found not to be significantly different with each other. The average scores (from 1 to 10) are below one or two points than the passing score of 5.

2.) Using undifferentiated assessment, the average scores of the students in both classes vary according to each class. The first class was relative higher at 8, while the other was relatively low at 5.

The results of interview with 10 students from each class indicated the following:

“We do not like to be included in the lowest classification”

“All the exams were hard”

“We were not able to study our lessons”

“We have school activities, which prevented us from studying our lessons yesterday”

Conclusions

The result of findings on item number 1 above appeared to indicate that the use of differentiated assessment does not generally affect, i.e., improve or worsen, the performance of the students inside the classroom.

Based on the results on item number 2, it cannot readily be concluded that the use of differentiated assessment had improved or worsened. It appeared rather that in one class, the general performance of students improved while in the other class, it worsened.

It will be noted that there are other factors to focus to see why the results were almost contrary to what was expected. One is that instead of creating a sort of motivation to the students, some were disgruntled by the fact that they were classified as developing. Likewise, scores really depend on whether students were able to study or not. This is why it is important to see whether too much school activities will effectively help in improving of students or not.

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Discussion on the Influence Effect of Advertising Message on Brand Attitude under Message Framing Model: Product Involvement as Moderator

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Abstract

In advertising marketing, there are few researches on the influence of different types of advertising message on advertising brand attitude; this research takes message framing model to discuss that the influence of positive and negative advertising message on the advertising product attitude of message receiver (consumer), and takes product involvement as the moderator variable of this influence relationship; this research has put forward four research propositions with the support of related literatures and proposed management implications, research limitations and future research suggestions based on research results.

Keywords: Advertising Marketing, Message Framing, Product Attitude, Product Involvement

Conveying product information to the target consumers through advertising is a common and direct product sales method. The advertising marketing of the product is mainly aimed at popularizing product features & advantages to induce and promote purchase intention of advertising receivers. However, the common advertising marketing modes include three advertising marketing strategies such as advertising requirement mode (rational & sensible requirements), reliability of message source (degree of being trusted of the message receiver) and message pros & cons (message framing effect).

Though the research results obtained in the past have already been verified, the consumers have different acceptance levels of product in advertising due to the different marketing strategies. However, the consumers' involvement in product will also influence their consumptive attitude toward advertising product. To better consider and discuss the influence relation, the research proposition development and research framework for the future is proposed in this research.

The advertising information displayed in advertising has positive impact on consumer's product attitude no matter the positive or negative message framing is used. Besides, it's believed that the advertising effect of negative message is good. Therefore, the research proposition is put forward.

THE DEVELOPMENT OF PROPOSITIONS AND CONCEPTUAL FRAMEWORK

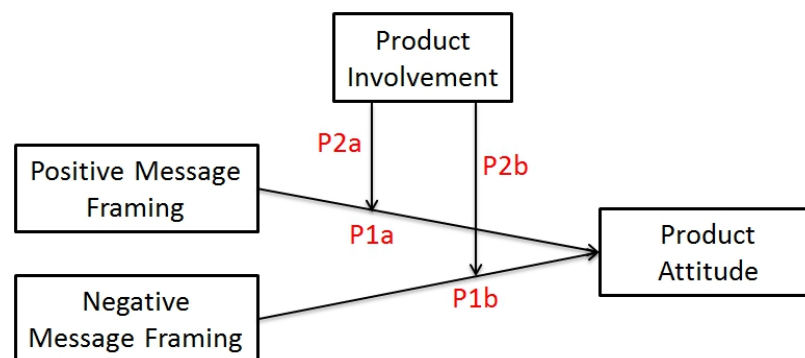
Proposition 1a: positive advertising message has positive impact on consumer's product attitude.

Proposition 1b: the advertising message with negative message framework could influence and promote consumer's product attitude than that with positive one.

The higher the consumer's involvement in advertising product the higher the consumer's acceptance and willingness of the product. The research proposition is proposed:

Proposition 2a: consumer's product involvement has impact of positively regulating the influence relationship between advertising message and brand attitude with positive attribute.

Proposition 2b: consumer's product involvement has impact of positively regulating the influence relationship between advertising message and brand attitude with negative attribute.



CONCEPTUAL FRAMEWORK

Effects of Flipped Learning on Teaching EFL with ICT and Mobile Technologies

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Abstract

E-mobile learning technologies such as the iPhone, iPad, podcasting, and video-casting, and others, are rapidly gaining popularity as an effective means to improve foreign language skills around the world. E-mobile learning is highly motivating to learners, as it offers them a rich, informal, contextual, and ubiquitous learning environment (McCarthy, Obari, Sato, 2017).

The flipped classroom describes a **reversal of traditional teaching** where students gain first exposure to new material outside of class, usually via reading or lecture videos, and then class time is used to do the harder work of assimilating that knowledge through strategies such as problem-solving, discussion or debates (Brame, C. 2013).

This study was conducted over a ten-month period during two academic semesters (April 2016 to January 2017) while students were engaged in flipped learning with ICT and mobile technologies. A total of 26 undergraduates were the participants of the study. All of the participants were native speakers of Japanese studying at a private university in Tokyo.

The blended and flipped learning activities of this study included the following: (1) students spent extensive time watching the TED Talks with iPads or a smartphone during their commuting hours and later wrote a 300-word summary of one lecture per week; (2) students created PowerPoint presentations and presented oral summaries of the TED Talks to their classmates both face-to-face and in front of the entire class; (3) students used Globalvoice CALL software to improve their English pronunciation in terms of segmental and prosodic features before their presentations; (4) students used the online program ATR CALL Brix in and out of the classroom during their free time with the use of a PC and mobile device; (5) students prepared for the special seminar between NUS and AGU and had a joint seminar at NUS in Singapore; (6) students made special movies about world religions and presented in the class.

The students were administered TOEIC as a pre-test in April 2016 and again as a post-test in January 2017. The TOEIC test results revealed that the mean scores increased from a score of 620 (SD:126) to 774 (SD: 106), which would seem to indicate

that the students improved their overall English proficiency. TOEIC pre- and post-test results were analyzed using a t-test, indicating that the difference between pre- and post-test scores of both classes were statistically significant at a 1% level.

Keywords: Flipped learning, Mobile Technologies, TOEIC Computer Test

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Evaluation of Psychological Signs of Physical Education and Sports students and Other Students of Different Academic Departments of University

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Abstract

Aim

The study was aimed at evaluating the psychological signs in terms of some variables among students who studied at the school of physical education and sports and those students who studied at different academic departments of university.

Method

This study was carried out in a descriptive scanning model. A total of 426 voluntary students participated in the study; 130 being female students (30,52) and 296 being male students (69,48).

130 of the students were female whereas 296 of them were male. 220 students studied at the school of physical education and sports while 206 of students studied at different academic departments of university.

For the analyses of the data; Portable IBM SPSS Statistics v20 package software was used. Since there is a normal distribution of the data parametric tests were performed. Personal Information Form that was designed by the researchers and The Psychological signs of the students were measured with Brief Symptom Inventory which was designed by Derogatis (1992) have been used for collecting data.

Findings and Result

The scores of the participant students who studied at the school of physical education and sports from subscales of Brief Symptom Inventory were as follows: Anxiety: 11.25 ± 8.24 , Depression: 12.21 ± 7.64 , Interpersonal Sensitivity: 10.45 ± 8.65 , Somatization: 7.54 ± 5.01 , Hostility: 6.24 ± 4.35 , Symptom Severity Index: 0.92 ± 0.58 , Global Severity Index: 26.32 ± 14.40 , Symptom Distress Index: 1.68 ± 0.80 ; respectively.

The scores of the participant students who studied at the other academic departments from subscales of Brief Symptom Inventory were as follows: Anxiety: 10.59 ± 8.45 , Depression: 10.72 ± 6.92 , Interpersonal Sensitivity: 8.86 ± 5.34 , Somatization: 6.24 ± 3.85 , Hostility: 5.87 ± 3.56 , Symptom Severity Index: 0.84 ± 0.56 , Global Severity Index: 21.43 ± 10.80 , Symptom Distress Index: 1.54 ± 0.58 ; respectively.

It was found out that there were significant differences among the students in terms of Socio-demographic variables ($p < 0.05$). It was seen that the participant students who studied at the school of physical education and sports had more psychological signs than the students who studied at different academic departments of university.

Keywords: Brief Symptom Inventory; Physical Education and Sport Students, University students.

EXPERIENCES OF HIGH SCHOOL PRINCIPALS IN MANAGING THE ACADEMIC DEVIANCY

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This phenomenological study explored the experiences of high school principals with students with derogatory records and provided valuable insights to high school principals in terms of managing the academic deviancy of students with derogatory records. Using purposive sampling, the researcher identified public and private high school principals as participants of the study. Data from the participants were generated through a semi-structured interview using validated interview questions as instrument. Results revealed that the experiences of high school principals in dealing with students with derogatory records are being feeling sorry for what happened to them, disrespecting by the parents and students, encountering bully students, comforting students' with family problems, giving them advises and opportunities, and conferencing with parents. Furthermore, school principals encountered students who misbehave, members of the gang, fighters, liars and students who tend to cut classes. These students who have derogatory records are also victims of their environment. They were just a receiver of the action being shown to them. The management style of the principal in dealing with students with derogatory records is democratic. They perform such style through delegating, empowering, consulting and empathizing. However, the impact of this management style of the high school principals to students with derogatory records are fear, strict, threat, not visible and oblige. Thus, principals should implement rules which are agreeable by the subordinate.

Keywords: academic deviancy, derogatory records, management style, high school principals, experiences.

Gesture Occurrence Analysis in a Japanese Lecture Videos

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Abstract

Among various computer-assisted self-education environments, a Pedagogical Conversational Agent (PCA) based environment suggests a distinct direction, introducing social relations between human and computer by utilizing human-likely embodied features. However, very few studies in the field of PCA research addressed types of gesture would be performed in online education. In this paper, we investigate occurrences of gestures in online lecture videos. The analyzed data included 25 lecture videos of four hours and twenty-two minute-long in total. The contents of lectures were all for high school students and the subjects of the lecture were various such as English, Math, History, etc. We had four annotators to analyze the data. Each video was analyzed by two annotators respectively. Our annotation schema had four types of gesture: iconic, metaphoric, beat, and deictic. As the results of annotation, 3,171 gestures were annotated. The gesture type most occurred was deictic gesture (46%), then second most occurred gesture was metaphoric gesture (42%). On the contrary, little of iconic and beat gestures were performed in the lecture videos.

Keywords: gesture, occurrence, lecture video

1. Introduction

A new education paradigm, as typified by the flipped classroom model, has changed the focus of education — from offering students knowledge to developing students' experience, from the teacher as a transmitter of knowledge to the teacher as a facilitator of learning. In such education processes, students are often required to learn basic knowledge and skills by themselves before the classroom activity. And, the efficacy of the classroom activity depends on the initial knowledge students have. The development of effective self-education tools, therefore, becomes an important issue in modern education.

Among various computer-assisted self-education environments, a Pedagogical Conversational Agent (PCA) based environment suggests a distinct direction, introducing social relations between human and computer by utilizing human-likely embodied features (Johnson & Rickel, 1997) (Lester, Voerman, Towns, & Callaway, 1997). The previous studies in the field have confirmed preferable effects of PCA on students' understanding and motivation, compared to text-based/audio-based instruction (Atkinson, 2002) (Moreno, Mayer, Spires, & Lester, 2001) (Heidig & Clarebout, 2011). Furthermore, to better design effective PCAs, a variety of findings in human-human communication were adopted. For example, the roles of PCA as a learning partner, and the impacts of stereotyped appearances, facial expression, audio expressions, and posture has been examined so far (Ogan, et al., 2012) (Hayashi, 2014) (Baylor & Kim, 2004) (Hasegawa, Ugurlu, & Sakuta, 2014). Likewise, the impact of gesture are naturally of great concern (Popescu, et al., 2014) (Lester, Voerman, Towns, & Callaway, 1997) (Voerman & FitzGerald, 2000).

In general conversation, it is confirmed that speakers' gestures help listeners to comprehend their speech content (Cassell, McNeill, & McCullough, 1999) (Kellerman, 1992) (Kelly, Barr, Church, & Lynch, 1999). Similarly, not only recent studies in human-human educational interaction have also pointed out that gestures in scientific explanation play an important role on students' understanding and collaborative learning (Arzarello, Paola, Robutti, & Sabena, 2009) (Reynolds & Reeve, 2001), but also some empirical studies have confirmed the learning efficacy of the use of gestures in education (Cook, Duffy, & Fenn, 2013) (Valenzeno, Alibali, & Klatzky, 2003) (Singer & Goldin-Meadow, 2005). In the field of PCA development, likewise, convey the same information included in audio instruction, the performance of verbal recall test increased, compared to when PCA used complementary gestures, which convey new information not included in audio interaction (Buisine & Martin, 2007) (Buisine, Abrilian, & Martin, 2005). Also, Buisine et al. showed that the redundant use of gestures increased the perception of quality of explanation, and likability and expressiveness of PCA. Buisine et al. examined the redundancy and complementarity of the gesture

However, little studies in the field of PCA research addressed basic nature of gesture performed in the online education such as lecture videos. In this paper, we will investigate occurrences of gestures in online lecture videos. We believe such statistics help us to develop a PCA that can perform natural and effective gestures.

2. Method

2.1. Dataset

We used on-line published lecture videos. And the data were 25 lecture videos of four hours and twenty-two minute-long in total. The contents of lectures were all for high school students and the subjects of the lecture were various. Table 1 shows the complete descriptions of the dataset. "Slides" of lecture style means a lecture where a lecturer uses a prepared digital material developed by such

as MS Power Point. On the other hand, “Black Board” of lecture style means a lecture where a lecturer uses a black/white board in the lecture, writing things to teach.

2.2. Schema

We had four annotators to analyze the data. Each video was analyzed by two annotators respectively. Our annotation schema had four types of gesture based on the following general theory.

Table 1: Summary of the data set

Num. of videos	25
Total length	4:22:42
Ave. of length	0:10:30
Num. of sentence	3,280
Lecture style	
Slides	18
Black Board	7
Subject	
English	5
Japanese history	2
World history	2
Literature	1
Classical literature	3
Geography	1
Physics	3
Math	3
Biology	3
Social Studies	2

Gestures, usually movements of the hands and arms which spontaneously occur accompanying with speech, are classified into four types, iconic, metaphoric, beat, and deictic. Iconic gestures present images of concrete objects or actions, and deictic gestures are used to indicate objects around the speaker. Iconic and deictic may be called gesture of concrete. Beats are the movements with the rhythmical pulsations of speech which index the accompanied word of phrase as being significant. Contrary to those three types, in metaphoric gestures, abstract meaning is presented as if it had form by utilizing space. For example, a speaker appears to be holding an object, meaning an abstract object, such as idea, memory, etc. This is most often seen metaphoric gesture and it is a gestural version of the ‘conduit’ metaphor.

The schema, also, had the gesture phase categorization which are preparation phase, stroke phase, and retraction phase.

3. Results and Discussion

Table 2 shows the results of all analysis and results by lecture style. As the results of annotation, 3,171 gestures were annotated in 3,280 sentences in total. The gesture type most occurred was the deictic gesture (46%), then second most occurred gesture was metaphoric gesture (42%). On the contrary, little of iconic and beat gestures were performed in the lecture videos. This tendency did not change by lecture style.

Table 2: Results of all data and results by lecture style

	Slides	Black Board	all
Sentence	2497	783	3280
Iconic	109	6	115
Metaphoric	1175	174	1349
Deictic	1201	272	1473
Beat	98	51	149
Other	67	18	85
Sum of Gesture	2650	521	3171

Table 3: Results by subject

	English	Japanese History	World History	Classic Literature	Math	Biology	Geography	Physics	Literature	Social Studies.
Sentence	643	438	162	396	270	307	265	519	77	203
Iconic	6	15	0	3	0	26	3	49	3	10
Metaphoric	212	335	9	218	94	40	115	139	7	180
Deictic	190	193	59	135	214	148	115	257	39	123
Beat	28	0	1	0	22	27	0	48	1	22
Other	19	20	0	10	3	3	11	17	1	1
Sum of Gesture	455	563	69	366	333	244	244	510	51	336

Table 3 shows the results by lecture subjects. Interestingly, we found that metaphoric gestures occurred the most in the lectures of English, Japanese History, Classic Literature, and Social Studies. On the contrary, the lectures of Math, Biology, and Physics used deictic gesture the most. This contrast indicates that lecturers who teach subjects of liberal arts less uses pointing gestures than the lecturers who teach subjects of science.

4. Conclusions

In this paper, we investigate occurrences of gestures in online lecture videos. The data we analyzed were 25 lecture videos of four hours and twenty-two minute-long in total. The contents of lectures were all for high school students and the subjects of the lecture were various such as English, Math, History, etc. We had four annotators to analyze the data. Each video was analyzed by two annotators respectively. Our annotation schema had four types of gesture: iconic, metaphoric, beat, and deictic. As the results of annotation, 3,171 gestures were annotated. The gesture type most occurred was deictic gesture (46%), then second most occurred gesture was metaphoric gesture (42%). On the contrary, little of iconic and beat gestures were performed in the lecture videos.

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**Glossophobia:
Barrier to Teachers' Performance**

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ABSTRACT

There are people who have been gifted with prowess in public speaking. Teachers are expected to perform better in public speaking because they speak regularly before their classes. However, there are those who suffer from Glossophobia, the fear of public speaking. It is brought about by an apprehension of possibilities for committed mistakes on grammar, pronunciation, irrelevant ideas, stance or appearance. It is a hindrance to the enhancement of the teachers' communication skills caused by fear.

The researcher used both qualitative and quantitative approaches to verify and describe the observations and data provided by the respondents in relation to Glossophobia. Inferential method was also used to analyze, interpret and draw inferences from data. A survey questionnaire and interview guide questions were used in data generation.

This study determined the causes, symptoms and solutions which may help teachers and other individuals learn how to get over with Glossophobia. The negative thoughts about public speaking is its natural basic cause, however, traumatic events during the childhood years, or recently incurred accident may also about lead to Glossophobia.

The researcher recommends that teachers be given greater encouragement to participate in as many activities as possible which will help them hone their communication skills. It is also recommended that they join clubs, like debate groups, through which they can improve their public speaking skills. They should maximize the use of the language they are not comfortable with. For a start, they have to apply in daily conversations what they have learned. Attending workshops and training on development of communication skills is also recommended. Wherein, they will be informed on how to properly deliver their pieces to be able to achieve self-confidence. For appropriate psychological techniques on how to deal with Glossophobia, counselling is recommended.

Keywords: Public Speaking Anxiety, Affective Strategies, Teachers' Performance

Glossophobia: Barrier to Teachers' Performance

INTRODUCTION

Millions of speeches are delivered everyday that influence thoughts, actions, decision-making and learning. From the president addressing the nation, to a homeowner speaking out against a new development in his community, public speaking affects the world in which you live and work (Byrns, 1997). Public speaking is a process of speaking and communicating in front of an audience. There are known great speakers for their determination to learn and develop their skills in speaking publicly (i.e. Abraham Lincoln, Franklin Roosevelt, John F. Kennedy, and the Great Orator, Demosthenes). There are persons who have been gifted with enviable great conversation skills, but there are the less fortunate too. If one cannot express herself in public, it gives the feeling of annoyance and frustration. Fear of public speaking is called *Glossophobia*, or stage fright. This is the fear of being embarrassed because of the feeling of committing mistakes on grammar, pronunciation, irrelevant ideas, stance or appearance. A person with Glossophobia avoids situations that require public speaking, which limits his or her decision in life and career. This fear of public speaking is a hindrance to teachers in performing their teaching job. Teachers, therefore, must know what they have to overcome. There are many causes of Glossophobia: traumatic events from the past or childhood, or some accidents that recently happened. Avoiding public speaking and thinking negatively about it can be considered as the most basic cause of the fear.

One of the most important skills that teachers need to have is the mastery of his communication skills, especially in public speaking. Having such skill will certainly help them inspire and produce students with better communicative competence. Many experts believe that teachers in far flung areas are vulnerable to fear of public speaking for many obvious reasons. It is probable that their lack of exposure and insufficient facility of the English language result in lack of self-confidence.

This study identified the causes, symptoms and solutions which are consequently explained for further understanding by teachers and other individuals who suffer from Glossophobia. Do you feel nervous? Does your heart beat faster and more intensely? Do your palms sweat? Is your throat dry? Do you get butterflies in your stomach? These feelings are natural physical responses to any situation in which you risk something (Carlin, D.P. & Payne, J., 1995). Some of the symptoms of Glossophobia are the following: (1) sweating; (2) increased heart rate; (3) feeling of nervousness; (4) panic attack; (5) dry mouth; (6) tense; (7) weak; (8) quivering voice; (9) stiff neck or upper back muscles; and (10) nausea and vomiting (<http://nativeremedies.com/ailment/overcome-Glossophobia-speech-anxiety.html>). Glossophobia is caused by many factors such as: (1) afraid of looking foolish or stupid; (2) caused by traumatic events that may have affected you as a child or during adulthood; (3) lack of self-confidence; (4) belief that everything must be perfect; (5) being pessimistic; (6) one slowly avoiding to speak publicly over a period of time, and (7) always wants complete approval (<http://nativeremedies.com/ailment/overcome-Glossophobia-speech-anxiety.html>).

This research provides a plan for overcoming the fear of public speaking. Fear has been defined as “an absence of knowledge and lack of information.” Most people are afraid

to speak in front of a group because they feel that they lack the requisite skills and knowledge to be able to present their message properly. This study reveals some techniques and provides suggestions for developing the skills one needs so that she can address any group with impact and confidence. Some techniques to overcome Glossophobia are as follows: (1) be well-prepared before speaking to a group, (2) practice your speech, (3) have a backup person (4) reduce your fear of audience, and, (5) relax yourself just before you speak (Kurtus, R., 2001).

Studies prove that English proficiency is a passageway in achieving immense higher outcomes in any achievement test. The same is true in public speaking. When the classroom teachers are the source of English literacy, they are said to be effective for they serve as models to their pupils especially in dealing with the speaking lessons. The K-12 Curriculum has recognized the importance of speaking proficiency in the day by day activities which is the focal rudiment for international connections (Luistro, A. (2012). In order to keep themselves aligned with education standards, teachers must be able to speak fluently and convincingly which also enable them to teach English subject using various techniques and strategies to reach the real learners' needs.

The teachers' speaking ability is still wanting despite the usual flow of the teaching-learning process. They have been observed as having difficulty on the use of English language in facilitating the teaching-learning process. Thus, academic outcomes of the students are affected. In a related study, (Victoria, A.M., 2013) revealed that the English proficiency of teachers affects significantly the performance of the learners in the different lessons in English. On this basis, the officials of DepEd Bulacan said that teachers' English proficiency is one of the major challenges in the elementary level.

Moreover, the school-based management assessment of selected schools in DepEd Bulacan confirmed the descriptive rating of "*developing*" and "*maturing*" in terms of instructional supervision and implementation of the curriculum. There are aspects that still have to be associated, particularly between students' performance and the way the teachers deliver their lessons using English.

Estabillo, J.S., (2014), explained that there are direct associations between and among major components of students' literacy and performance. She noted that the poor performance of students in English has a tremendous connection with the way the teacher manifests ability in speaking the language. She also mentioned that teachers' speaking ability directly influences the students' language achievement. Her personal desire to provide informative explanation on the barrier and level of speaking performance of the respondents involved in the study motivated the researcher to undertake this study.

Statement of the Problem

The general problem of this study is: How may the Philippine Department of Education (DepEd) Schools Division of Bulacan help teachers overcome Glossophobia and boost their confidence for improved performance?

Specifically, it sought answers to the following questions:

1. How do teachers describe their English speaking adeptness in terms of:
 - 1.1 perception on speaking ability, and
 - 1.2 self-regulated speaking strategies?

2. What is the level of speaking performance of the teacher-respondents as revealed in the oral language and fluency assessment in terms of:
 - 2.1 delivery
 - 2.2 speaking style
 - 2.3 content, and
 - 2.4 body language?
3. Is there a significant correlation between speaking adeptness and self-regulated speaking strategies, and the level of speaking performance of the teacher-respondents?
4. How do teachers endeavour toward improving their oral communication skills? How does DepEd provide support for such initiatives?
5. What intervention program may be put forward to address the problem of Glossophobia?

Hypothesis

The researcher was guided by this hypothesis:

There is no significant correlation between the perception on speaking adeptness and self-regulated speaking strategies, and the level of speaking performance of the teacher-respondents.

Significance of the study

The results of the study prove to be of great importance to the following:

Students. This study offers students substantial knowledge and information about Glossophobia that will in turn make them better understand the phenomenon. It also provides students possible solutions for defeating Glossophobia; techniques on how to overcome it, and confidence-boosting tips when speaking in public.

Teachers. This study helps teachers deepen their understanding about Glossophobia which will enable them to understand the state of students facing such problem. With that understanding, they will gain the qualifications to aid the students in overcoming the problem and create class lessons or integrate class lessons that will boost the student's confidence. Also, the teachers may provide easier and stronger programs that will help students in facing Glossophobia.

Curriculum Developer. The data obtained can be made as basis for necessary adjustment towards a more effective realization of the goal of Language Arts Curriculum.

Future Researchers. This study serves as a guide for future researchers. This may also open avenues for further study of the case to provide further understanding in the future.

Scope and Delimitation

This study focused on, and aimed to; determine the significant causes and solutions to the fear of public speaking. Speaking proficiency has been described based on the perception on speaking adeptness and the self-regulated speaking strategies by the teacher-respondents involved in study. The teacher-respondents were the selected Grades 5 and 6 public school teachers in the Schools Division of Bulacan who obtained bottom scores in the English Proficiency Test (EPT) which was conducted by the DepEd Central Office under the Bureau of Education and Assessment (BEA). Consequent to this, the present study was conducted during the School Year 2015-2016.

Definition of Terms

The following terms are hereby defined:

Adrenaline. A catecholamine secreted by the adrenal medulla in response to stress, trade name Adrenaline (<http://www.thefreedictionary.com/adrenaline>).

Anxiety. As used in the study, this refers to a painful or apprehensive uneasiness of mind of the teacher-respondents usually over an impending or anticipated ill (<http://www.merriam-webster.com/medical/anxiety>).

Cognitive Behavioral Therapy. Is a form of psychotherapy that treats problems and boosts happiness by modifying dysfunctional emotions, behaviors, and thoughts (<http://www.psychologytoday.com/basics/cognitive-behavioral-therapy>).

Dry mouth. This refers to the feeling of the respondents that there is not enough saliva in the mouth (<http://www.nidcr.nih.gov/oralhealth/topics/drymouth/drymouth.htm>).

Fear. As used in the study, this is an unpleasant often strong emotion caused by anticipation or awareness of danger and accompanied by increased autonomic activity (<http://www.merriam-webster.com/medical/fear>).

Glossophobia. This pertains to the fear of public speaking of the teachers involved in the study. Is a subset of “social phobia” or fear of social situations (American Psychiatric Association, 1994) or simply fear of public speaking.

Habituated. Usually low-trait anxiety people (DeNoon, D., 2006)

Homeopathic. A system of medical practice that treats a disease especially by the administration of minute doses of a remedy that would in healthy persons produce symptoms similar to those of the disease (<http://www.merriam-webster.com/medical/homeopathy>).

Hypnosis. An artificially induced trance state resembling sleep, characterized by heightened susceptibility to suggestion (<http://www.encyclo.co.uk/define/Hypnosis>).

Isolation. A lack of contact between persons, groups, or whole societies (<http://dictionary.reference.com/browse/isolation>).

Light Headedness. The condition of being dizzy or on the verge of fainting, dizziness or light-headedness, particularly when one arises to a standing position, is a predictable consequence of any medication tending to lower blood (<http://www.merriam-webster.com/medical/light-headedness>).

Medication. The act or process of treating with medicine (<http://www.merriam-webster.com/medical/medication>).

Nausea. A stomach distress with distaste for food and an urge to vomit (<http://www.merriam-webster.com/medical/nausea>).

Neutralize. To counteract the activity or effect of; make ineffective (<http://www.merriam-webster.com/medical/neutralize>).

Palpitation. A rapid pulsation; especially: an abnormally rapid or irregular beating of the heart, as that caused by panic, arrhythmia, or strenuous physical exercise (<http://www.merriam-webster.com/medical/palpitation>).

Panic. A sudden overpowering fright; also: acute extreme anxiety (<http://www.merriam-webster.com/medical/panic>).

Panic Attack. This refers to an episode of intense fear or apprehension that is of sudden onset and may occur for no apparent reason. (<http://www.merriam-webster.com/medical/panic%20attack>).

Phobia. This pertains to an exaggerated and often disabling fear usually inexplicable to the subject and having sometimes a logical but usually an illogical or symbolic object, class of objects, or situation (<http://www.merriam-webster.com/medical/phobia>).

Psychological conditions. A mental condition in which the qualities of a state are relatively constant even though the state itself may be dynamic; "a manic state".

Psychotherapy. Treatment of mental or emotional disorder or maladjustment by psychological means especially involving verbal communication (as in psychoanalysis, nondirective psychotherapy, reeducation, or hypnosis) (<http://www.merriam-webster.com/medical/psychotherapy>).

Public Speaking. This refers to the act, art, or process of making effective speeches before an audience (<http://www.thefreedictionary.com/public+speaking>).

Self-esteem. This pertains to respect for or a favorable opinion of oneself (<http://dictionary.reference.com/browse/self-esteem>).

Sensitizers. People with high-trait anxiety. "Sensitizers are those who really focus on the unpleasant indicators: 'Oh my gosh, I have to make this speech. Oh my Lord, my hands are trembling.' And they focus on these things instead of taking a deep breath or becoming more focused. They are really into the experience but react in negative ways, whereas habituaters are really into the experience and react in a more accommodating way" (DeNoon, D., 2006).

Social Anxiety Disorder (SAD). This pertains to the feeling of discomfort, fear, or worry that is centered on our interactions with other people and involves a concern with being judged negatively, evaluated, or looked down upon by others (<http://www.socialanxietysupport.com/disorder/>).

Social phobia. This refers to a type of anxiety disorder characterized by shyness and heightened self-consciousness in particular social situations (dictionary.reference.com/browse/social+phobia).

Stage fright. Also known as “communication apprehension which means being fearful; about participating in some form of communication with others.

Symptoms. Subjective evidence observed by the patient like headache et al.

Therapy. This refers to the treatment to fight fear in public speaking (<http://www.merriam-webster.com/medical/therapy>).

Traumatic events. This pertains to an experience that causes physical, emotional, psychological distress, or harm. It is an event that is perceived and experienced as a threat to one's safety or to the stability of one's world (<http://umm.edu/health/medical/ency/articles/traumatic-events>).

Trembling. To shake involuntarily, as from excitement or anger; to feel fear or anxiety (<http://www.merriam-webster.com/dictionary/trembling>).

RELATED THEORIES

The Theoretical Framework in this study was based from the following theories, literature and studies.

The Contributions of Cognitive Theory

According to Beck, A. T. (1976), “the central innovation of cognitive theory is the idea that thoughts and thought processes exert a great degree of influence over behaviors and emotions specifically in speaking”. Cognitive theory influences the concept on mental and emotional conditions, including fear and anxiety. By extension, distressing or maladaptive speaking behaviors and emotions can be linked to specific thoughts. “Cognitive therapy seeks to alleviate mental distress by changing or reinterpreting such thoughts, pronunciation, and actions” (Beck, A. T., 1976). A critical prediction of cognitive theory is that speaking anxiety problems can be successfully treated by changing their associated negative self-statements (Beck, A. T. (1976); Beck, Emery, & Greenberg, 1985)

The Self-Regulation Theory

Self-regulation theory postulates that all motivated behavior is an attempt to meet some sort of standard of comparison against which that behavior can be judged. Carver, C. S., & Scheier M. F. (1998), term this standard the “reference value”, and note that this value is highly subjective. That is, reference values for a particular behavior will vary depending on the context in which the behavior is performed, the idiographic characteristics of the individual performing the behavior, and the degree to which speaking performance feedback is available. However, all reference values serve the same basic function: providing an active standard against which the individual regulates his or her behavior. As such, to ensure that the performed behavior measures up to the corresponding active reference value, there should be an existence of behavior regulation. Self-regulation theory’s emphasis on the power of idiosyncratic and subjectively held values to influence behavioral responses is highly congruent with cognitive theory’s own claims about the relationship between subjective cognitive interpretations and behavior Beck, A. T. (1976); Ingram, R. E., & Kendall, P.C, (1987).

RELATED STUDIES

Chambless, Tran, and Glass (1997) examined predictors of response to a group-based cognitive-behavioral treatment for social phobia. After completing a course of this treatment, participants completed a variety of questionnaire-based measures along with behavioral tasks such as giving a public speech and interacting with an experimental confederate. Results indicated that cognitive changes involving decreased negative thinking during social behavior were associated with decreases in self-reported anxiety in both public speaking and dyadic interactions immediately after the end of treatment.

Ayers, J. (1988), approaching the problem of speaking anxiety from a communication apprehension framework, also noted correlational evidence linking public speaking anxiety to

negative expectations before giving a speech and negative evaluations afterwards. He applied these findings to an experimental paradigm in which half of a population of students enrolled in an undergraduate public speaking class were trained in the use of a visualization technique involving a combination of relaxation, imaginary exposure and positive thinking to prepare for a speech. In comparison to a control group of students that did not receive training in this method, speakers, using this technique, reported less anxiety while speaking and a greater proportion of self-reported positive thoughts during the speaking task. These findings appear to support the assertion of cognitive theory that interventions targeted toward increasing positive thoughts about public speaking can yield measurable reductions in anxiety.

In an extension of Woody, S. R. (1996) research paradigm, Woody, S. R., & Rodriguez, B. F. (2000) instructed participants with social phobia and non-phobic controls to give two extemporaneous speeches before a small audience. The task was again completed in pairs, with one speaker and one passive participant. As in the prior study, focus of attention was manipulated by changing the target of the speech content between the speaker and the passive participant. Analysis of the results again revealed that participants in both roles reported significantly greater anxiety when the content of the speech was focused on them. Observer ratings confirmed that participants also appeared more nervous in these conditions. Interestingly, the anxiety-increasing effect of self-focused attention occurred in both normal controls and socially phobic individuals, suggesting that the relationship between attention focus and anxiety response is not particular to the highly anxious. The latter interpretation led the authors to theorize that more pathological forms of social anxiety may be linked to greater individual tendencies toward self-focus.

Rapee, R. M., & Lim, L. (1992), conducted a study in which socially phobic individuals and non-phobic controls gave an impromptu speech before a small audience of raters, who evaluated each subject's performance and appearance of anxiety using a variety of global and specific criteria. Participants also provided ratings of their own speech performance and anxiety experience. Consistent with other research (Savitsky, K. & Gilovich, T., 2003; Stopa, L., & Clark, D.M., 1993), results indicated that participants with social phobia exhibited a significant tendency to under-rate their own performance in comparison to the ratings of others. The authors found that scores on the FNE were the only significant predictor of this self-other discrepancy, further supporting the notion that expectations of negative evaluation constitute a key determinant of social anxiety.

Daly, J.A., Vangelisti, A.L., & Weber, D.J. (1995) conducted an empirical investigation into the speech preparation strategies of anxious individuals compared to their non-anxious counterparts. Hypothesizing that speech anxiety exerts a detrimental effect on the preparation elements of public speaking, the author instructed undergraduate participants to plan an impromptu speech by verbalizing their speaking strategy into a recorder in a "think-aloud" manner during the preparation period. The participants then delivered their speech to an audience of trained raters. The recordings of their preparations were analyzed by trained raters and their verbal content was divided into distinct units reflecting previously identified aspects of preparation such as presentation concerns, speech organization, phrasing, expressions of nervousness, and others. Results indicated that higher scores on a self-report measure of speaking anxiety predicted lower performance ratings on the speech itself.

Furthermore, increases in speaking anxiety predicted less time devoted to planning critical presentation factors, such as adapting the speech to the audience and planning to fully utilize equipment such as visual aids and more time devoted to coming up with information to include in the speech and worrying about capabilities as a speaker. The researchers note

that all of the responses associated with speaking anxiety are likely to diminish one's capacity to be an effective presenter, and theorize that they are the main contributors to the observed lower performance ratings associated with public speaking anxiety. The conclusion that speech anxiety influences sufferers to focus less on preparing and executing effective presentation strategies and more on self-doubts and specific content concerns is highly compatible with Clark, D.M. & Wells, A. (1995) conceptualization of safety behavior, and indicates that avoiding preparations to relate more directly to the audience may be a safety behavior that is unique to public speaking anxiety.

RELATED LITERATURE

The following literature proved to be worth to the study from the formulation of the problems, identification of the research method up to the analysis and interpretation of data.

- **Effective Communication**

Communication is undeniably a tool to express one's ideas, thoughts and emotion. It is a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior. But effective communication is about more than just exchanging information. Effective communication requires to also understanding the emotion behind the information. It can improve relationships at home, work, and in social situations by deepening connections to others and improving teamwork, decision-making, caring, and problem solving.

Robinson, L. and Segal, J. (2012) defined effective communication as combination of a set of skills including nonverbal communication, attentive listening, and the ability to manage stress.

Effective communication helps us better understand a person or situation, enables us to resolve differences, build trust and respect, and create environments where creative ideas, problem solving, affection, and caring can flourish. As simple as communication seems, much of what we try to communicate—and others try to communicate to us—gets misunderstood, which can cause conflict and frustration in personal and professional relationships.

- **Communication Process**

The communication process is a simple model that demonstrates all the factors that can affect communication. Communication is effective if the message that is received is the same one that is sent.

Context - Communication is affected by the context in which it takes place. This context may be physical, social, chronological or cultural. Every communication proceeds with context. The sender chooses the message to communicate within a context.

Sender- Sender is a person who sends the message. A sender makes use of symbols (words or graphic or visual aids) to convey the message and produce the required response.

Message - Message is a key idea that the sender wants to communicate. It is a sign that elicits the response of recipient. Communication process begins with deciding about the message to be conveyed. It must be ensured that the main objective of the message is clear.

Medium - Medium is a means used to exchange / transmit the message. The sender must choose an appropriate medium for transmitting the message else the message might not be conveyed to the desired recipients.

Recipient- Recipient is a person for whom the message is intended / aimed / targeted. The degree to which the decoder understands the message is dependent upon various factors such as knowledge of recipient, their responsiveness to the message, and the reliance of encoder on decoder.

Feedback - Feedback is the main component of communication process as it permits the sender to analyze the efficacy of the message. It helps the sender in confirming the correct interpretation of message by the decoder.

Communication is a two-way process. Effective communication is getting your message across to the receiver. It is the sender's responsibility to make sure that the receiver gets the message and that the message received is the one sent. Communicating is not an isolated series of one skill, it involves several skills.

Barriers in communication keep us into understanding other's ideas and thoughts. Barriers can appear at any point of the communication loop.

Two Types of Barriers:

- (1) Internal barriers- fatigue, poor listening skills, attitude toward the sender or the information, lack of interest in the message, fear, mistrust, past experiences, negative attitude, problems at home, lack of common experiences, and emotions.; and
- (2) External barriers- noise, distractions, e-mail not working, bad phone connections, time of day, sender used too many technical words for the audience, and environment.

Barriers keep the message from getting through. When communicating, watch out for barriers. Monitor the actions of the receiver. Watch her body language; check to make sure the message the receiver received is the one sent—ask questions and listen.

Public Speaking

Teachers are always exposed to public speaking. It is important that they acquire skills in delivering speech in public. With effective communication skills great results are achieved, problems are solved. Public Speaking has many definitions according to different perspectives and viewpoints of people who likewise have similar thoughts. According to Carlin, D.P. & Payne, J. (1995), public speaking means one person communicating with many". It involves a continuous presentation by one individual in a face-to-face situation with an audience

According to Byrns (1997), learning public speaking is not just a physical and intellectual process but learning that involves emotions. Public speaking can be a frightening thing; it takes a lot of courage to get up in front of people. However, public speaking can provide many advantages including helping one develop important business and social skills such as self-confidence, interpersonal skills, being more extroverted and having the ability to think on your feet and express yourself clearly.

According to the Ohio State University Extension, "Good public speakers are made, not born." The skill is considered important enough that most of us are expected to look beyond any personal discomfort and find a way through; yet valid reasons exist to avoid the experience.

The University of New Hampshire Cooperative Extension advises against using distracting mannerisms during public speaking, yet these gestures may be out of your control if you find yourself experiencing a nervous or fearful reaction.

Research from Emory University shows that the fear of public speaking is common in up to 88 percent of individuals with social phobia, and 34 percent of people in the general population.

For some, anxiety surrounding public speaking may be more than a simple fear reaction; it may be a social phobia with more extreme physical manifestations such as dread, a fight flight response or even an anxiety attack. Negative experiences during public speaking may serve to support these fearful feelings and unpleasant reactions.

A good presentation takes time to write and research; it also takes extensive time to practice, particularly as the speech should be practiced multiple times before the event. The University of New Hampshire Cooperative Extension warns against depending on notes to do the speaking, memorizing a speech or writing it out in its entirety in lieu of practice.

The researcher also believe that you can become an effective speaker through instruction, exposure to different speeches, feedbacks, and your individual learning experiences Speech Apprehension.

McCroskey, J. C. (1977) defines Speech Apprehension as an "individual level of fear or anxiety associated with either real or anticipated communication with another person or persons.

Speech Apprehension can be situational rather than pervasive in a child's behavior. "A tendency to be anxious when communicating may be specific to only a few settings (e.g., public speaking) or may exist in most everyday communication situations, or may even be part of a general anxiety trait that arises in many facets of an individual's life.

Speech Apprehension is number one in global fears. This shows that most people rather die instead of talking in front a live audience (Peterson, 2005). Stage fright is one of the major concerns of students. The largest people listed in survey conducted in 1973 asked more than 2000 Americans to list their greatest fear and 41% of them listed stage fright Lucas, S.E. (2007).

According to World Health Organization, three out of every four individuals suffer from speech anxiety: that is 75% of the world population. Up to 5 percent of the world population, hundreds of millions aged between 18 and 54 years old, experience this kind of social phobia in any given year. According to Virginia Education (VEA), more than 75% of Americans suffer from a "debilitating" fear of public speaking.

Americans fear public speaking more than they fear death (Seip, R., 2006). The National Institute of Mental Health states that is an anxiety disorder typified by a relentless fear of being watched and judged by others and being embarrassed by one's own actions.

Fear of public speaking is the most common of all phobias. It's a form of performance anxiety in which a person becomes very concerned that he or she will look visibly anxious, maybe even have a panic attack while speaking. Over time, people try to protect themselves

by either avoiding public speaking or by struggling against speech anxiety. In this way, people get tricked into making the fear of public speaking more chronic and disruptive (Carbonell, 2009).

Physiological reactions:

- | | | |
|----------------------------|----------------------|---|
| • Heart rate increases | • Perspiration | • An empty or sinking feeling in the pits of your stomach |
| • Blood pressure increases | • Trembling hands | |
| | • Knees feel weak | |
| | • Face feels flushed | |

Physiological Reactions (avoidance behavior) - reveals most is lack of experience in talking to a group, tend to forget what they prepared, avoid looking at the audience, gaze out the window, study the floor, and examine the ceiling (Hanna, M. & Gibson, J.,1992)

Glossophobia

Glossophobia is a term given to a severe fear of public speaking (<http://glossophobia.com>). Fear of public speaking or Glossophobia is the most common of all phobias. It's a form of performance anxiety in which a person becomes very concerned that he or she will look visibly anxious, maybe even have a panic attack while speaking. Over time, people try to protect themselves by either avoiding public speaking or by struggling against speech anxiety. In this way, people get tricked into making the fear of public speaking more chronic and disruptive (Carbonell, D. Ph.D., 2009).

Glossophobia is number one in global fears. This shows that most people rather die instead of talking in front of a live audience (Peterson, J. (2005).

It is one of the major concerns of students, teachers and other individuals. Some surveys were already done particularly in America wherein the surveys say that 41% of Americans listed stage fright of Glossophobia as their greatest fear Lucas, S.E. (2007). According to some studies made by World Health Organization, three out of four individuals suffer from speech anxiety: that is 75% of the world population (Peterson, J., 2005).

Glossophobia can be treated in a variety of ways such as: (1) certain drugs such as beta blockers which is used to help people relax before speaking in public; (2) taking public speaking classes; (3) natural treatments such as herbal and homeopathic remedies; and (3) hypnotherapy (<http://nativeremedies.com/ailment/overcome-Glossophobia-speech-anxiety.html>).

When a person can often successfully avoid situations that require public speaking or performing, the avoidance behavior itself actually worsens the fear (Esposito, J., (2003). So fear of public speaking or Glossophobia should not be avoided and should be cured.

Many people fear public speaking. Speech impediments, innate shyness and natural tendency towards being quiet can make fears of public speaking or "Glossophobia" even more difficult. Self-employed people are sometimes put in the position of speaking in front of groups. Utilizing public speaking skills is a great way to bring in more business and it's something to embrace – not avoid (Nichols, L., 2008).

Public Speaking has benefits such as improving individual's skills. Some of the skills are the following: (1) organizational skills which allow you to improve your ability to organize ideas; (2) writing skills which allows you to compose good speeches; (3) critical thinking skills

which improve your ability to analyze; (4) research skills; (5) listening skills; and (6) allow you to develop your self-confidence Carlin, D.P. & Payne, J. (1995).

The Schools Division of Bulacan offers Training Workshop on Public Speaking to enhance their skills because we believe that Speakers are not born, they are made.

Nervousness

One of the most common symptoms of having a fear in Public Speaking or Glossophobia is nervousness. It is one of the barriers in enhancing communication skills. Nervousness is a distraction but it is not fatal or catastrophic. Harnessing public speaking skills by experiencing it slowly diminishes the tendency of having an uncontrolled nervousness (Byrns, 1997).

There are major reasons for a speaker's experiencing nervousness. The following are causes why a speaker experience nervousness: (1) fear of being stared at; (2) fear of failure; (3) fear of rejection; and (4) fear of the unknown (Gregory, H., 2005).

We all deal with nervousness but in different ways. The important thing is it does not have to make us embarrassed or frightened or upset to speak in front of other people. We can deal with that. You may be nervous but you don't have to be disabled in front of other people (DeNoon, D., 2006).

There are some ways to deal with nervousness. Some helpful ways are as follows:(1) acquire speaking experience; (2) prepare and master your speech thoroughly; (3) think positively; (4) use the power of visualization by imagining oneself doing a great speech;(5) know that most nervousness is not visible because only a fraction of nervousness can be seen; and (6) don't expect perfection because there is no such thing as a perfect speech (Lucas, S.E., 2007).

Fear

Fear strongly affects an individual's professional life and prospects for career advancement. There is clearly much lost potential for individuals and for society, due to this fear.

Fear can be controlled just remember the following principles: (1) fear is normal;(2) Even the experienced speakers have Glossophobia; (3) Your audience wants to like you; (4) You are in control; and (5) Fear can be useful because controlling fear gives you energy (Simmons, 1996).

Communication is a two-way process that involves getting your message across and understanding what others have to say. Communication involves active listening, speaking and observing. Now that you have learned the communication process, you can begin to evaluate your communication skills. Begin to watch yourself in action. Each time you communicate observe what you do, how it went, what went well, and what could have been better.

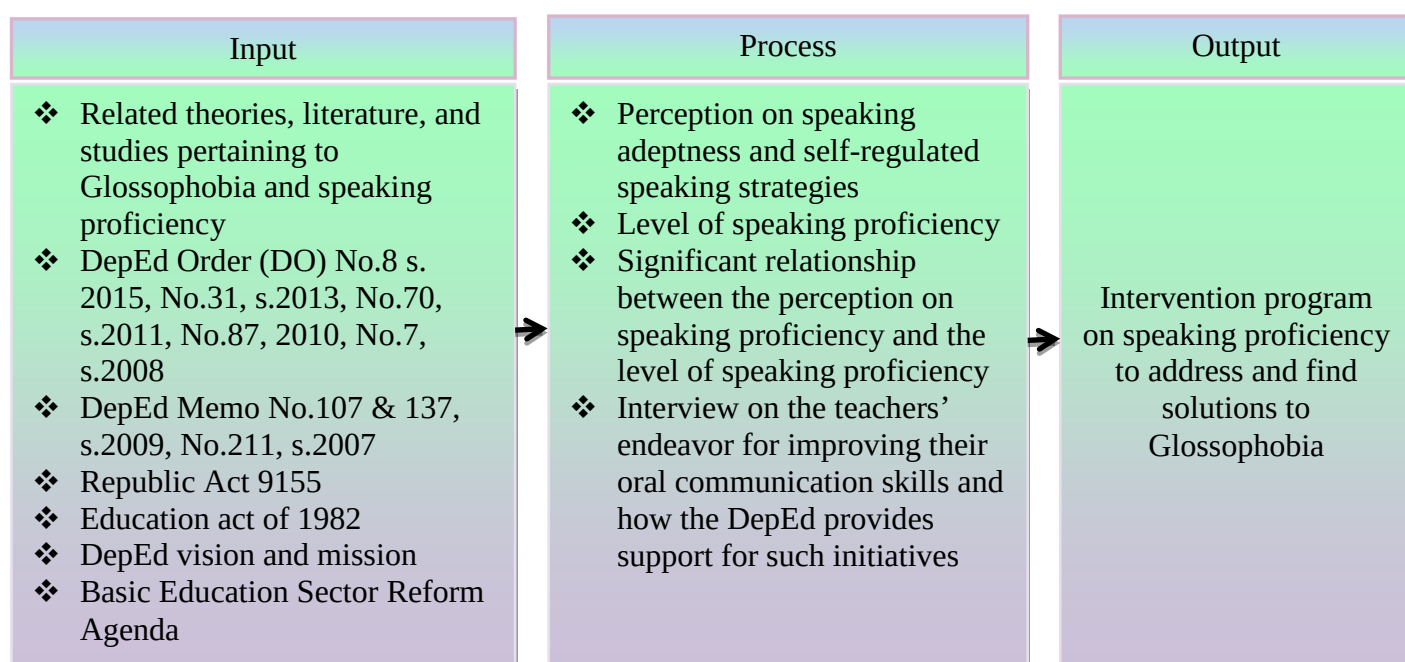
The ability to effectively communicate is a critical skill. The more you become an effective communicator the more likely you are to achieve what you want. Remember, you can improve your communication skills by observing people who communicate effectively, learning new skills, and practicing those skills. Acquiring effective communication skills will help you be a better student, parent, family member, worker, and citizen. It is clear that public speaking anxiety can negatively affect teachers' performance and interpersonal relationships due to a tendency to withdraw from communication situation. Effective communication is a major part in achieving our educational goals. Communicating effectively with teachers and peers is

essential when it comes to your learning. Remember that communication involves speaking, listening, and observing.

With these related literature, studies, and theories, the study made use of Input-Process-Output (IPO) model in presenting its conceptual framework. The Input box consisted of the relevant theories, studies, and literature as well as pertinent Republic Act, Department of Education (DepEd) Orders and Memoranda and other Philippines Education Programs which refer to the ideas and information about Glossophobia and Speaking proficiency. The Process box included perception on speaking adeptness, level of speaking performance, significant correlation between the aforementioned variables, and the standpoints and viewpoints in line with the endeavor in improving oral communication skills and how the DepEd provides support for such Initiatives. The research paradigm is illustrated in Figure 1.

Paradigm of the Study

Figure 1. Paradigm of the Study



Research Design

The researcher used complementary quantitative and qualitative approaches of research. Mixed method was utilized as a simultaneous mode of data collection during which both the quantitative and qualitative data were collated and evaluated. The researcher used qualitative and quantitative approaches in order to verify and to describe the observations and data acquisitions made from the respondents in relation to Glossophobia. Using mixed methods is a practical means for gathering data to answer research questions methodically. This collaborative approach allows for the use of all methods possible to seek pertinent data and information which are essential for understanding the teachers' speaking proficiency.

Quantitative method was used to describe the speaking adeptness in terms perception on speaking ability and the self-regulated speaking strategies by the teacher-respondents involved

in study. Also, the same method was used in order to determine the level of speaking proficiency of the respondents.

On the other hand, qualitative method was used to validate and support the results of the quantitative data and to provide answers on the premeditated qualitative questions and interview guide questions.

Descriptive method was also employed in analyzing, interpreting, and drawing inferences from these data. The researcher used the descriptive survey of research, one of the three most common types of research in education. Greater emphasis, however, is on the significance of descriptive research. A survey research instrument was used to learn about people's attitudes, beliefs, demographic facts and education in a more accurate manner pertaining to large numbers of people, yet using only a small sample.

According to Calderon J.F & Gonzales, E.C. (1993), descriptive research methodology is a purposive process of gathering, analyzing, classifying, and tabulating data about prevailing conditions, practices, processes, trends and relationships, and then making adequate and accurate interpretation about such data through statistical methods. The results of this study envision to bring to light the contributions of the Schools Division Office (SDO) of Bulacan to the education of inhabitants of the province.

Population and Sample

The respondents in the study were the 150 Grade Five and Six Teachers who took the English Proficiency Test (EPT) and have obtained low mean percentage scores. Knowing the fact that they obtained lower score in the aforementioned assessment, they were considered to be of low English speaking proficiency thus, are vulnerable to Glossophobia. The said examination was administered by the Bureau of Education Assessment during the school year 2015-2016. Involving all those concerned as respondents lends credibility and reliability to the findings of the study.

Table 1 below shows the distribution of the respondents used in the study.

Table 1. Respondents of the Study

No.	EDDIS	Respondents	
		Population	Percentage per EDDIS
1.	EDDIS I	48	32%
2.	EDDIS II	35	23%
3.	EDDIS III	37	25%
4.	EDDIS IV	30	20%
TOTAL		150	100%

Research Instrument

The researcher used questionnaires and pertinent assessment tools to get the desired responses of the target teachers involved in the study. The questionnaire answered by the teacher-respondents consisted of questions pertaining to the speaking adeptness in terms of perception on speaking ability which was adopted from Andrew, Yau-hau Tse (2013). Also, questionnaire aligned with the self-regulated speaking strategies was adopted from (Kostić-Bobanović, M., 2004). In addition, pertinent assessment tool adopted from (<http://www.go2itech.org/resources/evaluations-and-assessments>) were used to determine the level of speaking performance of the teacher-respondents.

Moreover, qualitative data were collected simultaneously for the open-ended section of the questionnaire. The respondents were transitioned into a focus group type atmosphere with the researcher acting as facilitator. This focus group interview method is consistent with the qualitative tradition of inquiry as it presented time and cost efficiency. The researcher conducted formal interviews with the teacher-respondents to answer the qualitative part of the study. The goal of the interview was to get a sense of what exists with regard to the endeavor of the teachers for improving their oral communication skills and the support of the DepEd to these initiatives.

Prior to the administration of the research instrument, the researcher conducted a thorough review of the questionnaires. The draft of the questionnaires and interview guide questions were carefully and cautiously worded so as not to cause any possible discomfort to any of the respondents. Consequently, the questions were examined as to their characteristic pertaining to eliciting information that lead to the answers to the stated problems of the study. The result of this preparation yielded a self-developed and modified instrument for this very specific purpose.

For validation purposes, the researcher sought the assistance of the Division Supervisor in charge of research, the Dean of Graduate School of the Bulacan State University and the English Department Heads.

Data Gathering Procedure

The researcher formally sought permission from the DepEd Bulacan Schools Division Superintendent and District Supervisors for the administration of the questionnaires and the conduct of interviews. A letter requesting permission for the administration of the questionnaires among the school administrators was submitted to the office of the SDO of Bulacan. After the grant of permission, the researcher personally administered the questionnaires to teacher-respondents during the meeting which was pre-arranged by her in her capacity as the Education Program Supervisor (EPS) in English. She was also the one who conducted the on the spot speaking assessment to get the level of speaking performance of the target respondents. This was done using speaking exercises and performance which included an evaluated using pertinent rubrics. Consequently, the researcher consolidated, tallied and organized the data that were obtained in the conduct of the study.

In addition to the questionnaire, a set of interview guide questions was prepared with the purpose of complementing the information for the study. The questions have been focused on the initiative by the informant-teachers to increase their knowledge of English thus improving their oral communication skills. The questions asked during structured interviews are as follows:

INTERVIEW GUIDE QUESTIONS

A. How do teachers endeavor on improving their oral communication skills?

Sub- questions:

1. What are the subjects that you are teaching?
2. What medium of instruction do you use in teaching those subjects?
3. Is the use of English language needed in teaching other learning areas? Why or why not?
4. What are the things you do to improve your oral language and fluency in English?

A. How does DepEd provide support for such initiatives?

Sub-questions:

1. What seminars or trainings on English language sponsored by Department of Education (DepEd) have you attended and participated in?
2. Do you find these useful and helpful as far as your communication skill is concerned? Why or why not?
3. How do you apply the learning imparted during the seminar/training?
4. Does the support of DepEd satisfy your needs to improve your speaking proficiency? Why or why not?

Data Processing and Statistical Treatment of the study

To describe the speaking adeptness in terms of perception on speaking ability and self-regulated speaking strategies, descriptive statistics such as weighted mean and standard deviation were utilized and translated to its corresponding verbal descriptions for appropriate interpretations. Additionally, the same statistical tools were used to describe the level of speaking proficiency of the teacher-respondents.

Also, correlation analysis was used to get and to determine the relationship between perception on speaking proficiency and the level of speaking proficiency of the target respondents. Multiple regression analysis was used to determine if significant effects existed between the aforementioned variables.

In addition, the researcher analyzed, interpreted, and summarized objectively the qualitative data of the teacher-respondents to present their views and standpoints in line with the aforementioned variables.

DISCUSSION

Assessment on Speaking Adeptness

The assessment on speaking adeptness in terms of perception on speaking ability and self-regulated speaking strategies are presented in Tables 2 and 3.

Perception on Speaking Ability

Table 2 presents the frequency and descriptive measure of the speaking proficiency in terms of perception on speaking ability, using this legend:

<u>Scale</u>	<u>Verbal Description</u>
4.21 – 5.00	Strongly Agree (SA)
3.41 – 4.20	Agree (A)
2.61 – 3.40	Neutral (N)
1.81 – 2.60	Disagree (D)
1.00 – 1.80	Strongly Disagree (SD)

This means that the higher the score is, as in 4.21-5.00 (SD), the greater possibility there is that the respondent is suffering from Glossophobia.

Table 2. Mean Assessment of the Respondents in Terms of
Perception Speaking Adeptness

Item Statements	Mean	SD	Interpretation
1. While preparing to give a speech, I feel tense and nervous.	4.86	1.0218	SA
2. I feel tense when I see the words “speech” and “public speech on the printed materials.	4.92	0.8896	SA
3. My thoughts become confused and jumbled when I am giving a speech.	4.81	0.9326	SA
4. Right after giving a speech I feel that I have had an unpleasant experience.	3.84	1.0808	A
5. I get anxious when I think about a speech coming up.	4.82	0.9749	SA
6. I have fear of giving a speech.	4.78	0.9384	SA
7. I feel nervous before, during, and after giving a speech.	4.99	0.9128	SA
8. I do not look forward to giving a speech.	4.82	1.0451	SA

9. When the supervisor/principal announces a speaking assignment in school, I can feel myself getting tense.	3.86	0.9455	A
10. My hands tremble when I am giving a speech.	4.88	0.9891	SA
11. I feel not relaxed while giving a speech.	4.91	0.9270	SA
12. I do not enjoy preparing for a speech.	4.00	0.8518	A
13. I am in constant fear of forgetting what I prepare to say.	4.85	0.9674	SA
14. I get anxious when someone asks me something about my topic and I do not know.	4.94	0.9256	SA
15. I face the prospect of giving a speech with very low confidence.	4.86	1.0218	SA
16. I feel that I am in incomplete possession of myself while giving a speech.	4.92	0.8896	SA
17. My mind is unclear when giving a speech.	4.81	0.9326	SA
18. I always worry when giving a speech.	4.84	1.0808	SA
19. I perspire just before starting a speech.	3.82	0.9749	A
20. My heart beats very fast when I start a speech.	4.78	0.9384	SA
21. I experience considerable anxiety while sitting in the room just before my speech starts.	4.99	0.9128	SA
22. Certain parts of my body feel very tensed and rigid while giving a speech.	4.82	1.0451	SA
23. Realizing that only a little time remains in a speech makes me very tense and anxious.	4.86	0.9455	SA
24. While giving a speech, I know I cannot control my feelings of tension and stress.	4.88	0.9891	SA
25. I breathe faster just before starting a speech.	4.91	0.9270	SA
26. I feel uncomfortable and not relaxed in the hour or so just before giving a speech.	4.00	0.8518	A
27. I do poorer on speeches because I am anxious.	4.85	0.9674	SA
28. I feel anxious when the supervisor/ principal announces the date of a speaking assignment.	3.94	0.9256	A
29. When I make a mistake while giving a speech, I find it hard to concentrate on the parts that follow.	4.86	1.0218	SA
30. During an important speech I experience a feeling of helplessness building up inside me.	4.92	0.8896	SA

31. I have trouble falling asleep the night before a speech.	3.81	0.9326	A
32. My heart beats very fast when I present a speech.	4.84	1.0808	SA
33. I feel anxious while waiting to give my speech.	4.82	0.9749	SA
34. While giving a speech, I get so nervous that I forget facts I really know.	4.78	0.9384	SA
OVER-ALL RATING	4.67	0.9600	SA

It can be gleaned from the numerical results that the respondents believed that while preparing to give a speech, they feel tense and nervous as revealed in the mean rating of 4.86 and 1.0218 standard deviation. It reveals that they feel tense when they see the words “speech” and “public speech” on the printed materials, “get anxious if someone asks them something about their topic and they don’t know”, and “feel that they are in incomplete possession of themselves while giving a speech” as revealed on the mean rating of 4.92, 4.85, and 4.92 with standard deviation of 0.8896, 0.9674, and 0.8896 correspondingly. Additionally, item Nos.7 and 21 got highest mean rating of 4.99 with the same standard deviation of 0.9128 in which the teacher-respondents revealed that they feel nervous before, during, and after giving a speech” and “they experience considerable anxiety while sitting in the room just before their speech starts”. Also, lowest mean ratings appeared for items No. 12 and 26 wherein the respondents affirmed that they do not enjoy preparing for a speech” and “they feel uncomfortable and not relaxed in the hour or so just before giving a speech” as revealed in the mean rating of 4.0 and 0.8518 standard deviation. Statistically, the respondents confirmed that “when they make a mistake while giving a speech, they find it hard to concentrate on the parts that follow” and “during an important speech, they experience a feeling of helplessness building up inside them” as revealed in the mean rating of 4.86 and 4.92 with standard deviation of 1.0218 and 0.8896 consecutively. All these indicators appeared to be observed with “strongly agree” by the respondents as revealed in the overall mean of 4.67 and with 0.9600 standard deviation.

Self-Regulated Speaking Strategies

Table 3 presents the frequency and descriptive measure of the speaking proficiency in terms of perception on speaking ability, using this legend:

<u>Scale</u>	<u>Verbal Description</u>
4.21 – 5.00	Very Highly Evident (VHE)
3.41 – 4.20	Highly Evident (HE)
2.61 – 3.40	Evident (E)
1.81 – 2.60	Moderately Evident (ME)
1.00 – 1.80	Not Evident (NE)

This means that the higher the score assigned to an item is, the better the speaking proficiency in terms of perception on personal speaking ability is.

Table 3. Mean Assessment of the Respondents in Terms of
Self-Regulated Speaking Strategies

Item Statements	Mean	SD	Interpretation
1. I try to relax my muscles by breathing deeply every time I feel nervous about speaking English.	4.30	0.9000	VHE
2. I listen to music for relaxation.	3.89	0.7877	HE
3. I laugh in order to relax, whenever I feel nervous about speaking English.	3.92	0.9380	HE
4. I make encouraging statements to myself to take wise risks in language learning even though I might make some mistakes.	3.81	0.9874	HE
5. I give myself a reward when I have done something well in my language learning.	3.75	0.9421	HE
6. I pay attention to physical signs of stress.	3.92	0.8997	HE
7. I use a list in which I register my feelings, motivation, and attitudes about English language learning.	4.13	0.8220	HE
8. I write down my experiences in a language learning diary.	3.96	0.8157	HE
9. I talk to someone I trust about my feelings concerning the language learning process.	4.41	0.7849	HE
OVERALL RATING	4.01	0.8753	HE

Findings reveal that the respondents try to relax their muscles by breathing deeply every time they feel nervous about speaking English as affirmed by the mean rating of 4.30 and 0.9000 standard deviation. They pointed out that they make encouraging statements to themselves to take wise risks in language learning even though they might make some mistakes (3.81) and use a list in which they register their feelings, motivation, and attitudes about English language learning (4.13). In connection to this, according to the respondents, they talk to someone and trust about their feelings concerning the language learning process and they write down their experiences in a language learning diary as appeared in the mean ratings of 4.41 and 3.96 with standard deviation of 0.7849 and 0.8157 correspondingly. Also, the teacher – respondents affirmed that they laugh in order to relax, whenever they feel nervous about speaking English (3.92) and give themselves a reward when they have done something well in my language learning (3.75). All indicators appeared to be observed with “Highly evident” by the respondents as revealed in the overall mean of 4.01 and with 0.8753 standard deviation.

Level of Speaking Performance of the Teacher-Respondents:

Delivery

Table 4 shows the level of speaking performance of the teacher-respondents in terms delivery.

Table 4. Frequency Distribution of Teacher-Respondents' Level of Proficiency in Terms of Delivery

Rating	f	%
Proficient	10	6.67%
Advanced	16	10.67%
Intermediate	70	46.66%
Elementary	34	22.67%
Beginner	20	13.33%
Total	150	100%

It can be gleaned in Table 4 that majority of the teacher-respondents belonged to the Intermediate level of speaking proficiency as revealed, with the frequency of 70, or 46.66%. Statistically, the teacher-respondents' proficiency plummets, with the rating of Elementary (34) or 22.67%, and Beginner (20), or 13.33%. There were only 16 or 10.67% of the respondents who are considered Proficient while there were only 10 or 6.67% who rated themselves as proficient.

Speaking Style

Table 5 presents the level of speaking performance of the teacher-respondents in terms speaking style.

Table 5. Frequency Distribution of Teacher-Respondents' Level of Proficiency in Terms of Speaking Style

Rating	f	%
Proficient	3	2.00%
Advanced	12	8.00%
Intermediate	77	51.33%
Elementary	33	22.00%
Beginner	25	16.67%
Total	150	100%

Table 5 reveals that 77, or 51.33% of the teacher-respondents rated themselves in the Intermediate level of speaking proficiency. There are 33, or 22% of the respondents who fall under Elementary level, while 25, or 16.67% who plummeted under the Beginner level of proficiency. It is apparently noted that only 3, or 2% of the respondents who rated themselves as Proficient, while the remaining 12, or 8% described themselves as Advanced.

Content

Table 6 presents the level of speaking performance of the teacher-respondents in terms content.

Table 6. Frequency Distribution of Teacher-Respondents'

Level of Proficiency in Terms of Content

Rating	f	%
Proficient	22	14.67%
Advanced	37	24.67%
Intermediate	22	14.67%
Elementary	44	29.32%
Beginner	25	16.67%
Total	150	100%

As presented in Table 6, almost one-third of the respondents fall under Elementary level of speaking proficient in terms of content with the frequency of 44, or 29.32%. In addition, some of the teacher-respondents are considered Proficient, and Intermediate with the same frequency of 22, or 14.67% while the remaining respondents rated themselves as Beginner, with a frequency of 25, or 16.67%.

Body language

Table 7 presents the level of speaking performance of the teacher-respondents in terms body language.

Table 7. Frequency Distribution of Teacher-Respondents'

Level of Proficiency in Terms of Body Language

Rating	f	%
Proficient	8	5.33%
Advanced	20	13.33%
Intermediate	52	34.67%
Elementary	36	24.00%

Beginner	34	22.67%
Total	150	100%

As shown in Table 7, there are 52, or 34.67%, teacher-respondents who are said to be Intermediate in the level of speaking proficiency in terms of body language. Some of them fall under Elementary (36 or 24%) while some of them plummeted to Beginner (34 or 22.67%). In can be gleaned from the table that there are only 8 teachers, or 5.33% who considered themselves as Proficient, while 20, or 13.33% of them rated themselves to be Advanced.

Relationship between Speaking Adeptness and the Level of Speaking Performance

Correlation analysis to determine if there is a significant relationship between the speaking adeptness and the level of speaking proficiency is presented in Table 8 below.

Table 8. Correlation Analyses on the Relationship between Speaking Adeptness and the Level of Speaking Performance

Speaking Performance	Speaking Adeptness	
	Perception on Speaking Ability	Self-Regulated Speaking Strategies
Delivery	0.22* (0.04)	0.20* (0.04)
Speaking Style	0.35** (0.00)	0.32** (0.00)
Content	0.25* (0.03)	0.30** (0.00)
Body Language	0.32** (0.00)	0.24* (0.03)

* = significant ($p \leq 0.05$)

** = highly significant ($p \leq 0.01$)

Interestingly, results of the analysis showed that “Significant” to “Highly significant” correlations were found between the speaking adeptness and the level of speaking proficiency. These significant to highly significant correlations were brought about by the fact that the computed probability values were smaller than 0.05 and 0.01 levels of significant. Furthermore, direct correlations were found between the aforementioned variables as manifested by the positive signs of the computed *r-values* (numbers in the upper entry). The result implied that there is a high level of connection between the level of speaking performance and teacher-respondents’ perception on speaking adeptness.

Answer to interview questions on how the teachers endeavor on improving their oral communication skills

The numerical result of the study has something to do with the responses of the teacher-respondents during the interview conducted by the researcher in which for the question, “What are the subjects that you are teaching?”, they mentioned that most of them are teaching Araling

Panlipunan, Music, Arts, Physical Education and Health Education (MAPEH), and Edukasyong Pantahanan at Pangkabuhayan (EPP). On the other hand, few of them are assigned to teach Science, Mathematics and English. They also confirmed that those were the only subjects given by their respective school principals prior to the start of the School Year. Thus, they had no other choice but to accept it for the reason that the class program was already done and it was based on the actual number of the pupils who are enrolled during the said school year.

On the question “What medium of instruction do you use in teaching those subjects?” they said that most of them are using Filipino as the medium of instruction since the subjects they are teaching do not require them to use English. However, those who are handling Science, Mathematics, and English confirmed that they are required to teach the said subjects using English as medium of instruction but failed to discuss the lessons with ease and confidence due to being afraid to commit mistakes in grammar and pronunciation. Thus, when they are teaching the said subjects they opted to shift from English to Filipino.

With regard to the question “Is the use of English language needed in teaching other learning areas? Why or why not? , all of them said “yes” for they know fully well its great importance. However, most of them are afraid to use the English language in teaching the lesson because of lack of mastery or expertise. Moreover, they confirmed that most of them need more speaking opportunities to further develop their communication skills.

For the question “What are the things you do to improve your oral language and fluency in English”? Most of teachers said that they exposed themselves to English movies and printed materials like newspapers, novels, and magazines. Some of them affirmed that they tried to use English not only in school, but also at home in dealing with the people around them. However, they admitted that doing these things is still not enough to fully learn the English language. Thus, they are seeking other means to offset the said difficulty. It could be in the form of trainings, seminars, workshops, or any other speaking activity that will boost their confidence to use the English language in everyday dealings.

Most of the respondents mentioned that their communication skill keeps on declining over the years because they have not been given English subject by their school head. According to them, this shortcoming weakens their communication skill. The opportunities to improve on using English in day to day activities got blocked and impeded, and the chances of harnessing their communication skill became very slow and sometimes stagnant.

Perceptions on how the DepEd provides support for such initiatives

In response to the question “What seminars or trainings on English language sponsored by the Department of Education (DepEd) have you attended and participated in?” Almost all of them stated that they have not been given a chance to attend in English seminars mainly because they are not English teachers. As a matter of preference, only the English teachers were given chances to attend to said fora. They suggested that all teachers should teach the English subject to further develop their communication skill and be given an equal chance to attend in different seminars in English. They strongly believed that the seminars being sponsored by DepEd will ameliorate their public speaking skill and will make them better conversationalists in English.

For the question “Do you find these useful and helpful as far as your communication skills are concerned?” All of the teacher-respondents agreed that attending different seminars in English is useful and helpful. They said that if the communicative competence of the teachers is fully developed, the teaching-learning process will also be improved. Teachers will not have a

hard time expressing their thoughts in English. Teachers will no longer experience difficulty thinking of the words to say while discussing the lesson. Teachers will no longer be afraid to talk in English in front of their students, co-teachers, principal and supervisors for their self-confidence would have been enhanced and improved.

Along with the question “How do you apply the learning imparted during the seminar/training”? The respondents said that they always apply to their respective workplace the things they learned in the seminars. They are very open to changes most especially if it is for the betterment of teaching and learning process. They are very much willing to adopt and utilize the new methodologies and pedagogies presented in the seminars. But since, they are not sent to English seminars, the result is they are now having trouble using English when teaching the lessons. They always feel tense and uncomfortable whenever their superiors give them speaking opportunities like discussing a certain topic in School Learning Action Cell (SLAC) and being the emcees in different school activities. The fear of speaking before a huge crowd is one of the barriers that prevent them to further improve themselves.

And for the question “Does the support of DepEd satisfy your needs to improve your speaking proficiency? Why or why not? Most of the interviewees said that they are not fully satisfied. They mentioned that most of the time, only the teachers who are known for being eloquent or fluent in English are being sent to English seminars, and those who cannot express themselves well in English are the least priority. They also cited that DepEd should design matrix of seminars and training where the teachers who are having difficulty and English are the customers. Moreover, training and equipping them with necessary skills in English language can make them empowered and better facilitators of learning.

RECOMMENDATIONS

In light of the findings and conclusions of the study, the following recommendations have been drawn:

1. It is highly recommended that trainings and seminar-workshops on effective communication skills, both oral and written, should be conducted not only for teachers who are teaching English but also for all subject area teachers.
2. Mentoring and coaching sessions should be put into usual practices in all districts and schools.
3. The school administrators should create an English speaking environment by encouraging not only the pupils but also the teachers to use English in the classroom to have more exposure to the language.
4. Teachers should first understand the importance of speaking skills. Their awareness of their teaching may result in their motivation for learning for the reason that they serve as good role models of the students. Secondly, they should practice speaking English inside and outside the classroom and they should use English in the class instead of Filipino to make it a habit.
5. It is highly recommended that each school should put up speech laboratory to have an avenue to develop their macro-skills in English.
6. Teachers should be encouraged to participate as much as possible in all activities which they will be using their communication skills.
7. Joining workshops, seminars and forums regarding communication and the like is also recommended in such a way the teachers will be informed on how to properly deliver their pieces to avoid or to minimize embarrassment.
8. Counselling is also recommended for proper psychology advices regarding on how to deal with their fear, most likely to boost their confidence to overcome Glossophobia.
9. For future researchers, further study along this line could be conducted. Inclusion of some other variables that can uplift the English speaking proficiency of the teachers could be considered.
10. Attend and participate in the Project REAPER, an initiative of the Schools Division of Bulacan to help teachers suffering from Glossophobia to overcome the same, and boost their confidence towards improving their performance. This project was pioneered in the School Year 2015-2016.

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APPENDICES

Appendix A

Perception on Speaking Adeptness

Please indicate the degree to which the following statements apply to you by checking whether you are [5] Strongly Agree, [4] Agree, [3] Neutral, [2] Disagree, [1] Strongly Disagree. Works quickly, just record your first impression. Do not be concerned that some statements are given more than once.

Statements	1	2	3	4	5
1. While preparing to give a speech, I feel tense and nervous.					
2. I feel tense when I see the words “speech” and “public speech on the printed materials.					
3. My thoughts become confused and jumbled when I am giving a speech.					
4. Right after giving a speech I feel that I have had an unpleasant experience.					
5. I get anxious when I think about a speech coming up.					
6. I have a fear of giving a speech.					
7. I feel nervous before, during, and after giving a speech.					
8. I do not look forward to giving a speech.					
9. When the supervisor/principal announces a speaking assignment in school, I can feel myself getting tense.					
10. My hands tremble when I am giving a speech.					
11. I feel not relaxed while giving a speech.					
12. I do not enjoy preparing for a speech					
13. I am in constant fear of forgetting what I prepare to say.					
14. I get anxious if someone asks me something about my topic and I don't know.					
15. I face the prospect of giving a speech with very low confidence.					
16. I feel that I am in incomplete possession of myself while giving a speech.					
17. My mind is unclear when giving a speech.					
18. I always worry when giving a speech.					
19. I perspire just before starting a speech.					

20. My heart beats very fast when I start a speech.					
21. I experience considerable anxiety while sitting in the room just before my speech starts.					
22. Certain parts of my body feel very tense and rigid while giving a speech.					
23. Realizing that only a little time remains in a speech makes me very tense and anxious.					
24. While giving a speech, I know I cannot control my feelings of tension and stress.					
25. I breathe faster just before starting a speech.					
26. I feel uncomfortable and not relaxed in the hour or so just before giving a speech.					
27. I do poorer on speeches because I am anxious.					
28. I feel anxious when the supervisor/ principal announces the date of a speaking assignment.					
29. When I make a mistake while giving a speech, I find it hard to concentrate on the parts that follow.					
30. During an important speech I experience a feeling of helplessness building up inside me.					
31. I have trouble falling asleep the night before a speech.					
32. My heart beats very fast when I present a speech.					
33. I feel anxious while waiting to give my speech.					
34. While giving a speech, I get so nervous that I forget facts I really know.					

*Adopted from Andrew, Yau-hau Tse (2013)
Glossophobia of University Students in Malaysia*

Appendix B

Self-Regulated Speaking Strategies

Please indicate the degree to which the following statements apply to you by checking whether you are [1] Not Evident, [2] Moderately Evident, [3] Evident, [4] Highly Evident, [5] Very Highly Evident.

Statements	1	2	3	4	5
1. I try to relax my muscles by breathing deeply every time I feel nervous about speaking English.					
2. I listen to music for relaxation.					
3. I laugh in order to relax, whenever I feel nervous about speaking English.					
4. I make encouraging statements to myself to take wise risks in language learning even though I might make some mistakes.					
5. I give myself a reward when I have done something well in my language learning.					
6. I pay attention to physical signs of stress.					
7. I use a list in which I register my feelings, motivation, and attitudes about English language learning.					
8. I write down my experiences in a language learning diary.					
9. I talk to someone I trust about my feelings concerning the language learning process.					

Adopted from (Kostić-Bobanović, M., 2004)

Appendix C

Level of Speaking Performance

Statements	1	2	3	4	5
Delivery					
1. The teacher speaks clearly and at an understandable pace.					
2. The talk was delivered with personal conviction from both the speaker's mind and heart.					
3. The teacher was heard soundly.					
4. The talk was delivered with warmth and feeling.					
5. The teacher greeted the audience warmly.					
6. The teacher was understood clearly.					
7. The speech was well rehearsed (either extemporaneous or scripted presentation).					
8. The teacher was able to answer questions professionally.					
Total					
Average/Rating					
Speaking Style					
1. The talk contained effective examples and illustrations.					
2. The teacher maintains eye contact with audience.					
3. The presentation seemed practiced.					
4. The teacher involved the audience.					
5. The teacher handled questions and comments with calm courtesy.					
6. The teacher bestowed limited use of filler words ("umm," "like," etc.).					
7. The talk of the teacher contained effective examples and illustrations.					
Total					
Average/Rating					
Content					
1. The teacher's opening got the attention of the listeners.					

2. The introduction was told what to expect from the presentation.					
3. The purpose of the talk was clear.					
4. The talk was designed in a logical way from beginning to middle and end.					
5. The presentation was well-suited to the audience.					
6. The content was interesting.					
7. The teacher summarized the main points before finishing.					
8. The teacher let know when the talk was over.					
9. The talk ended on a strong final line or idea.					
10. The presenter ended on time.					
Total					
Average/Rating					
Body Language					
1. The speaker stood during the presentation.					
2. The teacher used body language appropriately.					
3. The speaker showed no distracting movements or gestures.					
4. The speaker smiled.					
5. The speaker used his/her hands to help communicate ideas visually.					
6. The speaker tried to use verbal focusing techniques.					
Total					
Average/Rating					
Over-All Rating					
Descriptive Rating					

Adopted from I-Tech (<http://www.go2itech.org/resources/evaluations-and-assessments>)

Legend: Scale Verbal Description

5 - Proficient (P)	3 - Intermediate (I)	1 - Beginner (B)
4 - Advanced (A)	2 - Elementary (E)	

Appendix D



Department of Education
Region III
Schools Division of Bulacan
Capitol Compound, Malolos City



PROJECT REAPER

Raise Evaluation and Achievement Performance thru Extensive Remediation

The performance of a school in the National Achievement Test and the Regional Achievement Test, and the ability of the teachers, pupils to speak fluently may be one of the indications that a school ranks high or low compared to other schools in the division, region or in the entire nation. The results of the said achievement tests may also denote the principal's and teachers' competence and significance in preparing the learners in the next educational ladder and later in building the nation.

Exceptional performance represents commendable results. Poor performance may signify inferior learning outcomes. However, these evaluations are not mere indicators of what or who reigns supreme in the educational race. They also serve as bases on how a school performs above or below the standards set by the Department of Education. Then again, it is also good to note that a school maintains or raises its evaluation and performance levels for the benefit of the pupils.

This school year 2016 – 2017, the Schools Division of Bulacan introduces Project REAPER. As the name implies, Division of Bulacan adheres to its mark of reaping the fruits of its labor. REAPER or **Raise Evaluation and Achievement Performance thru Extensive Remediation** is SDO Bulacan's answer to help teachers suffering from Glossophobia to overcome the same, and boost their confidence towards improving their performance. Its main motto is through extensive remediation. Indeed, massive remediation should be undertaken to address all the learning constraints of every teacher especially those with Glossophobia. Once this development becomes successful, every teacher at SDO Bulacan is a reaper.

Action Plan

Key Result Area	Target	Strategies/Programs/Projects	Time Frame	Persons Involved	Funding Source	Expected Outcome
Improve Communication Skills (written and oral form)	Help teachers suffering from Glossophobia to overcome and boost their confidence towards improving their performance	A. Project REAPER- Raise Evaluation and Achievement Performance thru Extensive Remediation 1. Confer with the teachers 2. Analyze performance. 3. Feed backing 4. SWOT analysis 5. Present Project REAPER 6. Intensive remediation program to teachers. 7. Conduct Trainings on Public Speaking. 8. Continuous monitoring & evaluation	June –July 2016 August 2016 to March 2017	SDS ASDSes CID Chief EPS - English Principal All Teachers PTA Officers	School Funds MOOE	At the end of SY 2016-2017, Teachers will improve their communication skills (Oral and written)

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Higher Education in the Web Environment

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Abstract:

The classic model of higher education is based on the lectures and verification of learning outcomes through the final examination. Such approach usually checks remembering of facts and understanding of basic concepts, which are the lowest levels of Bloom's systematization of knowledge. Checking higher levels of knowledge, such as applying, analyzing, evaluating and creating requires continuous monitoring of student's achievements during semester. Using tools based on web technologies, we have designed the advanced learning environment where learning and evaluation are based on communication, collaboration and interaction. Gathering of works in digital form and communication with students is done using Claroline LMS. The most significant component of realized environment is a web application for competence evaluation EVA-SMS, which is modularly integrated in the Claroline LMS. EVA-SMS allows peer review type of work and achievements evaluation, through surveys that are designed as review forms. Students are supposed to mutually review work of their colleagues and also to submit reports about their own achievements through semester, under mentorship and supervision of professors. When semester ends, all inputs are converted into numerical values according to predefined criteria and then system generates a final rank list of students enrolled to the course. By experimental application of described system, we have noticed a significant improvement in the quality of education and evaluation process. Research in this paper is done on data collected through the course "Web design" which was carried out in the winter semester of academic year "2015/16", at departments "Journalism" and "Media Design" of University North in Koprivnica, Croatia. By using Spearman's method, we have determined a correlation between final rank of each student acquired through EVA-SMS web application and a final grade achieved through classic final examination. Research results showed a high correlation between rank achieved through modern learning environment and the one acquired through classic examination. Observation confirmed that developed system is able to meet requirements of traditional higher education in terms of desired learning outcomes, but at the same time to quality respond to the needs of a modern information society.

Keywords: higher education, web technologies, Claroline LMS, EVA-SMS, evaluation

1. Introduction

Competence evaluation in academic environment usually consists of written and oral exams that are designed to check desired learning outcomes and specific competences that students are supposed to gain by attending courses and learning. Such approach usually checks remembering of facts and understanding of basic principles related to the certain course, which are the lowest levels of Bloom's systematization of knowledge. Checking higher levels of knowledge, such as applying, analyzing, evaluating and creating, requires different design of educational and learning processes. [1] According to [2], such design should encourage collaboration between students in learning and evaluation through peer reviewing and self-assessment as it is a proven way to develop more usable skills than through conventional approach.

In order to address the above problem, we have developed an innovative educational setting based on the core principles of web 2.0 environment - collaboration, socialization and interaction. Within such approach, students are working on various assignments related to the course and proactively learning through the whole process. Developed solution is designed to continuously monitor achievements and overall progress of enrolled students through semester. Continuous monitoring often represents a significant problem in terms of administration, systematization and archiving of collected data considering a relatively large number of students who attend certain courses. [3] Utilization of proper tools can significantly simplify the whole process in terms of collecting and storing large amounts of data that can be used in evaluation of knowledge and achievements at any given moment. Best candidates for said role are tools developed using information technologies that are natively executing in the web environment. [3, 4] According to [5], computer-mediated collaboration in educational environment can provide great academic, social and psychological benefits over classical approach, depending on its implementation. Here at University North in Croatia we have successfully implemented our custom IT tools that are carefully crafted to support complete educational process in the academic environment. Developed solution is based on the open source „Claroline Learning Management System“ (Claroline LMS) and our own evaluation platform „EVA Skill Management System“ (EVA-SMS).

Platform EVA-SMS is a prototype of the web application for competence evaluation that is integrated in Claroline LMS as an evaluation extension. It is currently experimentally used on selected courses at the University North and University of Zagreb, as additional tool for assessment of learning and teaching outcomes. Claroline LMS is an open-source platform for e-learning, initially developed by the Catholic University of Leuven in Belgium. Since Claroline LMS is a native web application developed on the core principles of web 2.0 environment, it has proven to be a very useful tool in our educational setting. It significantly simplifies communication and interaction with students and successfully automates tedious tasks like collecting of student work in digital form and managing numerous parameters related to the certain course. [6]

Claroline LMS and other popular e-learning platforms by default come without any built-in tools for advanced assessment of submitted student work. Because of said disadvantage, teachers are forced to manually download and review every file uploaded by students, which can be tedious process in terms of spent time and effort. Considering usually large number of students who are enrolling university courses, said approach is not practical neither objective because single person is supposed to thoroughly review all submissions and conclude an appropriate final grade while ignoring own prejudices and other negative factors. Platform EVA-SMS is developed to allow mutual evaluation of student work and achievements by utilization of peer-to-peer reviewing through surveys that are designed as

review forms. Students are supposed to mutually review work of their colleagues under mentorship and supervision of the course teacher. Teachers and associates are also able to submit their own reviews, which can later be used as reference inputs in the final phase of evaluation process. Developed solution also allows continuous monitoring of numerous parameters related to every individual student through periodic progress reports and final self-evaluation of achievements. At the end of semester, course teacher has at disposal peer reviews of submitted work, self-evaluations of each enrolled student and reference reviews made by teachers and associates. After evaluation phase ends, software converts all input data into numerical values and systematically displays them as points that students received through the process. Teacher determines percentage share of each competence in the final grade and correlation between student reviews and reference reviews made by teachers. Platform then generates customized ranking list that can be used to determine final grade for each student.

Experimental use of above-described platform showed numerous advantages over conventional educational setting in terms of collected data quality and ease of use. At this moment, developed system can be considered as a prototype because it is being constantly upgraded regarding new findings and observations, so there still is a vast space for further improvements in both technical and social aspects. Considering needs and expectations of the target audience, our academic goal is to conduct relevant research which results will determine guidelines for further development.

2. Experiment

The aim of research in this paper is to determine the correlation between rank that students achieved through computer-mediated evaluation process and their success on a written exam. Analysis is done on data collected through the course "Web design" which was carried out in the winter semester of academic year "2015/16", at departments "Journalism" and "Media Design" of University North in Koprivnica, Croatia. Regarding our computer-mediated educational setting, students were developed individual solutions to various assignments related to the course and uploaded them to the Claroline LMS in a limited time-frame. Students were supposed to write a seminar paper and do a presentation of assigned theme in front of the class. Also, they were supposed to develop their own web-site and submit three related assignments - development plan, graphic design and a final web-site URL.

At the end of semester, students were required to review developed solutions and submit their opinions through custom surveys, created by course teachers. Review process was based on a peer-to-peer principle and completely customized with integrated review management module. Through surveys, every involved student rewarded each uploaded solution with some points. A maximum point that some solution could receive was set to 20. At the end of evaluation process, points assigned to each solution were summarized and the mean value was calculated. Derived values were translated to the ranks of each student and they were sorted in a final ranking list of success. On the scheduled exam day students also wrote a paper exam that was comprised of ten theoretical questions related to the course. Two points were awarded for each correct answer, one point for partial answer and zero for incorrect. Exam scores were translated to the ranks of each student and they were also sorted in a separate final ranking list of success.

As the most appropriate method for testing generated ranking lists we have chosen Spearman's rank-order correlation which final result is Spearman's coefficient ρ . [7]

According to [8] as cited in [7], the Spearman's correlation coefficient ρ for two ranks can be calculated by using the following formula:

$$\rho = 1 - [6 \sum D^2 / N (N^2 - 1)]$$

where N is the number of the last ranked student, and D is the difference between the ranks. Correlation coefficient is always between -1 (total disagreement) and +1 (total agreement). It is defined as follows:

- up to 0.20 implies slight correlation; connection is almost inexistent;
- from 0.20 to 0.40 correlation is low; connection is small;
- from 0.40 to 0.70 correlation is moderate; connection is important;
- from 0.70 to 0.90 correlation is high; connection is significant;
- over 0.90 correlation is very high; connection is very tight. [7, 8]

Testing is performed on data given in Table 2.1.

Table 2.1. Results of the evaluation process.

Student	EVA SMS Rank (R1)	Exam Rank (R2)	Difference D (R1-R2)	D ²
3	1	2	-1	1
49	2	1	1	1
47	3	11	-8	64
46	4	3	1	1
51	5	12	-7	49
29	6	20	-14	196
58	7	13	-6	36
41	8	5	3	9
43	9	4	5	25
48	10	14	-4	16
54	11	15	-4	16
45	12	62	-50	2500
38	13	6	7	49
33	14	16	-2	4
22	15	34	-19	361
16	16	17	-1	1
65	17	21	-4	16
55	18	35	-17	289
13	19	7	12	144
52	20	54	-34	1156
53	21	36	-15	225
7	22	27	-5	25
5	23	22	1	1
34	24	8	16	256
21	25	18	7	49
24	26	28	-2	4
35	27	45	-18	324
37	28	66	-38	1444
20	29	37	-8	64
70	30	55	-25	625
69	31	29	2	4
67	32	23	9	81
19	33	38	-5	25
1	34	9	25	625
68	35	64	-29	841
27	36	19	17	289
18	37	39	-2	4

10	38	30	8	64
2	39	46	-7	49
44	40	63	-23	529
39	41	31	10	100
31	42	24	18	324
62	43	47	-4	16
63	44	10	34	1156
32	45	56	-11	121
61	46	40	6	36
6	47	32	15	225
71	48	25	23	529
14	49	33	16	256
8	50	41	9	81
4	51	26	25	625
26	52	48	4	16
40	53	57	-4	16
15	54	70	-16	256
56	55	65	-10	100
9	56	58	-2	4
42	57	49	8	64
60	58	42	16	256
50	59	50	9	81
66	60	59	1	1
30	61	43	18	324
12	62	51	11	121
23	63	44	19	361
17	64	52	12	144
64	65	53	12	144
57	66	60	6	36
59	67	61	6	36
28	68	67	1	1
36	69	71	-2	4
11	70	68	2	4
25	71	69	2	4
				$\sum D^2 =$
				15904

The Spearman's correlation coefficient ρ for two ranks (R1 and R2) is:

$$\rho = 1 - [6 \sum D^2 / N (N^2 - 1)]$$

$$\rho = 1 - [95424 / 357840]$$

$$\rho = 1 - 0.27$$

$$\rho = 0.73$$

According to above-mentioned criteria regarding Spearman's correlation coefficient ranges, calculated value shows there is a high correlation and significant connection between two observed ranks.

3. Conclusion

The classic model of higher education is designed to check remembering of facts and understanding of basic concepts, which are the lowest levels of Bloom's systematization of knowledge. Checking higher levels of knowledge, such as applying, analyzing, evaluating and creating requires more advanced educational setting. [1] Our solution is based on customized IT tools that are carefully crafted to support complete educational process in the academic

environment. We have developed an evaluation software and integrated it in the most of our courses through the project oriented teaching. This computer-mediated solution is proven to show numerous advantages over conventional setting in terms of collaboration and interaction between students and teachers, but also in collected data quality and usability.

The aim of research in this paper was to determine the correlation between rank that students achieved through computer-mediated evaluation process and their success on a conventional written exam. Review process was based on a peer-to-peer principle and completely customized through EVA-SMS evaluation platform. Uploaded solutions were rewarded with certain amount of points by every involved student. On the scheduled exam day students also wrote a conventional written exam that was comprised of ten theoretical questions related to the course. Derived values were translated to the ranks of each student and they were sorted in a two final ranking list of success - R1 (EVA-SMS) and R2 (Written Exam). By using Spearman's method, we have determined a correlation between generated ranks. According to described criteria regarding Spearman's correlation coefficient ranges, calculated coefficient ($\rho = 0.73$) showed there is a high correlation and significant connection between two observed ranks. Results are suggesting that it is possible to accurately predict success on a conventional exam through project oriented computer-mediated evaluation solution. Observation confirmed that developed system is able to meet requirements of traditional higher education in terms of desired learning outcomes, but at the same time to quality respond to the needs of a modern information society.

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INFLUENCE OF CAREER CHOICE FACTORS TOWARD SELECTION OF TRACKS AMONG JUNIOR HIGH SCHOOL STUDENTS

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ABSTRACT

There are various studies that indicate the influence of career choice factors such as personality, environment and socio economic status in student's choice of career tracks. The main aim of this study is to determine the influence level of career choice factors towards selection of tracks among junior high school students of Eugenio Cabegas National High School SY 2015-2016. The researcher used total enumeration of the population size. A total of 216 participants are part of the study. The study applied descriptive research design. Data for the research was gathered through the use of self-administered questionnaire in a survey. The outcome of the descriptive analysis shows that among the three factors: personality, environment and opportunity; Personality is ranked as very influential to student's choice of career tracks. Analysis of variance showed that Personality is highly significant factor towards selection of tracks among junior high school students. With regards to the influence of personality on career track in terms of interest and academic preparation it revealed that their personal choice is extremely influential in their chosen track. Likewise, in response on the influence of personality on career track in terms of aptitude and skills, Technical Vocational skills found to be very influential to the respondents in making career decisions. Exposure of students to career related technical and academic subjects also known as elective subjects in the Philippines will help them in their decision making. Students believed that Technical Vocational and Livelihood track will equip them with skills that will eventually lead to their employment in various technical vocational course. Among the environmental factors, parental influence is considered to be very influential on career decisions. On the other hand, majority of the students believed that opportunity to work overseas will lead them to their chosen tracks.

Keywords: Career Choice, Junior High School Students, Senior High school, K to 12, Department of Education, Philippines, Eugenio Cabegas National High School, Grade 10 completers.

I. INTRODUCTION

Background of the study

Career plays a significant role in the identity, lifestyle, and sense of well-being for most adults in today's world. Work is the major venue for adults to develop mastery for tasks, knowledge and expertise as they earn competency and self-efficacy. A choice made to develop one's abilities in a specified work area is simultaneously a choice regarding one's identity (Andersen, P. & Vandehey, M. , 2012).

It's important to understand that career choice is not made based on any one factor. Our choices are subject to many influences – individual, cultural, social, and environmental. The combination and interaction of various influences on your decision-making are unique to you and your situation. There may also be multiple options, several "good-fits" for you, instead of a single, right choice. How students have seen themselves in a role in which personality is a determining factor may influence a chosen career. Some careers demand that you have the personality to match the qualities of the occupation. Sales people have to be outgoing. "Personality" plays an important role in the choosing of the right career. A student's personality must be self-motivated type, as to investigate career possibilities from early on in their lives, and not the procrastinating type that waits till they are compelled to decide (Olawaye and Olamide, 2013 as cited in Splaver 2000).

The choice of career of the students is being influenced by some factors from the social environment, mainly the parents as immediate family who plays an active role in choosing the right education for their children (Pafili&Mylonakis, 2011). As a sign of respect for the parents and culture of the Filipinos, parents or the elderly are being consulted first by their children because primarily they will be the one to provide the financial support to enter in college (Aguado et. al 2015 as cited in Laguado 2013). Some students listen to the opinion of other people like their close relatives, friends and classmates. Sometimes due to inappropriate time for them to decide what to take, they just put their decision in the hands of other people instead of evaluating what is really their need and want based on their interest (Laguador, 2014).

Changes in the economy and resulting job market may also affect how our careers develop. The wrong choice of course taken by most high school students adds to the unemployment and underemployment rate of newly graduated students (Pascual, 2014).

President Benigno Aquino III signs into law Republic Act No. 10533 or the Enhanced Basic Education Act of 2013 in Malacañang on Wednesday, May 15, 2013. An act enhancing the Philippine basic education system by strengthening its curriculum and increasing the number of years for basic education, appropriating funds therefore and for other purposes .

Iloilo Business Club Executive Director Lea Lara said the challenge on the part of the business industry is to match the skills of high school graduates with the demands of investors. She added that trainings for these students can be arranged in order for them to be competent. There are many avenues and the business industry is willing to help as it will be affected by the new education system. (Daily Guardian, September 2, 2014)

Education Secretary Br. Armin A. Luistro FSC said the Career Guidance Program will assist Grade 10 students make informed choices regarding their preferred SHS track. "We want our students to be aware of the importance of choosing a track that suits their interest while at the same time matches the available resources as well as job opportunities that await them," he added (Department of Education, 2015). The career guidance week celebration is envisioned to prevent too much waste of resources including time being spent in producing graduates in the tertiary level as well as technical vocation education who could not meet the qualification standards in the labor market. Mismatch between 1)interest/aptitude and career; 2) career and labor demand; and 3) education/training and career results from uninformed and misguided students.

Statement of the Problem

Generally, the study was conducted to determine the influence of career choice factors towards the selection of tracks among junior high school students.

Specifically, the study aims to determine the following:

1. Which of the career tracks and strands is most preferred by Grade 10 students?
2. What is the influence level of personality, environment and opportunity in choosing career tracks?
3. Which of the personality, environment and opportunity factors is the most influential to the students?

Significance of the Study

The purpose of this study is to determine the influence of career choice factors towards selection of tracks among junior high school students. Findings of this study would benefit the following:

Students. This study can be used by students to perceive the importance of career planning in high school. That student begins to explore real career possibilities before they finish their secondary school and consider many alternatives choices in career selection more than through some influence such as parents, mentors and peer groups.

The teachers. This research can be used to provide specific career information and support for their student's career planning.

Parents. This study could provide awareness on parents in the career planning process of their child.

The Guidance counselor. This research will serve as a guide for guidance counselor of a specific guidance program. If career planning are implemented in an efficient manner, students would at the very least be following a career plan of informed decision making rather than one of coincidence.

Education policy makers. This research will serve as a basis in formulating educational policies that will meet the interest of the students.

Education curriculum planners. To serve as a basis on what senior high tracks should be offered in a certain school.

Researchers. To have an extensive study about this research.

Scope and Limitation of the study

This research study is focused on the influence of career choice factors towards selection of tracks among junior high school students. On one hand three categories are used in identifying the factors in making a career choice and selection of tracks—Personality, Environment and Opportunity.

The study limits its coverage on the Grade 10 Junior High School students only. Its main purpose is to determine the influence of career choice factors towards the selection of tracks among junior high school students. Each of the respondents was given questionnaires to answer. This study focused on Grade 10 students of Eugenio Cabelas National High School S.Y. 2015-2016.

Operational Definition of Terms

The following terms are operationally defined.

Grade 10. Junior High students with the following section: Hugo Perez, Aguinaldo and San Agustin .

Curriculum. This refers to the courses that are taught by a school or college.

Career choice. The broad opportunities that exists for life long vocations. These vocations are set out in a framework of strategies moving toward personal goals. Fields of vocational, academic, and sociological endeavors are explored for the purpose of satisfying personal, economic, and intellectual goals.

Environment. The complex physical factors that make up our surroundings (Britannica, 2002), and in turn act upon us. For the purposes of this study they would include the forces of family, political, social, and economic issues that both typical and non-typical students may deal with on a day-to-day basis.

Opportunity. Those choices in one's life which are exposed either in a subtle or obvious manner. These choices or paths give the individual a selection between two or more outcomes. The outcomes of one's choosing may or may not exceed one's present abilities.

Personality. A characteristic way of thinking, feeling and behaving (Britannica, 2002). The personality is the collection of impressions in the appearance of the student's body and the impressions believed to have been made on others, good or bad.

Quality of life. The depth in the content of richness and fullness in our day- to-day existence. This includes observed and unobserved criteria that contribute to the fulfillment with our expectations and aspirations.

Senior High School. Senior High School (SHS) covers the last two years of the K to 12 program and includes Grades 11 and 12. In SHS, students will go through a core curriculum and subjects under a track of their choice (Department of Education)

K to 12 Curriculum. The K to 12 Program covers 12 years of basic education with the following key stages: Kindergarten to Grade 3, Grade 4 to 6, Grade 7 to 10 (Junior High School) Grade 11 and 12 (Senior High School). (DepEd)

Tracks. Each student in Senior High School can choose among three tracks: Academic; Technical-Vocational-Livelihood; and Sports and Arts. The Academic track includes three strands: Business, Accountancy, Management (BAM); Humanities, Education, Social Sciences (HESS); and Science, Technology, Engineering, Mathematics (STEM). Students undergo immersion, which may include earn-while-you-learn opportunities, to provide them relevant exposure and actual experience in their chosen track.

Academic Track. This will help prepare SHS graduates for college (Almeda, 2016).

Technical-Vocational Livelihood (TVL) Track. This will equip learners with skills that will eventually lead to their employment in varied tech-voc courses. Immediate employment to TVL graduates after graduation due to varied National Certifications that they may hold (Almeda, 2016).

Sports and Arts and Design Track. This will equip the learners with foundational knowledge that may lead to future careers in sports as coach/trainer or in varied arts and design professions (Almeda, 2016).

II. REVIEW OF RELATED LITERATURE

This chapter discusses the related literatures that were helpful in the study. Data and information were obtained from books, journals, periodicals, magazines, unpublished theses and online sources.

Career Choice Factors

Students also struggle with their inability to identify early career goals. The reason is often the number of criteria individuals use to choose careers. In most cases, students have numerous criteria they want to maximize in a career; many of which are unlikely to co-occur; therefore, no career option seems particularly attractive to them. Some students appear to continue to "keep their options open" for longer and longer periods of time instead of settling for an option that at least minimally meets all relevant criteria. Other students may be caught up in obsessive information gathering often referred to as hyper vigilance, leaving them with no psychological energy to analyze their options in thoughtful ways (Khamadi et. al (2011) as cited in Janis & Mann, 1977; Schacter, 2001.)

Career development, for most people, is a lifelong process of engaging the work world through choosing among employment opportunities made available to them. Each

individual undertaking the process is influenced by many factors, including the context in which they live, their personal aptitudes, and educational attainment.

In the study of Khamadi (2011), majority of Daystar undergraduate students have had no opportunity to plan careers. Since they are in need of jobs, they may skim through the newspapers or receive assistance from relative to get a job that provides a paycheck and some security but they are neither satisfied nor personally fulfilled.

On the other hand, to be able to guide Grade 10 students/SHS entrants in making decision regarding their choice of SHS Track, the Department of Education (DepEd) issued the enclosed Guidelines on the Senior High School (SHS) Career Guidance Program on (CGP) and Early Registration on August 28, 2015, in view of the conduct of SHS Early Registration. (DepEd Order No. 41 s. 2015).

Personality

Khamadi et.al (2011) as cited in Splaver (1977, p.12), states that it is important for the students to have a good understanding of themselves and their personality if they are to make intelligent career plans. How students see themselves in a role in which personality is a determining factor may influence a chosen career. Some careers demand that the personality matches the qualities of the occupation. Personal Values and Desires are also important in career choice and career satisfaction or dissatisfaction. Sometimes people's attitudes, beliefs and world view impede good career choice.

Interest

In the field of vocational counselling, it is often assumed that people do sit in those activities and occupations that interest them most. Careers are most satisfying when one's aptitude and abilities relate to one's work. If a job is boring, it is not likely to bring much personal fulfillment or sense of satisfaction even if the salary is high. (Khamadi et. al, 2011 as cited in Strong, 1987)

Khamadi (2011) study established the match between individual personalities and career choices among Daystar University students. The majority of the respondents (82.7%) agreed that the chosen careers matched their personal characteristics. This means the respondents had a good understanding of themselves and their personality resulting in proper career decisions. From the focus group discussions, it emerged that majority of the participants saw the importance of personality in career choice. It is however a fact that personality not be static, which would suggest that people can be assisted to fit into careers that do not fit their personality.

Aguado et. al (2015) on his study on Factors Affecting the Choice of School and Students' Level of Interest towards the Maritime Program -Batangas, concluded that it is the personal choice of the students to enroll in maritime program in LPU with the support primarily from their parents.

The National Career Assessment Examination measures one of the domain which is Occupational Interest Inventory for Students in Secondary Schools (OISSS) consisting of 215 items. This is an inventory / checklist of occupational interests which provides an assessment on inclinations / preferences for comprehensive career guidance. The students are provided with a profile chart of their occupational inclinations and preferences thru the identified cluster occupations. The level of preference for each area of occupational interest is displayed based on percentage score which is as follows: high (76-100), moderate (51-75), low (26-50) and very low (0-25).

Aptitude

Most literature describes a lack of readiness and a disconnect between skills learned in high school and skills needed in college. As the imperative to pass standardized test increases, the emphasis on college readiness skills decreases. Aptitude refers to the potential

that one has for learning in the future It is the skills that one has at present or other learning that has taken place in the past (Olawaiye and Olamide , 2013 as cited in Collins 1987).

The Minnesota Road Map to College and Career Readiness identifies test scores as an indicator of college readiness (Postsecondary and Workforce Readiness Working Group, 2009). At the same time, the Harvard University Pathways to Prosperity study (Symonds et.al 2011) points out that we are devoting all our college preparation efforts to the 40% of students who will successfully complete two to four years of college and forsaking those who will follow other career paths (Greenstein, 2012).

Senior High School (SHS) covers the last two years of the K to 12 program and includes Grades 11 and 12. In SHS, students will go through a core curriculum and subjects under a track of their choice. Students will undergo assessments to determine their strengths and interests. These will include an aptitude test, a career assessment exam, and an occupational interest inventory for high schools. Career advocacy activities will also be conducted to help guide students in choosing their specialization or track (DepEd).

NCAE is an aptitude test geared toward providing information through test results for self-assessment, career awareness and career guidance of junior high school students of the K to 12 Basic Education Program (BEP). It is a career guidance for choosing the tracks in Senior High School. Test taking is mandatory and Test results is recommendatory. The NCAE was developed to foster the highest quality of education in the Philippines by regulating and monitoring the flow of students to post-secondary institutions of learning and their potential contribution to national development and to minimize indiscriminate wastage of manpower and resources by working for a match between manpower skill outputs and job market demands. It measures the General Scholastic Aptitude (GSA) with 155 items. Aptitude for Academic Tracks with 150 items—STEMS, HUMSS AND ABM and Technical-Vocational Aptitude (TVA) with 60 items. Results for HUMSS, STEM and ABM will be in Standard Score and Percentile Rank (Llego, 2016).

Environment

Parents

The choice of career of the students is being influenced by some factors from the social environment, mainly the parents as immediate family who plays an active role in choosing the right education for their children (Pafili & Mylonakis, 2011). As a sign of respect for the parents and culture of the Filipinos, parents or the elderly are being consulted first by their children because primarily they will be the one to provide the financial support to enter in college (Aguado 2015 as cited in Laguador, 2013).

Khamadi (2011) study, concluded that parental and family factors play a big role in influencing students not only to do well but also to take career paths that would give them satisfaction.

Students from public schools have significantly higher possibility of being influenced by their parents, siblings, friends and relatives (Aguado et. al 2015).Tan, (2009) study found out that students ranked their “parents” higher than other people (e.g. pastor/religious adviser, friends, guidance counselor) coheres with U.S. research.

Aguado, (2015) study on Factors Affecting the Choice of School and Students’ Level of Interest towards the Maritime Program states that from informal interview regarding their reasons of taking up Maritime program, some are due to the frustrations of their father to become seafarers .

On the other hand, Laguador, (2014) study on Examination of Influence and Intention towards Lyceum of the Philippines University and Career Choice of General Engineering Students, found that the mothers have much influenced to the decision of General Engineering students in choosing the school and course.

Teachers

More commonly, administration, teaching staff and other adults are the sources of information for program planning and tend to have the most influence on adolescents' career planning (Hiebert et al 1998, Pyne et al 2002) Witko et. al (2006) as cited in Alexitch and Page (1997) found that students reported being able to obtain career-related information from their high school teachers and that this advice was significantly more useful than the advice they had received from their high school guidance counselors.

In the contrary, from the study of Khamadi, (2011), teacher and counselors had less influence than indicated by Taylor et al. (2004).

Peer Influence

Peers can also influence one another in career development just as they are influential regarding changes in one another's intrinsic value for school. They often choose peers that are at an achievement level similar to theirs from within the school setting. Associating with friends who have a positive affect toward school can enhance students' own satisfaction with school, whereas associating with friends who have a negative affect toward school decreases it (Ryan, 2000). Under the guidance of teachers and counselors school can shape young people to have positive influence on their peers, as peer group support has been found to have beneficial outcomes (Khamadi et. al 2011 as cited in Landau, 2002).

Some students listen to the opinion of other people like their close relatives, friends and classmates. Sometimes due to inappropriate time for them to decide what to take, they just put their decision in the hands of other people instead of evaluating what is really their need and want based on their interest (Laguador, 2014)

Career Counselors

Career counselor capitalize on the high school years by enhancing psychological development so that young people can make the maximum contribution to society. During the high school years, the development of competency grows in importance with actual occupational and educational exploration occurring. In addition, student should be able to find, evaluate and understand various sources of career information. Ideally, students are learning how to prepare themselves for finding, acquiring, maintaining or changing jobs, education and training situations. Gysbers and Henderson's (2006) Life Career Development Program for use in the school system that this part of the program assumes that students can understand advanced economic concepts, complex social skills and project the self into the adult world (Andersen, P. & Vandehey, M., 2012).

Studies have found that students are not satisfied with the types of services they receive from school guidance counsellors (Alexitch& Page 1997; Hutchinson & Bottorff 1986; Tomini& Page 1992). Hutchinson and Bottorff found large discrepancies between the services students reported needing and the services they actually received, of which the most significant was career counselling. Of the students who reported having needed career counselling in high school (89%), 40% of students indicated that they had received career counselling and 20% of students who required college information reported having receive (Witko et. al 2005).

In addition to this Khamadi (2011) study revealed that Daystar University had only one careers officer which meant a low student-counsellor ratio; a scenario that is not different from what obtains in many educational institutions in Kenya. The counselor also revealed that about 90% of students who went for career counseling did so in their final year when it was already too late to match career with students' characteristics. The heads of departments interviewed also expressed a similar sentiment.

On the other hand through the Department of Education and National Education Testing and Research Center conduct National Career Assessment Examination (NCAE) and the Occupational Interest Inventory of Students in Secondary Schools (OISSS) to its

clientele, the junior high school students; the results of which will serve as inputs for their career guidance which is given sufficient time for them to have a wise decision for a career choice. Alongside, the NETRC in its complementary efforts, looked into the maximized utilization of the NCAE test results by individual examinee in particular and by the school level in providing career guidance (National Education Testing and Research Center March 2013).

Schools

In 1980s political and business leaders began pointing to changing social and economic conditions that they felt necessitated school reform. The three new economic and social realities most frequently cited were (1) the decline of manufacturing as the economic base of the United States and concurrent rise of information processing, service industries and high technology (2) our declining ability to compete in the world market (3) the apparent decline in the academic skills of American students whether measured against American performance or students from other industrialized nations.

According to Greenstein (2012) College and career readiness have become part of the national dialogue. Policy makers, school leaders, standards developers and test makers all call for student to be college and career ready.

The Philippines is the last country in Asia and one of only three countries worldwide with a 10-year pre-university cycle (Angola and Djibouti are the other two). A 12-year program is found to be the best period for learning under basic education. It is also the recognized standard for students and professionals globally. These two additional years will equip learners with skills that will better prepare them for the future, whether it be on Employment, Entrepreneurship, Tech-Voc or College (DepEd).

About 5,902 public schools, operated and funded by DepEd, will begin offering Grade 11 in 2016 and Grade 12 in 2017. These public schools will utilize new classrooms and facilities constructed under the 2014 and 2015 budgets of DepEd or other fund sources, or use available facilities for Senior High School. In addition, 4,053 private high schools, private and public universities and colleges, and technical-vocational schools will begin offering Grade 11 in 2016 and Grade 12 in 2017 (DepEd).

Opportunity

Opportunity may influence how students have perceived their future in terms of the reasonable probability of a future in particular career fields. The issue of poverty has played an important determining role in the opportunities available to all. (Olawaye and Olamide, 2013). The income level of students' families may determine what career they choose during a specific time in their life- choices that determine a large part of their future. Some students have to budget for education according to their personal income (Olawaye and Olamide, 2013 as cited in Bennett et al., 1992)

Socio Economic Status

According to Olawaye and Olamide, (2013) Family socio-economic status is the combination of the parents' educational and occupational status scores.

Olawaye and Olamide, (2013), found out in their study that there was a definite shift of students agreeing that opportunity had affected their career choice. It shows that students whose parents have advanced education see that as a determining factor; just as students who see their parents as under average, in education, having a limiting factor. The response shows that students concerned with financial responsibility might already be working in order to acquire the needs they feel important. Change has become a constant force for both at work and in life outside of work. However, change often brings opportunities, flexibility, versatility and adaptability during transitional times, which can be the keys to career- building success.

Tan (2009) as cited in Paulsen (1990) found that U.S. students with parents of higher educational attainment "are more likely to emphasize the importance of programs and high

academic standards, and less likely to show concern about costs” (pp. 48-49). Moreover, these students “tend to rely more on their parents for information and less on high school counselors” and “are more inclined to use commercial guidebooks, campus visits, admissions officers, and alumni,” while students with parents of lower educational attainment “depend more on the advice of high school counselors and unrequested publications” (Paulsen, 1990, p. 54).

Laguador (2015) states that some of them have relatives working as officials and crews in shipping vessels and they were ensured that they could have immediate employment after graduation. They strongly believed that maritime profession will bring them to different parts of the world to fulfill their duties and responsibilities as seafarers. That is their number one motivation to pursue the maritime program.

Pascual (2014) study on Factors affecting high school students' career preference: a basis for career planning program revealed that the availability of work after college is the first consideration of students in choosing a course in college. Most of the students prefer to take scientific related field courses, or the 'popular courses' for Filipinos. The least preferred courses are in the agricultural field. The results of the study served as the basis in the construction of a career path program for laboratory school students.

Academic Achievement

Basic schooling must do everything it can to make them good citizens, able to perform the duties of citizenship with all the trained intelligence that each is able to achieve. When they are grown, all (or certainly most) of the children will engage in some form of work to earn a living. They must prepare them for earning a living.

This shows that achievement motivation is highly essential for, and is related to, female students' decisions to go into mathematics, science and technology-related occupations. The higher the achievement motivation of the female students the more likely they are to choose science, mathematics and technology occupations (male-dominated occupations) (Khamadi, 2011)

Tan (2009) on study of College Choice in the Philippines pointed out that students' academic ability was the primary demographic attribute, accounting for statistically significant differences in assessment of the importance of college choice factors.

Employer and Employment

Khamide (2011) points out that there are gaps between employer requirements and the skills and attributes presented by applicants. Employers value the enterprise skills and business awareness, which are an outcome of enterprising learning. Employment opportunity is the other factor that shapes career choices for students as it may influence how students perceive their future in terms of the reasonable probability of success in particular career fields.

According to Department of Education, Senior High School Program does not guarantee employment but will create opportunities because standard requirement will be applied to make sure graduates know enough to be hireable; TESDA Certificates of Competencies (COCs) and National Certificates (NCs) will provide better work opportunities, moreover there is partnership with different companies for technical and vocational courses. There will also a work experience while studying while companies can even hire after the student graduated. Entrepreneurship course will also be included to be able to start a business.

Senior high school track

The K to 12 Basic Education Program is a flagship program of the Department of Education (DepEd), which introduces the additional two (2) years of Senior High Schools (SHS) -Grade 11 and 12. Through K to 12, learners are equipped to be holistically developed Filipinos with 21st Century Skills.

For this purpose, the State shall create a functional basic education system that will develop productive and responsible citizens equipped with the essential competencies, skills and values for both life-long learning and employment.

With the end view of the full implementation of SHS in SY 2016-2017, The DepEd shall ensure that all Grade 10 completers, including those who are outside the formal education system, are enrolled in the SHS. Furthermore, the DepEd, through the SHS, CGP, shall assist SHS entrants in making informed decisions regarding their choice of track and promote awareness in the importance of choosing a track that suits their skills and interests that matches the available resources and needs of the society (DepEd Order No. 41 s. 2015)

Senior High School covers eight learning areas as part of its core curriculum, and adds specific tracks (similar to college courses) based on four disciplines: Academic (which includes Business, Science & Engineering, Humanities & Social Science, and a General Academic strand) Technical-Vocational-Livelihood (with highly specialized subjects with TESDA qualifications) SportsArts& Design. SHS Students may pick a track based on how he or she will want to proceed after high school graduation.

Apart from the core curriculum, which has eight learning areas, the new senior high school system comes with specific career tracks that seem like college courses. They include certain disciplines. Academic, Arts and Design, Sports, Technical-Vocational-Livelihood (TVL).

Since the contents of the subjects students will take in Grades 11 and 12 depend on their chosen career track, they must take extra care in making their choice.

The academic track prepares students who plan to pursue college education and comprises four strands.

- a) ABM – Accountancy, Business, and Management
- b) STEM – Science, Technology, Engineering, and Mathematics
- c) HUMMS – Humanities and Social Science
- d) GAS -General Academic Strand

The next three tracks equip students with the skills needed to secure jobs in the field they want:

The Arts and Design covers nine subjects, eight of which require 80 hours each per semester.

The Sports track has nine subjects, which include Safety and First Aid, Human Movement, Coaching, Sports Officiating, and Sports Leadership.

Technical Vocational Technology track contains nine subjects (known as the TVL track subjects) and TESDA specialized subjects.

- a) Home Economics
- b) Agri-Fishery
- c) Industrial Arts
- d) Information and Communications Technology or ICT

According to Dr. Dina Ocampo, undersecretary of the Department of Education, in her presentation entitled Responding to the Challenge and Opportunities of ASEAN 2015, the Philippine Qualification Framework articulates a stronger link between schooling and industry/employment needs through Technical Vocational-Livelihood track for Senior High School (SHS) and inclusion of relevant ASEAN-related content and competencies in Learning Areas and SHS tracks.

Each senior high school student must choose one track to master and base his/her choice on how he/she wants to advance after completing high school or Grade 12. Career assessment and aptitude tests and an occupational interest inventory, on the contrary, will show the student's strengths and interests. Career advocacy programs will also help and guide them in choosing the right track for their selves.

Pascual (2014) states that exposure to career related technical and academic subjects also known as elective subjects in the Philippines also helps in students' decision making in career choices.

III. METHODOLOGY

This chapter consists of research design, sample, instrument, procedure and statistical treatment.

Research Design

This study utilized the quantitative descriptive research because of its appropriateness to the study.

Survey research which is also called descriptive research uses instruments such as questionnaires, interviews and test to gather information from groups of subjects. Also to summarize the characteristics of different groups to measure their attitudes and opinions towards some issue (Ary et. al 2006).

Quantitative descriptive research is used to determine the influence of personality, environment and opportunity in making a career track choice.

Locale

The location of the study is Brgy. Eugenio Cabezas in the municipality of Trece Martires City Cavite, Philippines. The conduct of the study covered February-July 2016. Data collection was held on March of the year.

Sample

The research used total enumeration of the population size. All Grade 10 students of Eugenio Cabezas National High School (School Year 2015-2016) are part of the study. Sixty-one (61) Hugo Perez, eighty-one (81) Aguinaldo and Seventy-four (74) San Agustin students with a total of 216 respondents. The respondents are combination of male and female. The respondents had undergone Career Guidance Program and Early Registration on October-November 2015.

Instrument

The instrument used to collect data is CHOICE OF CAREER QUESTIONNAIRE (CCQ) adapted in the study of Olamide and Olawaiye (2013). It was modified by the researcher based on the specific objectives of the study. The questionnaire consists of thirty (30) statements on the environment, personality and opportunity on the choice of career track based on the Likert-type scale. The respondents were required to indicate their perception by ticking or putting a check after on each statement under the columns.

5-Strongly Agree

4-Agree

3-Undecided

2-Disagree

1-Strongly Disagree

Another part of the instrument is the Senior High School Preference Form from Department of Education to determine the selected tracks of the Junior high school students S.Y. 2015-2016 of Eugenio Cabezas.

Validation of instrument

The instrument used by Olamide and Olawaiye (2013) study was first subjected to face validity test whereby three experts critically examined it and made useful suggestions towards its amendments, so based on their suggestions, the items on the questionnaire were either amended or substituted with others.

The modified instrument was validated by the Head of Counseling and Testing Center, Psychologist and the Dean of College of Arts and Science. It was pre-tested to the Grade 10 students from the main institution. The instrument was submitted for reliability test.

Data Gathering Procedure

For this study, there are two sources of data, primary data source using the survey questionnaire: Choice of Career Questionnaire (CCQ) and the secondary source data from books, journals, researches and internet sources. The secondary data is utilized to present the review of related literature and studies, which is obtain from the books, journals and the Web.

Data gathering was conducted during their independent cooperative learning time of the respondents. They are requested to fill up the questionnaire given with some personal information and indicate which degree of the statement are true to them by encircling the number to determine the relationship of career choice factors and selection of tracks among junior high school students.

Statistical Treatment

To evaluate the outcome of this study, descriptive statistic were used. The results were obtained through the use of Statistical Package Social Science (SPSS version 21) program in getting the mean, frequency and standard deviation.

1. **Frequency count and percentage distribution.** It will be used to tally responses of participants and to determine the quantitative relation of individual response to the whole response. This address problem number 1.
2. **Mean.** It was obtained when all the scores are added and divided by the number of cases. This answered problem number 2.
3. **ANOVA.** It will be used to analyze the differences among group means. This answered problem number 3.

IV. RESULTS AND DISCUSSION

This chapter presents, analyzes and interprets the data based on the statement of the problem.

I. Which of the career tracks and strands is most preferred by Grade 10 students?

Table 1.

Distribution of Career Track Choices of Grade 10 Students of Eugenio Cabelas NHS

TRACKS	FREQUENCY	RELATIVE FREQUENCY	PERCENTAGE FREQUENCY	RANK
1Academic	72	0.33	33.33	2
2TechVoc	125	0.58	57.87	1
3Sports	13	0.06	6.02	3
4Arts and Design	6	0.03	2.78	4
TOTAL	216		100.00	

As presented in Table 1, Technical Vocational track has the highest frequency of 125 or 57.87% which is the first rank followed by Academic track with frequency of 72 or 33.33% which is second in rank. On the other hand, Sports has a frequency of 13 or 6.02% which is third on the rank. Arts and Design track with a frequency of 6 or 2.78% has the lowest frequency and rank. The result indicates that majority of the Grade 10 students prefer to take Technical Vocational Livelihood track.

Table 2.

Distribution of Career Strand Choices of Grade 10 Students of Eugenio Cabelas NHS

CODE	STRANDS	FREQUENCY	RELATIVE FREQUENCY	PERCENTAGE FREQUENCY	RANK
1A	ABM	33	0.15	15.28	2
1B	HUMSS	10	0.05	4.63	7

1C	STEM	24	0.11	11.11	3
1D	GAS	17	0.08	7.87	5
2A	AGRICULTURE	0	-	-	8
2B	HOME ECONOMICS	97	0.45	44.91	1
2C	ICT	15	0.07	6.94	6
2D	IA	20	0.09	9.26	4
TOTAL		216	1.00	100.00	

Table 2 shows the choice of strands of Grade 10 students. Home Economics has the highest frequency of 97 or 44.91% which is the first rank followed by Accountancy and Business Administration with frequency of 33 or 15.28% which is second in rank. On the other hand, students do not prefer agriculture with 0% The result indicates that majority of the Grade 10 students prefer to choose Home Economics strand.

II. What is the influence level of personality, environment and opportunity in choosing career tracks?

Table 3

Grand Mean Response on the Influence of Personality on Career Track Choice

PERSONALITY	MEAN	INTERPRETATION	RANK
1. My choice of track is based on my occupational interest inventory test.	3.6	very influential	5
2. My career track choice is connected to my favourite subject.	3.37	somewhat influential	7
3. My preferred track is my personal choice.	4.28	extremely influential	1
4. My preferred track is my “childhood dream” work.	3.49	very influential	6
5. My preferred track jives with my interests.	4.27	extremely influential	2
6. I made the decision choosing a track based on my academic skills.	3.62	Very influential	4
7. I made the decision choosing a track based on my Technical Vocational Skills.	3.67	Very influential	3
8. My preference of track is a reflection of my talent in Arts and Design.	3.14	somewhat influential	8
9. My preference of track is a reflection of my talent in sports.	3.08	somewhat influential	9
10. My track choice is based on my NCAE result.	2.79	somewhat influential	10
OVER ALL MEAN	3.531	Very influential	

Note: 5.00 – 4.20 extremely influential

4.19 – 3.40 very influential

3.39 – 2.60 somewhat influential

2.59 – 1.80 slightly influential

1.79 – 1.0 not at all influential

Table 3 shows the grand mean response on the influence of personality on career Track Choice. My preferred track is my personal choice ranked as first among the personality descriptors with a mean of 4.28 and a verbal interpretation of extremely influential. Followed by my preferred tracks jives with my interest with a mean of 4.27 and interpreted as extremely influential. The overall mean for personality factor is 3.53 and interpreted as very influential.

The result adheres with the study of Olamide and Olawaye (2013) where in majority of the students believed that personality is influential on career choice. Individual must know themselves and use that self-knowledge as a tool when making a career choice. According to Holland, when a career fits an individual's personality, he or she is more likely to enjoy that particular career and to stay in a job for a longer period of time than and individual who work at jobs not suited to their personality.

Table 4 *Grand Mean Response on the Influence of Environment on Career Track Choice.*

ENVIRONMENT	MEAN	INTERPRETATION	RANK
1. My parents had/will have great influence in my chosen career track.	3.71	very influential	1
2. Other family member influenced me in my career track choice.	3.32	Somewhat influential	2
3. My teacher's advice and encouragement influence me on choosing a track .	3.14	Somewhat influential	3
4. My teacher's expertise and competencies influence me on choosing a track.	3.05	Somewhat influential	5
5. My classmate's course preference influences me on my career track choice.	2.81	somewhat influential	8
6. My friend's choice of school affects my decision in choosing a track.	2.88	somewhat influential	7
7 My career track choice is based on my guidance counselor's advice.	2.4	Slightly influential	10
8. My career track choice is based on my guidance counselor's career talk program.	2.55	Slightly influential	9
9. My school curricular program and activities influences my career track choice.	3.06	somewhat influential	4
10. My school's complete facilities affect my track choice.	2.9	somewhat influential	6
OVER ALL MEAN	2.982	somewhat influential	

As shown on table 4 on the influence of environment on career track choice, it reveals that parents had great influence in chosen career track with a mean of 3.71 and interpreted as *very influential*. The grand mean for the influence of environment on career track choice is 2.982 and interpreted as somewhat influential.

Batu (2016) study believes that influence of family, teachers, friends and role models affects student's study field choice.

In the contrary, Khamadi (2011) study concluded that teachers and counsellors had less influence than indicated by Taylor et. al (2004).

Table 5 *Grand Mean Response on the Influence of Opportunity on Career Track Choice*

OPPORTUNITY	MEAN		RANK
1. My father's educational attainment affects my career track choice.	2.8	somewhat influential	9
2. My mother's educational attainment affects my career track choice.	2.81	somewhat influential	7
3. Our family business is a factor in my choice of track.	2.81	somewhat influential	7
4. Our family's dominant profession affects my career track choice.	2.69	somewhat influential	10
5. My choice of career track depends upon our family's financial status.	3.47	very influential	5
6. My career track choice is based on the needs of the industry.	3.46	very influential	6
7. My career track choice depends upon the salary and wages I will get.	3.59	very influential	4
8. My career track choice includes job experiences that will enable me to get hired after graduation.	3.9	very influential	2
9. The availability of job in the future affects my choice of track.	3.71	very influential	3
10. My chosen track will give me the opportunity to work overseas.	3.93	very influential	1
OVER ALL MEAN	3.317	somewhat influential	

Table 5 shows the grand mean response on the influence of opportunity on career track choice. Majority of the respondents believed that their chosen track will give them the opportunity to work abroad with a mean of 3.93 and a verbal interpretation of very influential. The grand mean on influence of opportunity on Career track choice is 3.317 and interpreted as somewhat influential.

Andersen, P. & Vandehey, M. (2012) states that person's career movement is dependent on the external reality of what opportunities are available at any point in a lifetime. However, John Holland's theory of person-environment states that individuals need to be participating in occupations where the people milieu and environment activities are consistent with their personalities.

III. Which of the personality, environment and opportunity is the most influential to students?

Table 6

Comparison of grand mean of the three factors: Personality, Opportunity and Environment

Variables	Mean	sd	Rank	Interpretation
Personality	3.5316	.49391	1	very influential
Opportunity	3.3176	.54946	2	somewhat influential
Environment	2.9830	.63936	3	somewhat influential

Note: 5.00 – 4.20 extremely influential

4.19 – 3.40 very influential

3.39 – 2.60 somewhat influential

2.59 – 1.80 slightly influential

1.79 – 1.0 not at all influential

Table 6 indicates the comparison of grand mean of the three factors: personality, opportunity and environment. Based on the mean, personality is very influential to the respondent's on their career track choice with a mean of 3.53. Next is opportunity which is somewhat influential on career decisions with a mean of 3.32 followed by environment which is somewhat influential also in terms of career track choice with a mean of 2.98.

Bunag (2015) study believed that personality factors had a significant effect on the career choice of the respondents.

Table 7

Analysis of Variance of the three factors: Personality, Opportunity and Environment

Variables	Mean	Sd	F-Value	P-value
Personality	3.5316	.49391	51.650	.000*
Environment	2.9830	.63936		
Opportunity	3.3176	.54946		

*Highly significant

Analysis of variance shows that personality is highly significant among the three factors.

It relates to the study of Olamide and Olawaye (2014) that personality affects their career choice the most.

In the contrary with the study of Batu (2016) states that students' study field choice is influenced by many issues. The most important are job related factors and influence of family, teachers, friends, role models and opportunities for future professional development.

IV. SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presents the summary of findings. Major conclusions of the study were formulated based on the data presented. Recommendation for action and further implementation are also included in this chapter.

This study aimed to determine the influence of the career choice factors toward the selection of tracks among junior high school students.

The respondents are composed of Grade 10 students of Eugenio Cabezaz, a total of two hundred sixteen (216) respondents.

A. SUMMARY

The findings of the study are summarized according to the statement of the problem presented.

I. Which of the career tracks and strands is most preferred by Grade 10 students?

Based on the result from table 1, Technical Vocational track has the highest frequency of 125 or 57.87%. Least is the Arts and Design track with a frequency of 6 or 2.78%. The

result indicates that majority of the Grade 10 students prefer to take Technical Vocational Livelihood track.

Table 2 revealed the choice of strands of Grade 10 students. Home Economics has the highest frequency of 97 or 44.91% which is the first rank. On the other hand, Agriculture has the lowest frequency. The result indicates that majority of the Grade 10 students prefer to choose Home Economics strand.

II. What is the influence level of personality, environment and opportunity in choosing career tracks?

Table 3 shows the grand mean response on the influence of personality on career Track Choice. My preferred track is my personal choice ranked as first among the personality descriptors with a mean of 4.28 and a verbal interpretation of extremely influential. The overall mean for personality factor is 3.53 and interpreted as very influential.

As shown in table 4 on the influence of environment on career track choice, it indicates that parents had great influence in chosen career track with a mean of 3.71 and interpreted as very influential. The grand mean for the influence of environment on career track choice is 2.982 and interpreted as somewhat influential.

Table 5 shows the grand mean response on the influence of opportunity on career track choice. Majority of the respondents believed that their chosen track will give them the opportunity to work abroad with a mean of 3.93 and a verbal interpretation of very influential. The grand mean on influence of opportunity on Career track choice is 3.317 and interpreted as somewhat influential.

III. Which among the personality, environment and opportunity factors is the most influential to the students?

Table 6 shows the comparison of grand mean of the three factors: personality, opportunity and environment. Based on the mean value, personality is the most influential to the respondents on their career track choice with a grand mean of 3.53. Followed by opportunity which is somewhat influential on career decision with a grand mean of 3.32. Lastly, the environment which has a grand mean of 2.98 with a verbal interpretation of somewhat influential.

Table 7 revealed that among the three factors, personality is highly significant. Analysis of variance scores is less than pvalue of .05.

B. CONCLUSION

Based on the findings, the following conclusions are drawn:

The study revealed that among the career tracks and strands, majority of the respondent chose the Technical Vocational Track with specialization in Home Economics strand.

Majority of the respondents believed that personality is very influential on their career track choice. It also showed that among the personality descriptors, Technical/Vocational skills found to be very influential to the respondents in making career decisions Livelihood (TVL), followed by academic skills. Exposure of students to career related technical and academic subjects also known as elective subjects in the Philippines also helps in students decision making in career choices. Students believed that TVL track will equip them with skills that will eventually lead to their employment in varied techvoc courses.

With regards to environmental factors, parental influence is considered to be very influential in career decisions. Parents proved to have the strongest influence on career decisions. Studies show that Filipino immigrants and non-immigrants rely heavily on their family's decision-making. Respect for family is one of the most influential factors that impact Filipino students career decision.

For opportunity descriptors, majority of the respondents believed that their chosen career will give them the opportunity to work overseas. It is clearly stated that high salary which can be acquired through working overseas is the most important external factor.

This study concluded that personality factors rank as the most influential among the career choice factors. An individual aptitude and intellectual abilities are equally of great importance in career track choice. This can also a basis for guidance counsellors to strengthen their career guidance counselling program of students in choosing the best track, since personality factor is highly significant and an important attributes in career decision making.

C. RECOMMENDATION

Based on the findings and conclusions on this study, the following recommendation are hereby offered:

1. Personality factors such as gender, age and academic achievement should also considered as predictors of career choice.
2. An in-depth study is also recommended on respondent's family income as opportunity descriptor in career decision.
3. Parents should be supported with current and relevant information on career guidance program. Educating parents on how best to support students during their career planning and involving community resources would be helpful to students throughout their career planning process.
4. Interest and Aptitude should be congruent with student's opportunities. Compatible choice and high paying job must be clear.
5. Comprehensive career guidance program will help the students in understanding themselves and the world of work which will empower them in making wise career decision.
6. Similar study should be done using respondents coming from public and private school within the division. A larger more varied sample would give more reliable results.
7. Parents, academic institutions, government and all concerned bodies should work together on the determinants of study field and future occupation choice of the youth.

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Jazz Education: Incorporating Computer Technology into the Jazz Ensemble Rehearsal

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Abstract

With recent and continuing advances in technology, it is essential that jazz educators become and remain knowledgeable of various software programs that could improve jazz education. In the area of jazz ensemble rehearsal, there are many recently developed software applications specifically designed to assist students in the learning and performing jazz on their instruments and also in the recording of performances. Computer software programs, which could be used in rehearsing the jazz ensemble can be categorized into six areas: listening, transcribing, tuning, developing a steady tempo, auto accompanying and recording. When listening to music to be learned in jazz ensemble rehearsals, two applications that can assist students are *Spotify* and *YouTube*. When transcribing jazz solos, it is helpful if the musical examples are slowed down so notes and rhythms can be heard more easily. Two programs used for transcription are *Anytune* and *Tempo SlowMo*. Before beginning a jazz ensemble rehearsal, it is essential that musicians tune their instrument. *InsTuner* is an application that allows performers to chromatically tune any instrument. When performing, it is also essential that performers keep a steady tempo. *Pro Metronome* is a software program that assists students in developing this skill. When students are learning the jazz repertoire, it is very helpful if a software application can accompany them, performing the rhythm section parts as they practice. Some popular auto accompaniment programs are *Chord Pad*, *ChordPulse*, *Impro-Viser*, *iReal Pro*, *SmartMusic* and *Band-in-a-Box*. After students have mastered the selected repertoire, they may wish to record and edit their performance. Software programs designed to do this are *Audacity* and *Garageband*. When computer technology is incorporated into jazz ensemble rehearsals, students progress at a faster rate and learning is made more exciting and enjoyable. With so many advances in technology occurring everyday, jazz educators should take full advantage of software applications by incorporating them into the jazz ensemble rehearsal so maximum learning can take place.

Keywords: Music Education, Music Technology

Introduction

With recent and continuing advances in technology, it is essential that music educators become and remain knowledgeable of various software programs that could benefit students in applied music lessons. In the area of musical performance, there are many software applications specifically designed to assist students in the learning and performing of repertoire for their instrument and also in the recording of performances. Computer software programs used in the teaching of applied music lessons usually can be categorized into six areas: listening, transcribing, tuning, developing a steady tempo, accompanying and recording.

Listening Software

When listening to music to be learned in the applied lesson, two resources that can assist students are *Spotify* and *YouTube*. *Spotify* is a free commercial music streaming service, launched in 2008, that allows users to listen to millions of songs from a variety of artists and musical styles. This free service is made possible by the use of advertisements, which are shown as the music is being played. In 2012, the number of *Spotify* users reached twenty million out of which around 5 million were paying a monthly subscription for upgraded services. This service is available for almost every desktop computer operating system and on all mobile devices allowing users to browse music by artist, album, genre, playlists, record label as well as directed searches. On computers, a link also allows listeners to purchase desired songs through partner retailers. Even though *Spotify* is a very popular resource, it is not available worldwide. However, it is available to listeners in the following countries: Australia, Belgium, Denmark, Estonia, Finland, France, Germany, Hong Kong, Iceland, Italy, Latvia, Lithuania, Malaysia, Mexico, the Netherlands, Norway, Poland, Singapore, Spain, Sweden, United Kingdom and the United States. In its 2013 annual review, *Spotify* stated that 24 million active users streamed over 4.5 billion hours of music (*Spotify*, 2016).

Another free resource that can assist students in the learning of repertoire is *YouTube*. *YouTube* is a free online public communications site where registered users are allowed to upload videos for public viewing. The site also allows users to search through and view an enormous quantity of videos posted on the site. There are videos on every topic imaginable which makes this site an excellent resource for musicians to see and hear performances of repertoire they wish to perform. This site, like *Spotify*, is able to offer users free viewing due to the advertisements presented as videos are shown and more than a million advertisers use *YouTube*, the majority of which are small businesses. *YouTube*, which was founded in February 2005 by three previous employees of the PayPal online payment service, has become one of the most popular web portals in the world. More than one billion users visit the *YouTube* website each month watching over six billion hours of video. Almost every communication device can access *YouTube* with approximately 80% users living outside of the United States. In 2006, *YouTube* had become so popular that it was purchased by communications giant Google for 1.65 billion dollars (*YouTube*, 2016).

Transcription Software

Another category of computer software used in learning musical repertoire is transcription. Transcription is the process of notating existing music that has not been previously written down or rewriting an existing musical piece for an instrument other than the one it was originally written for. When transcribing music, it is helpful to slow down the musical examples so notes and rhythms can be heard more easily. Two programs used for transcription are *Anytune* and *Tempo SlowMo*.

Anytune is a free application, produced by Anystone Technologies, designed to slow down the tempo of songs without any loss in sound quality or affecting the pitch. Musicians use this application to play, transcribe and practice songs imported from iTunes, video recordings and other audio sources. The user can mark and loop sections for practicing and also record, share and stream

live audio directly to other compatible applications. *Anytune* is a universal program that will work with most devices and supports files found in the user's music library, except those that are Digital Rights Management (DRM) protected (Anytune, 2016).

A second program for changing the tempo of songs is *Tempo SlowMo*, produced by Martian Storm Ltd. This application is an ideal practice tool for musicians because it allows the tempo of songs to be changed, either faster or slower, between a range of 20% slower to 250% faster than the original tempo, without affecting the pitch. A microphone can be used as the input device for this application but tracks can also be imported from a computer, an iPod music library or from other sources. Tracks can be looped to master difficult sections and users can record and save their own edited tracks (*Tempo SlowMo*, 2016).

Tuning Software

Before beginning a lesson, it is essential that musicians tune their instruments. *InsTuner Lite* is a free chromatic tuner, marketed by Xiao Yixiang, which allows musicians to tune instruments quickly and accurately. It is highly accurate, well designed and easy to use. Features include a unique fixed note wheel for detecting pitch easily, a line-in mode as well as a built-in microphone mode. It can also be used as an electronic pitch pipe allowing students to tune by ear by matching the generated tones. The tuning range is from C0 to B8, which covers the range of almost all musical instruments and since *InsTuner Lite* is a universal application, it will operate on all iOS devices including iPhone, iPhone5, iPod, iPad (*InsTuner Lite*, 2016).

Tempo Software

When performing, it is also essential that performers keep a steady tempo. *Pro Metronome* is a free software program that assists musicians in developing this skill. This application, also marketed by Xiao Yixiang and designed for all iOS devices, (iPhone, iPod, iPad), is extremely precise and easy to use. Features include volume adjustment, seven metronome tones, dynamic accent settings of forte, mezzo forte and piano, a tap mode that calculates the beats per minute and a power-saving mode. *Pro Metronome* will also keep working if the device screen is locked, if the application is placed in the background, or opened with other applications (*Pro Metronome*, 2016).

Auto Accompaniment Software

Another software category used in the process of learning music is auto accompaniment.

Auto accompaniment software programs refer to applications that can automatically accompany a musician when performing by playing additional musical parts with little or no input from the performer. These applications are very useful when learning to improvise since they can perform both individually and as a group, the piano, guitar, bass and drum set parts. This allows the jazz musician an opportunity to practice with a realistic rhythm section very similar to ones used in an actual performance situation. There are currently several popular auto accompaniment software programs on the market designed to assist musicians in learning to improvise. They are *Chord Pad*, *ChordPulse*, *Impro-Viser*, *iReal Pro*, *SmartMusic* and *Band-in-a-Box*.

Chord Pad is a powerful software application for Windows that can generate backing tracks for musicians to improvise over. Soloists can use this application to create and manipulate chord progressions in over 250 musical styles. Bass players and drummers will also benefit from *Chord Pad* since it allows them to create and practice with minus one drumless and bassless tracks. In addition, *Chord Pad* has a built in mixer, a midi file player and chord sequences can be saved and exported as wav, mp3, wma or midi files. *Chord Pad* is marketed by Desktop Metronome and sells for \$22.00 USD (*Chord Pad*, 2016).

Another auto accompaniment program for Windows that allows the user to create backing tracks in 144 musical styles is *ChordPulse*. This program contains a tuner and works as a full accompaniment, a drum machine with bass, a metronome with chords and several other combinations. *ChordPulse* will perform songs at a variety of tempos, keys and time signatures and backing tracks can be saved as standard midi files. In addition, this application works with general midi hardware, midi synthesizers and sound modules. *ChordPulse* requires minimal software and hardware only needing a Windows PC with a standard sound card. Flatiron BT markets and sells *ChordPulse* for \$21.95 USD (ChordPulse, 2016).

A third auto accompaniment program, *Impro-Viser* (Improvisation Advisor), is a free application designed to assist jazz musicians compose and improvise melodies by improving their understanding of solo construction and chord changes. It can improvise, transcribe and automatically generate chords in a variety of musical styles and the improvised solos can be saved as free-form text. In addition, *Impro-Viser* has the ability to create lead sheets that can be played back and looped in a matter of seconds. Music can be exported as midi or Music XML files, which will run on any platform that supports Java 1.6 or later including Windows, Mac and Linux. The program also allows the user to turn off the bass line allowing original bass lines to be created. In addition, this program can be used to develop sight-reading skills, chord-voicing skills and create jazz exercises and patterns for students to practice. *Impro-Viser* was designed and created by Robert Keller, a professor in computer science at Harvey Mudd College, through grants from the Mellon Foundation, the National Science Foundation, the Baker Foundation and Harvey Mudd College (Impro-Viser, 2016).

A fourth application that accompanies musicians by simulating a jazz band rhythm section is *iReal Pro*. This program contains a large collection of chord charts, which can be used while practicing or performing and the application can also access thousands of charts that can be easily downloaded free of charge from the *iReal Pro* forum. Charts can be edited to fit the performer's needs and the play along feature will generate realistic accompaniments in 47 styles, which can be exported as midi and Music XML files. *iReal Pro* will loop chord progressions allowing the user to focus on specific measures and also has challenging automatic tempo increase and transposition features at each repeat. This application is designed for use on iPhone, iPad, Android and Mac OS X platforms and sells for \$12.99 and \$19.99 USD depending on the device it is purchased for. *iReal Pro* is marketed by Technimo and was one of Time magazine's top 50 inventions of 2010 (iReal Pro, 2016).

Another excellent auto accompanying program is *SmartMusic*. This software program designed to assist woodwind, brass, string musicians and singers at all levels, in developing music performance skills. When using *SmartMusic*, students perform into a microphone connected to a computer and then receive detailed feedback on their performance. The program has a vast repertoire library of over 30,000 song accompaniments in both classical and jazz styles and 50,000 exercises to assist students in the mastery of their instrument. As students play these songs and exercises, the program immediately assesses the student's performance on pitch and rhythm using green notes when the piece is performed correctly and red notes where the piece is performed incorrectly. A percentage score is then calculated and displayed for each exercise (SmartMusic, 2016).

To assist the student, *SmartMusic* will perform the solo line, the accompaniment, or both at once if the student desires. This allows the student to practice with the solo line at first and to hear how it fits with the accompaniment. When ready, the student can perform with the solo line and accompaniment and eventually with accompaniment alone. The *SmartMusic* program will also follow students as they perform, adjusting the tempo of the accompaniment, which allows for

maximum musical expression. In addition, the program will perform songs at any speed so students can practice slowly at first and then gradually increase the speed until they reach the performance tempo. The program contains a loop feature, allowing students to practice short difficult passages of a piece over and over until they are performed perfectly and a transpose feature, so students can perform songs in a variety of keys. The transpose feature also allows students to access and perform music written for a variety of other instruments. A tuner and metronome are included, so students can check their pitch and develop the ability to play evenly with a steady tempo. Note fingering charts are included with the program, allowing students to look up the fingering of a note if they are unsure (SmartMusic, 2016).

SmartMusic also allows students to develop their tonal memory and aural skills. When working on these skills, students first hear a passage of music and then play it back using no music, just their ears. For development of improvisation, the program includes many improvisation patterns and scale/chord exercises that will help students to learn to improvise and play in any key. The program allows students to record themselves as they perform for self-evaluation. When recording, students have control over the sound reverberation and can also adjust the balance between their solo line and the accompaniment. The recorded files can be saved to the computer or burned to a CD (SmartMusic, 2016).

Students can download the *SmartMusic* software program in both Window and Macintosh formats from the MakeMusic website for a yearly subscription fee of \$40 USD. Music Instructors can download the educators' version with the ability to create and send assignments for a yearly subscription fee of \$140 USD (SmartMusic, 2015).

A sixth auto accompanying program, published by PG Music, is *Band-in-a-Box*. This program generates complete professional-quality backing arrangements of piano, bass, drums, guitar and strings or horns for songs in a wide variety of popular styles. To use this program, the user types in the chords to any song using standard chord symbols or chooses a tune from the music library of saved songs, and selects the musical style from the hundreds available. The user can also choose the key, tempo and select the exact instrumentation desired from the above listed instruments. The program will also generate samples of improvised solos for each song in a variety of musical styles. *Band-in-a-Box* has formats for both Macintosh and Windows operating systems and is sold in a variety of packages with prices ranging from \$129 to \$569 USD (Band-in-a-Box, 2016).

Recording Software

After students have mastered the selected repertoire they have been practicing, they may wish to record and edit their performance. Software programs designed to do this are *Audacity* and *Garageband*.

Audacity is a free, easy-to-use, multilingual audio editor and recorder that operates on Windows, Mac OS X, and GNU/Linux systems. It was developed by a group of volunteers and distributed under the GNU General Public License. With *Audacity*, students can record live audio through a microphone, mixer, line input and USB/Firewire devices at sample rates up to 192,000 Hz with 16-bit, 24-bit and 32-bit samples. The program also allows students to cut, copy, splice or mix sounds together and change the speed or pitch of a recording. The envelope tool can be used to fade the volume up or down smoothly and the automatic crash recovery feature saves information in the event of abnormal program termination (Audacity, 2016).

Audacity can also digitize recordings from cassette tapes, records, and with some sound cards, it can capture streaming audio. In addition, students can dub over existing tracks to create multi-track

recordings and record multiple channels at once. Static, hiss, hum or other constant background noises can be removed and frequencies can be altered with equalization, bass boost, high/low pass and notch filter effects. Vocals can also be removed from suitable stereo tracks and voice-overs for podcasts or DJ sets can be added. Sound files can be imported, including MPEG audio, MP2 and MP3 files, edited and combined with other files or new recordings. Recordings can be exported in many different file formats including WAV, AIFF, AU, and FLAC. WAV or AIFF files can also be created that are suitable for burning to an audio CD (Audacity, 2016).

Another program designed to assist students with the recording of performances is *GarageBand*. This application is a digital audio workstation, developed by Apple for use on the Mac OS X system, can record and play back multiple audio tracks in both 16-bit and 24-bit audio resolution. *GarageBand* also allows the user to add various effects such as reverb, echo, and distortion to audio tracks and includes a tuning system, which assists with pitch correction. In addition, *GarageBand* is a music sequencer, which contains a large selection of realistic, sampled instruments and software modeled synthesizers that can be used to create original compositions or play music live. *GarageBand* can also import and edit MIDI files allowing the user to manipulate such aspects as pitch, velocity and duration (GarageBand, 2016).

Summary

With recent and continuing advances in technology, computer software programs can now be used in the teaching of applied music lessons. When computer technology is incorporated into the learning and performance of musical repertoire through the following six areas: listening, transcribing, tuning, developing a steady tempo, accompanying and recording, students progress at a faster rate and learning is made more exciting and enjoyable. With so many advances in technology occurring everyday, applied teachers should take full advantage of software applications by incorporating them into music lessons so maximum learning can take place.

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Leading school inspections by making use of professional learning communities in United Arab Emirate private schools

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Abstract

The improvement of the education system through the medium of school inspections is seen as a crucial element to develop the education system in the United Arab Emirates. To this end, the Education Council has introduced a world-class and comprehensive school inspection system to measure quality education and to support school improvement, so that all schools in the Emirate of Abu Dhabi will compete at international standards. This paper reports on a qualitative case study on the perceptions of school leaders and educationalists regarding professional learning communities (PLCs) and the effectiveness thereof during inspection preparation and school improvement initiatives. The inquiry was informed by transformational leadership theory in general and the situated learning theory in particular. Data were collected through interviews with 40 participants inclusive of school leaders, inspectors and educators. The findings suggest that PLCs can be an effective and practical vehicle for inspection preparation and other school improvement initiatives. Features to enhance the effectiveness of PLCs in schools were identified. These relate to opportunities for collaboration, veterans sharing wisdom that allow for improved teaching practices, cultural and religious tolerance, developing various capabilities, being part of a shared vision and working towards a common goal. Recommendations for improvements were made in light of the situated learning theory.

Key words: inspection, school leaders, professional learning communities, school improvement, situated learning theory, transformational leadership theory

Introduction

Leadership has been described as being more than a person or a position; it can be seen as a complex moral relationship between individuals, based on trust, obligation, commitment, emotion and a shared vision (Ciulla 1998). Leadership requires individuals that willingly follow certain directives. Duignan (2008) maintains that leadership is strengthened when leaders take responsibility for their decisions, and are accountable to the organisations they serve. The leader's ability to step forward and lead the organisation is both essential and inimitable.

Leadership in education is viewed as an essential component for ensuring that all schools succeed in providing quality instruction. Although educators are at the forefront of learning, school principals are challenged to set high expectations and a clear vision to enhance the quality of teaching and learning. The execution of this vision could be referred to as leadership (DeVita, cited in Wallace Foundation 2007). Leithwood, Jantzi, Coffin and Wilson (1996) state that “there is not a single documented case of a school, successfully turning around its pupil achievement trajectory, in the absence of talented leadership”. Leithwood *et al.* (1996) therefore suggests that leadership is not measured exclusively by the school principal, but by a number of other variables including capacity, motivation, working conditions and student achievement. Total leadership therefore refers to the combined influence from all of these sources.

Leadership also influences reform. Leadership in education is referred to as a ‘bridge’ that seamlessly brings together various reform endeavours. The leader exerts a degree of influence to gain support from the followers, in order to achieve the goal or transformational objectives of an organisation or department (Avolio & Bass 2002).

It is clear, therefore, that leadership focuses on set aims and objectives. Knapp, Copland, Honig, Plecki and Portin (2010) speak of leadership as a shared work experience, where individuals are committed to influencing the direction that a school pursues with regard to learning, and employ every effort in pursuing the agenda for school improvement. Similarly, Bush (2011) mentions that leadership involves influence that is generally social by nature, where intentional influence is exerted by one person (or group) over others (or groups), in order to organise activities and relationships within the organisation. The leader’s ability to influence or achieve organisational objectives is seen as an important element in evaluating the leader's performance or degree of effectiveness (Bush 2011).

Bhugra, Ruiz and Gupta (2013) also maintain that leaders lead because there is an expectation that they will act in accordance with the vision and goals of an organisation. The task of any leader is to provide the plan of action for the followers, and these authors stress that leaders are only in existence because they have individuals who are willing to follow and take direction from them (Bhugra *et al.* 2013).

In order to reach set goals, leadership can function in many ways. In this regard, Cuban (in Bush 2011) maintains that during leadership there is a need for the influencing process to have a purpose, in that it is intended to lead to a targeted outcome. The leaders influence the motivations and actions of others in order to achieve that specific goal. Influence is thus the principal concept in leadership, rather than power or authority. In fact, according to Heifetz (1994), authority can constrain leadership, because in times of crisis, individuals place a huge amount of strain on leaders because they have high expectations of them to solve problems. The author thus refers to individuals forming unsuitable dependencies that delude leaders into thinking that they have all the answers.

In the United Arab Emirates (UAE), school improvement as part of the education reform vision is to improve the quality of education and to raise education standards across all schools. This requires various improvement initiatives; and one of these initiatives was to introduce a national inspection framework.

In February 2012, the Abu Dhabi Education Council (ADEC) launched the *Irtiqa'a* inspection programme to evaluate the quality of education in public and private schools in the Emirate of Abu Dhabi. The programme aims to meet the highest international performance standards and reform UAE schools to compete at an international level. This is in line with the ADEC's vision calling for high quality education in all schools and for all students. Currently, school leaders find the inspection process challenging because they do not fully understand the process and are not presented with clear enough guidelines to prepare for the inspection. Whilst the preparation for inspection in the UAE is often challenging, confusing and a difficult experience, research on this topic is relatively sparse. In light of this, the research on which this paper is based investigated the experiences of school leaders in order to gain a deeper understanding of school inspection preparation within a UAE context. The insight derived from the study could be useful and offer support to school leaders in preparing for future inspections.

Inspections in the United Arab Emirates context

The inspection programme *Irtiqa'a* (meaning "Aim higher") was designed to identify quality levels of school performance and to provide the necessary support in schools, in order to set high standards and to encourage best practice. This initiative was aimed at enhancing the performance level of schools by creating a competitive environment and awareness among educators regarding quality performance. School leaders were tasked to explore best international practices and to assess their school's performance against a standardised grading system (Badri, Al Qubaisi, Mohaidat , Al Dhaheri, Yang & Al Rashedi 2016).

The majority of schools are inspected by a team of international experts once every two years. During this time inspectors make judgments on a school's performance across six areas of the inspection standards. These areas are students' achievement; students' personal and social development and their innovation skills; teaching and assessment; curriculum; the protection, care, guidance and support of students; and leadership and management. Inspectors then use an eight-point scale when judging the quality in each inspection performance standard (illustrated in Table 1). The final inspection report is shared publicly and it is based on a final grading, i.e. band A – high performing; band B – satisfactory; and band C – underperforming (Badri *et al.* 2016).

INSERT TABLE 1 HERE

The descriptors for performance standard six, leadership and management, is evaluated on how school leaders contribute to delivering a high quality education system. It includes areas such as, leadership effectiveness in executing vision; direction; educational leadership; capacity to innovate and improve; relationships and communication with various stakeholders; impact on school improvement planning; and the management of the day-to-day school life. It is thus evident that there is a large responsibility and accountability component directed towards principals and their school leadership team. Prior to the inspection visit, school leaders are expected to perform their own self-evaluation process and prepare for the inspection. This self- evaluation process is an important component that works in tandem with the inspection process. It is aimed at identifying improvement targets and setting appropriate objectives for the school improvement plan.

The above-mentioned inspection preparation process formed the basis of this study. Since leading the inspection process by making use of communities of practice is the main issue at stake, transformational theory and the situated learning theory were used as conceptual frameworks. These theories are explained in the next section.

Conceptual framework

Transformational leadership theory is described as a means of directing the organisation through a shared vision, whereby all stakeholders are committed to the vision, by meeting high performance expectations (Leithwood, Jantzi & Steinbach 1999). Gunter (2001) speaks of transformational leadership becoming more globalised as principals respond to reform demands and turn their schools into learning communities. Here the leaders not only motivate their followers through charisma, but also focus on the needs of the followers, influence their thinking, and finally seek to persuade the followers to commit to the intended school vision (Gronn, cited in Gunter 2001).

The notion of trust is also linked to the transformational theory. Yukl (1999) speaks of transformational leadership “in terms of the leader’s effect on followers: they feel trust, admiration, loyalty, and respect toward the leader, and they are motivated to do more than they originally expected to do”. Similarly, Dirks and Ferrin (2002) explain that trust in the leader is a significant component with reference to transformational leadership. In a study on the notion of trust, Dirks found that although trust amongst team members did not appear to affect team performance, trust in leadership did have a positive effect on performance (Dirks 2000). Various other authors (e.g. Konovsky, Pugh, McAllister & Robinson, cited in Handford 2011) have also found trust to be an essential component of transformational leadership since it enhances behavioural patterns within the organisation, and it strengthens relationships amongst members of staff especially when staff are part of the decision-making process. This implies that staff will perform better when they are directly involved in school initiatives, and when they are leading their own learning. Applied to the context of the study reported in this paper, trust can be created by school leaders allowing staff to work in small communities on various school improvement initiatives. When staff lead their own initiatives, they are more likely to perform at a higher level in order to ensure that school initiatives are executed successfully. School leaders thus enable their staff members to work in a community instead of working individually on school improvement initiatives.

The situated learning theory suggests that learning is influenced by the context, culture and activity in which it takes place, called a ‘community of practice’ (Wenger 2000). Wenger (1998) mentions three elements that identify a community of practice: mutual engagement of participants, such as education leaders, in actions that are meaningful for their practice; negotiation of a joint enterprise, such as teaching, which creates mutual accountability; and the development of a shared repertoire that includes language, conventions and understandings. This implies that social activity in a community of practice is critical for learning. In the context in which this study was conducted, knowledge could be created and transferred from school leaders to teachers in the community of learning. When learning has taken place, the teachers are enabled to move from legitimate peripheral participation to more central participation in the community, leading to various school improvement initiatives, such as in the case of a school inspection.

School leadership and professional learning communities

Leadership to reach set goals can function in many ways. Cuban (cited in Bush 2011) maintains that during leadership there is a need for the influencing process to have a purpose, in that it is intended

to lead to a targeted outcome. The leaders influence the motivations and actions of others in order to achieve that specific goal. Influence is thus the principal concept in leadership, rather than power or authority. In fact, according to Heifetz (1994), authority can constrain leadership, because in times of crisis individuals place a huge amount of strain on leaders since they have high expectations that their leaders can solve problems. The author thus refers to individuals forming unsuitable dependencies that delude leaders into thinking that they have all the answers.

Much debate still prevails about which methods produce effective leaders (Chikoko, Naiker & Mthiyane 2011). Argyris (1998) examines the idea of empowerment in relation to leadership. He mentions that various tensions could arise when forcing staff to comply, versus raising their internal commitment to change. If staff are encouraged to buy into an idea because it will benefit them in the long run, they are more likely to contribute positively. If they fail to see the benefit, they tend to resist change. Similarly, it could be assumed that by empowering staff in a school to a point where they are able to analyse their areas of strength and by tapping into these strengths, one not only delegates responsibility, but creates a platform for staff to be a part of whole school development.

In the context of this investigation, it could be argued that teachers are more likely to resist authoritative leadership, rather than leadership through subtle influence. It is for this reason that the function of leadership through influence is seen as important, in that it produces a collaborative effort by both the leaders and the followers (staff) (Bolman & Deal 2008:345).

Hord (1997) and DuFour and Eaker (2008) explain that teachers who work in small groups or learning communities are participants of professional learning communities (PLCs). Participants in these initial learning communities share common experiences, ideas and practices, and develop strategies to address issues they face in school. This concept echoes McLaughlin and Talbert's (1993) suggestion that, given the opportunity for collaborative inquiry, veteran teachers will share the wisdom they have gained through experience in a way that allows improved teaching practices for all involved.

In 2000 Senge reported that the learning organisation approach to education needs to be more than just talking and working in groups: in the process, all stakeholders need to express their aspirations, build their awareness and develop their capabilities together (Senge 2000).

Shared leadership is also seen as important. Accordingly, Hale and Moorman (2003) mention that leaders play a pivotal role during educational reform, and they emphasise the importance of shared leadership. During shared leadership, school principals include various stakeholders in the decision-making process. Furthermore, these authors stress the fact that principals should lead instruction, shape the organisation, and make connections with the school community in order to drive the necessary changes.

Additional factors also influence the impact of school leaders on educational reform (Cravens, Goldring & Peñaloza 2012). One of these factors is leadership quality that relates to cooperation and the ability to work with everyone. Effective leaders get others to work for them because they want to. In addition, Leithwood and Riehl (2003) are of the view that effective leaders influence the development and improvement of human resources in their schools by providing opportunities for collaboration and cooperation. In the context of the study reported in this paper, cooperation is a vital characteristic, given that a joint partnership model has been adopted where leaders and teachers are equally accountable in ensuring that everyone works together to implement the school improvement initiatives successfully.

Another factor refers to a process whereby leaders build the capacity of their staff to bring about first-order changes to the learning within schools (Leithwood & Louis 1999). In this regard, school leaders create an environment that allows teachers to collaborate in the form of peer coaching and mentoring, in order to share their learning experiences. This ‘environment’ known as a PLC, has the capacity to transcend reform initiatives and result in continuous improvement in schools (Johnson 2016).

Lambert (2002) also suggests that principals work with staff in their respective schools, and attempt to identify personal goals that are related to wider organisational goals. The author believes that this approach will raise staff commitment when it becomes apparent that what these leaders are trying to accomplish is directly linked to the broader school vision. The above implies that school principals could create a platform such as PLCs, where staff work in a community toward school improvement initiatives.

This study sought to identify recommendations in support of UAE and other school leaders by highlighting the effectiveness of PLCs during school inspection preparation. To this end, the following research design was used.

Research design

The research adopted a qualitative case study design. A combination of purposive and maximum variation sampling was used to select information-rich participants (McMillan & Schumacher 2010). Thus, the sample included participants of different gender, age groups and years of experience as educationalists working in UAE private schools. School leaders included principals, vice-principals, inspectors (who inspect UAE schools), coordinators (subject leaders) and heads of curriculum (who are responsible for curriculum management, such as the yearly and weekly lesson planning). Teachers from different grade levels also participated in this study. Participants were also selected on the grounds of proficiency in English, which was the medium through which the interviews were conducted. Table 2 illustrates the biographical data of the sample.

INSERT TABLE 2 HERE

Table 2 shows that the participants included one school principal (South African), two vice-principals, one inspector, one head of curriculum, two coordinators, one social worker, one media relations officer, one innovation supervisor, one laboratory supervisor, nine teachers (teaching various grade levels and subjects), and 20 teacher assistants. The sample thus consisted of 40 participants from various countries. Two additional school leaders were also involved during the initial pilot phase of the study to finalise the research design (De Vos & Strydom 2011). This phase confirmed the usefulness of the planned data-collection methods.

The study was conducted in an English-medium private school with an enrolment of 840 students. The school is situated in a modern and well-resourced building in Al Ain in the Abu Dhabi emirate where the chief researcher is employed as a school principal. The school employed 37 teachers who are proficient in English and 10 Arabic-speaking teachers.

Data collection took place mainly by means of interviews and questionnaires. Interviews are “a uniquely sensitive and powerful method for capturing the lived experiences and lived meanings of the subjects’ everyday world” (Kvale 2007). This approach allowed the researcher an in-depth understanding of school leaders’ and other educationalists’ perceptions regarding the effectiveness of

PLCs. For all participants, a semi-structured interview guide focused on possible reasons why PLCs could be useful for school improvement initiatives; participant views regarding PLCs in the school and the effectiveness thereof; the role of the principal and leadership team in facilitating a community of learning and participation; the usefulness of PLCs to prepare for school inspections; participant opinions on what worked well or did not work well; and their recommendations for improvement. Each interview lasted 15 minutes and was conducted on the school premises. The interviews were supported by questionnaires and observations. To this end, a reflective journal was kept during the entire study. In this journal, observations were noted which helped in the development of the interview guide.

All interviews were recorded and transcribed verbatim. Data were initially divided into small segments of information. Codes were used to give meaning to each of the segments. Some of the coded units were grouped together as categories, and finally a main theme became apparent (McMillan & Schumacher 2010).

Widely accepted ethical guidelines were considered during the investigation (Christians 2005). After obtaining institutional ethical clearance, informed consent was obtained from individuals who voluntarily agreed to participate in the investigation. There was no deception of the participants about the aims of the study; participants' privacy and anonymity were respected; and the data are accurately presented.

In order to ensure trustworthiness of the findings, the following strategies suggested by McMillan and Schumacher (2010) were used: a prolonged data-collection period; tape-recorded interviews and verbatim transcriptions; the research was conducted in the natural school environment of the participants; disciplined subjectivity was employed; methods were triangulated; member checking was done; and more than one researcher was used to analyse the data.

In the next section the perceptions of school leaders and educationalists regarding PLCs is presented. These views relate to PLCs being considered as a practical and effective vehicle for school inspection preparation; effective for school improvement initiatives, collaboration opportunities amongst staff, sharing of best practice, cultural and religious tolerance, developing various capabilities, as well as working towards a shared vision. Direct quotes are presented to illustrate the findings. For ease of reference, codes are used to indicate who the participants were, namely: Ins (inspector), P (principal), VP (vice-principal), HoC (head of curriculum), SW (social worker), C (coordinator), MRO (media relations officer), IS (innovation supervisor), LS (laboratory supervisor), T (teacher), and TA (teacher assistant).

Findings and discussion

Professional learning communities: A platform for school improvement initiatives

All participants expressed the view that within their respective PLCs they worked on various school initiatives, and therefore considered a PLC a great 'vehicle' for school improvement. Some school leaders collaborated on school improvement goals with members of their PLC and these goals were developed and executed by the entire team. The following are examples of the participant's views:

The school principal established PLCs at the beginning of the academic year and all staff members were made aware of what PLCs were about, and how it would work in the school. (T, Female)

In our PLC we work on specific school improvement goals. For example, I am part of PLC four, and we are currently working on reading assessments. Reading is a school improvement

priority and being part of the PLC enables me to be directly involved in school improvement planning and priorities. (T, Male)

PLCs are certainly an effective approach to get all staff on board and involved in school initiatives. When leaders and staff plan together and work on specific targets, all members of the PLC have equal opportunity to contribute to the school's success. Teachers are very motivated to participate in PLCs, because it gives them a voice and a sense of belonging. (VP, Female)

I enjoy being part of a PLC. Our leadership team established this platform and it's very rewarding to be part of school-wide initiatives and decision making. The PLCs in our school are based on the school inspection framework, so it's targeted around our school improvement goals and areas for improvement. (LT, Female)

According to theorists Avolio and Bass (2002), leadership influences reform and school initiatives. This view is in accordance with leadership theory (Bush 2011). Leadership in education is referred to as a 'bridge' that seamlessly brings together various reform endeavours. The leader exerts a degree of influence to gain support from the followers in order to achieve the goal or transformational objectives of an organisation or department (Avolio & Bass 2002). The above comments suggest that PLCs are well established by the school leaders, and that staff find it rewarding when they can play an active role in their respective PLCs (Bryk, Camburn & Louis 1999). The comments also reveal elements of sustainability and development over time. For example, teachers work on school initiatives over a period of time, and in doing so they are also strengthening and developing their own skills and practice. According to Hargreaves and Fink (2003), sustainability does not only suggest that a process will continue, but that projects develop over time and employees continuously develop their skills during the process.

Opportunities for collaboration through professional learning communities

Participants noted that PLCs provided them with an opportunity to collaborate with other colleagues. Most staff members mentioned that PLCs gave them an opportunity to voice their opinions and share ideas with others. For example:

PLCs gives us a voice and we get a chance to work together and collaborate as a team. We also get to know each other's strengths and we share ideas and this helps us to reflect upon and improve our own practice. (T, Male)

It is a fantastic platform and it's interesting to collaborate and work with individuals that I do not normally have a lot of contact with. It also provides an opportunity for stakeholders to work with a different group of individuals across the school. (VP, Female)

PLCs provide a platform where one can share good practices and we can learn from one another. I enjoy PLC meetings because we get an opportunity to engage in constructive dialogue. (T, Female)

We enjoy meeting as a PLC because we get an opportunity to work together on various school-related projects. It's also very rewarding to share ideas with my colleagues and we work as a team on various tasks. I enjoy it most when we brainstorm ideas because everyone's opinion is taken into consideration. (T, Female)

It is great to be part of a group that are working together to better the school. As members we work together during our PLC meetings, and this gives us the opportunity to share our ideas with the group. (TA, Female)

Leithwood and Riehl (2003) maintain that successful leaders have the ability to influence and develop others by creating opportunities for staff to collaborate in order to enhance their practice. Hefner (2011) also highlighted the fact that collaboration is a key component of a PLC. Additionally, Leonard and Leonard (2003) are of the view that collaboration is widely promoted as a critical element in the development of PLCs. The participants' views regarding the benefits of collaborating and sharing information echoed Hipp and Huffman's (2003) viewpoint that when teachers collaborate and share information they become more successful in applying strategies that worked well for students. Collaboration in PLCs could contribute to a school achieving a culture of collective learning and creativity that is characterised by shared values and vision, supportive and distributed leadership and collaborative professional norms (Pancake & Moller 2002). Furthermore, researchers and reform advocates consistently cite collaborative participation in communities of practice (situated learning theory) as an integral factor in achieving effective, sustainable professional development (Schlager & Fusco 2003). PLCs could thus have an enabling function, by establishing and spreading professional norms of practice, encouraging collaboration among community members, and instilling dispositions needed for effective professional development (Schlager & Fusco 2003).

Veterans sharing wisdom that allowed for improved teaching practices

Some participants mentioned that they were learning from their colleagues during PLC meetings and this had led to an improvement in their own teaching practice. The following comments illustrate this idea:

What I find most useful is the fact that we have the opportunity to learn from each other. I am in a PLC with the school principal and it's truly an amazing experience. I learn many new things from him and it does help me especially as it relates to my own practice. The principal modelled a lesson in my classroom once and I am still using many of the strategies that I learnt from him. I am definitely learning each day, and the PLCs makes this possible! (T, Female)

I am new to the school but I do learn many new things from my other colleagues during PLC meetings. When we work on school projects, I get the opportunity to learn from my peers. For example, in PLC four we worked on assessment rubrics, and before joining this school I never had the opportunity to work with rubrics. The PLC provided a platform to plan and design assessment rubrics whilst gaining a more in-depth understanding of assessment rubrics. (T, Female)

I learn so much from the PLCs and I gain new knowledge, because we are continuously sharing new ideas and strategies. One of the members in my PLC is an outstanding teacher and I do learn quite a bit from her. (T, Male)

The above comments confirm that staff have the opportunity to share new knowledge and learn from one another during PLC initiatives. Referring to this aspect, Hord (1995) maintained that shared personal practice is a critical attribute of a PLC because it provides colleagues with the opportunities to obtain support, feedback, and constructive criticism from their peers in a risk-free environment. This corroborates the views of Morrissey (2000) that PLCs engage school staff at all levels in processes that collectively seek new knowledge and ways of applying that knowledge to their work. PLCs thus provide an opportunity for collaborative inquiry, where veteran teachers share their wisdom in ways that allow for improved teaching practices for all involved (McLaughlin & Talbert, 1993).

Developing various capabilities

Teaching staff mentioned that they develop various capabilities during PLC initiatives:

Learning is a continuous and developmental process. In our PLCs we sometimes work on targets that is out of our comfort zone or level of expertise. This challenges us to develop and learn new things. I am part of PLC six and we mainly work on leadership and management targets. I am just an ordinary teacher but through the PLC, I develop leadership skills and I get a chance to work on school policies and the school improvement plan. (T, Male)

All teachers get an opportunity to work with peers from other grade levels or departments. This creates a platform where staff learn from one another and we also understand how other departments operate. (T, Female)

I love my PLC because I have an opportunity to challenge myself and learn new things. I also see it as a form of professional development because I develop my skills in the process. (TA, Female)

The above links with Hargreaves and Fink's (2003) view that leaders enable their staff to adapt in challenging circumstances or complex environments, and these individuals continuously learn and adapt when exposed to a variety of practices (they learn from one another). The aim is to foster diverse practices by creating a cohesive system that is reinforced through networking (PLCs). The participants' comments endorse the importance of leaders developing structures (PLCs) to foster participation in school decisions, as emphasised by Bush (2011).

Being part of a shared vision and working towards a common goal

According to Hipp and Huffman (2002), one of the defining characteristics of a PLC is that authority and decision-making is shared. These authors maintain that shared leadership involves school administrators sharing power and authority, inviting input into decision making, and promoting and nurturing leadership among staff. When teachers collaborate in a PLC they will feel more ownership of and commitment to decisions and actions (Harris 2003).

The following comments illustrate participants' views regarding working in partnership towards a shared vision:

Everyone is working together to achieve the school development goals. Our principal included us when we drafted the school development plan. It was very rewarding to be part of the bigger vision. (TA, Female)

Everyone is actively involved in changing the school for the better and it's wonderful that our ideas and opinions are taken into consideration. (T, Male)

Each staff member signed up for a PLC of their choice at the beginning of the academic year. The PLCs are based on the six inspection standards and these are also linked to the school improvement targets. All staff get the opportunity to work towards achieving the school improvement targets and this in turn allows us to work towards a common goal, thereby ensuring that the school is successful. (P, Male)

The principal has orchestrated significant change and improvement at all levels of the school. He displays high level of competence and an excellent understanding of best educational practice. Structures have been created to ensure an inclusive whole-school approach and all staff are involved in school initiatives. Staff are motivated and committed to PLCs and professional development and it is thus evident that everyone supports the vision of the school. (I, Male)

With reference to the aspect discussed above, Harris (2003) stresses that PLCs could support school leaders in realising a school's vision by establishing effective working groups. The comments provided above also reveal elements of learning communities in accordance with the situated learning theory, where leaders act as facilitators to guide and empower staff to generate and achieve their own goals (Brockbank & McGill 2006). Lave and Wenger (1991) point out that learning is based on shared knowledge when individuals collaborate in a community of practice. In these learning communities, the novice gains new knowledge and skills and thus moves from peripheral to full participation.

Cultural and religious tolerance

The study revealed that staff have the opportunity to learn more about one another's culture and religion when they work in their PLC groups. For example, all staff are mixed in different PLC groups regardless of nationality, ranking or religious preference. The following comments by participants illustrate this viewpoint:

Relationships amongst staff are professional and respectful, and a culture of collaboration contributes towards a purposeful learning environment. Teachers also understand the various cultures of the PLC members when they engage in social discussions. (I, Male)

During PLC meetings we all share ideas and opinions. I enjoy the fact that we are such a diverse group and during our tasks we allow everyone an opportunity to lead. We respect each other and everyone's opinion are valued. (TA, Female)

PLCs gives us an opportunity to work with different people. Regardless of nationality, we all work towards a common goal and we do respect each other. Our principal leads by example because he respects everyone regardless of their position, nationality or religion. (T, Female)

I enjoy working with the members of my PLC because I get the opportunity to understand how everyone thinks. I find it quite interesting that we are all from different countries and yet we get along so well. (T, Female)

These comments demonstrate the view that PLCs could provide a platform where individuals can gain a better understanding of one another's cultural and religious affiliation. It was also evident that cultural and religious tolerance during PLC meetings contributed favourably to group morale. This confirmed the finding by Lave and Wenger (1991), that communities of practice emerge in response to a common interest or position, and play an important role in forming their members' participation in, and orientation to the world around them. PLCs also provide a sense of accountability between the individual, the group, and place in the broader social order. Communities of learning (PLCs), therefore, have a considerable amount of power to explore broader demographics amongst individuals.

Conclusion and recommendations

In the UAE many school leaders find the inspection process challenging because they do not fully understand the process and are not presented with clear enough guidelines to prepare for the inspection. As a result, each school leader attempts to find his or her own system and process to prepare for school inspections. To this end, this study investigated the perceptions of school leaders and educationalists regarding PLCs, and whether it could be an effective vehicle for inspection preparation and school improvement initiatives. The investigation was based on a qualitative case study, making use of 40 participants inclusive of school leaders, inspectors and educators. Data were gathered mainly through interviews and questionnaires.

Although the study was limited to one school, it contributed towards understanding the value of establishing effective PLCs for school improvement initiatives or for inspection preparation. The data suggested that PLCs provided a platform for school improvement initiatives; opportunities for collaboration amongst staff; opportunities for individuals to develop their own capabilities; prospects for staff to be part of a shared vision, thereby working towards a common goal; and fostered cultural and religious tolerance between members of staff. In consideration of these findings, the main conclusion was that PLCs could be an effective instrument to drive school improvement initiatives as schools prepare for an inspection. PLCs could be further enhanced by exploring the following aspects below.

Transformational leadership theory provides pointers on how to further enhance the above findings. By means of a leadership empowerment programme, a PLC member would get the opportunity to lead PLC meetings and initiatives during a specific term. This would allow staff to explore various leadership opportunities, and at the same time the school principal has the opportunity to instigate and foster shared leadership principles. Transformational leadership theory allows for the development of structures to foster participation in school-wide decisions. It welcomes the creation of a productive school structure and enables new positions to emerge. In order to empower teachers and support staff to reach this space, the focus of the leadership team should be to mentor staff. This in turn will provide a platform for staff to develop their own practice and leadership capabilities. The theory also advocates for PLC leaders to be selected by staff, instead of the principal recommending who the leaders should be. In this regard, teachers will participate more eagerly and as a result contribute more effectively to school initiatives.

An additional recommendation would be to establish learning communities centred on cultural and social preferences and based on staff interests. The situated learning theory highlights that learning in a small diverse group is called a 'community of practice'. This would allow teachers and support staff to learn on a continuous basis whilst engaging in social activity and dialogue. Knowledge could be created, shared and transferred from person to person in that community of learning. Cultural and religious experiences might be shared and members could gain insight into the world of others. When this learning has taken place, staff are enabled to move from legitimate peripheral participation to more central participation in the community, thus resulting in staff assuming a more active role in various school improvement initiatives.

Lave and Wenger's situated learning theory provides opportunities for staff to reposition themselves in response to becoming part of a community of practice. This allows for everyone to be engaged and learning is configured when members become full participants in a sociocultural setting (Lave & Wenger 1991). This process could ultimately enhance the effectiveness of PLCs in UAE schools.

Table 1
Inspection performance standards

1	2	3	4	5	6	7	8
Outstanding	Very good	Good	Satisfactory and improving	Satisfactory	Unsatisfactory	Very unsatisfactory	Poor

Table 2
Biographical data of the sample

Name of participant*	Gender	Nationality	Age (yrs)	Job title	Years of experience
George	Male	South African	35	Principal	16
Jill	Female	Wales	59	Vice-principal	38
Salma	Female	Jordanian	43	Vice-principal	20
Maggy	Female	Lebanese	47	Head of curriculum	18
Aisha	Female	Canadian	29	Coordinator	12
Sheikha	Female	Algerian	38	Coordinator	16
Mark	Male	United Kingdom	62	Inspector	39
Bushra	Female	Jordanian	44	Teacher / Mentor	23
Stuart	Male	USA	43	Teacher	19
Erin	Female	USA	37	Teacher	7
Simone	Female	Philippines	37	Teacher	12
Courtney	Female	Philippines	37	Teacher	17
Sue	Female	Irish	32	Teacher / Mentor	9
Bruce	Male	South African	61	Teacher / Mentor	13
Markus	Male	Canadian	36	Teacher	10
James	Male	Dutch	25	Teacher	5
Mary	Female	Algerian	30	Lab supervisor	7
Jane	Female	Canadian	40	Social worker	23
Mohammed	Male	United Kingdom	31	Innovation supervisor	8
Julia	Female	Indian	25	Media relations officer	2
20 x Teacher assistants	Female	Philippines, South African	35-52	Teacher assistants	4-27

*Pseudonyms are used.

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Mapping teachers' perceptions of assessment for learning in Singapore secondary schools

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Abstract

Assessment for learning (AfL) is a key educational priority in Singapore and globally. There are significant challenges around AfL implementation, beginning with how AfL is understood. AfL represents a change for teachers accustomed to traditional summative, public examination cultures. There is some dispute over precise meanings of functions, purposes, and benefits of AfL. Challenges also emerge from differences in stakeholders' perceptions of AfL and how much they value particular practices and innovations. Understanding of teacher perceptions, practices, and values is therefore needed. This paper aims to establish a systematic understanding of Singapore secondary school teachers' espoused values, practices, and proficiency regarding school-based assessment for learning (AfL).

A piloted, validated survey was conducted at 12 Singapore secondary schools. After data cleaning, 913 usable responses were obtained. Both confirmatory and exploratory factor analysis were used to obtain a factor model of espoused values, practices and proficiencies. Findings include two clear, opposing patterns regarding reported practice: teachers deeply value AfL but feel that preparation and opportunities to translate this value into practice are lacking. Conversely, teachers reported both proficiency at and frequency use of summative activities, such as testing; they assigned less value to such activities, however.

Findings are discussed in terms of existing research and a guiding theoretical framework. Implications are presented that inform theoretical and practical understandings of AfL in Singapore and global schooling contexts.

Key words: Assessment; Assessment for Learning; Secondary Education; Singapore; Perceptions; Factor Analysis

Background and theoretical framework

The first priority of AfL is “to serve the purpose of promoting students’ learning” (Black, et. al, 2004, p. 10). Functionally, then AfL might best be described as providing “information that teachers and their students can use as feedback in assessing themselves and one another and in modifying the teaching and learning activities in which they are engaged” (Black, et. al, 2004, p. 10).

AfL is a key educational policy priority in Singapore. The Ministry of Education (MOE) seeks to create a balanced approach to assessment, preserving Singapore’s commendable achievement on international assessments, while simultaneously using assessment more effectively to further learning, both in terms of measurable achievement and more holistic or longitudinal competencies (Leong & Tan, 2014). In this respect, AfL priorities in Singapore are similar to those expressed in the United States and elsewhere (Berry, 2011).

There is significant operational and even definitional disagreement around AfL. Some of these tensions coalesce around differences in stakeholders’ perceptions of AfL and their valuing of particular practices and innovations (Brown, 2004; Guskey, 2007). There is also some dispute over precise meanings of functions, purposes, and benefits of AfL (Bennett, 2011; Swaffield, 2011; Taras, 2010).

This relates to a more general concern in educational assessment that policy, practice, and development too often fail to account for the systemic complexities and of specific contexts and populations (Deneen & Boud, 2014; Pellegrino, 2014). Modelling assessment and assessment change must, therefore take into account local context and the particular perceptions of stakeholders operating in that context (Fulmer, Lee & Tan, 2015).

AfL research in secondary schools in Singapore (Secondary 1-5=Grades 7-11, ages 12-15) is generally lacking. Singapore is in the early stages of introducing professional development in secondary schools around more formative approaches to assessment. This is deemed necessary because the conventional practice in Secondary 1-5 (ages 12-17) includes two end-of-semester school-based examinations each year generally designed to reflect the style and content of the official externally-administered qualifications examinations (i.e., Secondary 4 N-Level and Secondary 5 O-Level). Thus, Singaporean secondary schools use repeated formal examination and testing much more than school systems that prioritise assessment for learning (e.g., New Zealand—Crooks, 2010).

To the extent that AfL is a change for teachers from the traditional summative, public examination culture, a systemic understanding of teacher perceptions, practices, and values is needed. Perceptions are pieces of information conveyed to a person by experience (Siegel, 2015); for the teacher, this is anchored concretely in what they see, notice, and experience in the classroom or in the teaching profession, and most probably learned when teachers were students themselves (Pajares, 1992). One’s perceptions develop into fixed attitudes or conceptions that guide, frame, and shape teacher actions (Fives & Buehl, 2012); if deeply held, these may be resistant to change. By attending to teacher conceptions of the functions and purposes of a phenomenon such as assessment, we can gain insight into factors that contribute to the success (or lack) of an innovation.

Theoretical framework

We draw on and adapt the theoretical model proposed by Fulmer, Lee, and Tan (2015), which a) focuses on the relationships among teachers' values, conceptions, and knowledge for assessment in influencing their classroom assessment practices and b) suggests these interrelationships are themselves influenced by the classroom, school, and national contexts. In our present study, we survey teachers on their values, practices, and proficiencies with classroom assessment. The importance of values in identifying goals and directing behaviour has been posited by work such as Expectancy-Value Theory (Wigfield & Eccles, 2000), among others. As per Fulmer et al's theoretical framework, proficiency has relationship to teachers' knowledge about assessment. Its inclusion as a self-report measure may provide information on what teachers perceive their capabilities to be. These questions address the combination of their knowledge as well as their sense of efficacy for applying that knowledge in the classroom (Bandura, 1977; Tschannen-Moran & Barr, 2004).

Survey items were based on the adapted model; participants responded to each item according to the three referents of value, practice, and proficiency: "value of __," "practice of __," and "proficiency in __." Items were behaviour-specific and constructed based on review of relevant literature, researchers' knowledge of Singaporean classroom-based assessment and results of instrument piloting. This is discussed further in the Instruments subsection of Methods.

Aim and objectives

This paper aims to establish a systematic understanding of Singapore secondary school teachers' espoused values, practices, and proficiency in school-based assessment for learning (AfL).

This is accomplished through meeting the following objectives:

1. Developing and validating a model that accounts for these factors and their relationships.
2. Developing implications that inform theoretical and practical understandings of AfL in Singapore and global schooling contexts.

Methods

This paper utilized a piloted survey of Singapore secondary school teachers concerning assessment for learning (AfL). Confirmatory and exploratory factor analysis was applied and descriptive statistics obtained.

Participants

Data were gathered from 12 Singapore secondary schools using an inclusive convenience approach. Schools were selected based on availability and to represent different sectors of schools in Singapore. Of the 12 schools, four are analogous to US private schools (one independent; three autonomously governed). Eight were government-run schools similar to US public schools.

Surveys were distributed to teachers and administrators during faculty meetings; importance of participation and the guarantee of anonymity and confidentiality were emphasized. Response rate was approximately 80%. The final data set (Table 1) consisted of 913 valid cases after removal of invalid responses (e.g., missing large

sections, answering identically for all items, etc). Approximately $\frac{3}{4}$ of participants were teachers without managerial roles with the balance having either full-time or part-time managerial responsibilities.

Table 1. Participants

Participant Type	<i>N</i>	<i>M</i> per school
Teachers	662 (73%)	55
Teachers with some managerial responsibility	219 (24%)	18
Administrators	27 (3%)	2
Total	913	76

Note. Teachers includes 29 Teaching Assistants

Instruments

The survey consisted of items on (a) demographic background and (b) reported values, practices, and proficiencies for assessment.

The pool of items consisted of classroom or school assessment-related activities; participants were asked to rate each item on how much they valued it, the extent to which they practiced it, and their sense of proficiency in it.

Items were developed around five main constructs: (a) dynamic performance of assessment, (b) building learner capacity to be involved in assessment processes, (c) sustaining engagement of students in assessment, including increasing confidence, (d) reporting and planning of assessment to align with curriculum outcomes, and (e) fulfilling accountability expectations through linking assessments to national standards.

An earlier version was piloted with a sample of 218 teachers and administrators. Exploratory factor analysis and item content examination led to adjustments prior to deploying the full survey.

Analysis

With the complete data set, we conducted a series of confirmatory and exploratory factor analyses to test conjectured structure and determine best representations and interpretations of responses. The proposed five-factor structure within each domain (i.e., values, practices, and proficiency) was tested with CFA. Poor fit to the data necessitated analysis of the number of dimensions within each domain (Courtney, 2013), followed by systematic testing of all plausible number of factors using maximum likelihood estimation and oblique rotation (Costello & Osborne, 2005). Once a defensible factor structure was identified, confirmatory factor analysis was applied using AMOS (IBM, 2013). Further trimming of models was conducted to maximise simple structure and correspondence with the data. Models were deemed as sufficiently similar to the data if a number of fit indices were satisfied (i.e., $\gamma \hat{}$ > .90; RMSEA < .08; SRMR $\approx$.06) (Fan & Sivo, 2007).

Results

Confirmatory factor analysis of the proposed structures was admissible but failed to fit acceptably. Velicer's MAP² and MAP⁴ indices indicated that either four or five dimensions were sufficient. Inspection of exploratory results suggested that four

factors were plausible. These models were tested for fit in AMOS and after trimming acceptable fit was found (Table 2). Table 3 shows nine items across the three constructs that align to a common factor, while another 13 are in the same factor for two of the three constructs. We conclude that, while not identical, the factors are conceptually similar. Based on content review of these items, we defined them as: (1) Alignment; (2) Sustaining Engagement; (3) Involving Students, including peer- and self-assessment (PASA); and (4) Grading/Reporting.

Table 2. Trimmed model fit indices

Construct	#factors	#items	χ^2	df	χ^2/df (p)	CFI	Gamma hat	RMSEA	SRMR
Values	4	18	643.70	129	4.99 (.03)	.89	.94	.066	.063
Practice	4	19	886.35	146	6.07 (.01)	.87	.92	.075	.060
Proficiency	4	22	1235.43	203	6.09 (.01)	.91	.91	.075	.052

Note. CFI=comparative fit index; RMSEA=root mean square error of approximation; SRMR=standardised root mean residual.

Table 3. Item and Factor Structure by Construct

Factor & Items	Values λ	Practices λ	Proficiency λ
<i>Involve Students (PASA)</i>			
4. Using rubrics when assessing students	.38	—	.43
8. Using assessment to determine students' learning styles	—	.55	—
9. Referring to students' progress to plan the curriculum.	.48	—	—
10. Having students determine their own progress by comparing their own pieces of work/achievements over a period of time.	.58	.66	—
11. Encouraging students to create questions around areas they need/want clarified.	—	.66	.69
12. Training students to conduct peer assessment and feedback.	.59	.66	.78
13. Creating opportunities for students to take the teacher's comments and feedback and make improvements.	—	—	.76
14. Creating opportunities for students to take peer comments and feedback and make improvements.	.51	.64	.77
<i>Sustaining Engagement</i>			
15. Using assessment to motivate student learning.	.62	—	—
16. Making assessment an enjoyable process for students.	—	.75	.81
17. Using assessment as a means to boost confidence in students.	.75	.71	—
18. Using assessment as a means to increase students' interest in lesson activities.	.78	.72	.76

Factor & Items	Values λ	Practices λ	Proficiency λ
19. Being creative in assessment approaches.	—	—	.84
20. Being flexible and spontaneous in assessment approaches.	—	.61	.84
21. Making assessment a non-stressful process.	—	.75	.80
<i>Alignment</i>			
22. Reporting consistent and reliable information on a student's progress.	—	.67	.80
23. Measuring a student's achievements in relationship to intended learning outcomes.	.79	.70	.81
24. Matching assessment precisely to specific skills and knowledge.	.74	.74	.80
25. Ensuring the right amount of assessment.	—	.63	.77
26. Discussing students' assessment results during professional development meetings.	.54	.51	.75
<i>Grading/Reporting</i>			
2. Working through assessment responses with the whole class.	—	.56	.61
3. Giving grades and marks on assessment.	.40	—	—
6. Posing questions to elicit facts from students.	—	.53	.60
7. Using students' grades/performance to determine what improvements students have to make.	.50	.59	.64
27. Conducting some form of assessment every lesson	—	.50	.73
29. Discussing students' assessment results during teacher performance review.	.61	—	.73
30. Informing students of their performance in relation to the performance of their peers.	.71	—	.69
31. Using student's grades/performance to determine how much effort students have to put in.	.74	—	.75
34. Using grades and marks to explain student performance to parents.	.76	—	—
35. Using students' assessment results as a factor to determine curriculum goals.	.65	—	—

Note. Items in red are in the same factor across all constructs; green indicates common between 2 of the 3 constructs.

Following this, we computed factor scores for each factor, and examined the patterns of teachers' mean agreement. As Table 4 shows, the factors of Alignment, Sustaining Engagement, and Involving Students (PASA) are more valued by teachers than they are practiced, and that the teachers have yet lower reported rates of self-proficiency. The one exception is Grading/Reporting, which the teachers report similar practices and values, but again relatively lower levels of proficiency. Differences between the highest and lowest means are generally large ($d > .80$)

Table 4. Factor scale descriptive statistics by construct

	<u>Values</u>		<u>Practices</u>		<u>Proficiencies</u>		<u>Difference</u>
	M	SD	M	SD	M	SD	<u>High to Low</u> <i>d</i>
Alignment	4.06	0.60	3.74	0.56	3.26	0.61	1.32
Involve Students (PASA)	4.10	0.46	3.27	0.65	3.14	0.60	1.80
Sustaining Engagement	3.94	0.66	3.45	0.66	3.01	0.71	1.36
Grading/Reporting	3.65	0.66	3.77	0.53	3.25	0.57	0.95
Difference High to Low (<i>d</i>)	0.79		0.84		0.38		

Discussion

A clear pattern emerged from the data: To the degree that aligning assessment with curriculum, sustaining student engagement in assessment, and involving students in assessment are part of AfL, Singapore teachers in these schools already value AfL. This is an important realisation and corresponds with much research into teacher beliefs about assessment—teachers endorse assessment that helps improve teaching and student learning outcomes (Barnes, Fives, & Dacey, 2015; Bonner, 2016). However, teachers reported valuing three factors considerably more than they reported having proficiency or opportunity to carry them out. This suggests potential impedance to endorsement translating into impact.

A converse pattern emerged around Grading/Reporting, with the highest mean for Practice, but lowest mean for Value. Given the public examination structure in Singapore schooling, it is unsurprising that teachers emphasised frequency of summative activity. This would seem to confirm the impetus for attempting to boost AfL (Leong & Tan, 2015). Low assigned value also corresponds to research in other national contexts suggesting that teachers tend to negatively view assessment practices that could be used to label or blame students for poor performance (Barnes, Fives, & Dacey, 2015; Bonner, 2016). This tension may create a significant challenge for policy and practice initiatives attempting to achieve a balanced assessment approach (Leong & Tan, 2014). Attempting to achieve summative/formative balance in an environment in which formal examination, grading, and reporting are maintained tends to result in a one policy being ‘hard’ (i.e., formal external accountability) and the other ‘soft’ (i.e., formative assessment for learning) (Kennedy, Chan, & Fok, 2011). This has implications well beyond Singapore, as educational systems in The United States and elsewhere attempt to achieve balance and resolve tensions in assessment (Berry, 2011).

Analysis demonstrates that while factors are not perfectly identical, they are sufficiently similar conceptually to allow common nomenclature and comparison. More importantly, some of the recovered factors mapped directly onto the intended structure. Notably, this occurred in the sustaining engagement, alignment, and involving students in assessment factors that used sets of items that had been grouped in the original design. It is only the Grading/Reporting factor that draws items from across the original factors of Doing and Accountability. Upon inspection, the connection of items is logical. Values, proficiency, and practice of assessment exist in a complex relationship that may be studied further in these data.

Conclusions and significance

This research develops a clear sense of how assessment is perceived by teachers in 12 schools: *‘we value AfL, but don’t believe we can do it’* and *‘we don’t value Grading/Reporting but we are doing it.’* This study lends clarity to the tensions that have been identified in research into teacher perceptions of assessment; importantly, the differences in factor means provide potential directions for professional development in assessment for learning. The challenge now is to determine to what extent the lack of proficiency arises from deficient personal competencies and skills or from policy and priority conditions that are inimical to AfL. By focusing on the key element of stakeholder perceptions, we may be able to create links in AfL perceptions, policies and practices that have research, practice and development implications in Singapore and as well as any educational systems negotiating the challenges of balancing assessment priorities.

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Motivational characteristics and patterns of empowerment of Teachers Leading ICT Implementation

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Abstract

This article presents finding that emerged from a study of 24 in-depth interviews conducted with teachers who were candidates for an ICT Leadership Award granted by Israel's Ministry of Education. The Study Goals was to investigate: What motivates and influences the teachers who lead ICT implementation in education? What characterizes the teachers' pattern of empowerment? and What are the outcomes of teachers' empowerment, as manifested in the process of implementing ICT in their schools?. Using a qualitative methodology, the study attempted to identify teachers' motivational characteristics and patterns of empowerment.

The resulting indicated: (a) The Conditions that Preceded the Creation of the Empowerment Pattern that include: A natural affinity for the world of technology ambition for professional advancement and the possession of a systems-based perspective. (b) Factors that Affected the Creation of the Empowerment Pattern and Their Manifestations. The factors that motivated the leading teachers' professional development and growth stemmed from internal factors and external factors. (c) Description of the empowerment pattern and its manifestations on the individual level of the teachers and on the organizational level. We call it a change-inducing empowerment pattern. These teachers excelled at restructuring ideas and plans for ICT implementation in their schools. Factors internal and external to the work environment contributed to this pattern. As an external factor, ICT helped accelerate the restructuring process; as an internal factor, it enabled teachers to form a strong professional identity based on their role as ICT implementers and to lead system-wide projects in their schools.

Key Words: Motivational characteristics, Empowerment, ICT implementation, Teachers in leading position.

Motivational characteristics and patterns of empowerment of Teachers Leading ICT Implementation

Introduction

Any educational system that wishes to address current needs and adjust to the spirit of the times be viable in this day and age are confronted with the need to introduce changes in teaching pedagogies that correspond to the changing reality (Anderson & Maninger, 2007; Avidov-Ungar & Eshet-Alkalai, 2011). The research literature indicates that the process of assimilating changes in teaching methodologies and then implementing the new methodologies in schools is a source of great difficulty, despite the great pedagogical potential that recent technologies afford (Peeraer & Petegem, 2012). One of the crucial factors that affects both the efficiency of integrating innovative technologies in schools and the successful implementation of the pedagogical change is the teacher's professional skills and beliefs (Borko, 2004; Brinkerhof, 2006). Indeed, teachers' abilities and beliefs play a pivotal role in realizing a radical change in the education system (Cunningham, 2009; De Freitas & Oliver, 2005; Halverson & Smith, 2009; Selwyn, 2010). It is the teacher who ultimately decides how to use the ICT (Ministry of Education, 2012). Studies on the implementation of innovative technologies report that the factors that influence the success or failure of ICT implementation are related to teachers' knowledge and attitudes toward change (Giles & Hargreaves, 2006; Hattie, 2009). Research indicates that the teachers' ability to lead depends on their ability to adopt a flexible attitude and to adapt to changes in the classroom, in the school, and in the education system (Darling-Hammond, 2007). Teachers with leadership capacity know how to cope with change, contribute to it, and learn from it (Cochran-Smith, 2003). They are able to manage in situations of uncertainty and respond to unexpected developments; in other words, they master the pedagogies of uncertainty (Shulman, 2005). The role of The teacher-cum-leader is to assist in implementing the changes at the school, in order to create a milieu in which ICT is inseparable from the school's culture and way of life (Shamir-Inbal, Dayan & Kalli, 2009). It is a process that leads to empowerment.

This sense of empowerment is the outcome of a process instigated by the teachers themselves and others who shared in this role, and supported by the organizational environment and the nature of the interpersonal relationships in the school (Jennifer, Kathy, Cherie, 2002). The process is motivated by the individual, while the organization provides the proper climate, the foundation of relationships, the resources, and the means by which to achieve this sense of empowerment (Hargreaves, 2005; Sandy, 2010). On the organizational level, empowerment is a process that strengthens the organizational identity and contributes to the development of leadership among teachers who are capable of managing and leading (Dembele & Schwille, 2006).

The current article focuses on leading teachers who were nominated as candidates for receiving the Minister of Education Award in Israel, recognized for their contribution as "agents of change", due to their role in implementing the national ICT project within their schools. The underlying assumption of this study was that the teachers who were identified as candidates for this award are leaders who experienced a sense of empowerment (Beauchamp & Thomas, 2009). Empowered teachers encourage the empowerment of others (Somech, 2005), thus enabling organizational growth and renewal (Kark, Shamir & Chen, 2003).

Study Goals

To investigate the pattern of empowerment that characterized the leading teachers who were at the forefront of ICT implementation in their schools and to identify characteristics related to their willingness to embrace change and integrate innovative technologies in school.

- (a) What motivates and influences the teachers who lead ICT implementation in education?
- (b) What characterizes the teachers' pattern of empowerment?
- (c) What are the outcomes of teachers' empowerment, as manifested in the process of implementing ICT in their schools?

Methodology

The Study Population

As part of the national program for adapting education to the 21st century, the Minister of Education in Israel, awarded prizes of excellence to teachers for initiating, developing, and promoting advanced ICT programs in schools. There were 48 leading candidates nominated to receive this award, teachers identified from among all of the Ministry's regional branches and who were recognized for their promotion of innovative pedagogies in their schools. The study population was randomly sampled from the teachers recommended for the award. 24 teachers were included in the sample (i.e., 50% of the candidates).

Research Instruments

The research instrument included a semi-structured, in-depth interview conducted with each of the teachers individually. The interview was based on the assumption that qualitative research enables a reflective and creative process (Kaufman, 2009), through which professionals are able to observe and derive meaning and significance from their own process of personal and professional development (Creswell, 2007). The interview made it possible for teachers to describe their professional development and growth as leaders of ICT implementation in the schools. The teachers were asked to refer to high points and turning points in the story of their professional development; they were asked about factors that led to professional growth, and about changes that ensued as they became leaders of ICT implementation in education.

Method

Analysis of teachers' stories regarding their professional development as leaders of ICT implementation followed the method of Kvale (1996), which provides a systematic categorization for analyzing the interviews and also serves as a methodology for interpreting the stories. The interpretation of teachers' stories included several steps: creating a condensed version of the original text, identifying categories, analyzing the story structure, and interpreting significant patterns and characteristics which occurred repeatedly throughout the stories and played a significant role in moving the story and guiding the plot.

Findings

Analysis of the stories of teachers who led the ICT implementation made it possible to identify the pattern of empowerment and the characteristics that influenced the creation of this pattern.

The findings are presented as follows: (1) conditions that preceded the creation of the empowerment pattern; (2) factors that affected the creation of the empowerment pattern and their manifestations; (3) a description of the empowerment pattern and its manifestations, on the individual level (teachers) and on the organizational level (output).

(1) Conditions that Preceded the Creation of the Empowerment Pattern

Two major preliminary conditions served as input and provided the foundation that motivated these teachers to become ICT implementation leaders. (a) A natural affinity for the world of technology. Technological involvement was an inseparable part of these teachers' professional-pedagogical way of being. Teachers who were ICT leaders were already active users of ICT in their daily work and were at the forefront of applying the national ICT program. They led the way in using ICT-based pedagogical processes and tended to adopt novel tools that were suitable for the purpose of teaching and learning. (b) Ambition for professional advancement and the possession of a systems-based perspective. Teachers described themselves as having a systems-based perspective. They aspired to be promoted to more senior positions and advance hierarchically and functionally within the organization. They had undertaken a function beyond that of classroom teaching early on in their professional careers.

(2) Factors that Affected the Creation of the Empowerment Pattern and Their Manifestations

The factors that motivated the leading teachers' professional development and growth stemmed from (a) internal factors and (b) external factors.

- (a) Internal factors are related to feeling, attitudes, and the abilities of the leading teachers. Internal factors can be categorized as cognitive, emotional, and behavioral.
- Cognitive factors include the development and honing of strategies and various styles of thinking, such as network thinking, parallel thinking, visual thinking, critical thinking distributed thinking, and higher-order thinking (Ben-Ami & Chen, 2011).
 - Emotional factors are expressed as a personal sense of self-efficacy, a positive self-image, and an ambition to achieve and succeed. ICT was found to affect the personal and professional sense of self-efficacy of teachers leading the implementation of ICT in education.
 - Behavioral factors are manifested in a pattern characterized by flexibility and intense professional involvement. Teachers who led ICT implementation were immersed in a process of intensive growth and renewal and became increasingly active. These teachers were committed to their role and function as well as to the school, expressed a willingness to cope with bringing change into the organization, and with the restructuring of programs and tasks.
- (b) External factors that were found influential were the following.
- The national ICT program. ICT served as a catalyst for extensive changes that took place throughout the school and constituted a powerful motivator, which created a “window of opportunity” for the teachers to embark on the road to change, since they were already ripe for the task, and thus filled the prerequisite conditions for an effective process of change to take place.
 - A significant figure or event in the teacher's life or in the life of the organization to which the teachers belong can have an effect on the empowerment process and can serve as a catalyst for professional development and the construction of a professional identity.
 - A framework that encourages growth and development through learning. It also affects the teachers' ongoing sense of empowerment.

(3) Description of the Empowerment Pattern and its Manifestations (the Output), on the Individual Level (Teachers) and on the Organizational Level

The empowerment pattern found among the leading teachers was termed “change-inducing empowerment”. This pattern constitutes the output, which is manifested among the teachers in their role commitment and in their restructuring of programs and procedures in the field of ICT, which in turn accelerated a process of both personal and organizational growth and development. Teachers who led ICT implementation in education were prepared to invest in the school and in its goals. The products of the change-inducing empowerment provided output that is manifested on the individual level, i.e., by imbuing the leaders of pedagogical innovation with a strong sense of professional identity, and on the organizational level, by performing tasks, completing projects and undertaking system-relevant roles that have an impact on the entire school.

Summary and Discussion

Findings of the current study shed light on the components of the process of change that teachers leading ICT implementation in education underwent as they implemented the national ICT program in Israel. The point of departure for this process was a set of preliminary conditions, which together indicate a sufficient degree of professional maturity to ensure effective integration of the program; hence, they serve as both input and output. This fact suggests that the process of change that the leading teachers underwent is a self-nurturing, cyclical process. The process of change involves internal and external factors, the manifestations of which created a sense of empowerment among the teachers.

The pattern of empowerment found, which is termed “change-inducing empowerment”, represents the highest point on the scale of the “Full Spectrum Model of Teachers’ Empowerment” (Avidov-Ungar & Friedman, 2011). The teachers demonstrated a capacity for leadership and a long-term professional outlook, qualities that match the characteristics found among highly empowered teachers (Avidov-Ungar, Fridman & Olshtain, 2014). The national ICT program provided an appropriate work environment to enable change-inducing empowerment; the empowerment process

affected teachers' professional identity and introduced a new perception of professional identity in teaching, according to which the ICT leader is seen by both self and others-- as leading and ambitious teacher (Avidov-Ungar, Fridman & Olshtain, 2014), an expert who can adapt to change in general and to shifts in pedagogical settings in particular. The professional identity of the teachers leading the ICT implementation is a "professional identity in the making" (Rodgers & Scott, 2008), through which the teacher becomes aware of the complexity and the function of change and continues to promote change in the school (Beijaard, 1995; Beijaard, Verloop & Vermunt, 2000). The profile of the individual leading the implementation of ICT in teaching is that of a technologically independent and empowered teacher with knowledge in pedagogical technology, who integrates ICT in education in an informed and intelligent manner (Mishra & Koehler, 2006). The teachers who match this profile perceive a change in their professional identity, their knowledge increases and is updated throughout their career development, and they become "expert adaptive teachers" (Darling-Hammond & Bransford, 2005).

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**Motivational factors of tenured teachers and school
heads of Department of Education (DepEd)
Schools Division of Imus City, Cavite, Philippines
to conduct academic research**

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Abstract

The study determined the relationship between the socio-demographic characteristics of the respondents and their motivational factors in conducting academic research.

It utilized the descriptive design where 641 respondents from SDO Imus City took part on the online survey.

Results showed that majority are female, 36 years old and above, has approximate monthly income between Php 15,000-20,000 and rank between Teacher I-III. There were only 38 research studies conducted and 10 are still on-going. Of the two hours allotted for ancillary works, majority do not allot work hours for research.

Data revealed that top three motivational factors are respect from students (intrinsic), salary increase (extrinsic) and satisfaction of personal needs (intrinsic). Age, sex and academic rank are not significant while approximate monthly has a significant difference among respondents with their motivation to conduct academic research.

This study is limited only to tenured teachers and school heads of Schools Division of Imus City.

Results of this **heuristic research** will serve as baseline data for DepEd to plan the support that can be extended to them and design rewards system that will encourage tenured teachers and school heads to produce more researches.

Keywords: Motivation, Productivity, Research, Teacher.

Type of Research: Descriptive Research

1. Introduction

Teachers are the most important resource in every school. Through their individualized professional competence, they provide valued learning to students and work related services.

Both elementary and secondary teachers and school heads have trifocal function and they are required to become teachers, researchers and service/extension oriented professionals.

Teaching function has been allotted six hours per day (R.A. 4670, Section 13 and DO 21, s. 2006) in an eight hour duty while other duties only constitute two hours. These remaining two hours are allotted for learning materials construction and preparation of lesson plans and other extension works.

The conduct of quality research although a function that will not only help teachers to make a valuable contribution to the body of knowledge but will also serve as one of the criteria for tenure and promotion has been neglected by teachers. A study by Sanyal and Varghese (2006) as cited in Dayagbil (2015) entitled “Research Engagement of Teacher Educator” states that “teachers have retained strong teaching functions and weak research functions”.

One of the well-established research productivity theories that will support the current research is the life-cycle theory. Life cycle theory suggests that “in general, the research productivity of a researcher rises sharply in the initial states of a career, peaks at the time of the tenure review, and then begins a decline” (Diamond, 1986; Goodwin and Sauer, 1995; Hu and Gill 2000 as cited in the works of Chen et al 2010).

Drivers of the conduct of the academic research can be extrinsic and intrinsic but still teachers and school heads tend not to produce research especially if there is security of tenure and they have reached a good promotion.

In the light of this reality, the Department of Education (DepEd) has been zealously pushing for a stronger orientation among DepEd schools. To further promote and encourage research in the Schools Division of Imus, DepEd Order 43 series of 2015, the “guidelines for the Basic Education Research Fund” (BERF) was revised and implemented to promote the culture of research and encourage eligible teachers and school heads to conduct BER and utilize the BERF.

More so, if a teacher and school head are already tenured, they do not have a reason not to conduct and even publish an academic research since financial support from DepEd is available.

Tenure is the highest impacted outcome from research output as stated by Chen et al, 2010 in a study entitled “Research Productivity of Accounting Teachers: An Exploratory Study”. Because teachers are expected to be the primary producers of research in school, it will be useful to study the motivational factors of tenured teachers and school heads in conducting academic research. The results of this heuristic research will serve as a baseline data for DepEd to plan support that can be extended to them and design rewards system that will encourage tenured teachers and school heads to produce more researches.

1. Review of Literature

This part discusses the review of related literature from books, journals, thesis and websites to support the study about the motivational factors of tenured elementary and secondary teachers and school heads of DepEd Imus in conducting academic research.

Socio demographic characteristics of tenured teachers and school heads Age and Sex

Catadman (2014) in her study entitled “Personal and social adjustments of public secondary school teachers and their performance: basis for a personality development

program” revealed that mean age of public secondary school teachers in North Cavite is 32.49 and majority of the teachers in secondary public schools are female.

Usop, et al (2013) found out that the mean age of teachers in the Division of Cotabato City is 38.83 years. The findings show that majority of teachers is in the age bracket of 31-40 years old and few belong to the age bracket of 50 and above. The data show that teachers are generally in the middle age.

Furthermore, Mumtaz (2011) views age as something relative. An old employee has gained experience and brings with her/him positive qualities at work as cited in the work of Barcelona (2013) entitled “Effectiveness of technology and livelihood education (TLE-Culinary Arts) implementation in selected schools in Cavite” which says that there is no observable relationship occurs between age and job experience.

Organization for Economic Co-operation and Development (OECD) Teaching and Learning international Survey (TALIS) (2009) found out that more than half of teachers across TALIS countries are aged from 30 to 50 years old. Given concerns about an ageing teacher population it is significant that, on the average, only 15% of teachers are less than 30 years of age and few teachers were under 25 years of age, perhaps owing to the education and qualification requirements that apply in most countries. That over one-quarter of teachers are over 50 years old is evidence of an ageing teacher population.

In United States the average age of teachers in traditional public schools is 43 years old (NCES, 2011).

In terms of sex, there were 91 percent female and 6.5 percent males teachers. It appears that female dominate the teaching profession (Usop, et al 2013).

The Organization for Economic Co-operation and Development (OECD) Teaching and Learning international Survey (TALIS) (2009) came up with the same result that on average across TALIS countries, almost 70% of teachers were female, and in every TALIS country the majorities were female. Female dominated particularly in Bulgaria, Estonia, Lithuania, the Slovak Republic and Slovenia, with between 80 - 85% of the teacher workforce.

In the US for School Year 2011-2012 they had a larger percentage of female teachers (76%) than male teachers (24%).

Approximate Monthly Income

Virola (2007) stated that Philippine teachers are grossly underpaid as reflected in the World Education Indicators (WEI) Programme data where it shows that the numbers of service or the lack of it has no impact in pay scale.

In Kenya, a realistic and attractive professional compensation package plays a vital role to keep teachers motivated and keep from other income-generating activities (Nzulwa 2014).

Academic Position/ Designation

In a study by Barcelona (2013), majority worked as Teacher I and the remaining as Teacher II. According to Delson (2009) as cited in Barcelona (2013), work experience influences the performance of the employees.

Factors Influencing Research Productivity

Some scholars believe that promotion has a motivating effect on research productivity. For instance, Smart (1999) states that if the sources of faculty motivation can be identified and later on manipulated then it can be assumed that faculty can also be motivated to behave in certain kind of ways. Other researchers, however, insist that teachers publish not for external rewards but because they enjoy the process of inquiry (McKeachie 1979 as cited

in Chen, et al 2010). Prior studies identified two categories of personal motivational factors that drive academic research: (1) investment factors or extrinsic rewards (e.g., salary raises, tenure, and promotion) and (2) consumption factors or intrinsic rewards (e.g., an individual's personal satisfaction from solving research puzzles, contributing to the discipline, and achieving peer recognition).

In addition to personal motivation, other factors also have a substantial influence on faculty members' research productivity. One well-established research productivity theory, Life-Cycle theory, suggests that in general the research productivity of a researcher rises sharply in the initial stages of a career, peaks at the time of tenure review, and then begins a decline (Diamond 1986; Goodwin and Sauer 1995; Hu and Gill 2000 as cited in the work of Chen, et al 2010). Other studies have identified that the following factors influence research productivity: (1) tenure status, (2) the allocation of working time to research activities, (3) length of the tenure probationary period, (4) teaching loads, and (5) financial research support (Buchheit et al. 2001; Cargile and Bubnitz 1986; Chow and Harrison 1998; Tien 2000; Levitan and Ray 1992; Hancock et al 1992 as cited in the work of Chen, et al 2010).

Differences in Research Productivity

Many studies have been made to examine differences between male and female productivity. Typically in male-dominated blue-collar industries, productivity differences between sexes were very small about 1 – 3% depending on the country (Petersen, Snartland and Milgrom 2005).

In terms of cognitive abilities gender differences have been addressed by numerous meta-analysis studies of Verbal (Hyde & Linn, 1988), Spatial (Linne & Peterson, 1985; Voyer et al, 1995) and Mathematical Abilities (Hyde et al, 1990) as cited in APA, 2014 paper "Think again: men and women share the cognitive skills". Though results of these studies were minimal and almost non-existent in areas with strong gender equality program these perceived or actual differences in cognitive performance between males and female are most likely the result of social and cultural factors (APA, 2014).

However this is not the scenario in area of research. There exist a research productivity gap between male and female. Cole and Zuckerman (1984) do not believe that family obligations affect women's research, nor blatant sexual discrimination can fully account the less productivity of female researchers, thus they coined the phenomena as "research puzzle".

These contradictory and seemingly conflicting results on gender productivity, specifically in producing research studies, prompt Leahey (2006) to have a closer look on gender gap and found out that specialization in a program plays a big factor. It found out that male embraces the idea of having a specialization because it demonstrates expertise in one's field. Thus, repeated writing and more publication while female geared into broadening one's horizon and exploring new areas of study. Simply put, men continuously produce publication in same area of study while female researchers do a much measured and different studies, therefore, less publication.

European Union (EU) come about a similar result in the existence of gender gap on research productivity but cited different reasons to the highly limited feminine presence and marginal roles, to wit:

- Women represent only one sixth of research workers in the private sector and one third of the entire community of academic staff, though their representation has increased over time.
- Regarding the composition of academic staff, women tend to be concentrated in inferior roles. There is only one woman for every 3.5 men in the top academic ranks.

- In the scientific committees appointed by the European Community the proportion of women is about 20%, but the leadership of these committees is entrusted to a woman in only 10% of cases.

Nevertheless, change is inevitable and similar with much phenomenon gender research productivity is not an exemption. Xie and Shauman (2008) study reveals that overtime the gendered performance differences are disappearing. Additionally, there is very little direct effect of sex on research productivity (Xie and Shauman 2008). The study found out that the female researchers have started to produce more research studies than male researchers. This is also reflected in other facets of education system as female pupils are gradually performing better than male students (Arensbergen, 2012). In respect to this paper, a productivity gap between male and female exist as presented and established by literature however there is a shift in the gap and it is slowly diminishing.

Foundations of motivation

Over the years, different perspectives on motivation have evolved. The perspectives can largely be classified as macro and micro. The macro describes the nature of humans, while the micro explains the specific behavior likes social, political and cultural factors. Cherry (2000), states that ancient philosophies Aristotle and Plato, medieval ones like Aquinas and recently Spinoza view human as rational beings, with divergent needs. Recent findings published by Hersey and Blanchard (2001) explain that advancement, autonomy, caring bosses, company philosophy, fringe benefits, improved communication channels with top management /supervisors, responsibility, good working conditions, tactful disciplinary machinery, good wages, clear promotion and growth opportunities, job security and interesting work motivate employees. The absence of motivational factors negatively impacts employee behavior and results to low work morale. Polarold (2002) identified certain motivational aspects found to be a success story for well performing organizations. They include good working environment, good financial incentives, and employee development and training and general welfare services. Aspects that further satisfy employees include recognition for good performance and employer branding as a choice employer.

Thomson and Strikland (2001) found that in most successful Japanese companies, employees met regularly to have professionally inspirational dialogues and recite professional litany. They further noted that one of the most untapped motivational factors was the creation of ‘unashamed’ professional attitude and values including the belief in doing the best job and profession .The opportunity for recognition, power, social status, prestige, security, belonging, growth and development in their career and good leadership are much more important than money towards good performance. In view of the foregoing, public high school teachers can be motivated by among other things, a good salary, personal growth, development and sense of belonging/security, pride in the teaching profession, good working environment and conditions. Researchers (Bellois, 2003) in the field of motivation by consensus, agree that motivation plays an important role in the productivity and professionalism of employees. Whereas there may be no single ‘best practice’ concerning motivation to which all organizations should aspire to meet. Employees must feel valued, part and parcel of the organization. Some feeling of ownership on the part of the employees must prevail. Conductive leadership style that stimulates employees’ performance should be put in place. Good employee relations that foster informal and interpersonal groups at work should also be at play.

Good compensatory schemes and also good salaries must be in place. Work must be as much fun as play. Actions to satisfy employees’ needs, increase quality of work life must be tied to every H R practice in the organization. Bryan (2003) summarily contends that motivation is crucial to every organization that seeks to effectively succeed.

Conceptual Framework

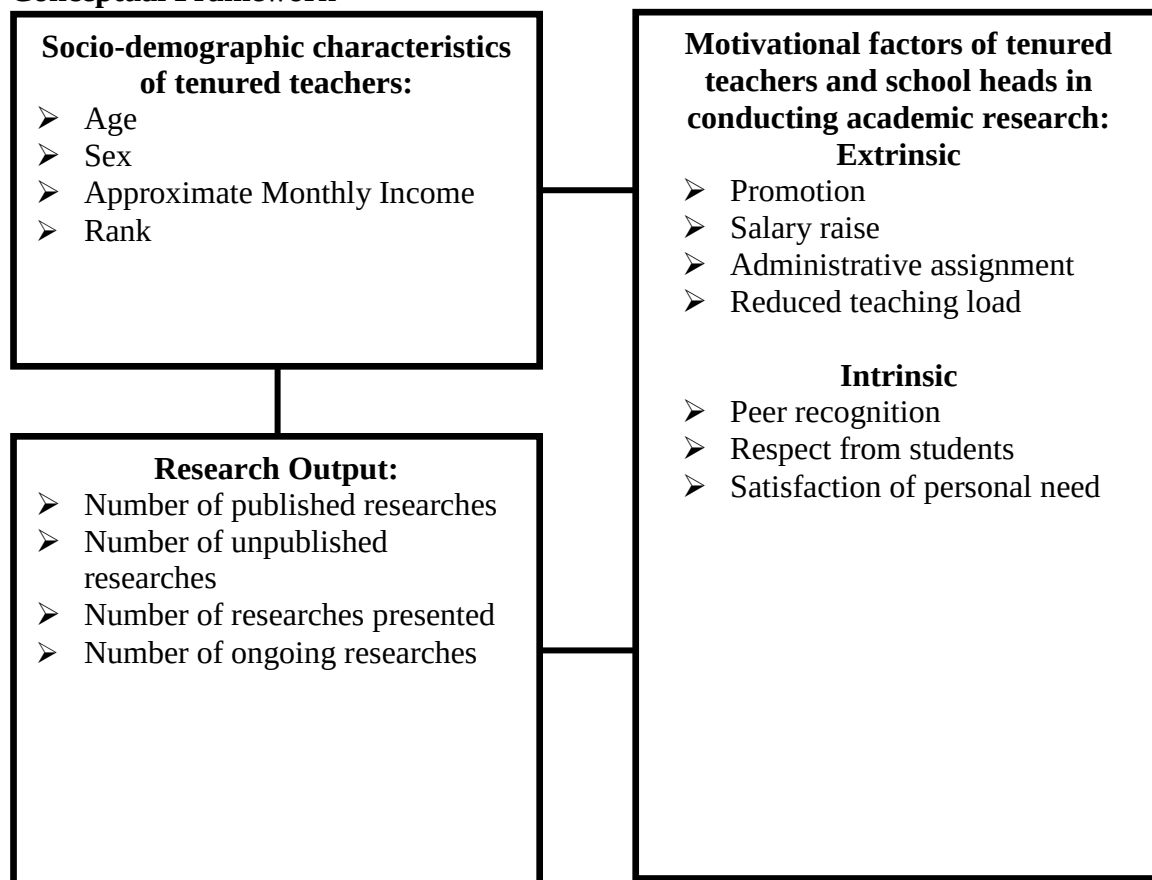


Figure 1. Conceptual Framework

The socio-demographic characteristics of tenured teachers and school heads of DepEd Imus may affect the extrinsic and intrinsic motivational factors in conducting their academic research. Their age, sex, rank and approximate monthly income will greatly affect their extrinsic motivational factors such as promotion, salary raises, administrative assignment and reduced teaching load and the intrinsic motivational factors which include peer recognition, respect from students and satisfaction of personal need in conducting academic researchers will also greatly affect the conduct of academic research. The number of both published and unpublished researches, number of researches presented and on-going researches can be a great indicator of their research productivity. Whether extrinsic or intrinsic factors motivate the tenured teachers and school heads in conducting academic research, it is a requisite to know which of these factors they considered most important.

Theoretical Framework

The research study employed the following theoretical bases:

Herzberg (1968) two-factor theory

He advanced his theory making by a distinction between lower and higher order needs. He described the lower order needs as potential dissatisfiers or hygiene factors and the higher needs as potential satisfiers or motivators. Hygiene factors include pay, job security, supervision and working conditions. The motivators are those factors that increase motivation

but whose absence does not necessarily result in dissatisfaction. These include achievement, recognition, responsibility, advancement, growth and work design. The former are important bases of building a foundation of motivational factors while the latter's presence motivate employees' disposition for pursuit of professionalism.

Life Cycle Theory

Life Cycle theory, suggests that in general the research productivity of a researcher rises sharply in the initial stages of a career, peaks at the time of tenure review, and then begins a decline (Diamond 1986; Goodwin and Sauer 1995; Hu and Gill 2000 as cited in the work of Chen et al, 2010).

2. Research Questions

In general, the study sought to answer the relationship between the socio-demographic characteristics of the tenured teachers and school heads in the Schools Division of Imus City and their motivational factors in conducting academic research.

Specifically, the study sought answer to the following questions:

1. What is the socio-demographic characteristics of the tenured teachers and school heads in terms of:
 - 1.1 Age
 - 1.2 Sex
 - 1.3 Approximate monthly income
 - 1.4 Rank?
2. What are the research output of the tenured teachers in terms of:
 - 2.1 Number of published researches
 - 2.2 Number of unpublished researches
 - 2.3 Number of presented researches (local and international)
 - 2.4 Number of ongoing researches?
3. What is the relationship between the socio-demographic characteristics of tenured teachers and school heads and their motivational factors in conducting academic research?

Hypothesis

The null hypothesis below was formulated based on the statement of the problem:

- H₁ There is no significant relationship between the socio-demographic characteristics of tenured teachers and school heads and their motivational factors in conducting academic research.

3. Scope and Limitations

The study assessed the relationship between the socio-demographic characteristics of the tenured teachers and school heads in the Schools Division of Imus City and their motivational factors in conducting academic research.

The most important motivational factors of the tenured teachers and school heads in conducting research will serve as a baseline data for DepEd as to what support can be extended to them and in order for the tenured teachers and school heads to produce more researches and contribute to the body of knowledge in basic education and academic researches.

The study is limited only to the tenured public elementary and secondary teachers and school heads of Schools Division of Imus City.

The research was conducted from June to September 2015.

4. Methodology

Sampling

There were six hundred and forty one (641) tenured teachers and school heads from SDO Imus City who took part on the online survey and served as respondents of this study.

Data Collection

Data were gathered using a modified questionnaire from a study by Chen et al, 2010 entitled “Research Productivity of Accounting Teachers: An Exploratory Study” The questionnaire was designed to assess and determine the respondents’ socio-demographic characteristics, motivational factors in conducting academic research and their research productivity.

The modified questionnaire consists of three (3) parts. The first part consists of the importance of the motivational factors to conduct academic research. The second part consists of the socio demographic characteristics of the respondents in terms age, sex, rank and approximate monthly income. The third part consists of the respondents’ research productivity in terms of number of researches published and unpublished, number of researches presented and the number of on-going researches. The research instrument was subjected to pre-testing prior to the actual survey to check the reliability and validity of the questionnaire.

Data Analysis

The study used different statistical treatment to analyze the data gathered. To determine the socio-demographic characteristics of the tenured teachers in terms of age, sex, rank and approximate monthly income, frequency counts and percentages was used.

This analysis was also utilized in determining the research productivity of the tenured teachers. On the other hand, computation for the mean and standard deviation was used to determine the most and least important motivational factors of the tenured teachers and school heads in conducting research.

In order to determine the relationship between the socio-demographic characteristics of the respondents and their motivational factors in conducting research, One-way ANOVA was utilized at 0.05 level of significance.

5. Results and Discussion

This part discusses the findings and outcome of the research conducted. The results of the study from the data gathered through the questionnaires were sorted, tallied and presented in tabular form for an easier analysis and discussion of results.

Results

Profile of the Respondents

Table 1 presents the profile of the respondents in terms of age and sex.

Table 1. Profile of the respondents according to age and sex

Profile	Frequency	Percentage
Age		
20 – 25	78	12.17%
26 – 30	99	15.44%
31 – 35	45	22.62%
36 and above	319	49.77%
Total	641	100.00%
Sex		
Male	81	12.64%
Female	560	87.36%
Total	641	100.00%

Age. Based on the results, 319 respondents (49.77%) were 36 and above years old, 145 (22.6%) were between 31-35 years old, 99 (15.44%) were between 26-30 and 78 (12.1%) were between 20-25 years of age. Most of the respondents were between 36 and above years of age considered as experienced teachers and school heads. Their length of service as a teacher along with their knowledge and skills in teaching developed through time made them well experienced.

Sex. In terms of sex, majority (87.36%) of the respondents were female while eighty one (12.64%) were males. Having more educational opportunities, female also tend to take teaching as a profession and is being tied generally to female.

Table 2 shows the profile of the respondents according to approximate monthly income and rank.

Table 2. Profile of the respondents according to approximate income and current academic position/designation

Profile	Frequency	Percentage
Approximate monthly income		
Php 15,000 – 20,000	426	66.46%
Php 20,001 – 25,000	158	24.65%
Php 25,001 – and above	57	8.89%
Total	641	100.00%
Current Academic Position/ Designation		
Teacher I – III	590	92.04%
Master Teacher I – II	27	4.21%
Head Teacher I – VI	7	1.09%
Principal I – IV	17	2.65%
Total	641	100.00%

Approximate monthly income. Based on the results, 426 (66.46%) of the respondents have an approximate monthly income of Php 15,000 – 20,000. One hundred fifty eight (24.65%) have an approximate monthly income of Php 20,001 – 25,000 while 57 (8.89%) respondents are approximately earning Php 25,001 and above per month. Majority of the teachers are earning the starting salary and is considered low as compared to other Asian countries. (Virola, 2007).

Current Academic position/designation. In terms of current academic position/designation, majority of the 641 respondents which is 590 (92.04%) are holding academic position of Teacher I – III. Twenty seven (4.21%) are Master Teacher I – II, 7 or 1.09%) are Head Teacher I – VI while 17 (2.65%) are Principal I – IV.

Research Productivity

Table 3 shows the distribution of respondents based on the number of work time spent daily on research for the last year from June 2014- June 2015.

Table 3. Distribution of respondents according to number of work time spent daily on research

Profile	Frequency	Percentage
None	581	90.64%
30 minutes	21	3.28%
60 minutes	17	2.65%
90 minutes	22	3.43%
Total	641	100.00%

As shown in Table 3, majority of the respondents did not spend time in conducting research from June 2014 to June 2015. 21 (3.28%) spent 30 minutes, 17 (2.65%) spent a daily work time of 60 minutes while 22 (3.43%) spent 90 minutes daily work time in conducting research.

Table 4, shows the distribution of the respondents' research output in terms of the number of researches completed, presented, published and currently completing the research.

Table 4. Distribution of the respondents' research productivity

Research Outputs	No. of Researches	Percentage
Completed but unpublished	19	50.00%
Completed and published	6	15.79%
Completed and presented	2	5.26%
Completed, Presented and Published	1	2.63%
Ongoing research	10	26.32%
Total	38	100.00%

As shown in Table 4, out of the 641 respondents, only 38 researchers served as research outputs. Nineteen (50%) researches were completed but unpublished, 6 (15.79%) were completed and published in different research journals, 2 (5.26%) were completed and presented in different research conferences and fora. Only one (1) or 2.63% was completed, presented and published while 10 (26.32%) are still being completed.

Importance of motivational factors to conduct academic research

Table 5 shows the importance of motivational factors of the respondents to conduct research.

Motivational Factor	Weighted Mean	Level of Importance
Respect from students	3.88	Very Important
Salary Raise	3.86	Very Important
Satisfaction of personal need	3.68	Very Important
Promotion	3.56	Very Important
Peer recognition	3.43	Important
Reduced teaching load	3.23	Important
Administrative assignment	3.21	Important

1.00-1.5= Not Important at all 1.51-2.50= Less Important 2.51-3.50= Important 3.51-4.0= Very Important

As shown in Table 5, intrinsic motivation such as respect from students (3.88) and satisfaction of personal need (3.68), are two of the top three motivational factors that tenured teachers and school heads considered as Very Important.

Relationship between socio demographic characteristics of the respondents and their motivational factors to conduct academic research

The succeeding tables show the results of the analysis of variance of the socio-demographic characteristics of the respondents and their motivational factors in conducting academic research.

Table 6. Relationship between age of the respondents and their motivational factors to conduct academic research

Source	df	Sum of Squares	Mean Square	<i>F</i>	<i>p</i>
Between Groups	3	0.06	0.02	0.14	0.92
Within Groups	637	88.07	0.14		
Total	640	88.13			

$$p < 0.05$$

The results presented in table 6 shows that there was no significant relationship of age to the motivational factors in conducting academic research at the $p < 0.05$ level for the three age groups, $F(3,637) = 2.60$, $p = 0.92$. This means that age is not related to the motivational factors in conducting academic research.

Table 7. Relationship between sex of the respondents and their motivational factors to conduct academic research

Source	df	Sum of Squares	Mean Square	<i>F</i>	<i>p</i>
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Between Groups	1	0.01	0.01	0.10	0.75
Within Groups	639	88.12	0.14		
Total	640	88.13			

$p < 0.05$

The results of the analysis shown in table above 7 reveals that there was no significant relationship of sex to the motivational factors in conducting academic research at the $p < 0.05$ level for male and female respondents, $F(2,638) = 3.84$, $p = 0.75$. This suggests that sex is not related to the motivational factors in conducting academic research.

Table 8. Relationship between approximate monthly income of the respondents and their motivational factors to conduct academic research

Source	df	Sum of Squares	Mean Square	<i>F</i>	<i>p</i>
Between Groups	2	3.49	1.74	13.15	0.00
Within Groups	638	84.64	0.13		
Total	640	88.13			

$p < 0.05$

The data in table 8 above shows that there was a significant relationship of approximate monthly income to the motivational factors in conducting academic research at the $p < 0.05$ level for the three income groups, $F(2,638) = 3.00$, $p = 0.00$. Post hoc comparisons using the Tukey HSD test indicated that the mean score of the respondents whose average monthly income is Php 20,001 – 25,000 ($M = 3.68$, $SD = 0.32$) was significantly different both with those whose average monthly incomes are Php 15,000 – 20,000 ($M = 3.51$, $SD = 0.35$) and Php 25,001 – above ($M = 3.51$, $SD = 0.52$). However, the two latter income groups did not significantly differ from one another. These results signify that the respondents whose average monthly income was Php 20,001 – 25,000 were more motivated to conduct academic research than those from the other income group.

Table 9. Relationship between academic position/ designation and motivational factors

Source	df	Sum of Squares	Mean Square	<i>F</i>	<i>p</i>
Between Groups	2	0.25	0.13	0.92	0.40
Within Groups	638	87.88	0.14		
Total	640	88.13			

The results as shown in table 9, suggest that there was no significant relationship of position to the motivational factors in conducting academic research at the $p < 0.05$ level for the three categories of position, $F(2,638) = 3.00$, $p = 0.40$. This suggests that position is not related to the motivational factors in conducting academic research.

Discussion

The study was limited to tenured elementary and secondary teachers and school heads of the Schools Division of Imus City.

Results of the study revealed that the respondents of the study were mostly female, 36 and above years old, with approximate monthly income between Php 15,000-20,000 and an academic position/designation between Teacher I- III. As stated by Catadman (2014), Usop, et al (2013) and Mumtaz (2010) they assert that “majority of teachers are between the age bracket of 31-40 and are generally middle age”. In terms of sex, female respondents dominated the male respondents gathering 87.36 percent of the total population. As stated by Usop, et.al, (2013), “female dominate the teaching profession”. In terms of approximate monthly income, Virola (2007) affirms that “teachers are grossly underpaid as reflected in the World Education Indicators (WEI) Programme”, receiving basic salary but low. In the same study by Barcelona (2013), she asserts that “majority worked as Teacher I and the remaining teacher as Teacher II”. These established literatures are in conformity with the results of the current study where it found out that majority of the teachers are well experienced as revealed in their age and academic position/designation and attractive professional compensation packages are requisites to keep them motivated.

In a study by Chen, et al (2010), results revealed that “research productivity of teachers can be influenced by the allocation of working time to research activities and the financial research support”. In the current study, results showed that majority of the respondents do not allot daily work time in conducting research for the past year from June 2014-2015 which results to non-production of action researches – school-based and evidence-based. Despite the revision of guidelines in the availment of the BERF, teachers and school heads of the Schools Division of Imus City do not take advantage of this funding. These can be traced from the results of the current study where approximate monthly income has significant differences among respondents as a socio demographic characteristic that affects the respondents’ motivational factor in the conduct of academic research. Salary raise is the second top motivational factor, considered to be an extrinsic motivator or investment factor (Smart, 1999 and Mc Keachie, 1979). In addition, Hersey and Blanchard (2001) explained that “good wages motivate employees”. This only means that if their salary will increase due to the production or conduct of research, therefore, they will be encouraged to do more researches.

Topping the motivational factor to conduct academic research is **respect from students** and thirdly is the **satisfaction of personal need** which (Smart, 1999 and Mc Keachie, 1979) identified as intrinsic motivator or consumption factor. Results of the current study is in consonance with Thomson and Strikland (2001) findings who assert that “the opportunity for recognition, power, social status, prestige, security, belonging, growth and development in their career and good leadership are much more important than money towards good performance”. More so, Mc Keachie, (1979), insists that “teachers publish not for external rewards but because they enjoy the process of inquiry”.

Bellois (2003) in the field of motivation by consensus, agree that “motivation plays an important role in the productivity and professionalism of employees”.

Tenure, being a motivational factor in research productivity as stated by Chen, et al (2013), on the other hand was a delimiting factor in the current study. Theoretically, life cycle theory asserts that “in general the research productivity of a researcher rises sharply in the initial stages of a career, peaks at the time of tenure review, and then begins a decline”. Since teachers in the initial stage of their career are hired with tenure, the motivation to conduct research became low. Furthermore, monitoring and evaluation in the conduct of research projects and development has become lenient.

In summary, not only personal motivators whether extrinsic or intrinsic motivate the respondents to conduct academic research. Tenure, work time allotted to conduct research and funding are also factors that increase or decrease their motivation. Actions to satisfy employees' needs and increase quality of work life must be tied to every Human Resource practice at DepEd School Divisions of Imus City. As Bryan (2003) summarily contends, "motivation is crucial to every organization that seeks to effectively succeed".

Conclusion

In the light of findings of the study, the following can be concluded:

1. Of the 641 respondents, majority are female, 36 years old and above, has an approximate monthly income of Php 15,000 - 20,000 and are between Teacher I - III.
2. Out of the 641 respondents, there were only 38 research studies conducted, 10 of which are still ongoing. Of the two hours allotted for ancillary works of teachers and school heads, majority do not allot work hours for research.
3. Data revealed that top three motivational factors are **Respect from Students, Salary increase and Satisfaction of Personal Needs**. Of the top three factors, only Salary increase is Extrinsic while the two factors are Intrinsic.
4. Age, sex and academic position/designation have no significance with the motivational factors to conduct research, whereas with approximate monthly income there is significant difference among respondents.

6. Recommendations

The following recommendations are given for future undertakings:

1. There is a need to review the daily work-time spent for ancillary hours allotted for teachers and school heads for them to allocate time for the conduct of academic research. More so, there is a need to review reward system or service credit to encourage teachers and school heads to do more researches. Further, a similar study be conducted regarding research productivity as a priority requirement for tenure ship.
2. There is also a need to mandate research productivity as one of the key result areas in the Individual Performance Commitment Result Form (IPCRF) of teachers and school heads.
3. PPRD's Monitoring and Evaluation team should strictly monitor and evaluate research productivity as one of the Key Result Area.
4. In addition, future researchers should conduct more studies and include other variables such as civil status, highest educational attainment and subjects handled using larger samples or total enumeration of respondents which may result to more substantive findings.

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MUSIC EDUCATION IN TURKEY WITH REGARD TO THE RIGHT TO EDUCATION *

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Abstract

“Right to Education” is an important right existing in the international documents. Since Turkey has signed those documents, the right to education has been included in the Constitution.

Universal Declaration of Human Rights includes “Right to Education”. Music education which is included in Right to Education is one of the aspects of Universal Declaration of Human Rights.

In the present study, qualitative methodology has been utilized including the related literature; the knowledge and the experiences of the researcher.

Musical socializations are crucial at young ages which the frame of social perspective/sensitivity gets developed at. However, the students in Turkey cannot find the musical education opportunity which they can improve their skills, namely they become deprived of their rights to education. An insignificant number of talents can get out of this scope by means of the special efforts of their families and educators.

In Turkish education system, the musical education aspect of the right to education can be met by developing the opportunities which children at young ages and all children could take advantage of in order to improve their talents.

* This paper is prepared based on other papers and articles of the author, as well.

Introduction

The general notion in the society of our age is that the principle of education for all has gained a universal feature as a concept. Such opinion has given rise to the concept of “the right to education”.

The right to education means providing the educational opportunity to everyone “depending on their talents, depending on their needs”, but not the equity. The difference in the talents of individuals, their needs and states of health may require for them to be provided with different educational opportunities. For example, providing the ones having superior musical talents with more opportunities in order to allow them to improve their talents does not constitute wrongdoing against the individuals having less talent in this field (Altunya, 1997, p. 39). “The right to education”, is an important right that is available in the international documents; it is available in the Universal Declaration of Human Rights as well as in the International Covenant on Economic, Social and Cultural Rights. Turkey has signed these documents except for a few reservations and the right to education is explicitly available in the constitutional laws and the National Education regulations of the Turkish Republic.

The respective articles of the Universal Declaration of Human Rights are as follows:

“Article 26

1. Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.

2. Education shall be directed to the full development of the human personality...

3. Parents have a prior right to choose the kind of education that shall be given to their children.

Article 27

1. Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits.”

The right to education has been regulated to a comprehensive context in the Article 13 of the International Covenant on Economic, Social and Cultural Rights which imposes sanctions and enlarges on such rights that has entered into force in 1976 (Sencer, 1987, p. 33-34).

With Article 10 of the Convention on the Elimination of All Forms of Discrimination Against Women that entered into force in 1981, the state parties has undertaken to take various measures on the basis of gender equality in order to provide women with the same rights with men and to eliminate the discrimination against women. The matter has been taken under protocol by the European Council (Sencer, 1987, p.34).

The matter has been handled in a similar manner in the Article 28 –with regard to education– of The United Nations Convention on the Rights of the Child that is adopted in 1989.

According to the aforementioned international texts, the education is being directed to the full development of the human personality. Music is an extent of the personality and included in the primary education that is compulsory. Therefore, music, as an extent of the personality, remains within the right to education. Based on this fact it has been made a subject of paper.

Within the scope of the right to education, the compulsory educational age is raised in the first phase; school systems consisting of multi-purpose or multi-directional programs which allow every student to access them arbitrarily are being developed (Bilhan, 1996, p.88).

On each educational level, vertical and lateral transfer opportunities; free education and boarding opportunities; balanced distribution of teachers and educational tools having the quantitative and qualitative sufficiency are the requirements of the right to education.

The minors, women and ineligibles are protected in particular in terms of the right to education (Bilhan, 1996, p.278).

“The society striving for benefiting from all talents; may not be able to accomplish this goal due to the bias against race, class and social gender (Sennett, 2015, p. 85).

It can be said that, in the recent period, the dense developments throughout the world and in Turkey brought the matter to a status that is necessary to be discussed:

Five-year plan, central economy, constant education and strict bureaucracy have collapsed. “All major institutions have been disintegrated; the demands of the business life have devastated the family life and the living areas of the people has become like a train station rather than a village. The icon of the global age has become the migration: not settling down, but being mobile.” The economic inequality has become bigger. The shelf lives of many talents have become shorter in the new economics. “The contemporary culture develops a meritocracy which promotes not the past accomplishments but the potential talent instead of craftsmanship”. In order to be successful in the new society, the individual must have “...a personality trait that is available in a consumer who disposes of the former and craves all the time for the new...” (Sennett, 2015, p.9-12).

At the present time, the reality of poverty effects people more than any other time. The main reason of this is the poverty becoming global rather than being local or regional. Depreciation of the social state, poverty of the public area, therefore the rapid increase in individual poverty manifests itself in every field of life. Privatization of the public services such as health, education and security causes fewer people to benefit from such services day by day (Turanlı, 2003, p.181).

It can be said that, this case is a natural outcome of the consumption economy of the new global capitalism. Therefore, it has become a necessity to discuss again the problems with regard to the right to education and the solutions to those.

The situation in Turkey with Regard to the Right to Education

The socio-economical developments in Turkey has driven a wedge between the lower class and upper class and a structure in parallel with such situation reflecting such gap in education has been developed. Thus, the Turkish system of education has become disadvantageous gradually. “As of the 1970’s, advancing by means of education has ceased to be an option” (Tezcan, 1984, p. 167). Another indicator of the parallel structure is the increase in the number of private schools as well as in the number their students. The educational institutions of the state becomes off-grade under the pressure of rapid population growth and other factors; accordingly the number of private schools increases due to the effect of ever-increasing social differentiation.

The parallel structure has reflected on the constitutions as well; the right to education has been emphasized as no one can be deprived of such right, and excluded from being a duty and an objective by means of a negative expression in the constitution of 1981 while the right to education was defined as a duty and objective of the state in the constitution of 1961.

The parallel structure in the system of education has become concrete in the institutional structuring of the schools. According to the researches, as an overall tendency, the students are

grouped together in certain schools depending on the socio-economic structure of their families and receive education on various qualitative levels. Accordingly, the rural class and the lower socio-economic class remain under the rate within the population particularly as the step of education becomes higher in the system of education. In terms of genders, there are serious negativities for the female students. The tendency of not sending the girls to the school becomes widespread amongst the rural class and the lower socio-economic class

It is an interesting fact that the founding leader of the Republic of Turkey and the UNICEF Representative of Turkey McLoughney, after 76 years from Atatürk, both emphasized that the development can be accomplished only by providing the girls with the right to education (Bilhan, 1996, p.88; McLoughney, 2006, p.27).

As another aspect of the matter, the need for child labor in villages and slums is a factor which effects schooling. The unemployment of the university graduates is another negative fact in terms of schooling (Bilhan, 1996, p.101-102).

Similarities exist in secondary education even though the differences are rather insignificant. The children of the families from middle and high socio-economic classes receive education at schools such as Anatolian High Schools and private schools etc. while the children of the families from lower class receive education at vocational and technical high schools (Gökçe, 1984). At the present time, the school structure and choices have been shaped in accordance with the new changes.

Briefly, the rate of schooling decreases from primary school to higher education. The ones living in western regions, in the cities particularly in metropolitans, as well as the ones whose parents have high incomes, high levels of education and high professional statuses amongst the individuals receiving education are able to receive education in “better” schools those available within the range of schools. Since such families send their daughters to school with a higher rate, the rate of female students in higher education is getting higher.

The researches verify such tendencies (Bilhan,1996; Altay ve Özkal,1998; Dikbayır, 2003).

As a result of the parallel structure, the socio-economic status of the families, their locations and residential areas have come to the forefront when the most important factor determining the place of a child within the system of education must actually have been the availability of the student’s interest, ability and talent; discovering and improving the interests and talents of each individual regardless of the social and economic class the students belong to.

It can be said that the extensive privatizations in recent years and the dense changes, particularly the fundamental changes, have turned the system of education upside down. The regulations brought after the elimination of private teaching institutions has paved the way for an extensive change in education as an actual state and particularly for privatizations. It is obvious that such change will victimize the lower socio-economic class in terms of the right to education. As a matter of fact, privatization is an application that creates alone the negativities in terms of the right to education.

It can be said that the recent regulations and the political attitudes constitute the most significant obstacle before the right to education.

It will be appropriate to discuss, separately and in details, the Religious Schools constituting the foundation of the matter.

Religious Schools (Imam Hatip Schools)

With the Basic Law of National Education applying to the age group 6-14 that was accepted in 1973, the eight-year compulsory primary education was accepted; however the common practice of law has been possible in 1998 as a result of the Turkish military memorandum. With this practice, the Junior High sections of the Religious Vocational High Schools (RVHS) have been excluded from the structure of the RHVS. With the law introduced in 2012, the implementation before 1998 that was 5+3 has been converted into 4+4 and the schooling age has been moved one year earlier. The second four years has been determined for Junior High School and Religious Vocational Junior High School; thereby the system has fallen behind even compared to the period before 1998 and the children have started to be directed to Religious Vocational Schools when they are only 9-10 year old. Furthermore in practice, the number of Religious Vocational Schools was increased in surplus and the other schools have been made problematic in order to force the students into going to Religious Vocational Schools. For example, according to the statement in 2013, no other choices was present for 574 thousand students who failed the Placement test but to receive their educations at Religious Vocational High Schools, Vocational High Schools or Open High Schools. (Cumhuriyet Newspaper dated 18.08.2013).

According to the report of Education Union, when 71 thousand 100 students were receiving education in 450 schools According to the report of Education Union in the academic year 2002-2003 that is the term Turkish ruling party AKP has come into power, such number is now increased to 546 thousand 443 students receiving education in 1017 schools in the academic year 2014-2015. The total number of students in RVHS in Turkey is increased from 724 thousand to 932 thousand (from the newspapers dated 2015). With such development, the Vocational High Schools have ceased to be vocational schools. The graduates of such schools other than a few entering the faculty of theology enter the other fields.

The students of RVHS are mostly village children; their families are conventional and religious; the parents have a low level of education. The father is authoritative. Socialization of the student depends on the family and on the school. With the effect of such environment, the obstacle which may reduce the interaction enters in between the student and some lessons.

Such attitude of the student becomes stronger as the students stay in the school. The classes deemed unnecessary the most are the classes such as painting, music and physical education. On the other hand, a group of 17.2% finds itself talented in music, painting and physical education branches; 16,8% of them desire to improve their talents. Briefly the RVHS do not provide the environment allowing the improvement of talents; furthermore they prevent directly or indirectly the talents and potentials to be improved. There are no RVHS graduates in the art education fields of the universities. However, the talent pool has been spread throughout the entire society and such students not allowed to benefit from the right to art education have been lost in a sense. The Village Institutes and The Primary School Teacher Schools those used to be fed from the same student resource have reintroduced many talents into the society with spectacular successes. The matter is the problem of liberating the child. Is it the free will of a talented child to give up on improving his talent at own request?

Since the religious vocational schools are based on teaching dogmatic knowledge, it cannot be expected from such school to improve the science and philosophy talents of its students. Furthermore, since the art (music) education does not draw interest, it is known that the students trained through this channel will not be able to be successful in the field of innovation which is crucial in the sense of improvement of the economy. (The rate of innovation is low in the countries those do not place importance on the art education.)

Above all, even though the orientation for all works and all professions become significant at the ages of 14-15 (Ergun, 2005, p.154), the religious vocational schools orient the child in very early ages in defiance of the principles of education, science and human rights.

Consequently, it is obvious that Turkey has fallen behind the level that is set forth by the right to education in constitutions and international documents.

Aim of the Work Reported

The aim is representing the right to education extent of the music education in Turkey with regard to its respective variables.

Method of the Work

In the present study, qualitative methodology has been utilized including the related literature; the knowledge and the experiences of the researcher.

The Music Education in Turkey with Regard to the Right to Education

In previous sections, the concept of the right to education and the status of the right to education throughout the world and in Turkey have been examined. In this section, the status of music education in turkey will be discussed within this frame.

The matter has been approached mainly with regard to the major constituents of the music education:

Music Educator and the Right to Music Education

It can be said that the most important permanent constituent of the music education is the music educator.

The music teacher in Turkey has initially been trained in one school only; the number of music teachers failed to satisfy the need and therefore a major sector also failed to use the right to music education. In recent years, the number of educational institutions training music educators has increased; furthermore many graduates of other music schools have completed pedagogical formation programs and gained the right for being a music teacher; however, not all of them could be assigned, also the distribution of such teachers have been unbalanced; a large number of students have been deprived of music teachers and therefore of the right to music education.

On the other hand, since the music teachers specialized sufficiently in various fields of music in a manner to cover the needs of the students with various musical talents are not trained, the talented and disabled students could benefit from the right to music education to a very limited extent. As an overall tendency in Turkey, it can be said that monotype music teachers who are able to provide only general music education are being trained. The majority of music teacher candidates cannot find the opportunity to improve sufficiently in their instruments and in the pedagogy of their instruments. Instrument training starts very late in the music teaching programs, therefore it cannot be improved sufficiently. Instrument pedagogy class almost does not exist on the undergraduate level. There are no standards set for instrument educators. The conditions of professionalization in instrument teaching have not been developed. There are

teachers who do not know playing an instrument on minimum level amongst the teachers giving instrument lessons.

The parents try to provide the instrument lessons which cannot be provided in the schools by the state. For example, more than 130 children who have received private education for amateur purposes have participated in the Piano Festival which was organized in Antalya in 2001 for the children younger than 15 years.

Thereby, the part of students other than the minority cannot find the opportunity to improve themselves in instrument playing; in this context the students are deprived of the right to music education.

Organizational Structure of Education, Curriculum and the Right to Music Education

The lack of regulations and programs in the system of education which allow musical socialization of the children according to their talents when they are at the early ages in which the social perspective/perception develops and the music education is on the most effective level, is one of the important reasons why they become deprived of the right to music education.

In accordance with the researches of the author, despite all inadequacy and problems, it is seen that the music education is effective. (Such effect has been diminished considerably due to the mass media, particularly the Internet, becoming widespread and active.)

According to the latest situation in the Turkish system of education there is one hour of compulsory music class education both in the Primary School (4 years) and in the Junior High School (4 years). These are the class lessons. There are selective music lessons in Junior High Schools for either 2 or 4 hours per week. The selective lessons may be used for improving the talents; however, the teachers, environments, tools, etc. do not exist in schools, furthermore, the social values and the prejudices direct the children into other lessons.

Except for the private educational institutions, class teachers teach the music lessons in Primary Schools and on Preschool levels. Thereby, the student in the state schools (if s/he is fortunate), meets the music teacher for the first time in Junior High School, in the 5th year of education.

The findings of the musical socialization research carried out by the author verify these remarks. For example, in the part of the research which was carried out in 2011, it is understood that 32% of the Akdeniz University Medical School students have not received any music lessons by the time they enter the Medical School.

One hour of fine arts/music class within the scope of common lessons in High Schools and 2-4 hours of selective lessons are nonfunctional; generally very few students select those lessons. Moreover, preparation courses for entering the following educational level are given during the existing music lessons due to the pressure from the parents and the students.

The Conservatoires and the Fine Arts High Schools (FAHL) providing the students having high level of music talent with the vocational music education have serious problems in terms of the music education.

The Conservatoires are the educational institutions having limited lateral and vertical transfer opportunities, training the student mostly unidimensionally; on the other hand insufficient in numbers and distributed unbalanced and which may be deemed similar to the RVHS in some aspects. With such feature, they are far from being able to cover the right to music education of the children having high musical potentials.

The FAHLs being established as a separate school has caused them to have some of the same problems with the Conservatoires. Besides, they have so many problems that it would not be wrong to say that they should be discussed again. Particularly, the connection with the higher music education institutions anticipated initially being broken or not improving has ceased these schools to be a hope for the improvement of the music talents. Some of the candidates coming to the universities from the FAHLs take the tests with such bad habits that the members of the examination board can even say “Wish they would never have entered the FAHS.”

FAHSs are able to reach the talents only in a minor part of the population (few in the talent pool). This rate in the well-functioning boarding FAHS Music Departments improves in favor of the settlements other than the cities. The socio-economic level of the families of the students of this department is on mid-level. The level of income of the family, the level of education of the parents are a little higher when compared to the classic High Schools. The rate of working mothers is rather higher. Accordingly, the talents who do not prefer FAHS become lost; they cannot benefit from the right to music education.

On the other hand, the FAHSs accept students of rather old age for the music education, particularly for the performance areas. The probability of the students for becoming professional artists is almost nonexistent. With the contribution of the reasons such as the teacher, the program and the structure in the system of education that directs the student to an upper education level, the students who start their music education in the university for the first time can catch a major part of the FAHS graduates who receive 4 year music education in terms of success in their field lessons.

As can be seen, there are serious problems in terms of music education within this context.

Tool and Environment Opportunities in Education and the Right to Music Education

As a reflection of the low status of music in Turkey, the environment and tool facilities regarding music and music education are limited and problematic.

Music is an unimportant lesson which is not effective for the student to earn the next school level and to improve. Therefore the music lesson is the last lesson to be mentioned with regard to environment, piano and other tools. Music classes and pianos do not exist in many schools. The students cannot afford an instrument other than the recorder. Until recently, most of the instruments were not being manufactured in Turkey and they were very expensive due to customs procedures. At the present time, due to common mass production and to the manufacturing of electronic instruments, it has been made easier for the children to reach the instruments; however it is still hard for the lower socio-economic class to reach the instruments. This is another factor which effects the music education negatively.

Mass Media/Social Media as an Important Environmental Factor and the Right to Music Education

The status of an individual's usage of right to music education gets affected from the environment in which the Internet/social media becomes more effective and the other socialization factors lose their effects.

In the musical socialization research carried out by the author, the answers given to the question who/what is effective in the development of music tastes provides the tips with regard to this matter. In 2011, the musical socialization effect of the school (the teacher) is either too

low or does not exist. The effect of television and radio has increased almost in all types in 1999 compared to 1988; and decreased in 2011. In 1990's the market has become very effective by using these two tools; in 2011 the effect of the computer/internet and other tools has been more dominant. In recent years it can be seen clearly that the situation has changed even more.

The increase in the effect of market and mass media; the most effective socialization, behavior modification institution and the decrease in the effect of the required effect of the school must be considered. It can be said that the importance of the mass media, particularly of the computer/Internet will be even greater in education; the classic teacher-student relationship will become different.

Along with training the music teachers in compliance with the new conditions for the students to improve their musical potentials by using their rights to music education, creating classrooms/laboratories in compliance with this goal and making them common has just started being discussed and not yet carried into practice.

Music Types and the Right to Music Education

As a result of the consumption ideology and effortlessness spread by the commercial-global capital behind the mass media, the students preferring popular music and improving themselves in line with the opportunities of the popular music, and therefore not being able to improve, to use their musical potentials as required is a negative situation with regard to the right to music education.

In the musical socialization research, according to the answers given to the question asking the music type which the students enjoy the most, the rate of the ones enjoying the popular music being called as "light music" in 1980's is 18% when such rate is raised up to 36%; and the popular music in 2011, particularly the extensions of foreign music have become diversified and reached up to 45,4%. In other words, the popular music in 2011 is close to the entirety of other genres. Moreover, it can be said that the majority other genres have undergone changes in a manner which can be assessed within the scope of popular music and they are not authentic.

Parents, Other Social Environment and the Right to Music Education

Leaving the responsibility of the child and the decision making with regard to the right to education to the disposal of parents and the socialization function of the family requires this matter to be discussed separately and particularly.

As a result of growing up and socializing in a culture in which the art and particularly the music has a low status, the children tending towards other fields with higher status rather than music even though they are talented, removes the opportunity to use the rights to music education as required. The negative effect of the socio-economic status and the gender must be assessed within this scope.

The matter can be clarified with the findings of a research: 67,6% of the class of 1968 of the boarding Music Department of Gazi Training Institute were male students and 32,4% were female students. Music teaching for these students – due to their low socioeconomic status – was generally a profession that raises the socio-economic status. After 1973, the year that boarding school system was revoked, the situation has become reversed almost completely: 65.22% of the students who entered this department were female students and 34,78% were male students. The source of students during the boarding period was the primary school teacher schools in which

mostly the village kids were being trained and the villagers used to send their sons to school. Afterwards, music teaching having a lower status has become the profession mostly being preferred by the girls. Accordingly, the section that does not pay attention to or fails to enter the Department have been deprived of the right to music education.

As a result of the developments in recent years, almost the entireties of the ones those belong to the lower socio-economic class have lost the opportunity to reach the higher education level and to use the right to music education.

According to a research carried out by the author the students having high points for entering the university are being accepted to the schools and fields having higher statuses even though they are talented. The music field has become a field that is preferred by the ones having lower points, therefore no students can be found for post graduate programs since the candidates fail to get the passing grade in foreign language exams and therefore the foreign language grades are not required for this field anymore.

As a natural result of this, the ones amongst doctors and engineers tend towards music; and very successful musicians may come out amongst them.

Furthermore, since the majority of the students are the children of the parents who had not received music education, they fail to find the incentive facilities and a socialization environment to improve their talents at home; and cannot use their rights to music education in an effective manner.

In recent years, as a result of the policies being practiced by the AKP governments, the number of parents providing their children with instrument education decreases gradually.

As a consequence, the children having musical talents in the lower socio-economic class cannot be noticed, and cannot reach up to the higher education even though they are noticed; and the talents from middle and high socio-economic class tend towards areas with higher statuses and therefore the talented children from both classes incur a loss with regard to music; they become deprived of the right to music education.

The social responsibility projects similar to El-Sistema being widespread gradually in recent years and reaching the children of the lower socio-economic class are promising.

Inadequacy of Access to the Music Performance Institutions by the Entire Society and the Right to Music Education

According to the Universal Declaration of Human Rights the right of the society to benefit from fine arts is one of the human rights. In this context, the insufficient number of music performance institutions in Turkey and the unbalanced distribution of the throughout Turkey and failure in providing the entire society with access to such institutions may be deemed as a deprivation of human rights. This can also be considered within a scope of right to music education extent. It is obvious that providing the children and youngsters with the access to such opportunities will make a considerable contribution to the music education.

The Effect of General Social, Political Environment and the Central Administration and the Right to Music Education

As explained above it is impossible for a student to utilize, improve his/her musical potential in the Vocational Religious Schools. Together with the AKP government that started in 2012, the number of the students of these schools up surged and the age of starting these schools

have been moved earlier. Withal, religion lessons have been taken into program before Vocational Religious School period and the opportunity of the using the right to music education from early ages has been actually restricted almost completely for the children. In Turkey, the small children are being reached commonly in earlier ages in respect of religious education rather than the music education that they need even more. Such situation and the negative approach of the political power against the art has been reflected throughout the society; the interest in music education schools, courses, lessons have been significantly decreased. The decrease continues. This situation is not correct in terms of education due to being directed in early ages when the interests and talents have not been set down yet, and due to the negativities in terms of the music education as expressed above.

Concerning this matter to a vast scale, the job opportunities as of the graduation from an educational institute effects the interest in such school and the right to music education significantly. In recent years, the rate of assignment to music teaching and music performance artistry has been decreased significantly. By the effect of the job opportunities, the interest of the talented students in the Music Teaching Programs is higher in terms of number and level of talent compared to the Music Departments of the Fine Arts Faculty.

Conclusions and Implications for Music Education

The Right to Music Education, (indirectly) is a human right that is accepted with all international documents. These documents have also been signed by Turkey and the right to education is available in the constitutions.

The music education field in Turkey is full of negativities with all constituents and extents in terms of the right to music education and the situation with regard to the right to music education is way behind the situation prescribed in the international documents.

This situation has negative consequences not only in terms of music but also of other fields.

Two major problems standing before the right to music education, are failing to provide the children with the music education in compliance with the musical talents starting from early ages and the extensivity of the vocational religious high schools blocking the right to music education completely by blocking the freedom of the child and not creating opportunities and their number being high.

In the Turkish system of education, the music education extent of the right to education may be covered by creating opportunities which allow all children, particularly the ones from lower socio-economic class to improve their talents in early ages and by downgrading the prejudice of the status of music being low.

The solution of the problem is popularizing the sustainable social responsibility projects in the present conditions and an education enlightening the people.

Furthermore, it would not be wrong to say that the globalization and the improving media, social media would not allow such negativities for too long, and they would create new solutions.

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**ORGANIZATIONAL CHARACTERISTICS, ASSERTIVENESS,
AND PERFORMANCE OF COLLEGE ADMINISTRATORS**

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Key Words: Organizational Characteristics, Assertiveness, Performance, College Administrators

BACKGROUND OF THE STUDY

Many people view organization as a group of people working together for a common goal or purpose. In this light, organization is considered as a mechanism that enables people to work effectively together (Pereda and Pereda, 2014). Man learned that more organized efforts could bring improvement in his way of life. Pereda and Pereda (2014) added that the man's social spheres became larger and the need for more complex organized effort became apparent since it is organization that motivated man to use his brain power to create new things. The refinement of the organizational system and the development of organized behaviour created more goods and services to satisfy the quest for modern living.

Organizational characteristics, on the other hand, are aspects of organizations that can be identified, usually in relation to performance. For example, **Modern Management Theory** suggests that organizations with an organizational climate focused on clear organizational objectives, a clarity of organizational structure with clear measurement systems enabling the monitoring of progress, and with a clear organizational commitment to goal achievement, would perform better than organizations without these characteristics.

The researcher chose this study for the fact that she wanted to have an eye-view of the characteristics of her school organization and the assertiveness of the school administrators. At the same time she wanted to know if these two factors could influence the administrators' performance.

To add, this study is expected to provide confirmation on the significance of a good performing administrator/manager in a successful organization. A school administrator can be an effective school leader through a blend of qualities and characteristics that yield an effective leader (Meador, 2015).

STATEMENT OF THE PROBLEM

This study aimed to determine the organizational characteristics, assertiveness, and performance of administrators of the NIPSC system for the SY 2015-2016.

Specifically, this study aimed to answer the following questions:

1. What are the organizational characteristics of the College administrators of the NIPSC System for SY 2015-2016 when taken as a whole and when classified as to sex, educational attainment, length of service, academic rank, administrative designations, and campuses?
2. What is the level of assertiveness of the College administrators of the NIPSC system for SY 2015-2016 when taken as a whole and when classified as to sex, educational attainment, length of service, academic rank, administrative designations, and campuses?
3. What is the level of performance of the College administrators of the NIPSC system for SY 2015-2016 when taken as a whole and when classified as to sex, educational attainment, length of service, academic rank, administrative designations, and campuses?
4. Are there significant differences on the organizational characteristics, level of assertiveness, and performance of the College administrators of the NIPSC system for SY 2015-2016 when classified as to sex, educational attainment, length of service, academic rank, administrative designations, and campuses?

5. Are there significant differences on the organizational characteristics, level of assertiveness, and performance of the College administrators of the NIPSC system for SY 2015-2016 between campuses?
6. Are there significant relationships on the organizational characteristics, level of assertiveness, and performance of the College administrators of the NIPSC system for SY 2015-2016?
7. What are the significant predictors of the performance of the NIPSC administrators of the NIPSC System for SY 2015-2016?

METHODOLOGY

Research Design

Descriptive design was used in this study to describe characteristics of a population or phenomenon being studied. It does not answer questions about how/when/why the characteristics occurred. Rather it addresses the "what" question (What are the characteristics of the population or situation being studied?) (wikipedia.org - August 2, 2012, in Besonia, 2015).

Research cannot describe what caused a situation. Thus, descriptive research cannot be used as the basis of a causal relationship, where one variable affects another. In other words, descriptive research can be said to have a low requirement for internal validity. In this study, descriptive design was used to describe the organizational characteristics, assertiveness, and performance of the College administrators of the NIPSC System for SY 2015-2016.

Respondents

The respondents of this study were the 88 College administrators of the NIPSC system for SY 2015-2016 classified as to Sex (Male; Female), Educational Attainment (Ph.D./Ed. D.; Master's Degree with doctoral units; and Master's Degree) Length of Service in the NIPSC System (Short – below 20 years; Long – 20 years and above), Academic Rank (Professor; Associate Professor; Assistant Professor; and Instructor), Administrative Designation (Vice President; Dean; Director; Program Chairperson; College Administrator, Principal) and NIPSC Campus (Estancia; Batad; Sara; Concepcion; Lemery; Ajuy; and Barotac Viejo). Table 1 shows the distribution of the respondents.

Table 1
Distribution of Respondents

Category	f	%
Entire Group	88	100
Sex		
Male	35	39.8
Female	53	60.2
Educational Attainment		
Ph.D./Ed. D.	31	35.2
Master's Degree w/ Doctoral units	17	19.3
Master's Degree	40	45.5
Length of Service		

Short – below 20 years	29	33
Long – 20 years and above	59	67
Academic Rank		
Professor	5	5.7
Associate Professor	33	37.5
Assistant Professor	32	36.4
Instructor	18	20.5
Administrative Designation		
Vice President	4	4.5
Director	21	23.9
College Administrator	6	6.8
Dean	6	6.8
Program Chairperson	51	58
NIPSC Campus		
Estancia	30	34.1
Sara	10	11.4
Concepcion	10	11.4
Batad	11	12.5
Lemery	9	10.2
Ajuy	11	12.5
Barotac Viejo	7	8

Locale of the Study

This study was conducted at the different campuses of the NIPSC System in the Fifth District of Iloilo located in the municipalities of Estancia, Batad, Sara, Lemery, Concepcion, Ajuy, and Barotac Viejo.

The Northern Iloilo Polytechnic State College was first known as the Western Visayas branch of the Philippine Institute of Fisheries Technology (PIFT). It officially opened on July 2, 1956 and was administered by the Director of Fisheries through the Superintendent of PIFT. On January 12, 1957, it was transferred to the Department of education with six other secondary schools of fisheries existing that time. With the creation of the Bureau of Vocational Education in 1963, all agricultural, fishery, and trade-technical schools were transferred from the Bureau of Public Schools to the Bureau of Vocational Education and it included the school. On June 19, 1965, Republic Act No. 4349 was enacted. It provided the conversion of the school into a college, otherwise known as the Western Visayas College of Fisheries (WVCF). Eighteen years after, on June 10, 1983, the WVCF was converted into a polytechnic state college by virtue of Batas Pambansa Bilang 500. It integrated the Estancia National High School and became the Northern Iloilo Polytechnic State College or NIPSC (NIPSC research and Extension Journal, July-September 2014, Vol. 1, No. 1).

Today, NIPSC has seven campuses located in Ajuy, Barotac Viejo, Batad, Concepcion, Lemery, Sara, and the main campus in the municipality of Estancia.

Research Instruments

The study utilized the two published American model instruments – Likert and Likert's Organizational Characteristics Profile (1994, in Subong, 1998) and DuBrin's

Assertiveness Test (1985, in Subong, 1998) – UPLB’s Rating Scale for Higher Education Administrators (Ables, 1996 in Subong, 1998). These research instruments were accompanied with a brief information sheet to gather data on the administrators’ personal and non-personal data.

The two American-made-instruments were trial administered among the selected secondary school principals in the Province of Iloilo (Subong, 1998) for the purpose of finding out their suitability in the Philippine settings. The construct validity for the Organizational Characteristics profile instrument came up with six factors corresponding to the six aspects of organizational characteristics. The items in the instruments obtained factor loads ranging from 0.70 to 0.96. The instruments proved to be reliable as indicated by the resulting Chronbach Alpha of 0.8436 indicating high reliability (Fraenkel, 1994 in Subong, 1998). On the other hand, the Assertiveness Test instrument obtained an alpha of 0.7174 which indicated high reliability.

Organizational Characteristics Profile. To determine the administrators’ organizational characteristics profile, this research utilized the Likert and Likert’s questionnaire (1994, in Subong, 1998). The instrument has six components corresponding to the six organizational characteristics – leadership processes, goal setting processes, motivational forces, communication processes, goal setting processes, control processes, and decision-making processes, all of which were linked to Likert’s Four Systems of Management.

System 1 - (Exploitative-Authoritative). Management is described as “exploitative – authoritative.” System 1 managers are highly autocratic, have little trust in the subordinates, motivate people through fear and punishment, give occasional rewards, engage in downward communication, and limit decision making to the top.

System 2 – (Benevolent – Authoritative). Management is called “benevolent-authoritative”. System 2 managers have patronizing confidence and trust in the subordinates, motivate with rewards, inculcate some fear and punishment, permit some upward communication, solicit some ideas and opinions from subordinates, and allow some delegation of decision making but with close policy control.

System 3 – (Consultative). Management is referred to as “consultative”. System 3 managers have substantial but not complete confidence and trust in the subordinates, usually try to make use of subordinates’ ideas and opinions, use rewards for motivation with occasional punishment and some participation, engage in communication flow both down and up, make broad policy and general decisions at the top while allowing specific decisions to be made at lower levels, and act consultatively in other ways.

System 4 – (Participative). Management is referred to as “participative-group”. System 4 managers have complete trust and confidence in the subordinates in all matters and always get ideas and opinions from subordinates and constructively use them. They also give economic rewards on the basis of group participation and involvement in such areas as setting goals and appraising progress toward goals. They engage in much communication, down and up with peers, encourage decision making throughout the organization, and operate among themselves and with their subordinates as a group. Each item in the questionnaire involves four choices from which the respondents could choose according to their preference. Response 1 (System 1) is given a weight of 1; response 2 (System 2) is given a weight of 2; response 3 is given a weight of 3 and; response 4 (System 4) is given a weight of 4. To determine the organizational characteristics profile of the NIPSC System, the responses on the four systems based on the six aspects of leadership behaviour and organizational culture, the means and standard deviations were determined and the coordinates between system of

management and the items for leadership behaviour and organizational culture were be plotted.

Assertiveness Test. To find out the level of the administrators' assertiveness, this study utilized the test developed by Dubrin (1985 in Subong, 1998). This contained 30 items and required the respondent to respond to each item with "Mostly True" or "Mostly False".

To score the test, the answer that agrees to the scoring key was counted as correct.

Rating Scale for College Administrators. To determine the College administrators' performance, UPLB's rating Scale for Higher Education Administrators (Ables, 1996 in Subong, 1998) was used. The instrument consisted of six parts: (1) planning and organizing, (2) communicating/leading, (3) decision-making, (4) evaluating, (5) improving the unit and the institution, and (6) effectiveness of an administrator. The instrument required the respondents to rate themselves as "Outstanding", "Very Satisfactory", "Fair", "Needs Improvement", and "Very Unsatisfactory".

Data Gathering Procedure

The researcher asked permission from the College President and to the Dean of the NIPSC of the School of Education to conduct the study. After permission was granted, she personally handed in the letters to the respective Campus Administrators together with the questionnaires to the identified respondents on September and October 2015. After which, the data gathered were tallied, computer-processed, tabulated, analyzed, and interpreted.

Statistical Data Analysis

The data gathered were subjected to computer-processed statistics (SPSS). The descriptive statistics used were mean and standard deviation. The inferential statistical tools were the Mann-Whitney U-Test, Kruskal-Wallis Analysis of Variance, Spearman's Correlation, and Logistic Analysis.

Arithmetic Means was used to describe the respondents' performance level, assertiveness, and the organizational characteristics profile of the NIPSC Campuses concerned.

Standard Deviations were used to determine the heterogeneity or homogeneity of the College administrators in terms of performance and assertiveness.

Mann-Whitney U-Test was used to determine the significance of the differences in between two compared groups of the College administrators for independent sample such as sex and length of service.

Kruskal-Wallis Analysis of Variance was used to determine the significance of the differences among three or more compared groups of the College administrators such as educational attainment, academic ranks, administrative designations, and campus.

Spearman's Correlation was used to ascertain the significance of the relationships among the variables such as organizational characteristics, assertiveness, and performance of the College administrators.

Logistic Multiple Regression Analysis was used to identify which among the variables were found to be significant predictors of the College administrators' performance. From the results provided, the path analysis was used in formulating a causal model of the College administrators' performance as predicted by organizational characteristics and assertiveness. The procedure used a series of regression analyses to determine the path coefficients as well as the relative importance of the various direct and indirect paths between a set of background factors and each of the assertiveness and performance. Path analysis was

also used to explain the causal mechanism between the dependent and the independent variables and evaluate how well the model fit the set of data.

FINDINGS

This present study presents the following findings on Organizational Characteristics, Assertiveness, and Performance of the College administrators:

Organizational Characteristics

On **Leadership**, the College administrators believed there was a **substantial amount** of confidence and trust shown in the subordinates in their schools; convinced that the subordinates are **very free** to talk to their superiors about their job; believed that the subordinates' ideas were **often** sought and used constructively, and employed System 3 (Consultative Approach) Management Style.

As regards to **Motivation**, the College administrators perceived that the responsibility for achieving organizational goals was **fairly** felt in their schools; thought that a **moderate amount** of cooperative teamwork existed in schools; and tended to employ a System 3 (Consultative Approach) of Management Style.

As to **Communication**, the College administrators felt there was a **down and up** direction of information flow; perceived the people in the schools to have accepted downward communication with a caution mind; thought that the superiors in their schools know the problem faced by their subordinates **quite well**; and were generally System 3 (Consultative) in Management Style in the area of Communication, although at times, they shifted to System 4 (Participative) of Management Style.

With regards to **Decisions**, the College administrators believed there is a **broad policy at the top**, but was accompanied with more delegation; the subordinates were also generally consulted about decisions related to their work; the administrators felt the decision making process in their schools has done **some contribution** to motivation; and employed the System 3 (Consultative) of Management Styles.

Regarding **Goals**, original goals, in the schools were established after discussion **sometimes by orders**; there was also some covert resistance to the goals at times; and the administrators employed System 3 (Consultative Approach) of Management Style.

As to **Control**, the administrators believed there was a moderate delegation to lower levels in terms of review and control functions; sometimes, informal organizations in the schools manifest resistance to the formal organization; cost, productivity, and other control data were employed as means of reward and self- guidance; and System 3 (Consultative Approach) appeared to be the administrators' Management Style.

The standard deviations obtained for the different variables indicated the narrow dispersions of the means for each variable, further revealing the homogeneity of the administrators in terms of their perception about their organizational characteristics.

The Organizational Characteristics and the Management Styles employed by the College administrators in their schools were reflected by the school's organizational cultures. Both administrators and subordinates were very free to talk about their jobs; there's a moderate amount of cooperative teamwork, downward communications accepted with a cautious mind; decision making process has some contribution to the motivational aspects of the subordinates; after discussion, the organizational goals are established by orders; and cost, productivity, and other control data used through rewards or through some self- guidance.

The administrators' organizational characteristics linked to their management styles were also determined and showed that the administrators' organizational characteristics in

terms of their management styles as a whole employed the System 3 (Consultative Approach) of Management Style. When classified as to their academic ranks, only administrators with Instructor as their academic ranks employed the System 4 (Participative Approach) of Management Style.

The rest of the categories of administrators used System 3 (Consultative Approach) of Management Style. The standard deviations further showed the homogeneity of the administrators in each category in relation to the Management Style.

Assertiveness

This study found out that the College administrators whether taken as an entire group or as to their gender, educational attainment, length of service, administrators in different campuses, the rest of their academic ranks, and administrative designations, rated themselves “assertive”. However, the administrators with Professor as their academic ranks, and those administrators with administrative designation as Vice Presidents exhibited an “aggressive” assertiveness level. Most of the administrators in the different categories were heterogeneous in terms of their assertiveness.

Moreover, the Kruskal-Wallis Test revealed no significant differences in the assertiveness of the College administrators when classified as to educational attainment, academic ranks, administrative designation, and campuses.

The null hypothesis that “there are no significant differences in the assertiveness of the College administrators when classified as to educational attainment, academic ranks, administrative designation, and campuses” was thus accepted. The result simply showed that the College administrators were all assertive.

Administrators’ performance

The College administrators, when taken as an entire group, manifested a ‘very satisfactory’ performance. When considered as to their gender, both male and female administrators’ performance was ‘very satisfactory’. When classified as to their educational attainment, College administrators with Ed.D./Ph.D. degrees and those with Masters’ degree with Doctoral units were also “very satisfactory”, but those College administrators with only Masters’ degree have an “outstanding” administrative performance.

Likewise, when classified as to their length of service, those College administrators who were 20 years and below in the service had exhibited a “very satisfactory” performance (but those administrators who were above 20 years in the service exhibited an “outstanding” performance).

Further, when classified as to their academic ranks, only Professors exhibited an “outstanding” performance; the rest were only on a “very satisfactory” performance. Also, when the College administrators were classified as to their administrative designations, only the Vice Presidents exhibited an “outstanding” performance.

Lastly, when classified as to the campuses, only NIPSC Concepcion Campus exhibited an “outstanding” performance. The rest of the College campuses exhibited a “very satisfactory” administrative/administrators’ performance.

Differences in the performance, assertiveness and performance of College administrators

When classified as to gender, the College administrators’ performance has no significant difference. The null hypothesis that “there is no significant difference in the College administrators’ performance when classified as to gender” was thus accepted.

Likewise, when classified as to their length of service, the College administrators' performance differed significantly. The null hypothesis that "there is no significant difference in the College administrators' performance when classified as to their length of service" was thus rejected. This simply showed that those College administrators who were above 20 years of service to the College had a significant difference in performance over those College administrators who served the College below 20 years.

To add, the results revealed no significant differences when the College administrators were classified as to educational attainment, academic ranks, and campuses. The null hypothesis that "there are no significant differences in the performance of the College administrators when classified as to educational attainment, academic ranks, and campuses" was thus accepted.

However, there was a significant difference in the performance when the College administrators were classified as to their administrative designation. The null hypothesis that "there is no significant difference in the administrators' performance when classified as to their administrative designation" was thus rejected.

On the other hand, no significant difference in the assertiveness level of the College administrators when classified as to sex, and as to length of service were also found out. The null hypothesis that "there is no significant difference in the administrators' assertiveness when the respondents were classified as to gender and length of service" was thus accepted. This means that both male and female administrators have the same level of assertiveness. The assertiveness level of the College administrators regardless of whether they were 20 years and below (short) or above 20 years of service in the institution, their assertiveness levels were also the same.

The results of the study also revealed no significant differences in the management styles of the College administrators when classified as to sex and as to length of service. The null hypothesis that there is no significant difference in the administrators' management styles when classified as to gender and as to length of service was accepted.

The mean difference in the College administrators' management styles showed **no significant difference** in the following as to campuses: Estancia and Sara, Estancia and Concepcion, Estancia and Batad, Estancia and Lemery, Estancia and Barotac Viejo, Sara and Concepcion, Sara and Batad, Sara and Lemery, Sara and Barotac Viejo, Concepcion and Batad, Concepcion and Lemery, Concepcion and Barotac Viejo, Batad and Lemery, Batad and Barotac Viejo, and Lemery and Barotac Viejo.

However, a significant difference in the management styles existed between Ajuy and the rest of the campuses: Sara, Estancia, Concepcion, Batad, Lemery, and Barotac Viejo.

It was also found that the only significant predictor of the College administrators' performance was the organizational characteristics of the different campuses as perceived by the administrators. This means that the impact contribution of the organizational characteristics to the administrators' performance was about 36.50% to the total variance of organizational characteristics to College administrators' performance.

Also, the predictor of the College administrators' performance as an organizational characteristics variable was the decision aspects of the leader.

The path analysis showed that the decisions aspect was the most important but decisions were based on goals or objectives of the programs to motivate subordinates. Leadership was also very important with no communication gap for its implementation to realize good performance of the College administrators.

CONCLUSIONS

It was found out in this study that the College administrators believed there is a broad policy at the top, but is accompanied with more delegation; the subordinates are also generally consulted about decisions related to their work; the administrators felt the decision making process in their schools has done some contribution to motivation; and employed the System 3 (Consultative) of Management Styles.

This study confirms that in the *System 3 – Consultative*, the responsibility is, indeed, spread widely through the organizational hierarchy. The superior has substantial but not complete confidence in subordinates. Some amount of discussion about job related things takes place between the superior and subordinates. There is a fair amount of teamwork, and communication takes place vertically and horizontally. The motivation is based on rewards and involvement in the job as emphasized in the Likert and Likert's Organizational Characteristics Profile (1994, in Subong, 1998).

All College administrators were found to be assertive. It is hereby concluded that NIPSCians are willing to undergo all challenges in the workplace and may consider them as good experiences for personal and professional improvement.

The result of this study also showed that among the variables in the organizational such as leadership, motivation, communication, decisions, goals, and control, decisions is the only predictor of the College administrators' performance.

The path analysis confirms that the decisions aspect is the most important but decisions are based on goals or objectives of the programs to motivate subordinates. Leadership is also very important with no communication gap for its implementation to realize good performance of the College administrators.

**PERSONAL CHARACTERISTICS AND MULTIPLE INTELLIGENCES OF
MATHEMATICS FACULTY ON EDUCATION PROGRAM
PRODUCTIVITY OF STATE UNIVERSITIES
IN REGION III**

**Ma. Leonora C. Sta. Ana
June 2015**

Introduction

Teachers have often faced the problem of how to bring about effective learning in the classroom. Effective learning in the classroom depends on the teacher's ability to uphold the interest that brought the students in the classroom (Yen, 2002), but in a class that comprise of forty or more students there are as much number of different individuals a teacher should deal with. How a student learns or acquires new skills and information has direct and significant impact on who the teacher is and how teachers teach the subject specifically, mathematics.

Each individual is born possessing his own intelligence but we bring to the classroom different sets of developed intelligences. All of us have the ability to trigger and utilize all of these intelligences but they may be developed within each one of us in various degrees. These intelligences that are brought to the learning environment determine how easy or difficult it is to share and learn information.

Learners preferentially take in and process information in different ways: by seeing and acting, reasoning logically and intuitively, analyzing and visualizing. Teaching methods also vary. Some instructors give lectures, others demonstrate or lead students to self discovery, some focus on principles and others on applications, some emphasize memory and others understanding.

Researchers have been exploring the extent of innumeracy among students via mathematics instructions. Teaching mathematics is a complex task. Many factors influence the

process of communicating mathematical skills, concepts, and principles successfully to students. Administrators are sometimes confused, instruction in one class may result to a good learning environment while the same method of instruction may result in a chaotic misunderstanding in another class. This possess great concern for teachers, for students achievement and program productivity is greatly affected.

Productivity is optimization of resources in order to produce the customers' or stakeholders' requirement at the needed time (Ledesma–Tan et al., 2001). It is ideally achieved through high performance and with a sense of personal satisfaction by the people doing the work. It suggests that faculty are valuable organizational resources and administrators should provide avenues for the attainment of the teachers' need to be productive. In an educational institution, productivity includes quality of teaching.

One of the biggest challenges in the administration is the design of our educational system in confusion between program productivity. Productivity is a set of tools. It is the ability to cause someone to learn. It has everything to do with the ability to reach students at that human level-to pass information from one to another and have it absorbed in a useful way. As with any art form, it also has a set of skills.

Still, everything in the field of productivity does have a place in education. There is no point at which that old definition of productivity gets maxed out when it is applied to everything in education which is not the act of teaching.

Research consistently finds that program productivity is the most important component of school's effect on student learning and that there is considerable heterogeneity in faculty's productivity within and across schools. The paramount role of faculty has led policy makers to focus on personnel policies governing selection, retention and compensation of faculty as a mechanism for enhancing educational quality.

At the heart of all faculty personnel, policy decisions is the issue of how to evaluate productivity. Traditionally, teacher hiring, retention and salary decisions have been based on teacher credentials such as certification status, educational attainment and experience. However, except for the few years of experience, research has failed to find a strong and consistent link between these measures and student outcomes.

Friedman (2012) finds that students taught by highly qualified teachers are more likely to have a desirable long-run outcomes, including greater educational attainment and higher earnings.

There are several factors that affect program productivity . There are studies showing that personal characteristics of faculty is a significant predictor of effective teaching. There is a consistent evidence that personal characteristics have an effect on the teaching efficacy (Yen, 2002). Program productivity may also be affected by the faculty's intelligences And these intelligences, like a garden is in need of constant and careful nurturing and also capable of growing more than just one variety of flowers. With multiple intelligences , it could contribute to making faculty as masters of themselves and their own identities, which will help them to be more productive.

Multiple intelligences is a philosophical paradigm which shall expand our notion of intelligence, thus breaks down the walls of ignorance, myth and self righteousness and in their place help build new bridges of new knowledge, new structures, new processes, and new ways of thinking and doing. It could help correct our notions about teaching and learning, thus help us acquire a holistic and creative understanding of the learning process, all redounding to making learning enjoyable and fulfilling.

Schools are one of the most important and relevant places where behavior and educational

success is shaped. Faculty must love their career in order for them to provide warm environment to the students. It starts with their personal characteristics that may influence their actions and attitudes towards their profession.

Being the vital component of the school system, faculty's are the live wires and prime movers. How faculty go about conducting their daily duties and responsibilities may be well determined by their personal characteristics and multiple intelligences.

The quality of faculty is indeed very important and significant factor in program productivity of all schools. Apart from being able to stimulate the work force to further improve their skills and abilities, the teaching profession in general, will be able to entice quality and committed aspirants to this profession, thus improving the productivity of the program.

There is a prevailing and pressing need of the students to have a competent professors and instructors. Their God given talents and gifts in teaching will not only be harnessed but they will be mightily used in preparing the students. There is a need today not only to know what level of multiple intelligences and personal characteristics do the faculty have in state universities in region III but also to determine its effect to the education program productivity.

It is in the context that the researcher thought and focused on making a study about the personal characteristics and multiple intelligences of mathematics faculty and its effect on the education program productivity. Since some of the mathematics faculty now especially the younger ones are not that ready to prepare the students in facing the changing needs and conditions of the educational community. This needs should be addressed. Educators should always be at the helm of improvement and development. Especially in Mathematics where in many of the students find difficulties in solving problems. There is a need to further enrich

faculty's teaching styles, and upgrade their competency. The credibility and performance are at stake.

One way of improving program productivity and quality of education is to determine first the personal characteristics and multiple intelligences of mathematics faculty for the administrators to have basis of whom to send to seminars/trainings and whom to hire during the start of the academic year.

Conducting this study would help faculty to realize the importance of understanding their personal characteristics and multiple intelligences on program productivity of state universities. This will also motivate faculty to further enhance the level of learning within the classroom. To the administrators, it will be of great importance if the programs of the universities will be productive in terms of results of board examination of students, performance rating of the faculty, accreditation status, instructional materials/books published, research and extension conducted, because this will ensure a high level of quality in higher education. And aside from the promise of overall quality educational opportunities, the institution can also provide students with many other benefits as well.

Statement of the Problem

The general problem of the study is: How may the personal characteristics and multiple intelligences of Mathematics faculty affects the education program productivity of state universities in region III?

Specifically, the study sought answers to the following questions:

1. How may the profile of the respondents be described in terms of:
 - 1.1 age;
 - 1.2 civil status;
 - 1.3 highest educational attainment;

- 1.4 teaching experience;
 - 1.5 positions held; and
 - 1.6 seminars/in-service trainings attended?
2. How may the multiple intelligences of the faculty be described in terms of:
 - 2.1 verbal/linguistic intelligence;
 - 2.2 logical/mathematical intelligence;
 - 2.3 musical/rhythmic intelligence;
 - 2.4 visual/spatial intelligence;
 - 2.5 bodily/kinesthetic intelligence;
 - 2.6 intrapersonal intelligence;
 - 2.7 interpersonal intelligence; and
 - 2.8 naturalist intelligence?
3. What is the level of program productivity as measured by the results of
 - 3.1 board examination of graduates;
 - 3.2 performance rating of the faculty;
 - 3.3 accreditation status of the program;
 - 3.4 instructional materials/ books published;
 - 3.5 research conducted; and
 - 3.6 extension services?
4. Which of the following personal characteristics and multiple intelligences factors singly or in combination may affect the education program productivity?
5. What are the policy implications of the findings of the study in the teaching – learning process?

Significance of the study

The changing needs and conditions of the educational community require that professionals and educators should always be at the helm of improvement and development. Continuous learning needs to be acquired so that everyone in the academe benefits from it. The findings of this research will prove useful and beneficial to the following:

Administrators. This will serve as a database for the school and its administrators in further improving their educational programs to better suit the student's needs. Appropriate trainings for teachers may be determined and implemented on the basis of the study's findings to improve teacher's personal characteristics and intelligences.

Faculty. It will lead teachers in better assessment of their intelligences, who they are and what they need in able to perform effectively in the classroom. The utilization of this study will also result in the awareness of their strength and weaknesses. In doing so acquisition of quality of education by the students would likely take place.

Graduate Students. Graduate students majoring in Mathematics may use the result of this study as a basis of conducting other studies on faculty's instructional productivity.

Students. It will help them gain better understanding of their teachers on how they teach. The students will benefit from this study for the administrators, parents and teachers may use this in improving the teaching and learning process.

Future Researchers. The study will serve as a basis for future researches on faculty's instructional productivity.

Conceptual framework

The variable of primary interest to this study is the dependent variable which is the instructional productivity of the mathematics faculty in state universities in region III which include the result of board examination of the students, accreditation status of the program,

performance rating of the mathematics faculty, instructional materials/ books published, research conducted, and extension services by mathematics faculty.

The main independent variable used in an attempt to explain the instructional productivity of faculty is the personal characteristics which were described as age, civil status, highest educational attainment, positions held and seminars/trainings attended by the mathematics faculty. Secondary independent variable to be used is the multiple intelligences of the mathematics faculty according to Gardner.

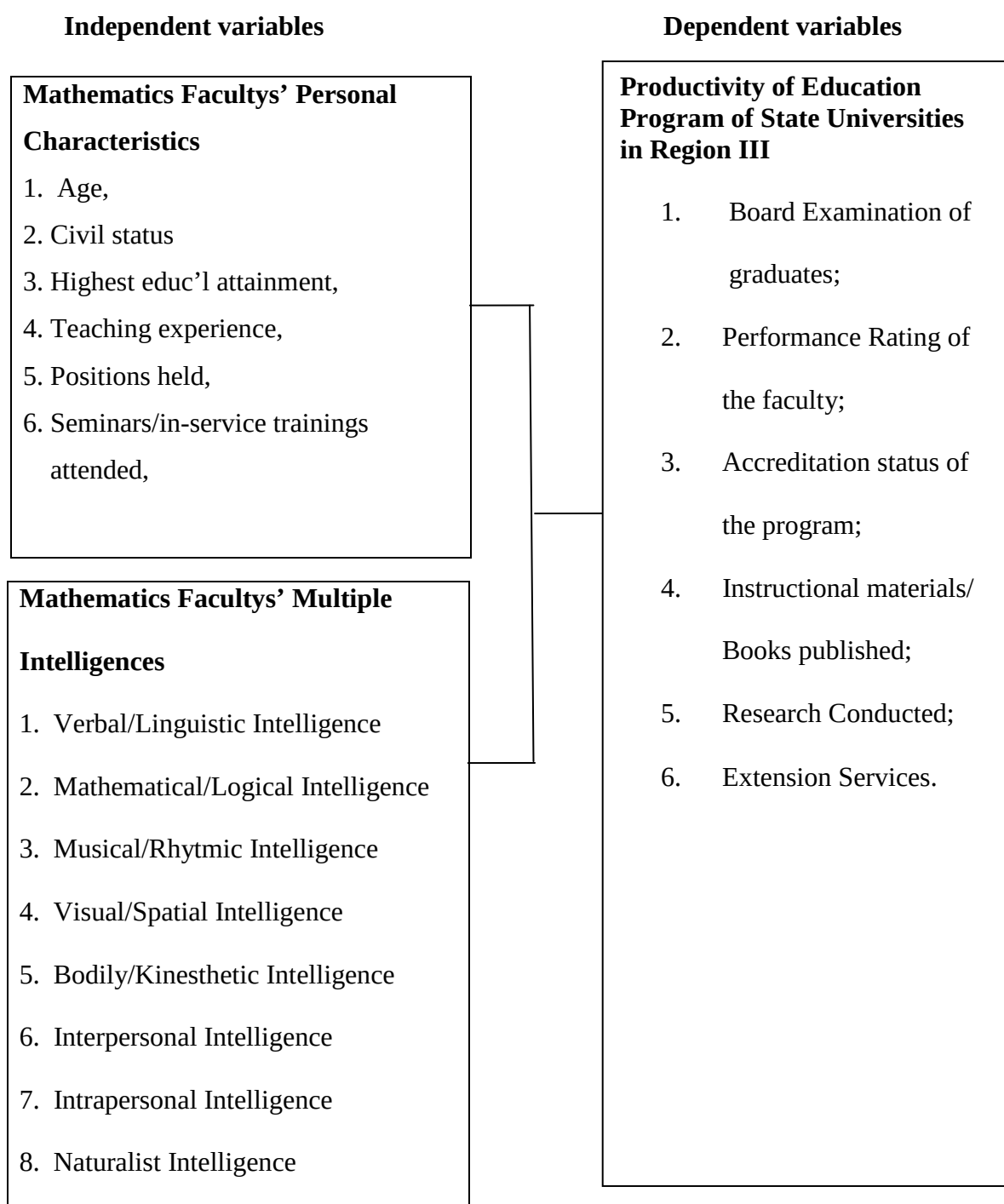


Figure 1. The Conceptual Paradigm of the Study

The first frame shows that the independent variable hypothesized to have a significant effect on the program productivity of the Mathematics Faculty. These are the intelligences identified as Verbal/ Linguistic Intelligence, Logical/Mathematical Intelligence, Visual/Spatial Intelligence, Musical/Rhythmic Intelligence, Bodily/ Kinesthetic Intelligence, Intrapersonal Intelligence, Interpersonal Intelligence, and Naturalist Intelligence. →

The other set of independent variables are the personal characteristics identified as age, sex, civil status, highest educational attainment, teaching experience, positions held, seminars/in-service trainings attended, instructional materials/books published, researches conducted, and extension services undertaken.

And the dependent variable is the program productivity of mathematics faculty which include the result of board examination of the students, performance rating, instructional materials/books published, research conducted and extension services of the faculty and the accreditation status of the program.

Methods and Techniques of the Study

The study adopted the mixed methods of research. It is a mixed method because it is a combination of qualitative and quantitative methods of research. According to McLeod as cited by Raymundo (2013) quantitative research gathered data in numerical form which can be put into categories or in rank order, or measured in units of measurement. This type of data can be used to construct graphs and tables of raw data. Moreover, Lampa (2013) defined quantitative research as research method with reference to a systematic empirical investigation of social phenomenon via statistical, mathematical or computational technique.

Gall, and Borg (2007) as cited by Tolentino (2015) defined quantitative method as inquiry that is grounded in the assumption that features of the social environment constitute an objective reality that is relatively constant across time and settings. The dominant methodology is to describe and explain features of this reality by collecting numerical data on observable behaviours of sample and subjecting these data to statistical analysis

Shank (2005) defined qualitative research as “ a form of systematic empirical inquiry into meaning”. By systematic he means “planned, ordered and public”, following rules agreed upon by members of the qualitative research community. By empirical, he means that this type of inquiry is grounded in the world of experience.

Denzin and Lincoln (2000) claim that qualitative research involves an interpretive and naturalistic approach. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them.

Specifically, all the faculty who have taught mathematics during the academic year 2012-2013 to present and who served the university for at least one year are the respondents of the study. The respondents were one hundred fifty-two (152) mathematics faculty. The method of data collection that was employed is the questionnaire and interview method. A total of three questionnaires were used for the study. Personal characteristics which include the age, civil status, highest educational attainment, teaching experience, positions held and seminars/trainings attended within their field of specialization. The multiple intelligences inventory by Gardner which comprised of 10 items for Verbal/Linguistic intelligence, 10 items for Logical/mathematical intelligence, 10 items for Musical/Rhythmic intelligence, 10 items for Visual/Rhythmic intelligence, 10 items for Bodily/Kinesthetic intelligence, 10 items for Intrapersonal intelligence, 10 items for Interpersonal intelligence and 10 items for Naturalist intelligence. And the program productivity which included the board examination of the students, performance rating, instructional materials/books published, research conducted and extension services of the faculty and accreditation status of the program and a guide questions for the interview.

Population and Sample of the Study

The study focused on the personal characteristics and multiple intelligences of mathematics faculty in state universities in Region III. To delimit the scope of this study, the respondents were the permanent and contractual/part timer mathematics faculty of state universities in region III who have taught mathematics in the universities for at least one

academic year. Mathematics faculty who came from the service college, from the mathematics department and from the engineering department.

The present study covered the academic year 2012-2013 to present, specifically in gathering data on results of board examinations of graduates, performance rating , instructional materials/book published, research conducted, and extension services of the mathematics faculty.

The subject of the study focused only in the seven state universities from the 13 State universities and colleges in region III . The respondents faculty and administrators was drawn from the seven universities namely Bulacan State University (BSU), Don Honorio Ventura Technological State University (DHVTSU), Bataan Peninsula State University (BPSU), Ramon Magsaysay Technological University (RMTU), Tarlac State University (TSU), Central Luzon State University (CLSU), and Nueva Ecija University of Science and Technology (NEUST) .

As shown in table 1, a total of one hundred fifty-two faculty (152) composed the respondents for this study. As to faculty population, among the universities, Bulacan State university had the most number of population (46), followed by Nueva Ecija University of Science and Technology (24), Don Honorio Ventura Technological State University (22), Bataan Peninsula State University (20), Tarlac State University (16), Ramon Magsaysay Technological University and Central Luzon State University (12) shared the lowest number of respondents faculty .

Purposive sampling was employed in choosing the subject of the study. This type of sampling is used if you want to access a particular subset of people. When taking the sample, reject people who do not fit a particular profile, subjects are selected because of some characteristic. Purposive sampling starts with a purpose in mind and the sample is thus selected to include people of interest and exclude who do not suit the purpose (Patton: 1990).

In this kind of sampling, all respondents faculty were categorized as those who have taught mathematics in the academic year 2012-2013 to present, those who have served the university in at least one year, those who are occupying plantilla positions and contractual/part timers, and those who have taught in BSSED/BEED mathematics students. Faculty who belong from the service colleges and other institutes or colleges also fit the characteristics of a respondent.

Research Instruments

To meet the objectives of this study, three sets of survey questionnaires were utilized. The study obtained background information about the personal characteristics of the faculty respondents such as age, civil status, highest educational attainment, teaching experience, positions held and seminars/trainings attended. The multiple intelligences inventory by Gardner (1999) was administered like Verbal/Linguistic intelligence, Logical/mathematical intelligence, Musical/Rhythmic intelligence, Visual/Rhythmic intelligence, Bodily/Kinesthetic intelligence, Intrapersonal intelligence, Interpersonal intelligence and Naturalist intelligence to assess the level of their intelligences.. And to evaluate the level of the program productivity the researcher included the board examination of the students, performance rating, instructional materials/books published, research conducted and extension services of the faculty and accreditation status of the program and a guide questions for the interview.

Copies of the questionnaires were attached as appendices page in this paper. The personal characteristics of the respondents faculty were tackled on the first questionnaire, followed by the multiple intelligences, then the program productivity and the last were the guide questions used for interview together with some faculty respondents to validate the data gathered. Each faculty respondents were given a copy of the questionnaire for them to accomplish and for triangulation of the purpose, an interview session were arranged with selected respondents.

The results of the evaluation were collected from each universities . The investigation relied on validated personal characteristics and program productivity questionnaire, multiple intelligences inventory by Gardner and the guide questions for the interview.

Data Gathering Procedure

The researcher made a formal letter of request addressed to the office of the President of each university where the study was conducted . One hundred and fifty (150) mathematics faculty from these state universities answered the personal characteristics, the multiple intelligences inventory test and the program productivity questionnaires. Faculty handling mathematics subjects during the academic year 2012-2013 to present answered the questionnaires likewise, selected faculty and deans were subjected to an interview.

Data Processing and Statistical Treatment

The data and information gathered were processed and treated using the following statistics:

The personal characteristics of the faculty, multiple intelligences and program productivity were described using the arithmetic mean.

The multiple intelligences inventory were rated based on the following scale:

Scale	Verbal Interpretation
4	A Lot Like Me
3	Like Me
2	A Little Like Me
1	Very Little Like Me

The multiple intelligences of the faculty were described as:

Scale	Verbal Interpretation
3.50 – 4.00	Above Average
2.50 – 3.49	Average

1.50 – 2.49	Below Average
1.00 – 1.49	Low

The performance rating of the faculty were described as :

Scale	Interpretation
96 - 100	Outstanding
91 - 95	Very Satisfactory
86 - 90	Satisfactory
85	Poor

Multiple Regression Analysis was used to determine if the personal characteristics and

multiple intelligences of the faculty are significant predictors of the education program productivity.

The Statistical Package for Social Sciences (SPSS) was used to analyze the data.

Significant Findings

The following are the major findings of the study

1. Personal Characteristics of the Faculty Respondents.

The average age of mathematics faculty in state universities in region III belongs to the middle adulthood stage, they are predominantly married. Majority of the respondents are Master's degree holder, some have finished their doctoral degree; majority have not been designated to any supervisory or administrative positions. The average length of service of the faculty respondents is about twelve years and more than one-half of the seminars/trainings they have attended were conducted locally and the least number is international.

2. Multiple Intelligences of the Faculty Respondents.

Seven of the intelligences have a descriptive rating of average like visual/spatial, bodily/kinesthetic, musical/rhythmic, interpersonal, intrapersonal and naturalist and only one has an above average rating which is logical/mathematical intelligence.

3. The Level of Program Productivity.

The average passing percentage of the licensure examination for teachers for the last three academic years in all the state universities in region III was noted as above the national passing percentage. Majority of the mathematics faculty respondents had a performance rating of very satisfactory. On the level of accreditation of secondary and elementary education program, Bulacan State University had the highest level with level IV revisit. All others were awarded level III in BSED and level II in BEED program except Ramon Magsaysay State University which is level I only in the BEED programs.

On instructional materials/books published for the last three years only one faculty was able to publish his work internationally, and almost one-third have published in all levels. More than one-fourth of the total respondents had research conducted and published locally and only few was published in refereed journal and presented in international fora. Nearly one-half of the respondents have extension services rendered and conducted locally and few in the regional level.

4. Effects of Personal Characteristics on the Education Program Productivity (BSED & BEED)

Among the six personal characteristics of the faculty respondents, highest educational attainment and the positions held have high significant effect on the result of board examination of BSED graduates; position held is the only characteristic which has significant effect on the result of board examination of BEEd graduates. The age, civil status, and

teaching experience of the mathematics faculty have high significant effect on their performance rating. Out of the six personal characteristics of the faculty respondents, only the highest educational attainment highly affects the accreditation status of the BSEd program and civil status and positions held have high significant effect on the accreditation status of the BEEd program. The only personal characteristic which has a significant effect on the mathematics faculty's instructional materials/books published were seminars and trainings attended. As to the personal characteristics of the faculty respondents to the number of research conducted, the highest educational attainment is the only characteristic that has a significant effect. And among the six personal characteristics, highest educational attainment has high significant effect, and positions held and seminars and training attended have significant effect on the number of extension services rendered by the faculty respondents.

Effects of Multiple Intelligences on the Education Program Productivity (BSED &BEED)

Among the eight intelligences only intrapersonal intelligence significantly affect the result of the board examination of BSEd graduates, and on BEED verbal/linguistic, logical/mathematical, and musical/rhythmic intelligences have a significant effect, while intrapersonal, highly affects the result of board examination of BEED graduates. As to the performance rating of mathematics faculty , there is no significant effect among the intelligences presented by Gardner, the same with the accreditation status of the BSED program. But interpersonal intelligence significantly affects the accreditation program of the BEED program. There is only one among the eight intelligences that significantly affects the instructional materials/books published by the mathematics faculty respondents, and that is interpersonal intelligence. Verbal/linguistic intelligence affects the number of research conducted by the mathematics faculty . And of the eight variables, two registered to have an

effect to the number of extension services rendered by the faculty respondents, the visual/spatial and bodily/kinesthetic intelligences.

5. The implications of the findings of the study are as follows.

Faculty's professional growth should be promoted through equipping them with academic needs like sufficient and appropriate seminars and trainings for effective delivery of instruction. Mathematics faculty to be highly competent need to take or finished their doctoral studies. Mathematics faculty respondents should be encourage to develop more instructional materials that will help their students to easily understand the lesson so that the teaching and learning process will be more successful. And faculty respondents should have more involvement in research and extension activities.

Conclusions

Based on the above findings, the following conclusions were drawn:

1. Personal characteristics of the mathematics faculty respondents like age, civil status, highest educational attainment, teaching experience, positions held, and seminars/trainings attended significantly affect the program productivity of the education program in terms of students performance in board examination, performance rating of the faculty, accreditation status of the program, instructional materials/books published, research conducted, and extension services of the faculty respondents.
2. Multiple Intelligences of Mathematics faculty respondents like verbal/linguistic, logical/ mathematical, visual/spatial, musical/rhythmic, interpersonal, intrapersonal, bodily/kinesthetic, and naturalist intelligences affect the program productivity of the education program in terms of graduates performance in board examination, instructional materials/books published, accreditation status of the BEED program, research conducted,

and extension services of the faculty, but not on the performance rating of the faculty respondents and accreditation status of the BSED program.

Recommendations

1. Administrators of state universities in Region III should encouraged their faculty to pursue post graduate education especially those who have earned their master's degree to finish their doctoral degree. As the findings revealed that faculty who have given administrative positions are those who have already earned their doctorate degree. This will also help their faculty to be equipped with enriched professional qualifications needed in facilitating the learning environment and make the program more productive.

2. Continuous education through attendance to seminars and trainings not only in line with their field of specialization but also in other fields should be encourage ,that will help the faculty to be a holistic one This will also help them to abreast with skills, knowledge, and attitudes that define their competency.

3. Administrators should encouraged faculty not to be contented on a very satisfactory rating, preparation of documents that would support their outstanding performance should not be a hindrance as much as possible.

4. Encourage faculty to develop and produce more instructional materials and books and have it |used not only in the region but if possible in the national level.

5. It is recommended that additional benefits and a more flexible time be given to those faculty who will be involved in research activities. Likewise, a clear policy may be developed so that more faculty will be encouraged to conduct research.

6. Encourage faculty to present their research in international fora and have it published in refereed journal if possible.

7. Applicants to mathematics instructor position may be given a multiple intelligence inventory test to know if they are really capable of teaching the subject.

8. A similar study is recommended in a different locale and with different respondents, as:

8.1 Personal Characteristics and Multiple Intelligences of Secondary School Teachers in 8.2 Selected Secondary Schools in Bulacan.

8.3 Multiple Intelligences of Elementary School Teachers and Students in Selected Schools in District I and II, Province of Bulacan.

8.4 Multiple Intelligences and Learning Styles of Fourth Year High School Students in Selected Secondary Schools in District III.

8.5 Leadership Styles and Multiple Intelligences of Administrators in State Universities and Colleges in Region III.

Planning to enhance 21st Century learning experiences for second language learners in a United Arab Emirate (UAE) classroom

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Abstract

In recent years, United Arab Emirates (UAE) schools have started the incorporation of innovation practices in classrooms. To this end, schools and educators are continuously challenged to work on instructional planning in order to enhance and ensure that students have rich and innovative learning experiences. This paper reports on a qualitative action research study, which examined the observations and effects of innovative lessons, adapted particularly for Emirati students who are second language learners. The examination was informed by the Framework of 21st Century learning with particular focus on the 4Cs – critical thinking, communication, collaboration and creativity. Data was collected in the form of mixed methods, inclusive of lesson plans, interviews, reflection sheets, plenary notes and teacher evaluation records. The conclusions highlighted the significance of adapted planning, particularly for second language learners, as this could enhance student learning experiences during innovation lessons. Furthermore, it became evident that lesson planning around the 4Cs provides a clearer structure for delivery and evaluation. Additional results suggested that students were highly motivated when innovation lessons were themed around their culture and heritage. Recommendations for continuous improvements were made in light of the 21st Century learning framework.

Key words: innovation, lesson planning, culture, heritage, critical thinking, communication, collaboration, creativity, second language learners

Introduction

Education systems designed in the last century no longer meet the needs of students or our societies, according to Looi and Teh (2015). The authors maintain that schools must be transformed to engage today's young people and change learning settings, in order to develop students' skills for the global and competitive society.

With reference to the above, a truly innovative learning system, would focus on high quality and high equity for every student, regardless of their starting point (Sabelli & Harris 2015). This might enable every student to cross the stage with dignity, purpose, options and develop skills at their appropriate level. In addition, students might leave schools and other learning settings more curious than when they arrived. Their experiences will have created a passion for learning and a curiosity that will last them a lifetime (Law, Kamylyis & Punie 2015). Finally, schools will develop active and engaged citizens who demonstrate a strong sense of personal and social responsibility; thinking capabilities; reasoning skills and the ability to think in a creative manner. Dignity, purpose, options, curiosity, creativity, and social responsibility for every student, are trademarks of a transformed school, offering effective innovation programs (Looi & Teh 2015).

In 2012 the United Arab Emirates (UAE) announced their national strategy for innovation and this government initiative required all organizations and educational institutions to support and realize this venture. Schools were therefore challenged to incorporate innovation programs into their curriculums and promote innovation within their learning communities. In light of this, the mandate for schools was further realised when it became a key component of the UAE school inspection framework. Schools consequently, would therefore be inspected based upon students' personal and social development and whether they were able to exhibit innovation skills. Thus, the primary aim was to evaluate how schools developed and enhanced the innovation skills and capabilities of their students (Al Khouri 2012).

With reference to the above, Christensen, Johnson and Horn (2008) advocates that educators across the world are being challenged with ideas and desirable models of education reform. One of which is, the call for innovation, where schools want to offer innovation programs, although teachers are not fully aware of the expectations and do not have the knowledge and expertise to deliver these programs. (Christensen, Johnson and Horn 2008). It also comes as no surprise that teachers in UAE schools are challenged to incorporate innovation practice into their classrooms due to its newness, as mentioned by Ali (2012).

Teacher planning and pedagogy related to innovation lessons in UAE private schools is new, and there is insufficient literature pertaining to this topic. In light of this, this research study investigated the experiences of teachers, in order to gain a deeper understanding of what it means to plan and teach innovation lessons, particularly for Emirati students who are second language learners.

The UAE context

The UAE is located at the shoreline of the Persian Gulf. It comprises of seven Sheikhdoms (emirates): Abu Dhabi, Dubai, Fujarah, Ajman, Ras Al Khaimah, Sharjah, and Umm Al-Qaiwain (Saudelli 2012; Schoepp 2011). The UAE possesses about 4% of the world's natural gas and about 10% of the world's oil reserves. The capital city, Abu Dhabi, may be the richest city in the world, producing 90 to 95% of the country's petrochemical products. Due to its oil wealth in particular, the UAE has experienced exponential growth but lacks the human resources to facilitate progress. The

country therefore imports foreign labour and expertise; consequently, more than 91% of the total workforce is comprised of expatriates (Bock & Schulze 2015).

Lately, the country is in the process of moving from an oil-based economy to a knowledge/services oriented economy. This requires major investments to develop the necessary infrastructure and to attract businesses from the region and beyond. A key priority for the leaders is having skilled and professional workers to support the growing economy (Becker 2009).

Fundamental to their strategy, is the aim to empower the nationals in becoming skilled in order to compete in an international arena. The national innovation strategy outlines a seven-year plan and it aims to brand the UAE as one of the most innovative nations in the world. Schools and other educational institutions have been challenged to drive this initiative, and equip students with skills such as critical thinking, problem solving, creativity, perseverance and adaptability.

With reference to the above, this study focuses specifically on how teachers deliver innovation lessons to Emirati students with the aim to develop the above mentioned skills. The framework for 21st Century learning will be used as the conceptual frame for this study. This philosophy is explained in the next section.

Conceptual framework

The framework for 21st Century learning specifies the skills, knowledge and expertise that is essential for students to master, in order to become successful individuals in a competitive society. These components are a blend of content knowledge, specific skills, expertise and literacy. The framework suggests that although context and knowledge are key components of learning; students must learn the essential skills namely, critical thinking, collaboration, creativity and communication (4Cs). This implies that learning subject knowledge is not enough to compete in a global society, but that one also needs the essential skills to become innovative, marketable and competitive in the workplace (Partnership for 21st Century skills 2007).

The framework additionally stresses the fact, that innovation and 21st Century learning also requires an innovative support system to help students master multi-dimensional abilities. This would require teachers to be familiar with 21st Century standards, assessment for 21st Century skills, 21st Century curriculum and instruction, 21st Century professional development, and 21st Century learning environments. In the context of this paper, teachers needed to become familiar with the framework for 21st Century learning, in order to facilitate effective innovation lessons (Kereluik, Mishra, Fahnoe, Terry 2013). Once teachers are familiar and confident with the framework, they are more likely to introduce and foster the development of the 4Cs, in addition to content and subject knowledge during lessons. Students, in turn, would be able to explore 21st Century skills such as the 4Cs during innovation lessons and this could be instrumental in preparing them for their future careers.

21st Century learning and lesson planning for innovation

21st Century learning is bold, flexible, creative, challenging, and complex. It addresses a rapidly changing world filled with fantastic new problems, as well as exciting new possibilities. (21st Century Schools, 2013). Opinions around 21st Century learning emerged from educators such as Howard Gardner (Gardner, 2008), popular writers such as Daniel Pink (Pink, 2005), and organizations such the Partnership for 21st Century Skills (Partnership for 21st Century Skills, 2007) and the Center for Public Education (Jerald, 2009).

These researchers and organizations argued that it became increasingly evident, that the labour force, within an increasingly globalized economy, requires an altogether different model of education. They suggest a model that transcends the 20th Century skills of repetition, basic applied knowledge, and limited literacy.

Since the emergence of this global phenomenon that calls for a new style of learning, it has been argued that formal education must be transformed to enable new forms of learning to take place (Scott 2015).

Scott (2015) also maintains that researchers from around the world offer undeniable arguments for transforming pedagogy, to better support acquisition of 21st Century skills. However, the question of how best to teach these skills is largely overlooked. The author explains that the ‘transmission’ or lecture model is highly ineffective for teaching 21st Century competencies and skills. Learners need skills such as critical thinking and the ability to communicate effectively, innovate, and solve problems through negotiation and collaboration; and teachers need to adapt their pedagogy to address these skills. Rethinking pedagogy for the 21st Century is as crucial as identifying the new competencies that today’s learners need to develop (Scott 2015).

In relation to the above Barron and Darling-Hammond (2008) stress the importance for teachers to plan accurately for 21st Century learning opportunities. The researchers further maintain that traditional approaches emphasizing memorization or the application of simple procedures, will not advance learners’ critical thinking skills or autonomy. To develop higher-order skills, teachers must plan for opportunities where students can engage in meaningful enquiry-based learning, that has genuine value and relevance for them personally, and their communities.

McLoughlin and Lee (2007) support the above, by suggesting that the education sector should work to equip learners with the skills they need to confront new challenges, and afford students opportunities to direct and manage their own learning process. The authors advocate for project and problem-based learning, as it is a central component for 21st Century pedagogy. With regards to project and problem-based learning, Barron and Darling-Hammond (2008) communicated that students learn by designing and constructing actual solutions to real-life problems.

Trilling and Fadel (2009:109) emphasised that effective project learning has five key characteristics, namely, (i) project outcomes are tied to curriculum and learning goals; (ii) driving questions and problems lead students to the central concepts of the topic or subject; (iii) learners’ investigations and research involve enquiry and knowledge building; (iv) learners are responsible for designing and managing much of their learning; and (v) projects are based on authentic real-world problems and questions that students care about.

In light of the above, Barron and Darling-Hammond (2008) mentioned that project and problem-based learning are ideal instructional models for meeting the objectives of 21st Century education, because they employ the 4Cs. In addition, the authors suggest that project based learning centres around ‘teaching for transfer’ and learning that occurs in a real- world context. Furthermore, it motivates learners to manage their own time and efforts and publically present their work, thereby equipping them with valuable skills for the 21st Century workplace.

According to Leadbeater (2008), collaboration is a 21st Century skill that shifts learning from teacher or lecture-centred settings to collaborative ones. In most collaborative learning situations, learners work in groups of two or more, mutually searching for understanding, solutions, or meanings, or creating a product. Students discuss their ideas with peers, exchange different points of view, question others, seek clarification, and participate in higher order thinking such as

managing, organizing, critical analysis, problem resolution, and the creation of new learning and deeper understanding.

With reference to the above, Milkova (2017), stressed the importance of teachers planning and creating collaborative opportunities for students during lessons. The author maintains that the lesson plan should be a road map of what students need to learn, detailing opportunities for collaboration and exploration. Additionally, Anderson (2002) suggests that teachers should plan for authentic learning opportunities to enhance the innovative ability of their students. Abrami, Poulsen and Chambers (2004) also argue, that teachers should believe in the efficacy of adapted planning and changes to their curriculum, in order to facilitate highly effective and innovative lessons.

It is therefore apparent that teachers should plan for 21st Century learning experiences for their students, in order to develop their skills and capabilities. A project based learning approach could afford students a platform, where they could explore the 4Cs and create projects whilst collaborating with their peers (Barron & Darling-Hammond 2008).

This study sought to uncover how teachers planned and delivered innovation lessons, with particular emphasis on how they adapted lessons for second language learners. To this end, the following research design was used.

Research design

This study adopted a qualitative action research design. The researchers and participants examined their own educational practices, systematically and carefully using the techniques of research (Ferrance 2000). Anyone with a vested interest in the teaching and learning process, may undertake action research for the purpose of gathering data about how their particular schools operate, how they teach and how their students learn (Mills in Nolen & Van der Putten 2007). The four key stages in action research have been completed, namely planning, acting, data collecting and reflecting, which exists interdependently and follow each other in a spiral (Hughes & Seymore-Rolls 2000).

More specifically, the study took the form of a participatory action research design. In this regard, action research is systematic inquiry and critical reflection by practitioners such as teachers, to improve their daily practice, namely teaching (McMillan & Schumacher 2010). Participatory action research in the context of this study, was a research paradigm in which our function was to serve as a resource to teachers, in order to empower them to act capably for the benefit of the students, their lessons and for themselves (McMillan & Schumacher 2010). In this way, action research by teacher practitioners using their own site as the focus of their study, was a means of fostering meaningful teaching experiences amongst the participants (Goodnough 2008). This study was phenomenological (focusing on people's actual lived experience/reality), interpretive (focusing on the interpretation of acts and activities), and hermeneutic (incorporating the meaning people make of events in their lives) (Stringer 2007). The research provided the means by which stakeholders, those centrally affected by the issue investigated, explored their experiences, gained clarity and understanding of events and activities, and used those extended understandings to construct effective solutions and insight into the problems on which the study was based (Stinger 2007).

Planning phase

In this first phase, groups and members of the school administration team brainstormed possible perceptions, needs and problems surrounding teaching innovation lessons to second language

learners. The brainstorming sessions were minuted and tape recorded. Decisions were taken with regard to meeting times, meeting dates and work roles. Teachers were informed of the resources they could access, to provide additional information and guidance when planning around the 4Cs. Support was provided in smaller groups, and the researchers conducted impromptu meetings for clarity and further guidance. The principal and vice principal also conducted various professional development workshops to share insight around 21st century learning and the 4Cs in particular. Minutes of meetings and records of professional development workshops were taken. In subsequent cycles of action research, we would revisit work roles where teachers' schedules clashed or where they felt overwhelmed. These work roles were adapted as required. However, the meeting days, times and professional development workshops remained the same throughout the project.

Action phase

The action phase lasted for an entire academic year, and was split into three trimesters. In this phase, teachers met once a week (collaborative planning meetings) for up to one hour to plan content knowledge, discuss methodological issues, plan assessment strategies, undertake analyses of results and decide on the required intervention strategies. Each teacher was responsible for contributing to the total planning (content, methodology, lesson resources and assessment) in one or two subject disciplines, depending on the curriculum needs of the grades. The key objective was for teachers to consistently incorporate the 4 C's and plan for innovation opportunities during every lesson.

During a typical meeting, teachers would take turns to suggest activities and they would map out the content and activities for the week. The planning was often done after each teacher had consulted with the head of curriculum, academic vice principal or their respective coordinator. The innovation specialist would consult with the school principal regarding lessons and themes for each trimester. Additionally, teachers participated once a week in professional development workshops, which focussed predominately on 21st Century learning strategies and approaches to enable them to introduce the 4Cs into their lessons.

A combination of purposive and maximum variation sampling was used to select information rich participants (McMillan & Schumacher 2010). Thus, the sample included participants of different gender, age groups and years of experience. Participants included the principal, vice-principal, coordinators (subject leaders) and the innovation specialist. Teachers and students from different grade levels also participated in this study. Participants were also selected based on their level of English proficiency, which was the medium through which the interviews were conducted. Table 1 illustrates the biographical data of the sample.

(Table 1)

The study was conducted in an English medium private school with an enrolment of 840 students. The school is situated in a modern and well-resourced building in Al Ain in the Abu Dhabi emirate, where the researchers are employed as school principal and innovation specialist, respectively. The school employ 37 English proficient teachers and 10 Arabic-speaking teachers.

Data collection was collected in the form of mixed methods (McMillan & Schumacher 2010) through questionnaires, lesson plans observations, and interviews. Interviews are "a uniquely sensitive and powerful method for capturing the lived experiences and lived meanings of the subjects' everyday world" (Kvale 2007). This approach offered an in-depth understanding and insight into teacher experiences when planning and delivering innovation lessons. For teacher participants, a semi-structured interview guide was used to shed light on the possible reasons why they found planning around the 4Cs useful; whether they understood the 21st Century framework in

order to guide their planning; were students motivated to participate during innovation lessons; and whether students enjoyed innovation lessons. Student participants were asked whether they enjoyed innovation lessons and why; what skills they explored and developed during innovation lessons; what they enjoyed most about the exploration and innovation room; and whether they understood the lesson objectives and activities during innovation lessons. Each interview lasted approximately 15 minutes and was conducted on the school premises. The interviews were further supported by questionnaires and observations. The researchers used reflective journals during the entire study. In the journals, observations were noted which helped with the development of the interview guide and some further steps for the study.

In order to ensure trustworthiness of the findings, we adhered to the following strategies (McMillan & Schumacher 2010): a prolonged data collection period; tape recorded interviews and verbatim transcriptions; conducted the research in the natural school environment of the participants; employed disciplined subjectivity; triangulation of methods; member checking and utilised more than one researcher to analyse the data.

Interviews were recorded and transcribed verbatim. Data was initially divided into small segments of information. Codes were used to give meaning to each of the segments. Some of the coded units were grouped together as categories and finally, a main theme became apparent (McMillan & Schumacher 2010).

Widely accepted ethical guidelines were considered during the investigation (Christians 2005). After obtaining institutional ethical clearance, informed consent was obtained from individuals who voluntarily agreed to participate in the investigation; there was no deception of the participants about the aims of the study; participants' privacy and anonymity were respected; and the data are accurately presented.

In the next section the perspectives and experiences of teachers and students regarding innovation lessons will be presented. Direct quotes were given to illustrate the findings. For ease of reference, codes were used to indicate who the participants were, namely: P (principal); C (coordinator); IS (innovation supervisor); T (teacher); Ts (teachers); S (student) and Ss (students).

Findings and discussion

Adapted planning for innovation lessons

A large majority of teachers expressed that they found lesson planning easier when it was adapted and framed around the 4Cs. They also mentioned that students would generally understand the lesson objectives better, when it was explained around the 4Cs, particularly when the learning skills were mentioned. Some participants also expressed the importance of adapted planning, especially for second language learners. Student participants stated that they had a better understanding of lesson objectives and activities due to clear teacher explanations. The following examples illustrated this view:

We find it easy to adapt the conventional lesson plans. This allows us an opportunity to plan lesson activities specifically around the 4Cs. For example, we will set up four main learning centres where students can explore creativity, critical thinking, communication and collaboration. Students participate better when they know what skills they will explore in the learning centres. In this way, we offer opportunities for students to lead their own learning whilst integrating content knowledge with 21st Century learning skills. (Ts, Female)

I find it much easier to adapt my lesson plans around the innovation theme and the 4Cs. In this way I am able to blend various subject content areas together. I also find it easier to differentiate for my students and my planning becomes more focused and student led. (C, Female)

Students are able to understand the lesson objectives better as a result of my adapted planning. Most of my students reflect at the end of the lesson and it gives them an opportunity to evaluate which skills they have explored during my lesson. (T, Male)

We find adapting the planning useful because our students are second language learners. When we plan the activities for our students, we bear in mind their level of English and their capabilities. This helps us to plan and cater to the needs of our students and it supports the 21st Century learning approach. For example, most innovation activities require students to work in groups, which in turn instigates opportunities for students to collaborate and communicate.

(Ts, Male & Female)

My observation is that adapted planning is crucial to the progress of second language learners during innovation lessons. It can spark interest and get them engaged in lesson right from the start and provide them the opportunity to attempt activities and explore skills easily. If the planning is adapted and students are clear on the lesson expectations, they are also able to complete their innovation tasks without additional support from the teacher. Students also find it interesting and encouraging when the lessons are adapted to their own context and life in the UAE. (IS, Male)

The teacher explains the lesson objectives and activities in a very simple way and we can refer to it throughout the lesson. He writes it on the board and we also have the lesson and actual objectives at every table, so we can review it whenever we get stuck. (S, Male)

I understand the activities because there are many visual examples and clues around the classroom. We also work in groups when we do the activities, so if we struggle we can ask a friend or the teacher. All of us understand the activities and the lesson objectives because the teacher maps it out for us on the whiteboard with a very clear explanation. (S, Female)

In order for teachers to deliver high quality lessons to second language learners, teachers have to ensure that planning is simplistic and that students are clear on what is expected during lessons (Ellis 2005). Ellis 2003 maintains that planning for meeting the needs of second language learners is crucial, as it may have an impact of the overall performance of a student. The author further stressed that teachers have to plan additional activities related to students' interests and continuously adapt lesson plans until every student gets the opportunity to play an active role during lessons. This confirms the finding by Kereluik, Mishra, Fahnoe and Terry (2013) that educators have to consider the 21st Century planning framework in order to adapt their planning accurately. Teachers have to incorporate 21st Century learning skills when they plan lessons, because the world is changing and students need to be prepared for the 21st Century and beyond (Kereluik, Mishra, Fahnoe and Terry 2013). It was thus apparent that the adapted planning enhanced innovation lessons, especially when it related to second language learners. The 21st Century learning framework could therefore serve as a useful tool for planning innovation lessons (Partnership for 21st Century skills 2007).

Planning around the 21st Century learning framework

All participants shared that they understood the 21st Century learning framework and that the framework served as a guide for their lesson planning. Most participants also expressed that the framework provided a clear structure for lesson delivery and evaluation. Some participants maintained that planning around the framework was less time consuming, and it led teachers to plan accurately in order to develop students' learning skills during lessons. Student participants also highlighted the fact that they explored various skills such as critical thinking and creativity during innovation lessons. The following examples illustrated these views:

Planning around the elements of the framework makes lesson delivery and evaluation easy, as it allows opportunities for student led lessons and it encourages learners to become independent. For example, the objective is specific and focuses on a skill. The framework therefore guides me to plan the objective with a specific skill in mind. (T, Female)

The framework definitely guides our planning and it helps us to incorporate the 4Cs during innovation lessons. This also allows for creative activities to emerge, which has a direct influence on the way we teach innovation at our school. (T, Male)

My themes are centred around the 4Cs (as per the framework). I am able to create interesting activities which supports the ability level of my students. Planning with the 4Cs in mind also helps me to come up with a suitable evaluation process for my lessons. (C, Female)

I have noticed that at the start of each lesson, teachers explain the different skills that students may explore during innovation lessons. These skills are usually the 4Cs and they are based on the 21st Century learning framework. Teachers make use of the framework as a guide when they plan their lessons and centre activities always incorporate the 4Cs. This school wide approach has proven to be successful as a result of quality professional development where staff became familiar with 21st Century learning approaches and where they were all required to incorporate the 4Cs into their lessons. (P, Male)

We explore different skills during the innovation lessons. The skills that I discover the most is critical thinking and creativity because I always choose an activity that is challenging and where I have to construct or build something. (S, Male)

With reference to the above, the Partnership for 21st Century skills (2007) maintains that the learning framework is essential in helping practitioners plan innovation lessons. The framework guides practitioners to integrate certain skills (such as the 4Cs) into their lessons, with the aim to provide students with maximum learning opportunities. Imber (2016) highlighted the fact that teachers should focus on introducing skills such as creativity, problem solving and critical thinking during lessons, in order to equip students with skills that could last for a lifetime rather than introducing only content knowledge which will be outdated in years to come. From a 21st Century learning perspective the Partnership for 21st Century skills (2007) suggests that students must master the basic skills (4Cs) if they aspire to become successful and compete globally. Therefore, it could be argued that educational practitioners have the opportunity to plan highly effective lessons when making use of the framework for 21st Century learning (2007) as a guide.

Innovation lessons themed around culture and heritage

All participants mentioned that themed lessons around the culture and heritage of the UAE, motivated students and classroom participation were superior as a result. The following views were expressed:

Students are highly motivated when innovation lessons are themed around their culture and heritage. They participate better and they show a sense of pride when they can relate the task to their everyday lives. One of the themes this term is based on UAE architecture and students are showing such a great interest because it relates directly to their history and country. (T, Female)

When students make models that represents their culture and heritage they give their utmost best, because they are proud of their country. They also show camaraderie when they work in groups because they share the culture and history. Students are also interested when lessons are themed around the UAE, because they can relate to structures such as the Burj Khalifa and the Burj Al Arab for example. (IS, Male)

I enjoy it when the lesson is related to my country because I am proud to be an Emirati. When we participate in the activities, my friends and I discuss our countries history and we learn from each other. I enjoy the innovation lessons because it always has something to do with the UAE. In term one we explored UAE farms and this term we are exploring UAE architecture. (S, Female)

My UAE specific themes provide various student outcomes and opportunities for creativity. The themes are connected to the daily scenarios of our students: the way they live; the places they like to visit; the buildings and landmarks they are familiar with and history of their country. They are very motivated and seems more creative as they can relate and apply to a real life situation. (IS, Male)

We love the exploration room because we have choice, and we get the opportunity to work with others in a group. We also have an opportunity to think outside of the box and we always learn something new. We enjoy the innovation lessons because the lessons are focussing on the UAE. (Ss, Male and Female)

In relation to the above, Bock (2011) suggests that educationalists working in the UAE, should relate their practice to the culture and heritage of the Arab world. Bock (2011) further explained, that this could lay the foundation for a sound working relationship between Emirati staff, parents and students, because they are all proud of their country and rich heritage. This implies that Emirati students could be more motivated to participate in lessons that are tailored around their culture and heritage. This concurs with the view of Al Qubaisi (2015) who mentioned that students enjoy lessons that encompass the Emirati culture, community, values, Arabic language, citizenship and history. It was thus important for the UAE culture and heritage to be integrated into innovation themes and lessons.

Conclusions and recommendations

In the UAE, many educators are continuously challenged to work on instructional planning in order to enhance and ensure that students' have rich learning experiences during innovation lessons. In addition to the teacher's planning responsibility, they are also required to ensure that their learners many of whom are second language, understand the lesson expectations. To this end, this study investigated innovation lessons and how it could be adapted for Emirati students who are second

language learners. Furthermore, the study examined the perspectives of teachers and students regarding innovation approaches in school. The investigation was based on a qualitative action research design, making use of seventy participants inclusive of school leaders, teachers and students. Data was gathered through interviews, questionnaires, video recordings and observations.

Although the study was limited to one school, it contributed towards understanding the importance of adapted planning for second language learners, by making use of the framework for 21st Century learning. Themed planning around the students' culture and heritage was also emphasised as a key element that could enhance innovation initiatives in schools. The data revealed that lesson planning around the 4Cs provides a clearer structure for delivery and evaluation. Additional results also suggested that students were highly motivated when innovation lessons were themed around their culture and heritage. The main conclusion highlighted the significance of adapted planning, particularly for second language learners, as it could enhance their learning experiences during innovation lessons.

Recommendations for continuous improvements were made in light of the Framework for 21st Century learning, and these are as follow:

Educational innovation or reform literature suggests, that what works in one context does not necessarily work in another if 'transferred' or duplicated (Timperley, Kaser & Halbert 2014)

With this in mind, we would like to recommend a planning tool that is context specific. In other words, a planning tool that compliments a school's curriculum approach, its learners, as well as the host country. This could be further enhanced if schools choose to adapt the framework for 21st Century learning to suit their school context. The framework for 21st Century learning welcomes practitioners to adapt and adjust, as long as it ensures that students are more engaged in the learning process and graduate better prepared to thrive in today's global economy.

In this study, it also became evident that continual new approaches to learning are necessary, and in conjunction with the development of students' skills, it can also develop competitive citizens for a global society. We therefore also recommend that schools should promote a culture of project based and collaborative inquiry, resulting in experiences where students develop their skills whilst working with others. This could enhance student confidence, their insights, their mind sets and skills required to become innovative and marketable individuals. Additionally, it could transform schools into becoming highly effective innovative learning environments.

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Table 1**Biographical data of the sample**

Name of participant*	Gender	Nationality	Age (yrs.)	Job title	Years of experience
Sam	Male	South African	35	Principal	16
Aisha	Female	Canadian	29	Coordinator	12
Mohammed	Male	United Kingdom	31	Innovation supervisor	8
Teachers x 17	Female and Male	Philippines, South Africa, Egyptian, Jordanian, Canadian, American	25-55	Teachers	2-25
50 x students	Female and Male	UAE	9-14	students	N/A

*Pseudonyms are used

Relationship between Scholastic and Licensure Performances of BSE Mathematics Graduates

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The study dealt on the scholastic and Licensure Examination for Teachers (standardized exam given to teacher aspirants in the Philippines) performance of the BSE-Mathematics graduates of Rizal Technological University which made use of the descriptive-correlational research design that aimed to find out whether the scholastic performance of the graduates in the three areas: general education, professional education and specialization would predict their LET ratings.

Findings in the scholastic performance of the respondents revealed that in general education subject components, the graduates did best in mathematics and natural sciences and the lowest was obtained by life and works of Rizal and Philippine history. As to professional education subject components, field study courses got the highest mean while the lowest mean is in theory and concepts courses. With regards to specialization subject components, fundamental concepts in mathematics got the highest mean and the lowest mean is in differential calculus. Among the three subject areas it is in specialization that the graduates excelled most and the least is in professional education.

On the other hand, the highest licensure examination performance rating was in general education and the lowest is in specialization. Likewise, general education and specialization are predictors to LET rating whereas; specialization is not a predictor.

Introduction

Every school faces the challenge of producing graduates who are exceptionally responsive and competent as catalyst for the development of the country. Rizal Technological University has been exerting its effort to produce such kind of graduates through its colleges and one of which is the College of Education. Being competent comprise the over-all package of a teacher considering his emotional, social, and moral/ethical standards top it up with his qualification as a professional teacher by passing the licensure examination for teachers.

In the past years, the performance of the students of Rizal Technological University (RTU) - College of Education (CED) showed admirable results in general:

In 2010, the April licensure exam revealed a 40.47 institutional passing percentage (IPP) versus the 23.32 national passing percentages (NPP) while the September exam had 29.94 IPP versus 25.86 NPP. The 2011 result gave RTU same result of being above the NPP with 42.68 and 46.13 IPP in March and September LET, respectively, versus the NPP of 26.28 and 31.45. Consistently, 2012 LET showed 42.94 IPP versus 24.85 NPP in March and 55.16 IPP versus 43.5 NPP. Likewise the March and September 2013 exam results showed a 52.49 IPP versus 39.61 NPP and 57.67 IPP versus 39.75 NPP. On the other hand, the 2014 LET showed alarming results particularly that of the August exam with 20.98 IPP which is below the 34.4 NPP whereas, the January exam maintained the above national passing percentage with 41.70 IPP versus 28.41 NPP. (www.prc.gov.ph)

Since 2010, the College of Education have been applying the same method of handling the seminar review classes of the graduating students that would prepare the in taking the LET thus, it was a surprise when the 2014 LET in August yielded that result.

It is in this light that the researcher thought of analyzing what could have caused the result by examining the performance of BSE-Math graduates alone as this was the specialization who gave the immediate feedback after the August 2014 LET result was released. Some students who took the same exam found out that some of their classmates who were good in their class in terms of scholastic performance did not pass the exam. From the feedbacks gathered, it is indeed true that one could not determine which of the subject area under study have the biggest impact on their LET performance.

The purpose of this study is to show the relationship of the scholastic and LET performance of BSE-Mathematics graduates from 2010 to 2014. To find out whether the grades given to them when they were studying the subjects covered in their curriculum would have a bearing on their LET performance.

Theoretical Framework

The current study follows Piaget's Theory on intellectual development. Piaget spoke directly on the question of the unevenness of development and gave a brief but subtle account of the relationship between his more general meta-theoretical views and his conception of stages.

He pointed out that the structures constructed at a given stage become an integral part of the structures of the succeeding stages. In the same way, the operations that we call concrete will constitute an integral part of formal operations in the sense that the latter will constitute a new structure but resting on the former. He also added:

"A stage includes a level of preparation on one hand and of completion on the other hand. But as the preparation of later acquisition can bear on more than one stage, and as there exist different degrees of stability in the completions, it is necessary to distinguish in every sequence of stages the process of formation". (Gruben and Voneche, 1977, pp. 815-816).

Furthermore, Piaget stated that preadolescence is characterized both by an

acceleration of physiological and somatic growth and by the opening up of new possibilities for which the subject is preparing himself, for he can anticipate them by means of the deductive capabilities he has acquired. (Gruben and Voneche, 1977, p.403)

Each new mental structure, by integrating the preceding ones, succeeds both in partly liberating the individual from his past and in inaugurating new activities, which at the formal operatory level are mainly oriented toward the future. Past experiences may then predict the success of any activities to be undertaken by any individual.

Moreover, this study also considers Thorndike's theory on the transfer of learning. Thorndike theorized that transfer depends upon the presence of identical elements in the original learning and in the new learning which it facilitates. These may be identities of either substance or procedure. The ability to speak and write well is important in all schoolroom classes and in many tasks of ordinary life. Mastery of these skills serves in different pursuits and transfer is affected according to what the different situations require in common. The substance of what is required in different situations may be unlike, but their procedure may be in common. Before a new activity is learned, more activities were learned first. This is because the two activities overlap. Learning is always specific, never general. When it appears to be general, the fact remains that new situations have much of old situations in them. (Hilgard and Bower, 1975, pp. 37-38).

Predicting the examinees' performance on the written licensure examination is of considerable importance to educators, students, employees, policy makers and regulators. Performance of the graduates may be considered 'performance' of the school from which they graduated. These add prestige to the institution if many of their graduates passed these examinations. These are the reasons why many researchers nowadays are still on the look for the factors that would predict licensure performance rating. The present study is on the same side as the other researchers: to determine the relationship of the scholastic performance with the licensure examination for teachers' performance of the students.

Based on these theories, the researcher believes that school programs and curricula should follow a systematic order of subjects to equip the students in the preparation and completion of their chosen field of endeavor. The researcher then believes that knowledge, principles, concepts and skills learned in general education, professional education and specialization subjects enable education graduates to answer logically, systematically, and correctly the problems in the LET. The researcher would like to validate whether the performance of graduates indicated by their final grades in these subjects have a relationship on the examinees' performance rating in the licensure examination for teachers.

Grades serve as the reports of students' educational status to parents, teachers and prospective employers. These provide a basis for important decisions about educational plans and career options. Menecio (2002) underscores this point, "if the marks earned in a course of study are made to represent the progress toward getting an education, working for marks is a furtherance of the purposes of education.

If these grades are insignificant factors of success, something is wrong with the institutional program or with the assessment of students' learning. It is for this very reason that the researcher is extremely interested in determining whether the grades in general education, professional education and specialization subjects taken by the graduates can predict their performance in the LET. This study was based on results of data gathered and analyzed to enable the school concerned to take the necessary actions geared toward the improvement of the examinees' performance in the licensure examination.

Conceptual Framework

The College of Education (CED) of Rizal Technological University (RTU) aims to

provide quality and effective teaching in order to attain good passing percentage results in the LET. This will help the students to become competent professionals in the fields of education, develop God-fearing and honest citizens who would effectively guide lead and direct people toward a wholesome and progressive community and country. This will also produce quality graduates through the school's vision (Manila Bulletin Online, 2007).

The basis of conceptualizing the relationship among scholastic performance/ GWA with the LET performance is to provide students with the idea on how to acquire the necessary knowledge and skills to pass the LET. Also, the contention of the study is that students' GWA or scholastic performance will help predict the results of the licensure examination.

The independent variables are the Scholastic Performance consisting of their separate grades in general education, professional education, and major subjects and their over-all GWA for all those subjects.

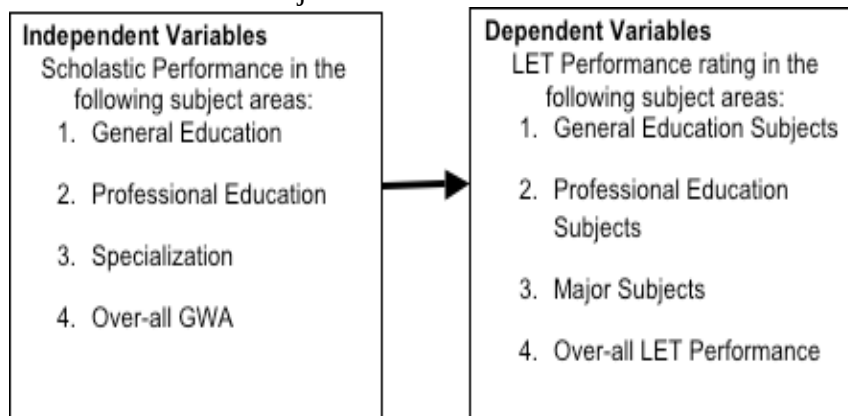


Figure 1
Research Paradigm of the Study

The dependent variables are the LET Performance in which the rating with each area: general education, professional education and major subjects will be considered together with the over-all rating for all those areas. As shown in the paradigm, scholastic performance (independent variables) and LET performance rating (dependent variables) are the major variables of the study.

Statement of the Problem

The main problem of the study was to determine how the scholastic performance is related to LET performance of BSE-Mathematics graduates of RTU from S.Y. 2009 – 20010 to S.Y. 2013 – 2014.

Specifically the following questions were answered:

1. What is the scholastic performance of the respondents in terms of the following subject areas:
 - 1.1. general education;
 - 1.2. professional education;
 - 1.3. specialization; and
 - 1.4. Over-all GWA?
2. What is the LET rating of the respondents in terms of the following subject areas:
 - 2.1. general education;
 - 2.2. professional education;
 - 2.3. specialization; and

- 2.4. Over-all LET rating?
3. Is there a significant relationship between the Scholastic and Licensure Examination for Teachers (LET) performances of the respondents in:
 - 3.1. general education
 - 3.2. professional education
 - 3.3. specialization
 - 3.4. Over-all GWA and LET rating?
4. Which of the following scholastic performance significantly predicts the LET rating of the respondents in terms of the following subject areas:
 - 4.1. general education;
 - 4.2. professional education;
 - 4.3. specialization; and
 - 4.4. Over-all GWA?

Hypotheses

The study tested the following hypothesis:

1. There is a significant relationship between the respondents' scholastic and LET performances in general education, professional education, specialization and over-all GWA and LET rating.
2. The general education, professional education; specialization and over-all GWA do not significantly predict the LET performance of the respondents.

Scope and Limitations/ Delimitations of the Study

This study determines how the scholastic performance is related to the LET performance of math education students of RTU from S.Y. 2009 – 2010 to S.Y. 2013 - 2014. It is limited to the following variables: scholastic performance and LET performance. The respondents were the RTU graduates from the Bachelor of Secondary Education major in Mathematics from S.Y. 2009-2010 up to 2013-2014 who took the LET for the first time within the years 2010 to 2014. Their scholastic performance in the different subject components namely: general education, professional education, specialization and even the over-all GWA were correlated with their LET performance rating. The researcher did not consider the capabilities of the teachers handling the subjects under study since there were different sets of teachers who handled general education, professional education and specialization subjects during the covered school years.

Research Methodology

The method of research used in the study is descriptive-correlational design to analyze scholastic and LET performances of the respondents. Furthermore, correlational method was used in finding the degree of relationship of graduates' scholastic and LET performances in general education, professional education, specialization and over-all GWA and LET rating. Likewise, the documentary analysis technique was used as the main tool in gathering the required data in the study.

Respondents of the Study

Table 1 shows the respondents of the study who are the 156 BSE-Math LET examinees for the first time from 2010 to 2014 and are chosen purposively. The total population of the BSE-Math LET examinees on the mentioned years were not considered since the target of the study were graduates who took the LET for the first time right after their graduation.

There are 43 examinees in 2010, equivalent to 27.56%; 21 examinees or 13.46% from 2011. In 2012, 38 students which is equal to 24.36%; 31 subjects or 19.87% comes from 2013. The next year 2014, 23 took the exam or 14.74% are the respondents.

Table 1
Yearly Frequency of BSE-Math LET Examinees

LET Year	No. of BSE-Math Examinees	Percent
2010	43	27.56
2011	21	13.46
2012	38	24.36
2013	31	19.87
2014	23	14.74
Total	156	100

Description of the Respondents

Table 2 presents the profile of the respondents according to sex. It could be gleaned that 38 or 24.68% are male respondents and 118 or 75.32% are female. Majority of the respondents are female.

Table 2
Sex of Respondents

Sex	Frequency	Percent
Male	38	24.36
Female	118	75.64
Total	156	100.00

Research Instrument

The research instruments in the study were mainly official documents retrieved from authorities. Transcript of Records (TOR) for the respondents' academic performance were examined with permission from RTU's registrar dean and their official rating during the Licensure Examination for Teachers (LET) from Professional Regulation Commission (PRC) through the dean of the College of Education.

For the purpose of providing qualitative description on the level of performance of the respondents both on academic and LET, the scale that is being applied in the university was adopted. This is shown in the table below:

Table 3
RTU Grading System

Percentage Equivalent	RTU System Rating	Descriptive Rating
97 – 100	1.00	Excellent
94 – 96	1.25	Very Good
91 – 93	1.50	Very Good
88 – 90	1.75	Good
85 – 87	2.00	Good
83 – 84	2.25	Fair
80 – 82	2.50	Fair
78 - 79	2.75	Passing

75 - 77	3.00	Passing
below 75	below 3.00	Poor

The above table was used since the grades considered in the study were the grades obtained by the respondents while completing the course Bachelor of Secondary Education major in Mathematics in Rizal Technological University.

The PRC does not issue numerical rating equivalent on the results of the LET so for ease of analysis the original percentage rating was converted to numerical rating using the conversion table on the next page:

Table 4
Conversion Table

Percentage Rating	Numerical Rating
96.5 - 100	1.00
93.5 - 96.49	1.25
90.5 - 93.49	1.50
87.5 - 90.49	1.75
84.5 - 87.49	2.00
82.5 - 84.49	2.25
79.5 - 82.49	2.50
77.5 - 79.49	2.75
74.5 - 77.49	3.00
69.5 - 74.49	4.00
0.00 - 69.49	5.00

Data-Gathering Procedure

The documentary analysis technique was the main tool in gathering the required data in this study. Data were obtained from the school records with the permission of the university authorities such as the RTU student records and admission services (SRAS) and College of Education (CED), deans.

The researcher undertook the following procedures in gathering data: secured permission to get access to the records through a letter; the list of graduates of BSE-Math of S.Y. 2009-2010 to S.Y. 2013-2014 as well as the students' scholastic performance data were obtained from SRAS. The students' general weighted average in general education subjects, professional education subjects and specialization subjects were computed based on their respective true copy of grades retrieved from the university's database; and the LET examinees' ratings and scores were taken from the list of those who took the LET from 2010 to 2014 furnished by the PRC to the College of Education.

Statistical Treatment of Data

The following statistical tools were used in the presentation, interpretation and analysis of data.

1. Simple Frequency Count

This tool is used in the tallying and counting of frequencies of data gathered.

2. Percentage

The percentage formula was used to determine the relative distribution of the categorical responses.

3. General Weighted Average

This was used as a numerical index denoting the level of scholastic performance of the respondents.

$$GWA = \frac{\sum(G \times W)}{N}$$

where: G = subject grade

W = number of units per subject

N = total number of units

4. Correlation analysis – Pearson Product-Moment Coefficient of Correlation (r)

This was used to determine the degree of relationship of the respondents' scholastic and LET performances.

$$r = \frac{N(\sum xy)}{\sqrt{(\sum x)^2 (\sum y)^2}}$$

where: N – number of samples

x – first variable

y – other variable

Table 5
Interpretation of r

r-value	Interpretation
-1.00	Perfect negative correlation
-0.99 to -0.60	Strong negative correlation
-0.59 to -0.30	Moderate negative correlation
-0.29 to -0.10	Weak negative correlation
0.00	No correlation
+0.01 to +0.29	Weak positive correlation
+0.30 to +0.59	Moderate positive correlation
+0.60 to +0.99	Strong positive correlation
+1.00	Perfect positive correlation

Coefficients correlation ranges from -1 to +1. Perfect correlation seldom happens in research. If the **r** value is negative, it means that there is an inverse relationship between the two variables being studied. It is more or less expected that when one variable increases the other decreases. If the **r** value is positive then there is a direct relationship between the two variables, that is, when one increases the other also increases. When the **r** value is 0 no correlation exists between the two variables.

5. Multiple Linear Regression

The general purpose of multiple linear regressions in this study is to learn more about the relationship between the independent or predictor variables – academic performance and a dependent or criterion variable – LET performance rating.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

LET Performance (Y) = β_0 + β_1 (general education) + β_2 (professional education) + β_3 (specialization) + β_4 (over-all GWA).

where: β_0 = intercept or constant

β_1 = measure in change in the dependent variable with respect to general education

β_2 = measure in change in the dependent variable with respect to professional education

β_3 = measure in change in the dependent variable with respect to specialization

β_4 = measure in change in the dependent variable with respect to over-all GWA

X_1 = predictor in general education

X_2 = predictor in professional education

X_3 = predictor in specialization

X_4 = predictor in over-all GWA

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Student Centered Writing Portfolios:
Holistic Mastery for English Language Learners

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Abstract

The primary objective of this study was to evaluate the potential of using secondary Student Centered Writing Portfolios (SCWP) for an English Language Learner (ELL) population in China to test the effects of writing portfolios on acquisition and mastery of academic language in grade 11 students from Guangdong province. This study was designed to guide the development of a “curriculum model” for writing portfolio usage in a homogeneous linguistic population within a western education setting in China. The justification was due to the fact that; there is a lack of holistic curriculum serving Chinese speakers of other languages. Schools are not held accountable to teach language through student centered strategies and skill-sets, and there are few if any schools that grade using the National Board for Professional Teaching Standards (NBPTS).

A theoretically-constructivist, conceptual framework for developing and evaluating behaviorally based, language acquisition mastery, was designed. Data collection methods for this study included the triangulation of online surveys, participant interviews, and in the field observations. The case study used Grounded Theory, focusing on axial coding, to address themes related to contextual, meaningful language development as well as awareness of academic enhancement. This allowed there to be naturalistic generalization.

The review of the literature of this paper lead to two research questions: Do students who collect and reflect on their academic and personal writing make writing gains, and therefore, do literacy skills improve? The findings revealed that student’s perceptions of collecting their writing as a self-assessment tool are positive and essential in integrated systemic interventions related to the triad of domains. The strongest areas of perception with regard to academic enhancement lay in social studies and compositional writing. However, the findings stressed that teachers lacked sufficient time to utilize the SCWP models. 82 students participated.

Key Words:

Portfolio

Language acquisition

Literacy

Introduction

Researchers define language acquisition into two categories: first-language acquisition and second-language acquisition. First-language acquisition is a universal process regardless of home language. Babies listen to the sounds around them, begin to imitate them, and eventually start producing words. Think of the children written into the story of Mary Poppins where the pre-oedipal twins are able to babble the sounds that form every word in the world. All children are capable of learning any language, but it is only that with consistency they form those that they speak regularly. This current study showed many students at NCPA write words exactly as they pronounce words, the investigation also uncovered that several students who were not as fluent in their speaking were equally static in their writing. The questions arose when looking at students with equal years of English Language Acquisition and unequal writing skills. Traditional Chinese education does not support the concept of “free-writing”, based on a presumption that, “The Communists popularized simplified characters. Computers have accelerated the writing process. But the Chinese school system still leans more toward rote memorization than creative thinking.” (Zhao, et al. 2015). Across China it has been documented that the writing of English continues to be one of the most difficult aspects of an “English Course” (Huang, 2009). The English writing skills are traditionally low, due to differences between rhetorical patterns that exist in the separate languages (Erkan and Saban, 2011).

The native English speaker and his or her writing looks toward expository prose as a tool to exemplify sequence of claims, and direct Aristotelian proofs, while the non-native speakers looks toward a sequence that is incongruous with the expectations of Anglo-readers (Dimopoulos et al., 2001). The non-native writers look for a system that can support the patterns, often taken directly from textbooks or copied from previous material, lacking creative process and originality in structure as well as content. While everybody has something to say and the ability to say it, the mental wellspring may be blocked by apathy, self-criticism, resentment, anxiety about deadlines, fear of failure, censorship, or a plethora of other forms of resistance. The accepted rules of free writing enable a writer to build up enough momentum to push through a mental block into an uninhibited flow, the concept outlined by many writing teachers (Richards and Rodgers 2001). Second-language acquisition assumes knowledge in a first language, and encompasses the process an individual goes through as he or she learns the elements of a new language, such as vocabulary, phonological components, grammatical structures, and writing systems. How to be a free-flow-writer in a second language can be seen as a physical connection to the auditory fluidity of code switching (Nortier and Svendsen 2015).

Therefore the ability to record and document the process, through portfolio collection methods, may encourage further attempts and eventual mastery of second language writing. Recent changes in education policy, which emphasize greater teacher involvement in designing curriculum and assessing students, have also been an impetus to increased portfolio use. Portfolios are valued as an assessment tool because, as representations of classroom-based performance, they can be fully integrated into the curriculum. The use of portfolios both supplements a lesson and documents what was learned for later reflection and unlike separate tests the work is collected and a sequential observation can be made. Moreover, many teachers, educators, and researchers believe that portfolio assessments are more effective than “old-style” tests for measuring academic skills and informing instructional decisions (Peters, 1983).

Former researchers have shown that when writers actually write, they think of things that they did not have in mind before they began writing. The act of writing generates ideas. This is different from the way we often think of writers as, “getting ideas fixed in in their

heads” before they write them down. The notion that writing is a medium for thought is important in several ways. It suggests a number of important uses for writing: to solve problems, to identify issues, to construct questions, to reconsider something one had already figured out, to attempt “the impossible”. This insight that writing is a tool for thinking helps us to understand the process of drafting and revision as one of exploration and discovery, and is nothing like transcribing from pre-recorded material. The writing process is not one of simply fixing up the mistakes in an early draft, but of finding more and more wrinkles and implications in what one is talking about. Having the ability to have considerations and then have the confidence to express or record these thoughts is a gift. Teachers who are teaching writing are aware that often writing is a way to deliver specific information that has been prescribed, often not self-generated. Regardless of the age, ability, or experience of the writer, the use of writing to generate thought has value; therefore, forms of writing such as personal narrative, journals, written reflections, observations, and writing-to-learn strategies have an equal importance to writing as a means of responding to a standardized prompt or question. For the student to give quality to most academic task oriented (with a prompt) writing and they must combine knowledge with creativity, find meaning through originality. The teacher’s job is not just to assign and grade writing as an isolated entity, but to engage the writing in the process which involves deep thinking before during and after the task of writing.

The researcher looked at writing as it related to reading in order to write a particular kind of text, it helps if the writer has read that kind of text previously. In order to take on a particular style of language, the writer needs to have read that language, model it, in order to have it in his or her mind, so that he or she can hear it again in order to compose it. The students at NCPA were given the task to read biographies, autobiographies and memoirs as well as fiction and non-fiction as models of writing style, genre and purpose. This was done under careful supervision due to a tendency to seek the security of imitation. The researcher had several situations in writing outside the memoir project that showed student plagiarism, these pieces were also included in the portfolio as a reference point.

In their earliest writing experiences, children listen for the relationships of sounds to letters, which contributes greatly to their phonemic awareness and phonics knowledge. Writers also must learn how texts are structured, because they have to create them. The experience of plotting a short story, organizing a research report, or making line breaks in a poem permits the writer, as a reader, to approach new reading experiences with more informed eyes. Writing can help people become stronger in their reading skills. As this may be the case in home language writing and reading it can differ when the alphabet is not native. However, the practice using word structure, mechanics and vocabulary is only beneficial in both disciplines. Reading is a vital source of information and ideas. For writers fully to contribute to a given topic or to be effective in a given situation, they must be familiar with what previous writers have said. Reading also creates a sense of what one’s audience knows or expects on a topic. Therefore, reading is the essential input tool for writers. The dilemma is often how young readers in a highly fast paced technological world see the written page as a “disconnect” from, themselves. The researcher sought to define the need for evidence that suggested that writing for the “self” can generate further writing genres and increase the likelihood of reading more extensively. Writing can also help people become better readers (Krashen, S.1988).

The creation of memories in print can assist the writer in being a critical reader of his or her own words within their own story. For writers fully to contribute to a given topic or to be effective in a given situation, they must be familiar with what previous writers have said. However, to have ownership of a language (written or otherwise) they also have to be

ingenious, creative and independent in the delivery of the language to whatever audience they are delivering it too. Writers need the ability to review and reflect on their words.

Reading also creates a sense of what one's audience knows or expects on a topic. This leads the teacher, who must address the reading and writing subject matter, into the dark hole of finding time for students to read, extended time, both in and out of the classroom. With the NCPA student population that was guiding the research there was a conundrum. The fact that students were assigned a laptop for all classwork left them with the hard task of self-discipline. All the students in the study were honest that they often spent time *not* reading because of the endless possibilities to search the Internet, play games or use social media.

Students were given access to, and experience in, reading material that presented both professionally published and student writing in various genres. Through immersion in a genre, students developed an internalized sense of why an author would select a particular genre for a particular purpose, the power of a particular genre to convey a message, and the rhetorical constraints and possibilities inherent in a genre. Students were taught the features of different genres, experientially not only explicitly, so that they developed facilities in producing them and became familiar with variant features. Peer reviews within a class provided insight and supportive feedback. If one is going to write in a genre, it is very helpful to have read in that genre first. The students used various styles of writing in their memoirs to experiment and deepen their understanding of lexicon variables. The researcher found that leading students in discussions on *why* writers write the way that they do, helped them to explore the connections between what is said, how it is constructed and why it was written. Helping the students understand the authors' purpose both psychological as well as social, the internal and external drive of an author aided them in their explanations in the interview process. Also critical readers can identify ways writers form and use constructs of their intended readers, anticipating their responses and needs and understand text structure without having to search for definitions, impeding the fluidity of their reading. Through the student's personal journal entries the subjects created "their own stories", they succeed in expanding their thinking through reflection and revision (Richards and Rodgers, 2001).

Research Questions

The study will try to answer the following questions:

- 1) What are the language learning strategies of NCPA student subjects?
- 2) Can these strategies be grouped so that, a taxonomy for EAL subjects is developed?
- 3) Does the EALs taxonomy for this population, differ from the one that was developed prior?
- 4) Does the control group use all strategy sets and groups mentioned in the literature?

Purpose of the Study

As seen from the literature, strategies of elementary school children were investigated either in L1 or in ESL contexts or they focused on single strategy type or strategies used while learning a single skill. There is a need for a more comprehensive study that investigates all strategy types and their use in various skills by adolescent language learners in the area of writing. Hence, there is still a gap to be filled. In addition, there is also a need for studies conducted in EAL contexts to identify strategy use and strategy choices alternating according to the setting, culture, and language background (Yang & Dai, 2011).

The detailed data from the literature identifies the language learning strategies of children at third, fourth and fifth grades in two private schools in Turkey. In addition, it aims to develop taxonomy for Language Learning Strategies of this group of learners by using Oxford's (1990) extensive classification as a basis. This is a strong tool for replication at NCPA with careful scrutiny of subject data being authentic.

The Significance of the Study

This study is unique in that it inquires language-learning strategies of second language learners in a domestic environment where the mother tongue is spoken in all situations outside of the academic setting. The subjects are without any specific concentration on a specific strategy type such as memory, cognitive, compensation, metacognitive, social, and affective, or specific strategy or strategies within a specific strategy type such as repeating and translating strategies under cognitive strategies. It will be limited to certain language skills involved in reading/writing and speaking/listening. In addition, the EALs taxonomy will enable a comparison of strategy use between pre and post portfolio production.

Literature Review

Educational Writing and Language Acquisition

When educators refer to English language learners (ELLs) and writing, it is not uncommon to hear deficit views and myths, including the following, “ They can’t write. They have writing problems. They are reluctant writers. They need to be taught the skills of writing before being asked to write independently.” It is true that the writing of anyone who is new to a language is likely to be different from that of native speakers and in the case of the control group, who are Cantonese speakers as their mother tongue, and Mandarin as a the original written language, both are a completely different alphabet- text-structure not letters but characters. Therefore it is common that the nonnative writer may find it more daunting to write in the nonnative language than the native language. However, with time and stimulating, purposeful writing experiences, ELLs can become effective writers, as much of the research reported shows in resources such as; K–8 children (Kline, 1999).

The reality of low literacy has been documented (Greene, 2000). The consequences of poor reading and writing skills are seen in cultures all over the globe. The health effects and social promotion as well as mobility have had great effects on societies who lack education. Globalization and technological advances have changed the conditions of where and how people are employed. Reading and writing are now essential skills. Ensuring that adolescents become skilled readers and writers is not merely an option for any society, but an absolute necessity. The fact that home language is as essential as any other language makes the transitions in language complicated. With the introduction of computer based software that helps make translation easier we see the growth in language acquisition. However, this growth can come at a cost when the understanding behind the translation is not developed first. This is where great gaps in clarity, and educated sentence structure suffer. The free writing from one’s own words without a computer, lead the Student Centered Writing Portfolios (SCWP) project’s initial purpose.

One often-overlooked tool for improving students’ reading, as well as their learning from text, is writing. Writing has the theoretical potential for enhancing reading in three ways. First, reading and writing are both physical activities that rely on human senses as well as sensibilities to accomplish specific goals, such as learning new ideas presented in a text (Fazio, 2001). Writing about information in a science text should facilitate comprehension and learning, as it provides the reader with a means for recording, connecting, analyzing, personalizing, and manipulating key ideas from the text. Reading and writing are connected, as they draw upon common knowledge and cognitive processes (Shanahan, 2006). Consequently, improving students’ writing skills should result in improved Reading skills. Reading and writing are both communication activities, and writers should gain insight about reading by creating their own texts leading to better comprehension of

texts produced by others (Zimmerman and Kitsantas, 2002).

Although writing is typically recommended as a part of a strong literacy program (e.g., Biancarosa and Snow, 2004), and several important reviews have selectively examined the impact of writing on reading (Carr 2002). The special strength of this report is that it comprehensively summarized high-quality research using the powerful statistical method of meta-analysis. One research study, Writing Next, presented the results of a large-scale statistical review of research on the effects of specific types of writing interventions, and identified specific teaching techniques for improving the quality of adolescent students' writing (Bandura 1993). "Writing to Read" draws on the same type of statistical review of the research to highlight writing techniques shown to enhance students' reading.

As language learners and writers the students who were part of this study, and whose data showed up in this paper, showed both an eagerness and willingness to try and rework their own writing from excerpts that were collected in the portfolios, that became one piece of the data collection. This was helped by the project's initial format, using a journal, which created a bond between the teacher and student, relationship. As students began writing chapters that were guided by explicit prompts their writing grew from a single page to many. The confidence that occurred through the experience of writing, "what you know" showed length in student production. Once getting immediate feedback, the assessment of reworking these personal stories were supported with a scaffold through individual focused lessons on grammar, sentence structure, mechanics and vocabulary building, which gave the students a significant amount of material to work with and through.

Reflective writing can serve many purposes, including affective, pragmatic, intellectual, and academic. It is known to improve writing fluency, stimulate cognitive growth, reinforce learning, and foster problem-solving skills. In the 1980s and 1990s, reflective writing became increasingly popular with teachers as they heard about the power of journaling on learners, and how it can support learning about language and literacy processes, about concepts in a particular subject, about oneself and others, and about the world at large. Researchers captured the broad scope and potential of journals, dialogue journals, learning logs, and other forms of reflective writing across the grades, for primary-aged children to adults, and across a wide range of content areas, from literacy and literature to history, music, mathematics, physics, sociology, geography, and the arts (Ross, et.al.1999).

Researchers found continuous interaction beneficial in the importance of the role of the teacher in Dialogue Journals with EALs, in a study investigating the role of the interactive strategies employed by the teacher on the participation of EAL students in dialogue journals (Foster, G. 1996). In teaching the students the meaning of what they were writing the instruction had to initiate support from the very core of the project, therefore in this study, students were given a greater understanding of what a memoir was through initially reading those written by famous writers. They were told, both memoirs and personal narratives are stories real people write about real experiences, but they are not entirely alike. A narrative is a story that contains elements of narration like setting, characters, and plot. A personal narrative, however, relays the person's direct experience of a particular event, or set of events, including his thoughts and feelings. This was an added benefit to the student portfolio, for students who had a chasm of undeveloped prior knowledge. This was a tool to connect memories with literature. It allowed them to make connections to the things they know and bridge into topics, vocabulary and language structure that was new. Although journaling is typically found in mainstream K–12 and university classrooms, teachers have also used journals to build relationships with parents (Myles, 2002). The NCPA portfolios incorporated these memoirs into a narrative section.

To enhance the learning of students with special needs and in university teacher preparation programs, writing a personal memoir can provide a record of experiences, which

the writer and others have access to later when reflecting on points in one's lifetime (Foster, 1996). For example, when investigating the interpreting of writing that Spanish/English bilingual children did for their immigrant families, self-reflection generated important data. In the journals, the children recorded their experiences as the interpreters or language brokers of written texts for their families (Hyland, 2002).

During the 21st century there has been significant attention paid toward instructional practices that improve adolescents' literacy skills, such as Reading Next (Biancarosa and Snow, 2006), which drew a set of fifteen instructional recommendations for an effective adolescent literacy program in the United States. Researchers included systematic reviews of high-quality findings to identify effective instructional practices for improving the comprehension of adolescent readers (Scammacca et al., 2007), as well as similar analyses to identify effective practices for improving adolescent students' writing (Graham and Perin, 2007a; Rogers and Graham, 2008). Despite these efforts, educators and policymakers need additional evidence-based practices for improving the literacy skills of students in and outside the American education system.

Theoretical Framework

This paper provides evidence answering the following three questions:

1. Does collecting writing samples for ongoing review, enhance language acquisition and mastery?
2. Does teaching writing strategies strengthen students' reading skills?
3. Does increasing how much students write in their second language, improve how well they read in their second language? See Fig. 1.

The Methodology

The researcher used a qualitative method and collected all the chapters of 82 student's work that were completed on a weekly basis. 20 students were measured as a control group. The collection was focused on narrative essays. The collection process was cross-coded to look for common errors. The three most prevalent weaknesses in the student writing were in the illumination or excessive addition of plurals, the need for articles and the "disconnect" between subject and verb agreements. The methodology used the memoir notebooks as the baseline. The cross coding (using in vivo coding) revealed essential information as students reworked their own writing to fix these areas of concern. The three essential questions on whether students who participate in writing about personal experiences gain essential writing, and therefore, literacy skills and if personal writing leads to other academic writing provided the guidelines. The data was cross-referenced with other pieces of writing, in the domains of non-narrative genres. (See Fig. 2)

Data Collection

Inductive analysis was made on the qualitative data. First, authentic writing samples were gathered and coded. Then the categories and sub-categories were generated. Later, these codes and categories were matched. As a result, it was learned that most of the strategies fell under Oxford's strategy taxonomy. However, as it is argued by Oxford & Crookall (1989) there is not a consensus on EALs taxonomy or on the definition of strategies. Thus, for some strategies that learners use and are not present in Oxford's taxonomy, the researcher added a new strategy set or individual strategy. In addition, some of Oxford's definitions needed to be expanded, as the subjects used EAL strategies in different ways and purposes. In a similar study by O'Malley, et al. (1985), it is indicated that some strategies used by students did not match the strategy

definitions found in the literature. Thus, O'Malley et al. (1985) developed new names for strategies they identified during the data collection process that matched the descriptions.

The timeline of the NCPA experiment was the whole academic year of 2015-16 and 6 months into 2017 (a total of 14 months) when students completed 10 chapters. The researcher collected 82 drafts of students' journal entries on social topics, around a 200-word search was conducted, cross coding with other forms of writing in the forms of informative, persuasive and expository domains. Journal-entries were written and collected in the junior year of an English immersion program. The researcher analyzed particular students' inaccuracies, through a qualitative-cross-coding method as issues involving; grammar, mechanics and structure were evident in both written and spoken rhetoric (see fig. 1).

According to Piaget, abstract thinking develops after the age of 11 during the period of formal operations. However, the subjects who were 15-18 at moments showed levels of, the Period of Concrete Operations, and were assumed to be able to develop reasonable thinking, but not hypothetical thinking. Therefore, this might be the reason why most of the memory strategies, which required higher order cognitive skills, did not appear in the data. Although, Weinstein and Mayer (1986) point out that, "younger children are not able to effectively generate images but are able to use imagery that is provided by a teacher" (p. 319). In addition, they also argue by referring to the literature that basic rehearsal strategies such as repeating certain items to memorize new information is used more by students at fourth grade and lower grades. Thus, the results of the current study support this argument, due to the fact that the practiced learning strategies of the subjects in their earlier years of education show high levels of rote learning. The results of the NCPA data analysis appeared to show that the subjects use only three memory strategies which are the members of one set (creating mental linkages) and only one affective strategy. Oxford's Memory Strategies aim to build internal associations, which require higher cognitive abilities. Two sets that belong to memory strategies and two sets that belong to the affective strategies were not used by the NCPA subjects, as seen in the data collected through interviews. (See Fig. 1).

Project outline

Having "buy-in" to encourage students to write often works best when it crosses into the "personal". The memoir portion of the portfolio allowed for student-teacher commentary. The subjects were reminded that they were "pouring out their souls onto the page" and that each class would provide feedback. The hardest thing was to keep the original writing intake, only making the proper edits but not changing the message. The feedback was carefully substantive, on-target information and opinions. Also, the teacher's questions and comments were careful to stay authentic and grounded in the margins of the notebooks.

The 82 students who were used as subjects had varying degrees of English acquisition all had grown up in China speaking Mandarin in school and 79 speak Cantonese at home. They have all attended an English speaking boarding program since the 9th grade now entering the 12th grade. Several had entered the NCPA in the 7th grade. The previous experience of language immersion was limited and the home language continues to be used to leverage the third language of English.

To be successful, students today need strong literacy skills, and also need to be able to use these skills as tools for ongoing learning (O'Malley 1987). Identifying writing practices found to be effective in helping students increase their reading skills and comprehension. The hope that with research-supported information about how writing can improve reading, data will stimulate discussion and action at the policy and research levels, leading to the greater use of writing as a tool for enhancing reading and a greater emphasis on the teaching of writing in our global understanding of what a school is (Oxford 1996).

Language Acquisition Timeline

Students learning a second language move through five predictable stages: Preproduction, Early Production, Speech Emergence, Intermediate Fluency, and Advanced

Fluency (Krashen & Terrell, 1983). Knowing this information about each student allows you to work within his or her zone of proximal development—that gap between what students can do on their own and what they can with the help of more knowledgeable individuals (Vygotsky, 1978). Looking at moving up the questioning as student's language skills increase allows for comfort in response, but challenging students where they are is also critical. The student-subjects were asked to explore a deep question in each chapter, allowing for the thought process to retrieve memory and make connection to the senses as in Blooms taxonomy.

1. Pre Production:

This is also called "the silent period," when the student takes in the new language but does not speak it. This period often lasts six weeks or longer, depending on the individual. The teacher's role is to ask questions that students can answer by pointing at pictures or the cover design of a book to encourage exploration.

2. Early Production:

The individual begins to speak using short words and sentences, but the emphasis is still on listening and absorbing the new language. There will be many errors in the early production stage. The teacher's role is to ask questions that students can answer with one or two words.

3. Speech emergent:

Speech becomes more frequent, words and sentences are longer, but the individual still relies heavily on context clues and familiar topics. Vocabulary continues to increase and errors begin to decrease, especially in common or repeated interactions. The teacher's role is to ask "why" and "how" questions that students can answer with short sentences .

4. Beginning fluency:

Speech is fairly fluent in social situations with minimal errors. New contexts and academic language are challenging and the individual will struggle to express themselves due to gaps in vocabulary and appropriate phrases. The teacher's role is to ask "What would happen if ..." and "Why do you think, ..." questions.

5. Intermediate fluency:

Communicating in the second language is fluent, especially in social language situations. The individual is able to speak almost fluently in new situations or in academic areas, but there will be gaps in vocabulary knowledge and some unknown expressions. There are very few errors, and the individual is able to demonstrate higher order thinking skills in the second language such as offering an opinion or analyzing a problem. The teacher's role is to ask "What would happen if ..." and "Why do you think ..." questions.

6. Advanced Fluency:

The individual communicates fluently in all contexts and can maneuver successfully in new contexts and when exposed to new academic information. At this stage, the individual may still have an accent and use idiomatic expressions incorrectly at times, but the individual is essentially fluent and comfortable communicating in the second language. The teacher's role is to ask students to retell the story, including main plot elements but leaving out unnecessary details.

**At the high school level at NCPA the expectation is for them to provide in-depth rhetorical analysis of a previous piece of reading.*

Findings

For these specific subjects to gain a stronger concept of writing in another language it was essential that they do it – a lot! This meant actual writing, not listening how to do it in a lecture format or read about it in a text or online. This was even true when discussing their

writing in small group discussions and other educational formats that were thought to be helpful like, grammar drills or reflective journaling on readings. The authenticity often was hijacked through clever plagiarism. The more people write the easier it becomes, and with ease comes motivation. Writers who write a lot learned about the process because they were a part of the process. They learned with their fingers gripping a pen or fingers on a keyboard, because the act itself gave rise to rethinking, revision and drafting. Improvement is the lesson itself. There were different opportunities for students to write for various purposes and audiences. However, the writing for ones-own-self allowed a deeper connection to the structure and vocabulary they were able to produce.

Mind-fullness in Learning

Typical triggers for events, which make us feel great and relaxed and therefore give us an increased dopamine flow, are taking a warm shower, most forms of exercise driving home, etc. The chances of having great ideas then are a lot higher. Still, that's not all there is to it. Dopamine alone, which gets triggered in hundreds of events, where we aren't very creative, can't be the only reason. Another crucial factor is a distraction, says Harvard researcher (Carson and Langer, 2004), "in other words the distraction can provide the trigger needed to disengage from a fixation or ineffective idea". The subconscious mind works extremely hard to solve problems you face, it can surface and plant ideas into your conscious mind. Therefore, in a relaxed state your brain is most likely to give you your best, most creative ideas, and possibly fluidity of writing without an over-anxious concern for conventions, although once they are imbedded into the inner conscience, they come more naturally. Readers expect writing to conform to their expectations, to match the conventions generally established for public texts. (Ross et al., 1999).

The NCPA control group was overwhelmingly, expecting the outcome of their journaling to be in a standardized format, as reported in interview data. Although spelling and punctuation was eventually held to a specific assessment standard; for usage and syntax to match that used in texts they already acknowledge as successful. Every teacher has to resolve a tension between writing as generating and shaping ideas and writing as demonstrating expected surface conventions. On the one hand, researchers point out that it is important for writing to be as correct as possible and for students to be able to produce correct texts. On the other hand the research also points out that achieving correctness is only one set of things writers must be able to do; a correct text empty of ideas or unsuited to its audience or purpose is not a good piece of writing. There is no formula for resolving this tension. Writing is both/and: both fluency and fitting conventions. Research shows that facility in these two operations often develops unevenly (Chamot and O'Malley 1993). For example, as students learn increasingly sophisticated ways of thinking (for example, conditional or subordinate reasoning) or dealing with unfamiliar content, they may produce more surface errors, or perhaps even seem to regress. This is because their mental energies are focused on the new intellectual challenges (Peters 1983). Too much emphasis on correctness can actually inhibit development. However, without mastering conventions for written discourse, writers' efforts can be cyclical with little success.

There were several polarized writers in the NCPA control group. These were outliers that needed support from the EAL department at the school. Drawing readers' attention to the gap between the text at hand and the qualities of texts they expect caused readers to not attend to the content, developing both increased fluency in new contexts and mastery of conventions, this appeared to teach the student-subjects how to start the edit process. To say that writing is a process is decidedly not to say that it should, or can, be turned into a formulaic set of steps, the development of reflective abilities and meta-awareness about writing are seen in this study as the tools necessary to push the student forward. Research shows that this is often considered a late stage in the process of composing, because editing is only essential for the

words that are left after all the cutting, replacing, rewriting, and adding that go on during revision (Zimmerman and Kitsantas, 2002). Writers need an image in their minds of conventional grammar, spelling, and punctuation in order to compare what is already on the page to an ideal of correctness (Biancarosa and Snow, 2004). They also need to be aware of stylistic options that will produce the most desirable impression on their readers. All of the dimensions of editing are motivated by a concern for an audience. The National Council of Teachers of English (NCTE) in the U.S. stated policy over many years has been that conventions of writing are best taught in the context of writing. Simply completing workbook or online exercises is inadequate if students are not regularly producing meaningful texts themselves (Gannon 2001).

Assessment of writing occurs for different purposes. Sometimes, a teacher assesses in order to decide what the student has achieved and what he or she still needs to learn. Sometimes, an entity beyond the classroom assesses a student's level of achievement in order to say whether they can go on to some new educational level that requires the writer to be able to do certain things. At other times, school authorities require a writing test in order to pressure teachers to teach writing. Still other times, as in a history exam, the assessment of writing itself is not the point, but the quality of the writing is evaluated almost in passing (Scammacca et al., 2007). In any of these assessments of writing, complex judgments are formed. Such judgments should only exist after deliberate efforts to scaffold and differentiate the practice or formative portion of the coursework. The project explored the strength in preparation that prepared the subjects for such judgment.

Language Learning Taxonomies

Efforts to identify the characteristics of the good language learner showed that language learners apply learning strategies and that it is possible to describe and classify them (O'Malley and Chamot, 1990). As a result, several researchers have developed various Language Learning Taxonomies some of which are worth mentioning. One of these is Rubin's (1981; see also, O'Malley et al. 1985a; and O'Malley, Chamot, Stewner-Manzanares, Küpper, and Russo, 1985b) strategy classification. Accordingly, Rubin (1981) identified two primary categories: strategies that affect learning directly and indirectly. Rubin's classification of direct strategies includes clarification/verification, monitoring, memorization, guessing/inductive, using inference, deductive reasoning, and practice (O'Malley and Chamot, 1990). (See Fig 3.)

Another strategy classification was developed by Bialystok (1978), which was born out of a model of second language learning. Accordingly, language-learning strategies indicate optional relationships between the elements of this model. The subjects in the study were following instruction that guided them through these steps. The classification included four categories: formal practicing, functional practicing, inferencing, and monitoring. According to this model, learning strategies are defined as "optional means for exploiting available information to improve competence in a second language" (Bialystok, 1978, p. 71).

O'Malley and Chamot (1990), grouped language learning strategies under three broad categories. The first group of strategies is metacognitive strategies, which consists of seven strategies grouped under three strategy sets: planning, monitoring and evaluation. The second group is called cognitive strategies and consists of fourteen strategies: resourcing, repetition, grouping, deduction, imagery, auditory representation, keyword method, elaboration, transfer, making inferences, note taking, summarizing, recombination, and translation. The last group of strategies is social strategies named as social mediation or social affective strategies. In this group there are two strategies: question for clarification and cooperation (Chamot, 1993). A more complicated strategy classification is developed by Oxford (1990). Through extensive review of the literature, Oxford (1990) developed a language learning strategy scheme that was considered in this study where coding occurred in the strategies

under two main categories as direct and indirect strategies. Direct strategies are those that involve direct use of language, as well as affect language learning directly, whereas indirect strategies support language learning (Oxford, 1990; Hsiao and Oxford, 2002).

According to Oxford et al., the process of writing uses each major category, which consists of three strategy groups: memory, cognitive, and compensation strategies under direct strategies and metacognitive, affective and social strategies under indirect strategies. These strategy groups are composed of 19 strategy sets. Within the direct strategies, memory strategies have four sets: creating mental linkages, applying images and sounds, reviewing well, and employing action. The strategy sets in cognitive strategies are: practicing, receiving and sending messages, analyzing and reasoning, and creating structure for input and output. Compensation strategies have two sets: guessing intelligently and overcoming limitations in speaking and writing. Within indirect strategies, metacognitive strategies have three strategy sets; centering your learning, arranging and planning your learning and evaluating your learning. Lowering your anxiety, encouraging yourself, and taking your emotional temperature are the sets under affective strategies. Finally, social strategies include asking questions, cooperating with others and empathizing with others. As a whole, Oxford's strategy system includes 62 strategies under these strategy sets. Since this is the richest and the most detailed system of categorization, the current study uses it as a basis.

Due to different learning characteristics and social and psychological development it would be misleading to adopt strategy research that did not include young adult learners. First of all, adolescents may use a different set of strategies than older or younger subjects. This variation could be in the number and the type of strategies they use. Hence, it is indispensable to extend strategy research to find out any possible differences and/or similarities between children and adults/adolescents in their use of language learning strategies. Secondly, it is argued that language learning strategies influence the rate and level of second language acquisition of children (O'Malley & Chamot, 1990) but it does not look at adolescent subjects. To improve EAL's language learning process, it is conspicuous that their language learning strategies and effective strategies enhance their development in both rate and level. Thus, it is equally important to identify the types of strategies that the subjects prefer using to integrate strategy training into their learning. Locating these strategies would enable the teachers and educators to develop new methodologies or expand existing ones, find effective ways of teaching, understand the student's choice of strategies, design lessons according to their needs, facilitate the language learning process, implement strategy training to help them learn new and effective strategies, and create autonomous learners.

Conclusions and Implications

The detailed report on the data collection procedures is hoped to shed some light into future research at NCPA. The research results indicate that NCPA students differ from subjects of previous writing studies due to both cultural, regional and timeline factors.

Since the data is gathered only from the small population over a limited timeframe in a private secondary setting, further research in different Chinese EAL settings is necessary for the generalizability of the findings. However, the research is significant in that it is the first attempt to investigate the EAL language learning strategies in a specific formal environment within a program devised to address the issue of college ready writing.

The taxonomy is valuable for language teachers in similar contexts to understand their student language learners' strategies and to provide strategic training to help them become autonomous. In addition, it increases teachers' awareness about the types of strategies that students themselves use. As indicated earlier, strategies can be taught. The taxonomy can be

used to provide such training while the portfolios serve as a collection tool for all stakeholders to view and assess.

This scholarly inquiry explored the use of student-generated memoirs as part of the pedagogical tool (portfolios) for academic writing. In particular it explored the procedure as a multi- drafting tool to support and dissect the text type as well as the micro and macro aspects of ELA (English Language Acquisition) through self-reflective collecting and reviewing. The students realized the structural, technical and mechanical needs associated with English language writing, in a holistic approach of completing a documentation collection of their own choosing.

The students at Nansha College Preparatory Academy (NCPA) showed a strong bond to “filial piety” in every chapter of their journal, they were careful to record a sense of respect. This cultural norm was challenged when they had to divulge personal stories of things they regretted or were never asked to reflect on until this point in their education. The idea of the self is often considerably foreign in China. As students began to develop an individual voice, they also started to write with more conviction, using broader vocabulary and sentence structure to convey meaning. Through the journals that the students wrote in, the researcher gained insights into the collaborative nature of the collaborative-translating that they did. At the start they found the task tedious, but by the third chapter they were eager to write and receive feedback as in Vygotsky’s zone of proximal development. *“The distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers”* (Vygotsky, 1978, p. 86).

It is important that future research focus on developing a language learning strategy inventory for all levels of the students as they enter and continue in the NCPA program. Thus, a grade-to-grade portfolio could provide the impetus for documentation. Such an inventory would facilitate the identification of student’s strategic usage with similar opportunities across grades. The present study aimed to fill a gap in current research by focusing on the EAL students at NCPA. However, research related to student’s language-learning strategies is still in its infancy.

Purposes for writing include developing social networks; engaging in civic discourse; supporting personal and spiritual growth; reflecting on experience; communicating professionally and academically (Richards and Rodgers, 2001). Writing is not just one thing. It varies in form, structure, and production process according to its audience and purpose. The processes and ways of thinking that lead up to these varied kinds of texts can also vary widely, from the quick single draft email to a friend to the careful drafting and redrafting of a legal contract. The different purposes and forms both grow out of and create various relationships between the writer and the potential reader, and relationships reflected in degrees of conventionalism in language, as well as assumptions about what knowledge and experience is already shared, and what needs to be explained. Writing with certain purposes in mind, the writer focuses attention on which the audience is therefore, the thinking, the procedures, and the physical format in writing all differ when writers’ purposes vary. The student subjects were encouraged to write for themselves initially. The memoir project gave freedom from judgement then slowly built the idea that their writing would be read by the teacher, then after several edits, would be ready for a bound copy that could be shared by whomever they wanted.

The researcher concluded that in the control group the students wrote only to prove that they did something they were asked to do, in order to get credit for it, until they were asked to share their own story. Many students were taught a single type of writing and were led to believe this type will suffice in all situations. Writers outside of school have many different

purposes beyond demonstrating accountability, and they practice a myriad of writing styles (see Fig. 3).

The researcher determined that the general instructors of composition, in most writing programs, should know about various methods of assessment of student writing. Instructors must recognize the difference between formative and summative evaluation and be prepared to evaluate students' writing from both perspectives. The U.S. Common Core Standards, which were used to grade student-work in this project allowed for all memoir work to remain in the formative domain. By formative evaluation here, we mean provisional, ongoing, in-process judgments about what students know and what to teach next. By summative evaluation, we mean final judgments about the quality of student work (Graham, S., & Perin, D. 2007).

In order to make sure students were learning how writing differs when the purpose and the audience differ, it was important that the researcher created opportunities for students to be in different kinds of writing situations, where the relationships and agendas had varied, all the while continuing to complete their memoir chapters. Even within academic settings, the characteristics of good writing vary among disciplines; what counts as a successful lab report, for example, differs from a successful history paper, essay exam, or literary interpretation. The researcher's final conclusions are ongoing, however the following can be extrapolated:

1. Strategies and forms for writing in a society are better understood when a person can write about his/ her own society
2. The wide range of purposes for which people write, and the forms of writing that arise – come from deeper self-purpose
3. Ways people use writing for personal growth, expression, and reflection and how to encourage and develop this kind of writing is comprehended after experimenting with this form of action.
4. Students who participate in aesthetic or artistic forms of writing are able to analyze the production of creative and literary texts, for the purposes of entertainment, pleasure or exploration.

Limitations

Students who were observed and the writing that was collected was not done over a sufficient period of time, the data collection is ongoing. The background of language acquisition is still in the stage of research, as many students have had travel and living abroad experiences while others have not, this has shown a considerable discrepancy in the data and has to be rectified. A small number of students have shown fossilization in the area of second/third language acquisition and have not moved from the pre-production stage (both in speaking and writing). Certain students in other settings might have been screened for varying exceptionalities and learning disabilities, however China does not provide learning specialists in schools.

Figures

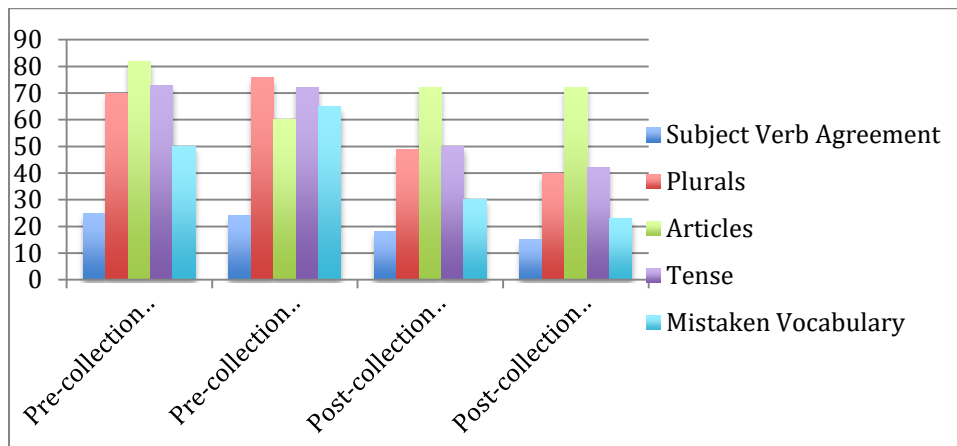


Fig. 1 Cross Coded Errors in Spoken Interviews and Written Narrative Writing

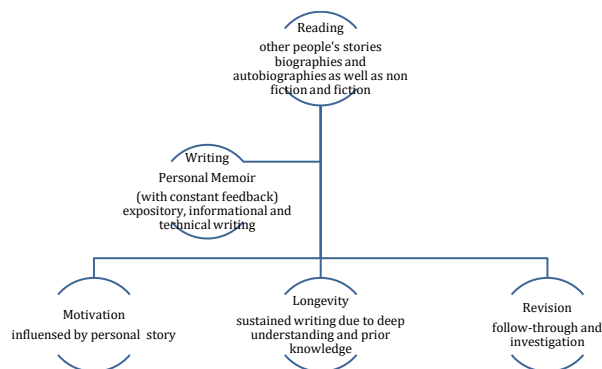


FIG. 2 The framework provides a top down and bottom up configuration that supports learning in either direction.

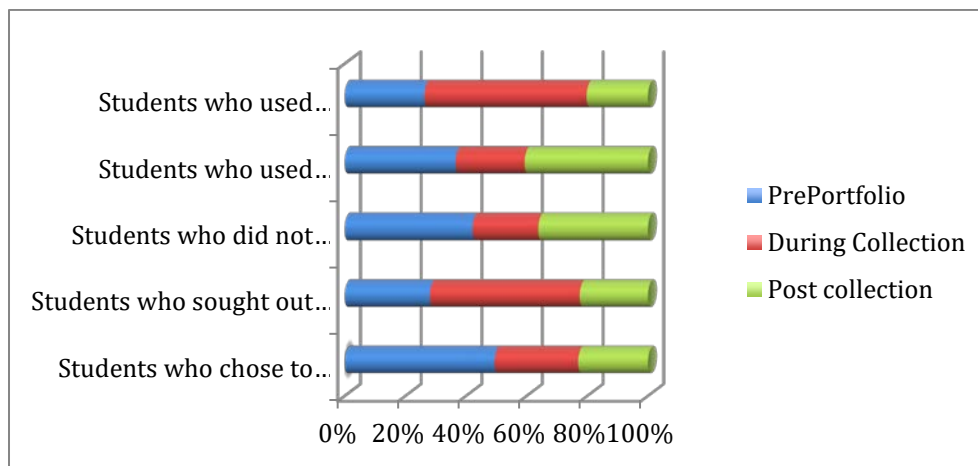


Fig. 3 Taxonomy usage in writing strategies as collected in the field (during class discussion)

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Tendencies and Preferences of Choosing Information Sources in Academic Learning: A Case of Native Hebrew and Native Arabic Speakers in Israel

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Abstract

In this article, we describe a study which examined factors that dominate the preferences of Israeli native Arabic speaking (NAS) students and those of Israeli native Hebrew speaking (NHS) students for choosing digital, printed, written, or orally conveyed information sources for academic learning. The study included 173 students (109 NHS; 64 NAS) from two academic institutions located in northern Israel who participated in the same two annual academic courses. We examined the perceived attribution of eight different information sources common in academic learning and 15 information source criteria that are relevant for the NAS and NHS students' preferences. We conclude that differences in perception of scope, depth, accessibility, trustworthiness, clarity, and especially the perceived ability of cognitive processing from various information sources can explain the “Digital Divide” between NAS and NHS Israeli students in the context of evaluating the contribution of different information sources for their learning. Thus, a techno-socio-cultural Second Order Digital Divide emerges.

Keywords: *Information characteristics, Digital divide, Decision making, Native language cultural learning effect.*

1. Introduction

As adults, we perceive the world, and we conceive and learn about its nature by using the information to which we have been exposed and by the manner in which we process it. Ostensibly, techno-economic globalization, by creating an abundance of highly accessible information sources to diverse populations, was expected to narrow the gap in knowledge-based information processing between minorities and socio-economic dominant populations. However, in the last decade or so, in many minority socio-environments, this narrowing has not been achieved (Ganayem, Rafaeli, & Azaiza, 2009). Although “digital readiness” is widespread, socio-cultural and other factors seem still not to support such technological readiness among minorities (Habib, Johannesen, & Øgrim, 2014). Digital readiness is the extent to which a population, a group, or a person has the potential to acquire and integrate cognitive skills in an instrumental digital environment (Horrigan, 2014). Lack of such readiness creates a “digital divide” that is commonly susceptible to differences of gender, education, age, language skills and socio-economic status. One of the important aspects of the study about the impact of this digital divide on integrating minorities, and one that has hardly been studied, is how minorities perceive, evaluate, and implement information sources and information in general, particularly in comparison to well-based dominant socio-economic populations in a society.

Therefore, the purpose of this study was to return to the fundamental issues and raise some rather basic questions concerning the distinctive characteristics of a specific minority regarding their information perception. We assumed that answers to such questions would shed light on the difficulty of narrowing the digital divide between minorities and majorities, inasmuch as the latter are the more technologically advanced population.

The primary and most common way in which most of the public engage with information in a scholarly mode is through learning in order to acquire education. Meaningful learning is a process that has critical implications that extend beyond merely acquiring knowledge. It is the major factor in creating differences in income and standards of living among various sectors of a population. In Israel, this factor is dominant among women, both ultra-orthodox NHS and NAS (Yashiv, 2011), hence the importance of the issue and the contribution to the knowledge on the subject.

2. Theoretical Framework and Literature Review

Previous studies have shown some of the factors that directly or indirectly affect difficulties in using digital information sources as leverage for academic orientation, and enhance the preference for the use of certain information sources, especially by the NAS public. These factors can be divided into two main groups. First, there are factors based on the degree of implementation and assimilation of technology (computer ownership, browsing speed, etc.). These are monotype factors, i.e. indexes that focus on one issue that we wish to explain (Barzilai-Nahon, 2006). Second, there are contextual factors, which are comprehensive and based on the satisfaction of users' individual and multiple needs in their operative environments (communication, social networks, cultural interests, etc.).

The main factors associated with assimilation and implementation are related to accessibility and availability and are usually referred to as factors causing a “first-order digital divide” (“accessing divide”) (Zeng, 2011). These factors include the following: (1) owning a computer; (2) having an Internet connection (Mesch & Talmud, 2011); (3) the specific position on Roger's innovation distribution curve; (4) socio-economic status; (5) gender; (6) geographic location; (7) religion; (8) age; (9) education (Ganayem, Rafaeli, & Azaiza, 2009); (10) the extent of usage and its characteristics (Boniel-Nissim & Daw, 2009), and other similar factors (Barzilai-Nahon, 2006). Although these factors might explain the

digital divide in terms of accessibility and availability of interactive-informative digital media, they still cannot explain the differences in dispositions and tendencies of using these digital media among NAS and NHS students, when their access to digital information sources is fairly equal. In other words, when conditions for technological assimilation are equal, what can explain the differences in assessment, preference, and use of information sources between NHS and NAS students?

Among the contextual factors causing a second order digital gap (“usage divide”) (Zeng, 2011) that may explain a preference for the use of digital information (or other information sources), we can find the following:

- differences in exposure to the Internet and digital media in the workplace that create negative attitudes towards information technology and mastery level English (Mesch & Talmud, 2011),
- the possibility of circumventing cultural prohibitions of interpersonal relationships,
- the tendency to adopt western cultural values (Boniel-Nissim & Daw, 2009),
- the need for accessing the latest information not only through the Israeli media (Kabha, 2007), and
- satisfying intellectual needs such as developing critical thinking and professional development.

Also we can find factors concerning the use of language (Hebrew) as a tool for instrumental integration, socio-linguistic gender tendencies in use of communication technology (Gefen, Geri, & Paravastu, 2007), and the social-cultural meaning of religious affiliation and its power in the sense of hierarchy, patriarchy, discipline, and seclusion (Barzilai-Nahon & Barzilai, 2005).

Both in theory and in practice, mastery of the language of instruction, especially when it is a second language, seems to be the dominant contextual factor. The level of such mastery should affect the preference for digital, written, printed, or oral information sources equally among speakers of Hebrew as a second language who have English as a third language. Although a certain gap in learning skills seems likely to cause difficulties for acquiring new information between NHS and NAS students when the information and its source is in Hebrew, this gap is actually not explained predominantly by the level of Hebrew mastery (Miller & Peleg, 2010). Even after gaining sufficient mastery to enable learning, the second language speakers still show no significant change in the level of textual understanding.

In a comprehensive experiment, Miller and Peleg (2010) examined students’ ability to learn Hebrew words, both those that have meaning and nonsense words (meaningless strings of letters). They found that native Hebrew speakers’ ability to learn the words were higher than the ability of native Arabic speakers. Miller and Peleg concluded that language mastery do not solely explain learning ability when learning is not in the native language. Miller and Peleg offered two explanations for this finding, one cognitive and one emotional. The first explanation suggests a difference in working memory between NHS and NAS, as a minority population. They relied on similar findings among populations who speak proximate languages (the researchers have found the proximity of Hebrew and Arabic as Semitic languages to be similar to the proximity of German, Dutch, and Norwegian as Germanic languages) (Van den Noort, Bosch, & Hugdahl, 2006). The second explanation they offered is anxiety due to using a second language in studying (Abu Rabia, 2004).

The reasons for the preference of information sources seem then to be based on a variety of factors not necessarily related to distribution, accessibility, or availability of the medium. The question, therefore, is which characteristics of the information perception are the factors that influence decision-making about the information source selection and its use?

In recent years, the perception of information has changed paradigmatically. Changes in availability, accessibility, updateability, and contemporariness of harmonic digital

information sources may cause the printed and disharmonic information sources to be obsolete. The argument that information perception is changing paradigmatically is also based on the observation that the cognitive abilities and skills needed to process information from digital vs. from printed sources have major differences (Eshet & Amichai, 2004), especially in terms of the complex cognitive skills necessary for digital information processing (for example: hyper-texts). On the other hand, the common tendency is to attribute higher reliability to printed information because it is formal and (usually) distributed from an expert source. This is especially true in an environment of uncertainty about the subject at hand (Tiedens & Linton, 2001).

It is fair to assume that in cases where learning topics do not raise the individual's emotions, cognitive aspects will be the main factors in determining the attitude toward a source of information and how one perceives it. Thus, by aiming to maximize the expected utility from using the information source, the user will consider the value of the expected information relative to the resources needed for extracting it from the source (Venkatesh & Morris, 2000). Although this perception of benefit varies with experience, one can still reasonably estimate the chances of success in using the specific source by referring to experts' and experienced users' evaluations (Gershoff, Broniarczyk, & West, 2001).

Although people tend to select an information source by the possibility of maximizing its utility in learning (as perhaps in general usage), the abundance and availability of digital information creates difficulties for such maximization. This phenomenon is well known from the Minnesota experiments conducted in the early 1970s, and its essence is that information richness allows the maximizing of information utility, but it also induces an association of uncertainty, thus resulting in a lack of confidence in the selection of information sources (Banker & Kauffman, 2004). Moreover, this conflict causes a heuristic bias in the selection of sources because the abundance of choices generates the thought of a potentially better choice than the one chosen, imposing more responsibility on the student's source selection. Therefore, students may often regret their choices; no matter how excellent the choices were, because the profusion of sources creates the appearance of other options that might have been better (Schwartz, 2005). For a better understanding of information source selection and the decision-making process involved, we need to examine the dominant criteria by which information sources are evaluated in academic learning.

For this study of evaluating information sources in the academic context at the beginning of the digital age, we have adapted printed information criteria for evaluation to apply to digital information. Early in digital age, Alexander and Tate (1996) divided the criteria for evaluating information into five groups: authority, objectivity, scope, contemporariness, and accuracy. A decade later, the perception of assessing digital information source had somewhat changed. The indicators of scope and accuracy (content criteria) became less important, while information source criteria (authority, objectivity, and, to a certain degree, contemporariness) became the main indicators while distinguishing between the publisher's and the authors' authority (Knight & Burn, 2005). This change may be an attempt to deal with multiple sources of digital information (academic and other). The assessment of information quality is mainly an evaluation of the source's "status" (the authors' and the publisher's) and a relatively superficial evaluation of the information itself (Towlson, Leigh, & Mathers, 2009).

Therefore, the questions to which we aimed this study are as follows:

- What are the differences among NHS and NAS students regarding their preferences for educational information sources? and
- What are the differences in the criteria for preferred educational information sources between NHS and NAS students?

3. Research Methodology

In order to answer these questions, we constructed an attitude and perception questionnaire that relates information source characteristics to learning. Data collected from a student focus group from the Department of Information Science indicate a reasonable reliability of the questionnaire (Cronbach's alpha was between 0.80 to 0.87 among NAS and NHS). The age range of the participants was 18 to 30 (no significant age-related differences were found in positions, perceptions, or preferences for information sources). After analyzing the pilot questionnaire items for reliability and validation, we removed items that turned out to have low reliability. After this step, the questionnaire given to the whole population contained the following criteria and characteristics (independent factors):

- Availability of information source: the ease of obtaining the source of information (5=very easy, 1=very difficult).
- Accessibility of information from the source: the ease of obtaining information from the source, once the source is available (5=very easy, 1=very difficult).
- Substantiation of information about the topic: the ease of understanding the bases of information and knowledge in this source.
- Relevance of the information: the extent to which the information presented is relevant and related to the topic.
- Interest and curiosity that information raises: information and knowledge from this source is unique and stimulates a desire to know more.
- Information trustworthiness: the extent to which information is accurate and based on well-defined terms (5=very well based and accurate, 1=doubtful establishment).
- Contemporariness: the extent to which information is contemporary or old (5=very contemporary, 1=obsolete).
- Scope of information: the physical size of the information, e.g. number of words, paragraphs (5=very large, 1=very small).
- Comfort level of information processing: how convenient it is to work with the information while given a cognitive task, such as searching, sorting, comparing, or solving problems (5=very easy, 1=very difficult).
- Comfort level of additional information mining: the convenience of searching more information in this medium (5=very convenient, 1=very difficult).
- The depth and detail of information: the extent to which information contains extensive details and meanings (5=very detailed, 1=very superficial).
- Comfort of reading the information: how comfortable it is to read the text, charts, etc. (5=very easy, 1=very difficult).
- Comfort of using the information for writing: how convenient it is to write on the basis of the given information (5=very easy, 1=very difficult).
- Convenient storage of information: how convenient it is to keep the information for further use (5=very easy, 1=very difficult).
- Clarity of information: the extent to which the presented information is clear and obvious (5=very easy, 1=very difficult).

In addition, some other general independent factors were measured: age, gender, residency (rural, urban - small, large) and mastery of English (1-5).

The dependent factor that was examined:

- Learning consolidation priority: to what extent would you prefer to use this information source in learning? (5=highly preferred, 1=mostly avoided).

The students' evaluations of the information source criteria were examined for eight information source domains: (1) online scientific journal articles; (2) online newspaper articles; (3) scientific videotapes/DVDs or YouTube-type videos of hands-on experiments;

(4) blog posts, wall posts, or other social networks postings (Facebook, Twitter, etc.); (5) digital encyclopedias or dictionaries; (6) scientific-based printed articles or books; (7) summaries and notes of course lectures; and (8) trustworthy individuals who I believe understand the issue.

In order to answer the research questions, we applied two data analyses. First, we implemented independent T-tests for comparing NAS and NHS students' perceived value of various domains of information sources. The second analysis was a stepwise multi-variance regression to establish the main factors influencing the preferred information sources chosen for learning, among NAS and NHS students.

4. Findings

The most conspicuous finding was that NAS students did not appreciate online scientific journal articles as one of the main information sources needed for academic learning, whereas NHS students regarded this information source domain as one of the two most appreciated (NAS average 3.33, NHS average 4.12). This finding is intriguing because English language mastery was not found as an influencing factor, although English is not a native language for either population. We made a similar observation regarding digital encyclopedias or dictionaries as a source for learning (NAS average. 3.11, NHS average. 3.66, sig. <0.001). A second, but rather expected and less salient finding than the first, is that NHS students relied on printed articles or books from scientific origins as a dominant source more than did the NAS students (NAS average. 3.89, NHS average 4.19, P-value=0.067).

The NAS students seemed to rely on trustworthy individuals who they believed understand the issue as a compensating factor for presumed difficulties in relying on scientific origins, digital or otherwise, whereas NHS students did not regard such a source as a profound or available source for learning (NAS average. 3.81, NHS average 3.40, seg.>0.05).

Table 1: NAS and NHS students' preferences for using different information sources.

Mean learning consolidation priority of information sources: Differences between NAS and NHS students								
	online scientific journal articles	online newspaper articles	scientific videotapes/DVDs or YouTube-type videos of hands-on experiments	blog posts, wall posts, or other social networks postings	digital encyclopedias or dictionaries	scientific-based printed articles or books	summaries and notes of course lectures	trustworthy individuals who I believe understand the issue
NAS (N=64) Mean (SD.)	3.33 (1.13)	3.08 (1.09)	3.35 (1.11)	2.52 (1.09)	3.11 (1.17)	3.89 (0.96)	3.98 (1.14)	3.81 (1.12)
NHS (N=109) Mean (SD.)	4.12 (0.83)	3.32 (0.95)	3.56 (1.04)	2.45 (1.12)	3.66 (1.15)	4.19 (0.79)	3.97 (0.95)	3.40 (1.04)
Sig.	<0.001	Non sig.	Non sig.	Non sig.	<0.01	<0.1	Non sig.	<0.05

For a better understanding of the causes and factors upon which NAS and NHS students prefer specific source domains of information for learning, we analyzed two salient

types of information sources for the independent factors that dominated the selections among our participants. We examined the selections of online scientific journal articles [Table 2] and trustworthy individuals [Table 3] because they were the most influential information criteria.

Table-2(a): Factors effecting online scientific journal articles as a source preference among NAS students.

independent variables	Non Std. regression coefficient		Std. regression coefficient	test statistic		correlations		
	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Substantiation of information about the topic	0.375	.120	0.449	3.138	<.001	.449	.449	.449

Note: Multiple-regression (stepwise method) for factors effecting online scientific journal articles source preference for learning among NAS students (N=64). Dependent variable: online scientific journal articles as a source for learning.

In light of the findings presented in Tables 1 and 2(a), NAS students seem likely to avoid using online scientific journal articles unless the information from this source were well substantiated for the topic at hand ($r=.449$).

Table-2(b): Factors affecting online scientific journal articles source preference for learning among NHS students.

independent variables	Non Std. regression coefficient		Std. regression coefficient	test statistic		correlations		
	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Comfort level of information processing	.270	0.100	0.298	2.698	0.009	0.526	0.297	0.242
Substantiation of information about the topic	.205	0.082	0.255	2.512	0.014	0.471	0.279	0.225
Comfort level of additional information mining	.201	0.098	0.233	2.059	0.043	0.512	0.231	0.185

Note: Multiple-regression (stepwise method) for factors effecting online scientific journal articles source preference for learning among NHS students (N=109). Dependent variable: online scientific journal articles as a source for learning.

NHS students' reasons for choosing online scientific journals as information sources are complex. They mostly valued the characteristics of the comfort level of information processing ($r=.242$), the substantiation of information about the topic (.225), and the comfort level of additional information mining (0.185) [Table 2] imbedded in online scientific journal articles.

Table-3(a): factors effecting the reliance on trustworthy individuals who understand the issue as a source preferred for learning among NAS students

independent variables	Non Std. regression coefficient		Std. regression coefficient	test statistic		correlations		
	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Availability of the information source	0.720	0.109	0.686	6.599	<0.001	0.739	0.722	0.665
Interest and curiosity that the information raises	0.244	0.114	0.223	2.144	0.038	0.388	0.321	0.216

Note: Multiple-regression (stepwise method) for factors affecting the reliance on trustworthy individuals who understand the issue as a source preferred for learning among NAS students. (N=64). Dependent variable: reliance on trustworthy individuals who understand the issue as an information source.

NAS students seemed likely to approach a scholar for obtaining information due to two main factors: availability of the scholar ($r=.665$) and intrigue level of the topic – to some extent, the students' interest and curiosity (.216) [Table 3(a)]. Among NHS students, specific attention to an individual scholar's knowledge and information depends mainly on the direct relevance to the topic or issue at hand ($r=.431$) [Table 3(b)]. While NAS students sought for available individuals who possess scholarly or expert knowledge, and they also seemed to look for the scholars' opinion and guidance on the topic the students' were learning about, the NHS students tended to refer to those presumed scholars or experts according to relevance.

Table-3(b): factors effecting the reliance on a trustworthy individual who understands the issue as a source preferred for learning among NHS students.

independent variables	Non Std. regression coefficient		Std. regression coefficient	test statistic		correlations		
	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Relevance of the information	.456	.112	.431	4.085	<.001	.431	.431	.431

Note: Multiple-regression (stepwise method) for factors effecting the reliance on a trustworthy individual who understands the issue as a source preferred for learning among NHS students. (N=109). Dependent variable: reliance on a trustworthy individual who understands the issue as an information source.

5. Discussion

In light of the findings presented in Tables 1 and 2(a), the NAS students seemed likely to avoid using online scientific journal articles for learning, unless the information from the source were well substantiated for the topic at hand. As this domain of information becomes more common for academic learning, educators should concern themselves with the issue of substantiating online information sources. The issue of substantiation, or rather students' perception of substantiation, should be explored further for what sort of substantiation is

perceived as convincing enough, beyond rigorous study methodologies. Among the NHS students, this factor also affected using online articles, but it was combined with two other factors: their comfort level with information processing and their comfort level with additional information mining. Although for both student populations the correlations were medium-low and thus have a limited explanatory value ($20\% < R^2 < 26\%$), still the correlations reveal a critical perception about students' attitude towards online scientific articles.

The NAS students tended to seek information that was processed and constructed into a body of knowledge and that was orally conveyed by a scholar, whenever he or she was available and raised interest and curiosity ($40\% < R^2 < 48\%$, Table 3(a)). This reliance on a scholar as a mediator of information was more prominent among NAS than NHS students (sig. < 0.05 , Table 1). However, NHS students will consider using an orally-presenting scholar as a source if the information is relevant to learning ($R^2 = 19\%$, Table 3(b)). Those findings, among others, led us to construct two sets of explanatory perspectives for the “second-level digital divide” (Zeng, 2011) among minorities, both global and local.

From the global perspective of socio-cultural “digitally divided” minorities, the NAS students’ reliance on an information and knowledge mediator is not merely a technological one. Minorities, native or immigrant, rely on trustworthy mediators and facilitators whom the minorities consider to be part of the well-established techno-social population. This observation seems to be common among many multicultural societies in the USA with differences between particular minorities (Kress, 2009), in India concerning the Muslim minorities (The Report on the National Consultative Summit, 2011), and in Finland concerning international students (Habib, Johannesen, & Øgrim, 2014). Habib, Johannesen, and Øgrim (2014) captured the essence of this goal of encountering the problem thus:

“Technology as a socio-material assemblage may encapsulate cultural codes that can be alienating for international students and that there is a need to ‘open the black boxes’ of technology to cater for the needs of international students” (p. 196).

From the local Israeli perspective, the differences between NHS and NAS students can be explained by two sets of reasons: socio-educative and cognitive-linguistic norms. The socio-educative reasons could include previous findings that NAS K-12 students study in an authoritative and traditional environment that emphasizes the need to respect the wisdom of the elders. Thus, the learning environment does not prompt curiosity and does not encourage the students to ask questions, to research, or to be creative (Abed, & Dori, 2013). Furthermore, the NAS undergraduates seem to learn patterns in a similar way to their learning patterns in the K-12 system (Peled & Khaldi, 2013), which Abed & Dori (2013) described as a simple and linear learning pattern. The cognitive-linguistic set of reasons can suggest differences in working memory (Miller & Peleg, 2010), deficiency in using the right hemisphere while reading in one’s native language and especially when evoked bilaterally (Ibrahim & Eviatar, 2012) or decision making preferences that are subjected to “avoiding the worst” while managing a tangling abundance of information (Merdler, 2012).

6. Conclusion

The practical implication of these findings may be a contribution to maximizing minorities’ learning potential. We suggest that in order to utilize the minorities’ fullest learning potential, socio-technological-cultural mediation is needed to bridge the digital divide.

It is commonly known that minorities, may they be native or immigrant by their nature, tend to preserve their own cultural identity. According to the reviewed literature on the issue and our research findings, some changes in the cultural way by which information technology is used by minorities should be made to maximize their assimilation in the

learning and workplace environments. Encountering such goal should not be the sole concern of those minorities but rather the concern of the well-established local majority. Therefore, well prepared and motivated individual, within those majorities should be their mediators, educators and assimilators in the field of information technology usage, at the workplace as well as at educational institutes.

The study uses a multi-level-domain questionnaire which was constructed according to the known and reasonable issues and characteristics appearing in the literature, but by all means it may not be the only ones effecting information source preference. Therefore, we suggest that further research should illustrate the actual information preferences when students value and choose information sources while learning, presumably by an experiment and/or qualitative research methodologies. While the study external validity is limited for its small and rather homogenous sample, still the internal validity is more than adequate since it reflects the local (galilee-northern Israel) digital divide student's entanglement. Therefore, the socio-cultural complexities of effective information technology assimilation should reflect both local uniqueness as well as global tendencies.

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The Development of the Proposed National Competency-Based Standards (C-BS) for Physical Education Teachers

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Abstract: This study aimed to develop a proposed national standard based tool on competencies to evaluate the teaching performance of Physical Education (P.E.) teachers. The researcher used a combination of qualitative-developmental research method and quantitative data. Findings showed that in terms of common descriptions, the respondent schools followed the P.E. courses mandated by Commission on Higher Education (CHED) memoranda. The schools concerned offer two credit units, for a total of eight units within four semesters, and 36 hours per semester. The 535 or 100% of the respondents' perceived that the standards and indicators of teaching competencies were highly expected to be part of the evaluation tool. In addition, other standards and indicators were considered highly important and fitting to measure the teachers' competency level according to 25 or 100% experts who were interviewed. In conclusion, the respondent schools were compliant with DepEd Order and CHED Memorandum Order although a few of them failed to comply in the area of sports. This was due to lack or absence of P.E. equipment and other requirements in physical activities. Inasmuch as the standards and indicators as well as the data or information were highly expected by the respondents, these were included in the proposed evaluation tool.

Keywords: Competency Based-Standards, Physical Education Teachers, Specific Performance Evaluation Tool, Teaching Performance

INTRODUCTION

In the Philippine Educational System, Physical Education (P.E.) is among the disciplines to be offered in schools as mandated by the Philippine Constitution of 1987, Article XIV, Section 19 which states that, “the State shall promote physical education and encourage sports programs, league competitions, and amateur sports, including training for international competitions. All educational institutions shall undertake regular sports activities throughout the country in cooperation with athletic clubs and other sectors, and excellence for the development of a healthy and alert citizenry”. Thus, P.E. is a requirement that students ought to complete for the first two years in college and even in the junior and senior high schools required by Commission on Higher Education (CHED) and Department of Education (DepEd). This discipline includes physical fitness, rhythmic activities, individual/dual sports and team sports. Since P.E. is an integral part of the school curriculum, its programs must be comprehensive and structured to meet the standards defined by the CHED and DepEd. A well-balanced and all-round P.E. course helps to create responsible adults who know the importance of a healthy lifestyle.

Book writers on P.E. and educators as well believe that quality P.E. curriculum coupled with competent P.E. teachers could develop and strengthen the health and well-being of students. As stated by Davis et al. (2005), P.E. contributes positively to students’ personal, social, emotional, cognitive and physical development. It also promotes excellent opportunity to promote the benefits of exercise and participation in any physical activity. Physical Education includes training in the development and care of the human body and maintaining physical fitness. This enhances the overall cognitive abilities of the students and their knowledge about the different kinds of sports and physical activities. Davis et al. (2005) claim that P.E. maintains life, complements education in virtue and knowledge, strengthens the body, enhances knowledge and strengthens the will of the person. The role of the physical education teacher is closely related and must be akin to and jibe with their philosophical beliefs, skills and teaching strategies. Moreover, a teacher does not only transmit knowledge but also develop the mental, social and emotional aspects of the child. Wikerson & Lang (2007) averred that great teachers have a deep understanding of the subjects they teach. They work with a firm conviction that all children can learn. They know and use teaching skills and complete arsenal of assessment strategies to diagnose and respond to individual learning needs. In addition, teachers have their own styles and techniques for effective instruction. More so, Zulueta (2006) points out that teaching and learning are complex, multi-dimensional, and require human communication and interaction. Through this, learning is easier and enjoyable for the students. To heighten the teacher’s skills, it is necessary that the instructional competence of the P.E. teachers must be improved continuously. This way, their expertise and passion to teach become profound.

In all teaching endeavors, instructional competencies are significantly necessary in order to improve teaching performance. Teachers’ competencies are vital in achieving a culture of excellence and help develop the students into well-rounded individuals. Parallel to this idea is the statement of Branković (2011) in Stojanović and Zdravković (2012), that the integrity of commitment to a certain goal is competency. With these views, the school is responsible and accountable in assigning qualified and competent teachers to handle the subject. According to Marsh (2004) competent professionals should possess the attributes necessary for job performance. These should be spelled out in the appropriate standards that comprise knowledge, abilities, skills and attitudes. Salandanan (2001) supports this view when she averred that teachers, in order to be competent must be committed, dedicated, and must manifest strong leadership ability. Teachers must have high motivation to continue learning, ensuring their own growth as individuals, as professionals and as facilitators of the growth

and development of their students. Wuest and Bucher (2009) said that competent teachers possess superior human relation skills, listen to students and accept students as individuals, treating them as such and strive to instill in each student a sense of self-worth. This means that the effectiveness and ineffectiveness of teaching is closely linked to teaching competence. This was supported by Tulio (2010) who stated that teaching competency has various dimensions. These are content knowledge, instructional planning, student motivation, presentation and communication skills, evaluation competencies and classroom management skills.

The above concepts show that P.E. teachers must be knowledgeable enough about how to perform and teach different physical activities, utilizing appropriate equipment and materials to ensure proper skills development. In this relation, effective physical education teachers must have the mastery of the subject matter, possess the requisite knowledge and skills. In addition, the teacher must be responsible in directing, supervising, regulating and controlling the class activities to realize optimum results (Davis et al., 2005).

According to Wuest and Fisette (2012), conducting quality P.E. program requires dedicated and competent teachers. Accordingly, a competent P.E. teacher should possess dispositions, knowledge, and performance competencies. The National Association for Sport and Physical Education (NASPE, 2007), an international association, opines that appropriate instruction is a key element of a high-quality physical education program. The association further views that high quality programs focus on meeting the developmental needs of students and developing the skills, knowledge and attitudes essential to adopting a healthy and physically active lifestyle. To achieve this, teachers must be well developed and *evaluated appropriately*. Similarly, Wilkerson and Lang (2007) point out that it is equally important that teacher preparation and development programs must use systematic processes based on recognized *teacher standards and identify the needed skills* to ensure that teachers have met the standards and developed the instruction targeted at helping teachers succeed.

From the aforementioned theories/views, it is clear that teachers play a major role in the students' growth. In fairness to them, their teaching competencies have to be assessed properly using a reliable and valid assessment tool. *A fortiori*, there is a need to come up with the competency-based standards in evaluating the P.E. teachers' specific teaching performance in compliance with the CHED guidelines and standards for collegiate service Physical Education Program.

The researcher believes that the subject or the course promotes desirable values, both for intrinsic experience and extrinsic ends. However, it has been noted by most of P.E. teachers and administrators (based on interviews and observations) in the Philippines, that one of the current issues and concerns in teaching P.E is the absence of the competency-based standards to assess teaching performance. These concerns were raised by said people during the in-service trainings attended by the researcher. In detail, they asserted that some schools use common or similar evaluation tools for all subjects like Mathematics, Science, Social Studies, Languages, among others, which contain indicators for competencies. These tools are not all throughout suitable to evaluate teaching competence in P.E. Furthermore, physical education in practice gives more impetus on skills development although it does not neglect or ignore the all-round development of every student which also is taken care of in the teaching of other subjects for an integrated and balanced learning. Another feedback received by this researcher is that there are also limited seminars offered to P.E teachers and administrators, both local and international for the entire school year and this issue has happened for several years. In this situation, P.E. teachers make use of whatever is required by their own school and the provisions in the CHED and DepEd memoranda. As such, there is no specific and common evaluation tool for P.E. teachers' teaching performance. There is a need therefore, of a common set of national standards based on teaching competencies. The need for

competency-based standards is strongly posited by a researcher, Miguel (2012), who recommended, as a result of his research, that “the CHED set teaching competency-based standards specific to teaching physical education and to enhance teaching competency with special emphases on upgrading content knowledge” (The Mindanao Forum, Vol. XXV. NO.2, pp: 45-59).

Given the background on the importance of instructional competence and the rationale on the use of competency-based standards to assess P.E. teacher’s performances, the researcher was motivated to conduct this study.

METHODOLOGY

The respondents of the study were the P.E. experts, college/department administrators and P.E. teachers in the tertiary level of selected private and public schools in the National Capital Region (NCR) and Region 4-A during the first and second semesters of School Year 2014-2015. National Capital Region refers to the political or geographical divisions of NCR namely: City of Manila, Caloocan, Las Pinas, Makati, Malabon, Mandaluyong, Marikina, Muntinlupa, Navotas, Pasay, Pasig, Paranaque, Quezon City, San Juan, Taguig, Valenzuela, and the Municipality of Pateros. Region 4-A refers to CALABARZON namely: Cavite, Laguna, Batangas, Rizal, and Quezon provinces in the Philippines. There were 42 colleges and universities that offer service P.E. programs in the Philippines which were included in this study, 18 from the NCR and 24 from Region 4-A. There were a total of 34 administrators, 117 P.E. teachers, and 26 P.E. experts in physical fitness and self-testing activities; 34 administrators, 66 P.E. teachers and 34 P.E. experts in Rhythmic Activities; 34 administrators, 93 P.E. teachers and 37 P.E. experts in Individual/Dual Sports; and 34 administrators, 95 P.E. teachers and 33 P.E. experts in Team Sports. The schools were identified using the following criteria: (a) recognized by Commission on Higher Education, and (b) with two units in every P.E. course that offer physical activities like physical fitness and self-testing activities in P.E. 1, individual/dual sports in P.E. 2, rhythmic activities in P.E. 3, team sports in P.E. 4 and others.

To be able to attain the ultimate purpose of this study, the descriptive method of research employing survey, interview and documentary analysis was used. The researcher used a combination of the qualitative developmental research method with quantitative data. The principal instruments in gathering data were the self-made and self-administered questionnaire with checklists and interview guide. Views, opinions and suggestions regarding P.E. teaching competencies from the respondents were considered. The collected data were subjected to statistical treatment with the use of descriptive and statistical techniques. These were percentage, weighted mean, ranking, standard deviation, F-test or one-way ANOVA and Pearson-product moment correlation.

Findings and Discussions

TABLE I
SUMMARY OF THE TEACHING COMPETENCIES OF STANDARDS 1 TO 8 ACROSS
ALL P.E. COURSES (P.E. 1 TO P.E. 4) AS VIEWED BY
THE THREE GROUPS OF RESPONDENTS

STANDARDS 1 to 8 (Teaching Competencies)	P.E. 1 to 4		VI	RANK
	OAWM	SD		
1. Mastery of the Subject Matter	4.71	0.448	HE	6
2. Appropriate Teaching Methodology	4.72	0.419	HE	5
3. Appropriate Utilization of Instructional Materials	4.49	0.618	HE	8
4. Effective Classroom Management	4.79	0.393	HE	1.5
5. Communication Skills	4.79	0.383	HE	1.5
6. Evaluation Skills	4.63	0.609	HE	7
7. Personal and Social Traits	4.78	0.365	HE	3
8. Personal Appearance	4.76	0.408	HE	4
OVER-ALL TOTAL of OAWM	4.71		HE	

Legend: OAWM = Over-All Average Weighted Mean
VI = Verbal Interpretation

Scale:

4.21 - 5.00	- Highly Expected	(HE)
3.41 - 4.20	- Much Expected	(ME)
2.61 - 3.40	- Expected	(E)
1.81 - 2.60	- Somewhat Expected	(SE)
1.00 - 1.81	- Least Expected	(LE)

Table 1 shows the summary of the teaching competencies in different courses in P.E. Among the eight standards, items 4, **Effective Classroom Management** and 5, **Communication Skills** both rank 1.5 each with an OAWM of 4.79 and SD of 0.393 in item 4 and 0.383 in item 5. Boudourm (2012, p.1) points out that “little to no learning takes place in a chaotic class”. According to Ng (2014), when a teacher initially walks into a classroom, the teacher does not assess its effectiveness based on the students’ grades, writing skills, or state test scores, instead, the teacher looks to see how effective the classroom management is, such as how well the students conduct themselves, work collaboratively with each other, and how effective the teacher’s discipline is on them. Moreover, P.E. teachers must ensure that students are prepared before the start of the activity to prevent disruptive behavior and in order for the lesson to run smoothly. Corollary to this, Kizlik (2015) avers that classroom management and management of student conduct are skills that teachers acquire and are central to teaching consistency. Further, according to Srivastava (2015, p.1), “the effective ways of communication are clarity of message, completeness of message, individual’s facial expressions, eye contact, body postures, and external physical appearance”. From the results of the interview, one hundred percent of the administrators said that one of the most important competencies a P.E. teacher should possess is classroom management. Similarly, it is important that teachers maintain discipline in the class to attain lesson objectives and smooth organization of the activities.

Item 3, **Appropriate Utilization of Instructional Materials**, ranks last with an OAWM of 4.49 and SD of 0.618 verbally interpreted as HE. This implies that whatever existing instructional materials there are, P.E. teachers should know when and how to use these

materials and must be utilized fully for proper execution of skills. According to Rink, Hall and Williams (n.d), physical education must provide adequate equipment that allows children to be active at the same time.

The standards such as **Mastery of the Subject Matter** ranks 6, **Appropriate Teaching Methodology** ranks 5, **Evaluation Skills** ranks 7, **Personal and Social Traits** ranks 3 and **Personal Appearance** ranks 4 suggest quality teaching performance that could help improve students' learning. The OAWM of 4.71 of Standards 1 to 8 across all P.E. courses implies that the standards of teaching competencies and their respective indicators are highly expected by the respondents to be used as criteria in the performance evaluation tool of the P.E. teachers.

With the foregoing findings, it is safe to assume that these teaching competencies could be used as bases in the preparation of the C-BS evaluation tool for P.E. teachers in the four courses of P.E. covered in this study. All the standards and their respective indicators are highly expected by the respondents as part of the performance evaluation tool of the P.E. teachers. These teaching competencies were the bases in the formulation of the proposed competency-based standards (C-BS) as performance evaluation tools of the P.E. teachers.

For the purpose of confirming/enhancing the results of the written survey, the verbal aspect or the interview results from twenty-five P.E. experts were considered. Results of the interview showed that the experts of the different P.E. subjects highly expected the eight teaching competencies and their respective indicators as part of the performance evaluation tool of the P.E. teachers. Apropos the expectations from interviews, P.E. teachers are supposed to be versatile, resourceful and animated in teaching physical activities in the specific P.E. course. Since the subject requires more on the execution of physical activities, the P.E. teachers are expected to *have in-depth knowledge, understanding and skills of risk reduction and safety management*. Through these competencies, P.E. teachers are expected to be knowledgeable of the first aid treatment, ensure that students are reminded of the injury prevention and safety policies during the execution of P.E. activities, provide clear instructions in proper handling/using P.E. equipment/facilities and explain the basic technique in risk management plan. The role of the P.E. teachers is to make sure that students are safe in performing the different physical activities under their control. This will promote safety in the learning environment as an integral part of effective teaching-learning process. This means that the experts believe that P.E. teachers must be adequately knowledgeable and skillful in safety management specifically in applying first aid treatment during untoward incidents/accidents and in handling the P.E. equipment/materials.

Moreover, their *talents and proficiency in officiating and evaluating/assessing P.E. activities* are peculiar since not all teachers in non-P.E. and even some P.E. subjects possess this particular competency. This teaching competency implies that P.E. teachers must have an in-depth knowledge of officiating and evaluating/assessing different P.E. activities, can make accurate calls in a timely manner during sports activities, help refine dancer's posture/movement during dance activities and give opportunities for students to officiate and evaluate the game/dance activities. The application of these teaching competencies could enable the administrators/supervisors to measure the performance quality of the P.E. teachers. This way, the former will be able to help sustain or further improve P.E. teachers' strengths and help strengthen the weaknesses by providing more trainings, mentoring and closer supervision.

The findings show that aside from eight standards/teaching competencies such as (a) mastery of the subject matter, (b) appropriate teaching methodology, (c) appropriate utilization of instructional materials, (d) effective classroom management, (e) communication skills, (f) evaluation skills, (g) personal and social traits, and (h) personal appearance, two more standards should be added as teaching competencies of the P.E. These are the

following: a) talents and proficiency in officiating and evaluating/assessing P.E. activities; and b). in-depth knowledge, understanding and skills of risk reduction and safety management. These said specific competencies are among the teaching competencies considered important as part of performance evaluation tool of the P.E. teachers.

Findings also showed that in terms of common descriptions of P.E. courses, the respondent schools followed the P.E. courses mandated in Commission on Higher Education (CHED) Memoranda, stipulated in DECS Order No.58, s.1990, that all students in basic education and tertiary level must take P.E. courses in any of the listed subjects per semester such as: Physical Education 1, Physical Fitness; Physical Education 2, Rhythmic Activities; Physical Education 3, Individual/Dual Sports/Games; and Physical Education 4, Team Sports/Games.

The common P.E. courses offered are the following: In Physical Education 1: Aerobics, Physical Fitness Test such as curl-ups, shuttle run, walking, pull-ups, V-sit reach, standing long jump, running, step-test, push-ups, Philippine Games (Laro ng Lahi) and Health and Fitness; Physical Education 2: folk dances, social dances, modern dances and street dances; in Physical Education 3 : badminton, table tennis, swimming, arnis, taekwondo and chess; and Physical Education 4: volleyball, basketball and softball. The schools offer two units, for a total of eight units in four semesters, and 36 hours per semester in first and second year levels. Moreover, they follow the CHED memoranda that P.E. 1 must be taken during the first year since it is a prerequisite subject of other P.E. courses while P.E. 2 to 4 can be offered during any semester.

In conclusion, the respondent schools were compliant with the DepEd and CHED memoranda (DECS Order No. 58, s. 1990) regarding the offering of the P.E. courses in terms of course description, number of units, number of hours in the class and prerequisite subject. All standards and their respective indicators of teaching competencies are highly expected as part of the performance evaluation tool of P.E. teachers. The two standards and their indicators as suggested by P.E. experts are appropriate for inclusion in the evaluation tool.

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THE ENGLISH PROFICIENCY AND PROCESS SKILLS OF GRADES 5 AND 6 TEACHERS: BASIS FOR AN INTERVENTION PROGRAM

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ABSTRACT

National Achievement Test (NAT) is a standardized assessment test given to all Grade 6 and Grade 10 students in the Philippines every year. It is the only test so far administered by the Department of Education (DepEd) to determine the students' level of achievement in English, Science, Mathematics, and *Araling Panlipunan*. In the Division of Province of Cavite, Philippines, the result of NAT for the past three (3) years have not yet reached the target mean percentage score of 75. **PURPOSE:** It is in this regard that the researchers intended to determine the levels of English proficiency and process skills of 1,864 teachers handling Grades 5 and 6. **DESIGN/METHODOLOGY/APPROACH:** The study made use of descriptive-correlational research design. There was no sampling procedure used, instead, total enumeration of the participants was involved in the study. This study was conducted during August of 2015 using the standardized test conducted by National Education Testing and Research Center (NETRC). **FINDINGS:** The results revealed moderate level of Test of English Proficiency for Teachers (TEPT) and Process Skill Test (PST) results. It also manifested a weak positive correlation of the variables. **RESEARCH LIMITATIONS/IMPLICATIONS:** The study was limited on the Teachers English Proficiency Test and Process Skills Test in Mathematics and Science, and their correlation. **ORIGINALITY/VALUE:** Its contribution was the novel initiative to ascertain the proficiency and process skills of all teachers under the division as well as probing into the capacity of teachers to deliver quality instruction. The results provide a holistic perspective on the English proficiency and process skills of the teachers.

Keywords: *English, English Proficiency, Mathematics, Process Skills, Correlation Analysis*

Introduction (Context and Rationale)

NAT performance is an indicator of a quality instruction, while quality instruction depends on the quality of instructors or teachers in the classroom. In the Division of Province of Cavite, the result of NAT for the past three (3) years have not yet reached the target mean percentage score of 75, which is really alarming, therefore, one of the reasons is the quality of instruction being delivered in the class. This claim is supported by the observation and evaluation results conducted during *Oplan Pagmamasid*, a monitoring and evaluation program conducted by the DepEd Cavite province, that there are teachers who find it hard to deliver lessons in English, Science and Mathematics effectively using English as the medium of instruction, more so, in providing opportunities for higher-order-thinking with the pupils due to their limited skills in processing.

It cannot be denied that one of the important areas to consider in developing and maintaining teacher quality and teacher effectiveness is the consideration that teachers should be proficient in English and should have the needed process skills in Science and Mathematics such as; classifying; inferring; predicting; measuring/quantifying; communicating; interpreting data; analyzing data; evaluating; experimenting; making conclusions; making models; and defining operationally. English, as a primary and prevalent means of communication throughout the World, has been the language of instruction in majority of the subjects being taught to students. Literacy, proficiency and competency in language, becomes a necessary part in the competency of the teachers.

Last August 2015, the NETRC conducted and administered the English Proficiency and Process Skills Tests for Science and Mathematics to all Grades 5 and 6 teachers in public schools.

It is in this regard that the researcher being an Education Supervisor of Mathematics and Division Testing Coordinator in the Division of Cavite Province would like to determine the levels of English proficiency and process skills of teachers specifically in Science and Mathematics handling Grades 5 and 6 based on the results of the standardized test conducted by NETRC. In the same manner, the researchers would like to develop an intervention program that would help these teachers improve in those said areas. Hence, this study intended to ascertain the English Proficiency and Process Skills of Grade 5 and 6 teachers of the division of Cavite and sought its correlation.

Literature Review

English Proficiency of Teachers

In the study of Nallaya (2012), the author investigated the measurement of change in English language proficiency levels of pre-service and in-service teachers enrolled in a public university in Malaysia. Path analysis was used to measure change on three occasions by examining the effects of student characteristics, learning needs and multimodal technology on proficiency levels. An English Proficiency Test was used as the outcome variable. The results indicated that two direct factors influenced this change, namely, the Malaysian University English Test (MUET) and Multimodal and Language Proficiency. On the third occasion of this study, learning needs and students' State of origin reflected a mediated effect on the English Proficiency Test through Multimodal and Language Proficiency. The findings also indicated that students' learning needs indirectly influenced their English language proficiency test scores on the third occasion. This study confirmed that the greater use of the procedures of Multimodal and Language Proficiency facilitated the development of English language proficiency.

While on the paper of Hamid and Nguyen (2016) focused on English teachers in Asia in the context of globalization, the global spread of English and the emergence of English as

an "Asian language." It highlights the dilemmas facing these teachers in meeting the growing social demands of English proficiency in a technology-influenced, managerial and neoliberal education environment with limited expertise, skills and policy support. They drew on insights from several Asian countries including Bangladesh, India, Indonesia, Japan, Malaysia, Pakistan and Vietnam. They argued that while English teachers are found to exercise their agency to meet changing demands of English proficiency, this agency can be seen as the result of what we call "policy dumping" at the macro-level. They concluded the paper by suggesting implications for English language policies in Asian countries that respond to globalization and the dominant discourses of English in a globalized world.

Similarly, in the empirical study of Zhang and Elder (2011), it reported on ESL/EFL teachers' evaluation and interpretation of oral English proficiency as elicited by the national College English Test-Spoken English Test (CET-SET) of China. Informed by debates on the issue of native speaker (NS) norms which have become the focus of attention in recent years, this study addressed the question of whether judgments of language proficiency by non-native English speaking (NNES) teachers, who are currently used to assess performance on the CET-SET, correspond to those of native English speaking (NES) teachers or whether the two groups draw on different constructs of oral proficiency. Data for the study were derived from two sources: unguided holistic ratings given by a group of 19 NES and 20 NNES teachers to CET-SET speech samples from 30 test-takers, and written comments to justify the ratings assigned. Results yielded by both quantitative Many-facet Rasch Measurement (MFRM) and qualitative analyses of teacher data, revealed no significant difference in raters' holistic judgments of the speech samples and a broad level of agreement between groups on the construct components of oral English proficiency. However, the analysis of raters' comments revealed both quantitative and qualitative differences in the way NES and NNES teachers weighed various features of the oral proficiency construct in justifying the decisions made. The paper concludes by considering the implications of the study's findings for debates about the native speaker norm as the target for language learners and test-takers.

Sato (2012), sought in his study, the contribution of test-takers' speech content to scores on an English oral proficiency test. The content that test-takers attempt to convey is not always included in the construct definition of "general" English oral proficiency tests, although some English-for-academic-purposes (EAP) speaking tests and most writing tests tend to place great emphasis on the evaluation of the content or ideas in the performance. This study investigated the relative contribution of linguistic criteria and the elaboration of speech content to scores on a test of speaking proficiency. A speaking test was designed and administered to Japanese undergraduates to determine what criteria English teachers associate with general oral proficiency. Nine raters were recruited to rate 30 students' monologues on three topics, using intuitive judgments of oral proficiency (referred to as "Overall communicative effectiveness"). Following this, they assigned scores to the monologues using five criteria: "Grammatical accuracy", "Fluency", "Vocabulary range", "Pronunciation", and "Content elaboration/development". The raters were also asked to provide open-ended written comments on the factors contributing to their intuitive judgments. Statistical analyses of the scores revealed that "Content elaboration/development" made a substantive contribution to the intuitive judgments and composite score. The present study enriches our understanding of general oral proficiency and the construct definition of proficiency tests.

The paper of Low, Chong, and Ellis (2014) investigated graduating student teachers' English language proficiency, as measured by IELTS tests scores, of graduating EL student teachers. The paper considers what teachers need to know about the English language given that English has been the medium of instruction (MoI) for Singapore schools since 1987. Given such a context, English language proficiency is an important consideration in the

preparation of pre-service teachers in Singapore. Implications for additional training and preparation in language skills are also proposed.

Process Skills

Over the past three or more decades, many studies have been written about teacher education and the preparation of science teachers. Presented here is one which investigated the effectiveness of scientific process skills on pre-service science teachers of Pamukkale University Primary Science Teacher Education Program for four years. The study of Yakar (2014) used a simple descriptive survey approach which is a one-shot survey for the purpose of describing the effectiveness of a science teacher education program on scientific process skills of pre-service science teachers. The participants of the study consist of 186 primary science pre-service teachers in total from four different semesters of their teacher preparation program. Test of Integrated Process Skills II (TIPS II) was utilized to collect data. The data were analyzed using primarily multivariate statistical methods. One way ANOVA was used to identify patterns within cohorts regarding pre-service teachers' scientific process skills. Major findings indicated that Pamukkale University-Science Teacher Education Program helps to develop pre-service science teachers' scientific process skills effectively. Especially, science teacher education program affected pre-service science teachers' scientific process skills positively in the third and fourth grade.

In the study of Aydogdu (2015), it aimed to investigate basic process skills, integrated process skills and overall science process skills of science teachers in terms of some variables. This study had a survey design. The study population consisted of 170 science teachers from a province located in the Central Anatolia Region of Turkey. The study data were obtained from science process skills test arranged by Aydogdu (2006). The results of the study showed that especially integrated process skills of science teachers were not at a satisfactory level. Other results revealed that basic process skills of science teachers differed in their in-service training on these skills and seniority whereas integrated process skills of science teachers on the frequency of use of these skills in the classroom. Finally, results indicated that overall science process skills of science teachers differed on the frequency of use of these skills in the classroom and on in-service training on these skills. This study suggests conducting some further studies to bring science process skills of science teachers to a satisfactory level.

In order to increase the quality and quantity of science instruction, elementary teachers must receive professional development in science learning processes. The study of Cotabish, Dailey, Hughes, and Robinson (2011) was part of a larger randomized field study of teacher and student learning in science. In two districts in a southern state, researchers randomly assigned teacher participants to the experimental and control conditions. The study reported the effects of 2 years of sustained, embedded professional development on Grade 2 through Grade 5 elementary teachers' science-process skills, as defined by their ability to design experiments, and teacher perceptions of their capacity to lead students in scientific explorations. The results revealed a statistically significant difference between the adjusted post-test scores for the two groups, with the experimental group scoring higher than the control group, indicating a significant gain in teachers' science process skills. The results for teacher perceptions about their own science process skills revealed a statistically significant increase between pre- and post-test scores, with a large effect size reflecting a gain in teacher views of more than 2 points on a 4-point scale. The results for teacher perceptions about students' science process skills also revealed a statistically significant increase between pre- and post-test scores with a large effect size. The results of this study document the effects of

sustained and targeted teacher professional development focused on improving content-specific science instruction for students in the elementary classroom.

Accordingly, the purpose of the study of Birinci and Yildirim (2016) was to conduct a comparative analysis of pre-service primary school and science teachers' identification of scientific process skills. The study employed the survey method, and the sample included 95 pre-service science teachers and 95 pre-service primary school teachers from the Faculty of Education at Recep Tayyip Erdogan University in Turkey. All participating students were in their third year. A 24-question Scientific Process Skills Test was employed as the data collection tool. Students were asked to choose the correct answer for each question and specify which scientific process skills were measured with the answer. The analysis of the students' answers involved tabulating the correct answers given for each question and students' answers concerning the scientific process skill measured by the answer along with their frequencies. The analysis indicated that pre-service science teachers gave more correct answers than pre-service primary school teachers in the first section of the study, which made them more successful overall. Considering that the second section of the test included questions about acquisitions, the pre-service teachers, who were from two different departments, provided similar answers, and no significant difference was found. Furthermore, the pre-service teachers from both departments used many skills interchangeably.

Conceptual Framework

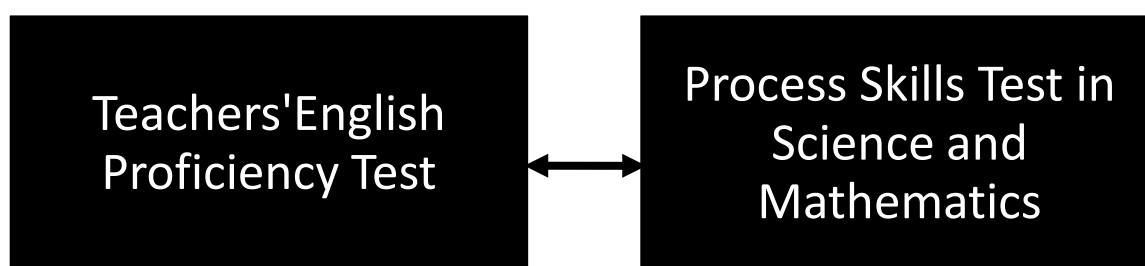


Figure 1. The Paradigm of the study on determining the relationship between the English Proficiency and Process Skills in Science and Mathematics and of Grades 5 and 6 Teachers. The result intends to serve as basis for an intervention program/design.

Statement of the Problem

This study generally aimed to assess the English Proficiency and Process Skills of Grade 5 and 6 teachers of the Division of Cavite as well as its relationship.

Specifically, the study sought to answer the following:

1. What is the level of English proficiency of Grades 5 and 6 teachers based on the results of the standardized test conducted by NETRC in terms of the following:
 - a. Structure;
 - b. Written expression; and
 - c. Reading comprehension?
2. What is the level of process skills of Grades 5 and 6 teachers based on the results of the standardized test conducted by NETRC in terms of the following:
 - a. Observing;

- b. Classifying;
- c. Inferring;
- d. Predicting;
- e. Measuring/Quantifying;
- f. Communicating;
- g. Interpreting data;
- h. Analyzing data;
- i. Evaluating data;
- j. Experimenting;
- k. Making conclusions;
- l. Making models; and
- m. Defining operationally?

3. Is there a significant relationship between the result of the English Proficiency Test and Process Skills Test in Science and Mathematics of Grade 5 and 6 teachers?

4. What implications do these results have for the design of an intervention program?

Research Hypothesis

Based from the research paradigm and statement of the problem, the researcher attempted to test the following null hypothesis at 0.05 level of significance:

Ho: There is no significant relationship between the result of the English Proficiency Test and Process Skills Test in Science and Mathematics of Grade 5 and 6 teachers.

Scope and Limitation

The study was limited to the Teacher's English Proficiency Test and Process Skills Test in Science and Mathematics conducted by NETRC in Grade 5 and 6 teachers of the division. The study also sought the relation between the variables. The study was limited and excluded the differences between the Grade level and subject area difference of the teachers.

Research Design

The current study made use of descriptive-correlational research design under the quantitative method. Under this method, descriptive research seeks to describe the current status of an identified variable. Descriptive research designs help provide answers to the questions of who, what, when, where, and how associated with a particular research problem; a descriptive study cannot conclusively ascertain answers to why (Given, 2007). Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation. Specifically, a correlational study determines whether or not two variables are correlated (Kendra, 2015). This means to study whether an increase or decrease in one variable corresponds to an increase or decrease in the other variable. Correlational studies are a type of research often used as a preliminary way to gather information about a topic or in situations where performing an experiment is not possible. Another important thing to note is that while correlational research can reveal if a relationship exists between variables, this kind of research cannot reveal causality, that changes to one variable lead to changes to another variable.

This research design was appropriate for the current study in the sense that the researcher determined the English Proficiency and Process skills of the Grade 5 and 6 teachers and sought to correlate the results to each other. Hence, aside from the descriptive part, the correlational analyses of data were necessarily relevant.

Respondents of the Study

The respondents of the study were one thousand eight hundred sixty-four (1,864) Grade 5 and 6 teachers of the Department of Education, Division of Cavite who took the tests last August 16, 2015 conducted by NET. There was no sampling procedure used; instead, total enumeration of the participants was involved in the study.

Data Gathering Procedure

The study made use of two standardized tests conducted by NETRC, i.e., Teacher's English Proficiency Test and the Process Skills Test in Science and Mathematics. The Teacher's English Proficiency Test consists of three parts, i.e., Structure, Written Expressions, and Reading Comprehension. On the other hand, the Process Skills Test composes of thirteen (13) domains, i.e., Observing, Classifying, Inferring, Predicting, Measuring, Communicating, Interpreting, Analyzing, Evaluating, Experimenting, Making Conclusions, Making-Models, and Defining operationally.

Statistical Treatment of Data

The following statistical techniques were used to analyze the gathered data from the instrument: (a) For the SOP #1 and #2, Percentage distribution and ranking were used to present the Teacher's English Proficiency Test results and the Process Skills Test results of the respondents. For the proficiency level and descriptive rating of the results of the tests, the following parameters and interpretation of results were applied:

Rating	Verbal Interpretation
76-100%	High
51-75%	Moderate
26-50%	Low
0-25%	Very Low

(b) For SOP #3, the relationship between the English Proficiency Test and Process Skills Test result of the respondents was tested using Pearson's Product-Moment Correlation Coefficient.

Result and Discussion

The following table presents the proficiency level and descriptive rating of the domains and final result of the Teacher's English Proficiency Test and Process Skills Test in Science and Mathematics.

Table 1
Proficiency Level of the Respondents

Domains	% Rating	Verbal Interpretation
Structure	50.23	Low
Written Expressions	40.62	Low
Reading Comprehension	67.54	Moderate
TEPT Total Test	57.22	Moderate
Observing	85.25	High
Classifying	58.40	Moderate
Inferring	54.26	Moderate
Predicting	64.27	Moderate
Measuring	67.81	Moderate
Communicating	49.68	Low
Interpreting	47.31	Low
Analyzing	49.80	Low
Evaluating	49.71	Low
Experimenting	53.03	Moderate
Making Conclusions	62.33	Moderate
Making Models	50.86	Moderate
Defining Operationally	40.47	Low
%PST Total Test	54.87	Moderate

Table 1 shows that the proficiency level of teachers in English is **MODERATE** with an overall rating of 57.22% where in reading comprehension got the rating of 67.54%, structure is 50.23 % and written expression is 40.62%.

It can be noted that teachers reading comprehension indicated by the ability to understand what has been stated directly; to analyse, interpret and criticize what has been read; to recognize reasonable application of principles or opinions expressed by the author; to make inferences, generalizations and conclusions; and to detect and evaluate the means by which the author tries to put his ideas across, got a **MODERATE** proficiency level.

The teachers proficiency in structure indicated by the ability to measure how the parts of speech are used and put together or organized as a modifier or used in the sentence obtained **LOW** proficiency level, and so with the teachers written expression which is the ability to recognize the incorrect part of the sentence and be able to correct such.

Within the same table (Table 1), it shows that the proficiency level of teachers in the Process Skills Test in Science and Mathematics was also **MODERATE** with an overall rating of 54.87%. Out of the thirteen (13) process skills, Observing skill got a **HIGH** proficiency level, which is the ability to carefully look into details for the purpose of arriving at judgement. There are seven (7) process skills that are **MODERATE** specifically; Classifying, Inferring, Predicting, Measuring, Experimenting, Making Conclusions and Making Models. On the other hand, there are five (5) process skills that are **LOW** in proficiency level such as Communicating, Interpreting, Analyzing, Evaluating and Defining operationally.

On the account whether there is a significant relationship between the English Proficiency and Process Skills result of the respondents, Table 2 reveals the data collected.

Table 2

Relationship between the Teacher's English Proficiency Test and the Process Skills Test Results

Variables	Pearson <i>r</i>	n	Sig.	Decision	Remarks
TEPT and PST	.104**	1,864	.000	Reject Ho	Weak Positive Relationship

** . Correlation is significant at the 0.01 level (2-tailed).

Based from the table above, the overall test of relationship between the English Proficiency and Process Skills result of the respondents yielded a correlation coefficient of .104 and a significance value of 0.00. The p-value of the relation is .000. Where strict conservative correlation is significant at the 0.01 level (2-tailed), the given p-value definitely renders a significant relation. This means that there is a significant relationship between the English Proficiency and Process Skills result of the respondents. It also affirms that there is a weak positive relationship between the two variables. The relation is weak positive which indicates even though one variable increases; it does not follow that the other variable will also necessarily increase equally with the former. Inversely, the lower the English Proficiency, it follows that the Process Skills might also decrease. The relationship indicates a congruent direction of values although with almost negligible results. Therefore, the null hypothesis must be rejected.

Conclusion

The result of the level of English proficiency and of the Process skills of the Grade 5 and 6 teachers were both moderate. This means that the English proficiency and process skills of the teacher have skill areas for improvement. On the other hand, the English Proficiency and the Process Skills of the Grade 5 and 6 teachers showed significant relationship; although it was a weak positive relation. This indicates that even though the English proficiency of the teachers was related to their Process skills, the association and usefulness to each other does not suffice and was not compelling.

Recommendations

Based on the findings of the study, the researchers recommend that a capacity building on the domains with remarkably **LOW** interpreted results be conducted. Specifically, for the English Proficiency of the teachers, the domains of concern or focus should be on “structures” and “written expressions”. On the other hand, domains of improvement or focus for the Process Skills should be on “communicating”, “interpreting”, “analyzing”, “evaluating” and “defining”.

Future Direction of Research

The future direction of the current study is to seek the comparative differences of the TEPT and PST results of the teachers according to their grade level and the subject area being taught. It is also underscored that the information gathered here shall serve as basis for the formulation of an intervention program or design for the teachers.

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The Evaluation of the Relationship between Anger Expression and Empathic Dispositions of Physical Education and Sports Students

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Abstract

Aim

The aim of this study is to evaluate the anger level and empathic concern of students who are studying at school of physical education and sports and determine the relationship between anger expression and empathic dispositions of students who are studying at school of physical education and sports.

Method

Personal Information Form that was designed by the researchers, The Interpersonal Reactivity Index: IRI which was developed by Davis (1980) and the Anger Expression Inventory which was developed by Spielberger (1983) have been used for collecting data. A total of 348 voluntary students participated in the study; 166 being female students (47,7) and 182 being male students (52,3).

For the analyses of the data; Portable IBM SPSS Statistics v20 package software was used. Since there is not a normal distribution of the data non-parametric tests were performed. Mann-Whitney U test was used in pairwise comparison to explore whether or not Anger Expression and Empathic Dispositions of the students differed in terms of personal characteristics while Kruskal Wallis variance analysis statistical method was used for multiple comparisons. Bonferroni-corrected Mann-Whitney U test was employed to know what caused the significant difference. Spearman Rho Correlation Coefficient Test was employed to find if there is correlation between Anger Expression and Empathic Dispositions or not. Significance level was accepted as 0.05.

Findings and Result

It was seen that participant students' Anger Expression Inventory score was; anger in: 17.5 ± 1.64 , anger out: 17.3 ± 1.41 , anger kontrol: 21.3 ± 1.70 and state anger 24.5 ± 3.40 . Empathic Dispositions score was; 20.35 ± 4.02 . It is observed that there is a statistically significant difference between the Anger Expression and the Empathic Dispositions of the students.

Key Words: Anger expression, Empathic dispositions, Physical education and sports students

The Integration of Microcontroller-Based Robot(MBR) and Wireless Sensors Network(WSN) Applications in Learning the Marine Automation Course

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Abstract:

This paper is a collaborative research of the College of Computer Science and the College of Maritime Leadership in University of Makati, Philippines. Its aim is to evaluate the acceptability of the Microcontroller called Arduino in teaching the Marine Automation course. It is concern on the integration of Robotics Technology and Wireless Sensors Network (WSN) applications using Arduino microcontroller. Microcontroller-based Robots are ubiquitous learning tool for maritime students. The researchers have introduced the Arduino microcontroller platform as a complementary for Programmable Logic Language (PLC) to be integrated to Wireless Sensors Network and to Robotics Technology. Sensors are cardinal for control and monitoring systems. WSN is a wireless network that deals with the integration of sensors that can transmit data to a server. The researchers used a sequential mixed method approach. The quantitative and qualitative data will be used to evaluate the acceptability of the new tool for learning the Marine Automation course. The survey result was marked Strongly Agree in terms of acceptability. The respondents were third year students of the University of Makati taking up Maritime Leadership.

Keywords—Robotics, Wireless Sensor Network, Marine Automation, Microcontroller

I. INTRODUCTION

The advent of new technologies can improve the learning methodologies and processes in order to keep abreast and to meet the learners' potential in achieving the intended learning outcomes. Specifically in the maritime education sector, it is deemed necessary that the enhancement of the maritime programs as mandated by international body the International Maritime Organization (IMO), and its implementing flag state institution, the Commission on Higher Education (CHED) be sustained. The University of Makati (UMak), a Local Government Unit (LGU) fully funded public university, diversified its offering programs and boldly established the College of Maritime Leadership Innovation (CMLI) catalyzed through a partnership with Southfield Agencies, Inc. (SFAI). Recognizing the significance of highly competent human resources at sea, maritime education training (MET) should be enhanced in terms of facilities and equipment, curriculum design, learning methodologies, quality of instruction, and in all aspects of ensuring a pool of high qualified and competent marine officers and engineers to man the world fleet [3]. One of the considerations in establishing MET [4] is by adopting new education and training technologies and matching academic studies with the onboard training

The research proponents in this study have introduced the Arduino microcontroller platform with the applications of Wireless Sensor Network (WSN) and Robotics technology as a complementary for Programmable Logic Controller (PLC) that will be integrated in learning the Marine Automation Course. This Arduino board is an open source development environment that can be used for oceanographic instruments as low-cost sensors [11]. It is also used to determine the vessels heading with relation to magnetic north [15]. Likewise, it can be used to develop Sonar for monitoring marine environments with the applications of Wireless Sensor Networks (WSN). WSN is a technology wherein a network is formed by a large number of sensor nodes where each node is equipped with a sensor to detect physical phenomena such as light, heat, pressure, etc. [19]. They communicate over a short distance via a wireless medium and collaborate to accomplish a common task, for example, marine environment monitoring [18] [2] battlefield surveillance [12], and industrial process control. Moreover, it can be applied to environment in which conventional wired sensor networks are impossible to be deployed, for example, inhospitable terrains, battlefields, outer space, or deep oceans. [22]. The possibility of having sensor nodes diving in the ocean collecting data about the different inhabitants offers unique opportunity for ocean life can play a major role in bringing ocean research to new levels.

Just as mechanical skill, the management and the maintenance of a computer network is important in the field of maritime [8], courses such as Marine Automation is included in the curriculum of maritime education programs to educate marine students on automatic control systems, monitoring systems, automatic control devices, and safety devices. However, based on the teaching experience, lecturers have not always put enough focus on Automation and Information Technology. Programmable Logic Language Controllers (PLC) and simple simulators have been used to train maritime students to operate ship control systems. But ship control nowadays has become advanced and sophisticated due to recent advances in semiconductor, networking, and material science technologies that are driving the ubiquitous deployment of wireless sensor networks. Likewise, many engineering students have started showing a lot of interest in robotic projects as compared to other projects [1]

II. STATEMENT OF THE PROBLEM

The purpose of this study is to address the following questions:

- (1) What is the level of understanding of the students in learning the Microcontroller?
- (2) What are the responses of the students in learning Arduino Microcontroller platform and its Input/output (I/O) devices such as motor, sensor, and indicator?
- (3) How do the students evaluate the acceptability of the integration of Microcontroller-Based Robot and Wireless Sensor Network Applications in learning the Marine Automation Course?

III. CONCEPTUAL FRAMEWORK

The College of Maritime Leadership Innovation (CMLI) and the College of Computer Science (CCS) have collaborated to create an innovative curriculum that will integrate Arduino Microcontroller platform in the Marine Automation Course for the maritime students. The use of sensors and robotics are useful in the control and monitoring systems. This integration of this technology application will broaden the knowledge and the skills of the students in terms of information technology and maritime innovation. The respondents are twenty students taking up Maritime Innovation in the University of Makati.

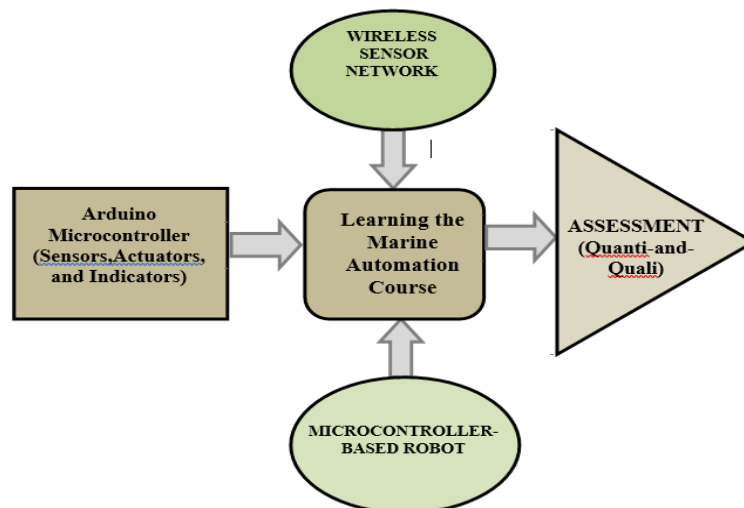


Figure 1. Conceptual Framework of the

The researchers have introduced the Arduino Microcontroller platform to the maritime students of University of Makati. It aims in designing and building a maritime automation system that includes the microcontroller-based Robot and the Wireless Sensor Network technology. The respondents of this study underwent a training workshop to program an Arduino Microcontroller that will control its input/output (I/O) devices such as sensors, actuators, and indicators.

Integrating the use of Arduino Microcontroller Platform, together with the Wireless Sensor Network and the Microcontroller-based Robot, would eventually support the learning process in the Marine Automation Course.

IV. METHODS

The researchers used the sequential mixed method to evaluate this study. The select faculty members of the College of Computer Science serve as trainers in the Training Workshop for the maritime students of the College of Maritime Leadership and Innovation. Survey questions were given to the students. Also, a focus group composed of seven maritime students was instigated after the survey.

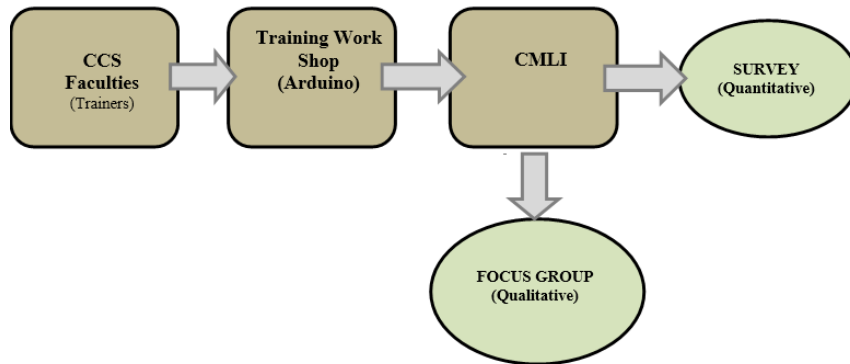


Figure 2. Methods of the Study

During the training workshop, the Introduction to Robotics Technology and the Application of Wireless Sensor Networks were taught. The respondents who are composed of twenty maritime students have minimal knowledge about the topics. Quantitative data were derived from the results of the survey while the results of the focus group interview produced the qualitative data.

V. RESULTS AND DISCUSSIONS

The data below shows the quantitative data and qualitative data. Quantitative data has pre-test and post-test. The qualitative data targeted seven students in a focus group. The survey result was marked Strongly Agree in terms of acceptability.

The Table 1 shows the survey of the awareness part of the respondents in learning the microcontroller applications. Most of the marine participants marked strongly agree in item#2, item #6, and item #7. The topics such as Robotics Technology, WSAN Applications, and Arduino microcontroller conducted during training-workshop are applicable to the future works of marine students. The satisfaction of the interventions of the researchers to the participants is remarkably satisfied.

Table 1: Quantitative Results (Awareness)

QUESTIONS (AWARENESS)	Result	Interpretation
1. Robotics and WSN technology application is relevant in understanding Marine Automation course.	3.40	Agree
2. The topics (Robotics Technology, WSN Applications, and Arduino) are applicable to my future work in marine engineering.	3.65	Strongly Agree
3. Building Arm Robot is helpful tool in learning the concept of Robotics and WSN application in marine automation	3.25	Agree
4. The workshop stimulated my learning in Robotics and WSN technology.	3.30	Agree
5. I will recommend these topics (Robotics and WSN) to be included in the Marine Automation course.	3.25	Agree
6. I am satisfied in learning Robotics and WSN technology applications.	3.45	Strongly Agree
7. It is best to work in groups in doing the workshop	3.80	Strongly Agree
8. The created prototypes are functioning, and responsive.	3.40	Agree

The survey about Awareness indicates that the respondents found the Arduino Microcontroller Platform useful in learning the Marine Automation Course. It is supported by the qualitative data. In the qualitative results, the respondents indicated astonishment upon learning the Arduino. They also confirmed that the use of this technology could provide array of applications in the marine automation.

The pre-survey results as shown in Table 2 indicated that the respondents may probably have zero to little knowledge about the use of Arduino microcontroller including its programming. The pre-test results also shown that the respondents may probably have no knowledge in terms of Wireless Sensor Networks (WSN) and Robotics Technology.

Table 2: Quantitative Results (Pre-Survey)

QUESTIONS	Result	Interpretation
1. I know Arduino microcontroller platform	1.78	Disagree
2. I have basic knowledge on programming concepts.	2.14	Disagree
3. I have basic understanding in Robotics concept	2.07	Disagree
4. I have basic understanding in WSN applications	2.00	Disagree
5. I have basic knowledge on programming microcontroller board using Arduino language.	1.86	Disagree
6. I know how to create a program for analog sensors and digital sensor using an Arduino Microcontroller board	1.79	Disagree
7. I know how to create codes for actuators like servo motor in Arduino Microcontroller board	1.71	Disagree

After the 8-hour training-workshop, the respondents were able to understand the concepts of the robotics technology and WSN applications, and were able to do programming using Arduino language, know how to use Arduino Microcontroller with I/O (input/output devices) connections such as servo motor as actuator, LEDs as indicator, and ultrasonic sensor.

Table 3: Quantitative Results (Post-Survey)

QUESTIONS	Result	Interpretation
1 I know Arduino microcontroller platform	3.15	Agree
2. I have basic knowledge on programming concepts.	3.20	Agree
3. I have basic understanding in Robotics concept	3.05	Agree
4. I have basic understanding in WSN applications	3.10	Agree
5. I have basic knowledge on programming microcontroller board using Arduino language.	3.10	Agree
6. I know how to create a program for analog sensors and digital sensor using an Arduino Microcontroller board	3.00	Agree
7. I know how to create codes for actuators like servo motor in Arduino Microcontroller board	3.25	Agree

Qualitative Results

A focus group consisting of seven students. Seven questions are asked to the respondents.

Question #1: How do you feel upon being introduced to microcontroller base robot and wireless sensor network?

Student 1:

“Parang na-amaze po kasi ngayon lng ako nakakita ng ganyan sa programming hindi pa kasi ako ,hindi ko po kasi alam ung mga programming kasi ung nakita ko kung paano ginagawa ung sa robot parang naamaze ako tsaka ung sa sensory devices.”

I have no introduction in programming and how the robot is being programmed. I was amazed when we programmed the robot with the use of sensory devices.

Student 2:

“Para sa akin naman naramdaman ko na-excite ako kasi may mga bagong kaalaman na naman ako matututunan lalo na sa programming wireless sensor networks.”

I felt excited because I will learn new stuff like programming for wireless sensor networks.

Student 3:

“Natuwa kasi ako nung nagintroduce sila ng microcontroller base robot or MBR natuwa kasi ako marami na naman ako natutunan at alam kong maaply ito sa next na para sa pagbabarko naming.”

I am happy because I know that learnings on MBR can be useful in our field.

Student 4:

“Sa akin masaya kasi un ngayon lang din ako natuto ng ganyan kaya parang nakaka-amaze din na nagawa ko rin sa computer kahit mahirap masaya naman “

I felt happy and at the same time amaze because I was able to program in my computer for the first time.

Student 5:

“Ako talaga walang ideya doon sa ano MBRWSN ung sa microcontroller pero ung nalaman ko ung paguupload , ung pagpapailaw pa nga lang ee na amaze na kaagad ako kasi ano ee hindi ko talaga alam sa electric wala talaga akong alam pero ung sa ano controller na inauupload pa pala sa laptop tapos sa arduino sobrang galing wala talaga akong background sa ganun ee...”

I really had no idea about MBR WSN at first but when I started understanding the concepts, I felt amaze.

Student 6:

“Sa akin naman na amaze ako nung naintroduce ung microcontroller base robot hindi lang pala dito sa lupa ung naaapply kundi magagamit din namin sa barko un nga sa automation ung paglilist ng trabaho ng crew sa pamamagitan ng robotics parang hindi ikaw ung gagawa kung бага isang pindot mo na lamang ee magagawa na.”

I felt amaze because microcontroller based robot can applied in the maritime industry.

Student 7:

“Yung sa akin naman po ma’am ung ano lang din ung napahanga din ako nung sa microcontroller kasi ang akala ko lang po sa pagpoprogramming sa laptop laptop lng talaga un sa mga computer lang hindi ko alam meron pa pala lang ginagamit na ganyan na microcontroller na icoconnect dun sa laptop tsaka pa lang ilalabas ung output akala ko kasi dati ung automatic na ung ginagamit sa sensor sensor meron pa pa lang ginagamit na ganyan na device ung na board.”

I felt awe with microcontroller for it can do a lot of things specially when you connect it to you computer and sensors.

Question #2:

What do you think are applications of robotic technology in marine automation course?

Student 1:

“Ok the applications of robotics technology in marine automation, I think, in my using the robotic technology in marine automation, it can lessen the human intervention in teaching “

Student 2:

“ By using robotics technology in marine automation, we can apply robotics by entering an enclosed space that the oxygen content of the room or the enclosed space is less than 90-21% of the oxygen since we cannot... a man cannot survive in that enclosed space without using breathing apparatus...such...many breathing apparatus. By using robotics they can set a robot inside the enclosed space to work the work of the person like for example by cleaning the tank or removing all unnecessary things inside the room and that’s all.”

Student 3:

“Applications of robotics technology in marine automation course... I can see that in making some tools... parts of the ship that is being damaged. To lessen the workload of the crew, we can use robots to make an accurate part of the ship that is being damaged. And of course the dangerous places in the ship like enclosed spaces, the tank cleaning, when you’re cleaning the tank that is being filled with fumes.”

Student 4:

“Applications of robotics technology in marine automation course... I think this would be great because just what like they said... lesser human intervention and mas makakapagsave tayo ng time at tsaka hindi na tayo gagawa ng extra effort para mag trabaho let the robots work and let’s just observe and mas makakagawa pa tayo ng ibang bagay dahil mayroon tayong katuwang na robotics.”

Student 5:

“For me it can lessen the work that the people on board do because it is already automatic because when you are in manual, you have to calculate by your own self while in automatic you will just look into the device then you can have an easy answer so it’s very helpful.”

Student 6:

“The applications of robotics can be very helpful in marine automation course because not only in land but in the ship we can make tools by the use of the robots in the exact length and exact ... accurate measure and it can lessen the work of the seafarer not only the seafarer but the whole crew. So robotics technology is very helpful in marine automation course. “

Question #3:

If you’re going to apply the micro controller based project what would it be and why?

Student 1:

“Since we already learned about the micro controller and... we are going to apply that in our project. Our proposed project is the container level control, what are level control? In that project, we are going to control the flow of the water from the basement tank to the... from the bottom going to the second floor, something like that. Like application for the... in house project some... in buildings something like that. We are going to control the overflowing of the water in the main tank. We are going to set a point wherein the motor will start when the level of the tank is on the... very low or the motor will on when the tank is full and that’s the cycle of our project.”

Student 2:

“Sakin naman... since natututunan na namin kung ano yung sa micro controller so may mga naiisip kasi ako na... like for example dun sa security ng ship ng mga crews on board lalo na pag may... nasa pirate zone na sila, yung tipong meron na silang... may na sesense na agad na palapit na mga pirata para may mag tatransmit na agad ng signal yung isang device to the nearest navy na malapit sa ship. So yung security at safety ng ship parang mas mapapabilis, mas mapapalakas saka yung... para mas marami pang magagagawa yung mga crews on board para protektahan yung kanilang sarili.”

I can use microcontroller for crew’s security, for example, against ship pirates.

Student 3:

“Sakin naman dahil nga natututo na tayo tungkol sa micro controller. Para sakin gagamitin ko to para sa stability ng barko kesa sa magcompute pa yung mga officers para maging balance yung barko hayaan na lang natin yung micro controller na siya na yung magset ng point kung hanggang saan yung level ng tubig na isusupply para maging balance yung barko at siya na yung

bahala na magdischarge ng tubig kung alam niyang nagoover na yung volume ng tubig dun sa barko.

I can use microcontroller to make the ship stable... it can know when to discharge water to make the ship balance.

Student 4:

“Applying micro controller based project... kung ako ang gagawa ng project siguro para dun sa sensory ng tanke kung... if there are fumes are enact for a man to... kung pwede ng pumasok yung mga tao. Hindi na kailangan ng manually check of the oxygen content. Kung baga meron tayong ano... robot inside or sensory inside na magsasabi na this is a fume free tank and it will send ng signal sa bridge na pwede ng pasukin yung tanke para linisin at pwede ng magload ng kargamento.”

I can apply microcontroller for tank sensors like if there are fumes. People can be signaled if they can come inside or not...

Student 5:

“Sakin naman, pwede ko namang... after learning this application siguro pwede ko na siyan maiapply sa bahay kase... kunwari kung may garden kayo sa bahay yung sprinkler, hindi mo na siya yung manually na iopen, yung pwede ka na lang magset ng time kung kalian bubukas at magispray yung tubig sa garden niyo. O kaya naman pwede mo rin siyang maiapply sa sasakyan niyo. Kunwari nawalan kayo ng break pero may inapply kayo sa sensor na within na gantong distance titigil yung sasakyan para iwas aksidente rin.”

I think I can apply this at home. Example I have a garden, the water sprinkler is no longer manually operated.

Question #4:

Do you think micro controller can help in marine automation?

Student 1:

“For me, nakakatulong siya in automation kasi let’s just say the solenoid it send signal to the controller box when there is an overpressure sa pipes ung sa micro controller it’s just like in the solenoid na meron silang sensory device para mag transmit ng signal to the controller box kung ano ung nangyayari then kaya nakakatulong siya sa automation.”

It can definitely help in automation like when there is an overpressure in pipes, it can transmit signal to the controller.

Student 2:

“For me, I think this micro controller can help in marine automation because from the word itself micro means small saan ba tayo nagsisimula diba sa maliit so ung marine automation which is use in board ung mga automation na ginagawa reset, start, and off to the machine you can use micro controller to transmit and stop some signal sa mga flow control bulb para hindi sa lahat ng pagkakataon magkaroon ng aberya ng mga bulilyaso.”

Microcontroller can be used to reset, start, and switch off a machine. It can also transmit and stop some signals.

Student 3:

“Micro controller help in marine automation ,Yes it is very helpful in marine automation because in some aspects like predicting the parameters inside the main engine because there’s so many parameters in the main engine like we detect the pressure the temperature or like for example the vibration inside the

ship or on the main engine so by using that micro controller we can eliminate those problems like the over pressure and the temperature upon reading the temperature of the machine like for example the generator or the boiler by controller it can send by using the signal it can send to the main engine control room and so the cadet can immediately report to the officer-in-charge so they can adjust the parameters like for example the high pressure or the temperature.”

Student 4:

“Sa akin naman ano mas mapapadali ung gawin kasi nga ung mga sensor kunwari sa tank diba kapag kunwari balance din kayo masesense niya ung tubig na laman nung tangke hindi na kailangan na ikaw pa ung titingin pa dun na mas madadagdagan ung hours ng trabaho mo ganun tapos ung mga alarms mas nakakatulong un kasi nasesense niya kung low level alarm na un kung kailangan na bang dagdagan ganun kaya nakakatulong.”

This one is useful, for example in tanks; the sensor would know the water level. If it's at low level, the alarm would sound. It will be easier to manage.

Student 5:

“For me naman ano kung makakatulong siya malaking tulong niya kasi mababawasan na ung human intervention gamit ung mga micro controller hindi na kailangan ng extrang effort para malaman kung may mga failure na nangyayari sa ating machineries.”

Microcontroller can be a big help for it can minimize human intervention and it can predict in identifying failures in machineries.

Student 6:

“For me, micro controller as a big deal in the marine operation because nowadays modern ship it is now operated by automation by use of the micro controller you can send signals in the machine to start and stop it or even check the parameter the levels nung sa loob and you can also ung ano kapag kulang na ung mga tubig o kaya dun sa tangke kapag automation pwede rin siya automatic na maglalagay kapag nasa low level na siya.”

Microcontroller is a big thing in marine operations because it can help in in automation.

Student 7:

“Micro controller can help in marine automation very important to on board because on board we use so many parameters and dials so we by knowing where's the alarms we use the micro controller to detect where's the low level alarm where's the high level alarm so mas malaking tulong ung micro controller sa barko para maiwasan ung aksidente malaman kung saan ung mga alarmas tsaka maayos ung ano man un saan man un”

Microcontroller applications in the maritime field can be helpful in avoiding accidents.

Microcontroller-Based Robot is now playing a big part in the ocean and other marine research and exploration. Accuracy of gathering data is now at hand through continuous innovation and integration of science and technology to maritime application. In the environment of a marine plant there are many parameters which need to be controlled or monitored including: temperatures, pressure, level, viscosity, flow control, speed, torque control, voltage, current, machinery status (on/ off), and equipment status (open/ closed). One of the major challenges on board, a ship is making the various systems that are individually designed but necessary to work together [17]. The major roles of the ship's onboard are the

automation, monitoring, and controlling the system. In most cases it is essentially to combine the main systems and allow the crew to manage vital ship operations. Programmable logic control (PLC) System is the conventional methods used to control, monitor and automate the ship. But this kind of process limits the operation of the machinery as well as the logic thinking of the operator when it comes to integration of all the parameters [16]. One of the priority programs of Philippine Maritime Industry Authority (MARINA) stated in the Maritime Philippine Agenda for 2016 is the Republic Act (RA) 10635 (2014) which empowers MARINA to continue in monitoring and updating of the curricula for the country's maritime transformations and marine engineering programs to ensure compliance with the global standards" [13]. The faculty members from CCS and CMLI were working one another to develop the learning process of the marine students in automation world.

The quantitative and qualitative data were used to evaluate the acceptability of the new tool for learning the Marine Automation course. The survey result was marked Strongly Agree in terms of acceptability. The qualitative data on the other hand, supports the claim that the use of Arduino Microcontroller Platform will be beneficial to the students taking up the Marine Automation Course.

VI. CONCLUSIONS AND RECOMMENDATIONS

This collaborative study identified the acceptability of using an Arduino Microcontroller Platform in learning the Marine Automation Course. The quantitative data marked Strongly Agree by the respondents. This is also being supported by the qualitative data. The respondents confirmed that the use of Arduino Microcontroller Platform could be applied in several maritime applications.

There is great development in the maritime industry when it comes to automation and information technology (IT). Parallel to this development, the maritime education institutions has obligation to modernize their equipment and upgrade their curriculum and teaching methodologies combining the theoretical knowledge, machinery and electrical technology as well as strengthening with the IT and Automation part. The maritime students accepted this new learning tool of integrating microcontrollers and wireless network sensors as inclusion in their Marine Automation course familiarizing them to the new trends in marine operations, and successfully it will be integrated to the curriculum. Microcontrollers such as Arduino is designed as a simple and cheap way to get start into the world of interactive and sensing objects, giving students new insights in designing and creating embedded prototypes for some oceanographic instruments.

Collaborative teaching by the lecturers in Marine and IT departments is important to enable students acquire ideas and perspective of different level of expertise. Marine lecturers should likewise be given opportunities to be trained and educated at a high level to ensure that the right methods will be used to train the marine students afterwards. Likewise, both lecturers and students must be exposed to modern equipment, as such, partnership with seafarer companies and vendors of marine products is important in order to lessen financial burden having modern equipment at hand.

The integration of Arduino Microcontroller Platform in the Marine Automation Course targets in designing and building a maritime automation system that includes the microcontroller-based Robot and the Wireless Sensor Network technology.

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THE LEARNING ENVIRONMENT AND LEARNING MOTIVATION OF GRADE 11 STUDENTS AT GEN. FLAVIANO YENGKO SENIOR HIGH SCHOOL

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INTRODUCTION

Philippine Republic Act 10533 known as Enhanced Basic Education aims to strengthen the curriculum by increasing the number of years of the basic education. Prior to its implementation, many issues arise from parents, students and other stakeholders for they believe that this will just prolong their agony in striving to have a quality education in preparation for work. Despite these issues, Secretary Briones in her recent speech perceived the implementation of the K to 12 Program as a sign of strong determination and courage of her predecessor Bro. Armin Luistro in achieving educational reforms against all odds, amidst concerted opposition and fears about the future of Philippine education. This reform in education is also considered as one of the stepping stone in providing the learners necessary skills not just to be competitive locally but more globally which will prepare them to be employable. In line with this, it is just right for the institution and educators to make sure that the transfer of quality education to all students will be done smoothly and this could be through the help of having a better learning environment suited to the needs of every learners.

According to A.W. Bates (2016) in his article in Teaching in Digital Age, the development of the total learning environment for students in a particular program is probably the most creative part of teaching. It is recognizable that students learn in many different ways in very different contexts. Since learners are responsible to learn, the creation of total learning environment should be ensured by the teachers and the school. Learning environment refers to the diverse physical locations, contexts, and cultures in which students learn. (The Glossary of Educational Reform, 2014)

Ensuring the learning environment for students is vital for the teaching and learning process to be productive. It can also be added that students will excel in their academic pursuits if they know how to focus their energies to perform better.

Thus, General Flaviano Yengko Senior High School being one of the stand alones senior high school in the Division of Imus City, Philippines must gather data on how to improve the learning environment and how to increase students' level of learning motivation to cater for the needs of its learners. It will also guarantee the parents and stakeholders that pursuing senior high school is worth it.

Statement of the Problem

This study was conducted to investigate the relationship of learning environment and the learning motivation of Grade 11 students at Gen. Flaviano Yengko Senior High School.

Specifically it answered the following questions:

1. What is the demographic profile of the respondents in terms of:
 - a. Age, and
 - b. sex
2. What is the perceived learning environment of the respondents in terms of:
 - a. student cohesiveness
 - b. teachers' support
 - c. involvement
 - d. task orientation
 - e. cooperation
 - f. equity
3. What is the respondents level of learning motivation in terms of:
 - a. intrinsic goal orientation

- b. extrinsic goal orientation
 - c. task value
 - d. control of learning beliefs
 - e. self-efficacy for learning performance
 - f. test anxiety
4. Is there a significant relationship between the respondents' perceived learning environment and their level of learning motivation?

Objectives of the Study

The objectives of the study were the following:

1. Determine the socio-demographic profile of students in Gen. Flaviano Yengko Senior High School in terms of:
 - a. age
 - b. sex
2. Determine the perceived learning environment of the respondents in terms of:
 - a. student cohesiveness
 - b. teachers' support
 - c. involvement
 - d. task orientation
 - e. cooperation
 - f. equity
3. Ascertain the respondents' level of learning motivation in terms of:
 - a. intrinsic goal orientation
 - b. extrinsic goal orientation
 - c. task value

- d. control of learning beliefs
 - e. self-efficacy for learning performance
 - f. test anxiety
4. Determine the relationship between the respondents' perceived learning environment and level of learning motivation.

Hypothesis of the Study

This study was based on this following hypothesis:

1. There is no significant relationship between the respondents' perceived learning environment and level of learning motivation.

Scope and limitation of the Study

The study determined the relationship of learning environment and motivation of Gen. Flaviano Yengko Senior High School, in school years 2016-2017.

The study included the socio-demographic profile of the respondents in terms of age, and sex. Subscales of learning environment are student cohesiveness, teacher support, involvement, task orientation, cooperation, and equity while learning motivation includes intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy for learning and performance, and test anxiety.

The study also determined the perceived learning environment of the respondents as well as their learning motivation.

The respondents were composed of 133 grade 11 students who represent the total population of Gen. Flaviano Yengko Senior High School, school year 2016-2017.

Learning Environment and Motivation survey questionnaire is the instrument that will be used in gathering data adapted by Gatchalian (2013) from "What Is Happening in This Class?" (WIHIC) developed by Fraser, Fisher and McRobbie in 1996 and "Motivated

Strategies for Learning Questionnaire” (MSLQ) developed by Pintrich, Smith, Garcia, and McKeachie in 1991

Significance of the Study

This study will be beneficial to the following members of the academe:

Teachers. The results of the study will help them gain insights on the perceived learning environment and the level of learning motivation of students, thus, they can think of innovations and other teaching strategies that will be suited to the students.

Students. The results of the study will help the learners as they are the prime beneficiaries of the improved performance of their teachers.

Parents. The result of the study will help them know their children well especially their learning motivation and learning styles.

Future researchers. The findings of this study will be a springboard for their future research.

BRIEF REVIEW OF LITERATURE

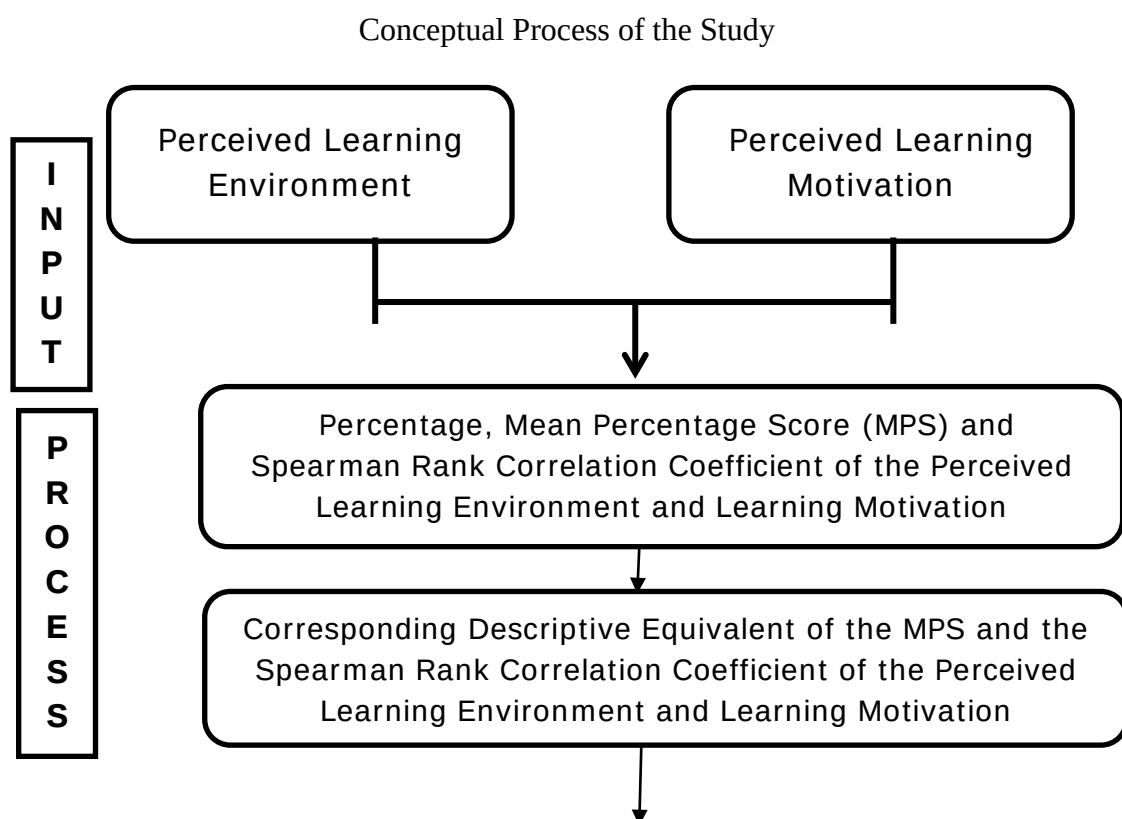
Educators see the concept of learning environment as a complex that defines the substance of teaching- learning and evaluation processes. This complex includes a number of factors: teacher, student, assignment, learning process, manner of learning, type of interaction between the teacher and the student, duration of learning, extent of heterogeneity of the learner group, etc. (Yonit, N. et. al., 2016). Moreover, Khine (2001), states that learning environment is a classroom that encompasses the physical, social and cognitive space in the learning institution. It includes student cohesiveness, teacher support, involvement, task orientation, cooperation, and equity.

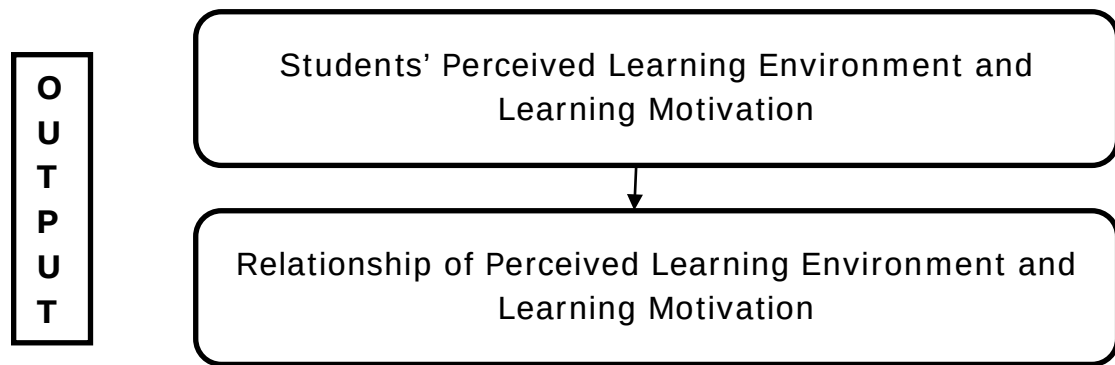
There are several studies associated with learning environment. These studies include the relationship of learning environment and learning motivation.

One of the remarkable research is the study of Logan (2011) on “Creating a Learning environment to Increase Adolescent Motivation.” The results of the study showed a number of factors that influences motivation and engagement during the early adolescent years including students’ experiences, thoughts, and behaviors. He also stressed that the most influential of these dynamics include transitions, learning experiences, teacher relationships, parent relationships, stress, anxiety, and coping skills.

Conceptual Framework

Figure 1





As Figure 1 divulges, the study geared in determining the perceived learning environment and the level of learning motivation of students as well as the relationship between the two variables. In doing so, an adapted survey questionnaire was administered to the students.

METHODOLOGY

This chapter presents a discussion of the research methods that will be used in the study. This includes the research design, locale of the study, sampling procedure, and research instrument

Research Design

The study used the descriptive-correlational design to determine the perceived learning environment and learning motivation of Grade 11 students of Gen. Flaviano Yengko SHS S.Y. 2016-2017 as well as its relationship.

Locale of the Study

This study was conducted at Gen. Flaviano Yengko Senior High School.

Sampling Procedure

The study surveyed 102 Grade 11 students in Gen. Flaviano Yengko Senior High School.

Data Gathering Procedure

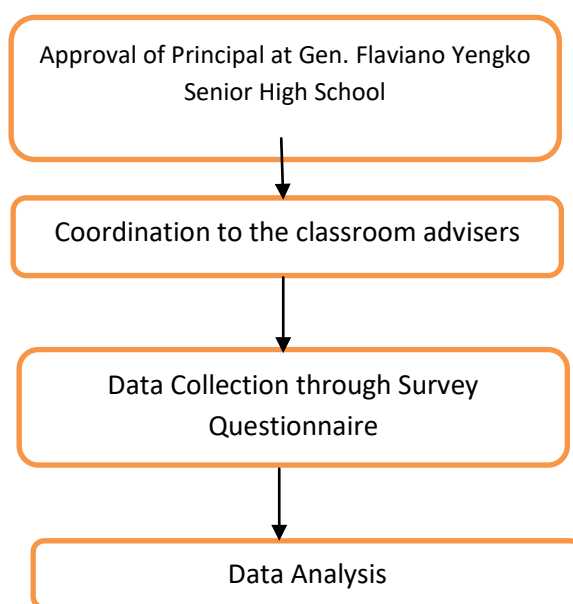


Figure 2 : Data Gathering Procedure

Figure 2 shows the data gathering procedure that was used in this study. Permission was secured from the school principal of Gen. Flaviano Yengko Senior High School and was followed by a request letter to the Grade 11 section advisers. Upon approval of the authority and coordination with the advisers, survey questionnaires were administered to the respondents.

A letter of consent to the parents was also given as homework and proper scheduling for the administration of the survey questionnaire was prepared to make the collection of data organized and well-planned.

The administration of the survey questionnaire was scheduled on September 15, 2016 and respondents were asked to accomplish it for 15-20 minutes, whereupon the retrieval of the questionnaire followed.

For the analysis of data, frequency distribution, percentage, mean, standard deviation, and T-test was used.

Research Instrument

The study used the “Learning Environment and Motivation to Learn” questionnaire as survey instrument adapted by Gatchalian (2013) from “What Is Happening in This Class?” (WIHIC) developed by Fraser, Fisher and McRobbie in 1996 and “Motivated Strategies for Learning Questionnaire” (MSLQ) developed by Pintrich, Smith, Garcia, and McKeachie in 1991 in her unpublished work “*Learning Environment and Motivation of Cavite National High School Students, S.Y. 2012-2013*”. The said questionnaire was used to gather the information needed for the research.

The instrument was divided into two parts. Part I asked the respondents about their demographic profile which included age and gender as well as inquire the respondents’ perceived learning environment, namely: student cohesiveness, teacher support, involvement, task orientation, cooperation, and equity and part II tried to find the respondents’ level of learning motivation in terms of: intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy for learning and performance and test anxiety.

The instrument was not be subjected to validation because it was adapted from standardized research instrument.

Statistical Treatment

The following statistical measurements was used in analyzing the data.

Frequency distribution, percentage, mean, standard deviation, and Spearman Rank Correlational Coefficient were used in analyzing the data.

Frequency distribution and percentage was used to determine respondents’ demographic profile in terms of age and sex.

Mean and standard deviation was also be used to determine the students’ perceived learning environment and learning motivation.

Spearman Rank Correlation Coefficient was used to determine the degree of relationships between variables under study.

Ethical Concerns

Considering the ethical aspect of this research, enough time was given to the respondents for them to depict their true view of the research questions. Consent from the respondent was taken and appropriate permission was ensured for the usage of the data to be gathered. Confidentiality of the responses was maintained strictly to ensure privacy of the data. The disclosure of the identity of the respondents was based on their consent, where if they are not willing to disclose their identity, their identity was excluded. Primary and secondary data was used in this study.

Beyond this fact, the use of secondary data from any source was acknowledged with appropriate reference. Hence, the ethical aspect of this research was followed strictly.

Operationalization of the Variables

For the purpose of statistical analysis, the variable was operationalized as follows:

Learning environment – was measured in terms of the respondents' perception using the following scale;

Range	Verbal Interpretation
1.00 – 1.79	Highly Negative
1.80 – 2.59	Negative
2.60 – 3.39	Neutral
3.40 – 4.19	Positive
4.20 – 5.00	Highly Positive

Learning motivation – was measured in terms of the respondents' perception using the following scale;

Range	Verbal Interpretation
1.00 – 1.79	Very Low
1.80 – 2.59	Low
2.60 – 3.39	Average
3.40 – 4.19	High
4.20 – 5.00	Very High

RESULTS AND DISCUSSION

Age

Table 1 shows the Age distribution of Gen. Flaviano Yengko Senior High School students, S.Y. 2016-2017. The result showed that majority of the students have an age of 16 with 60.78%

Table 1: Age of Gen. Flaviano Yengko Senior High School Students

Age	Frequency	Percentile
15	5	4.90
16	62	60.78
17	22	21.57
18	5	4.90
19 and above	8	7.84
Total	102	100

Sex

Table 2 shows the sex of the respondents in Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017.

Majority of the respondents were female (50.5%) while 50 (48.5%) were males.

Table 2: Sex of Gen. Flaviano Yengko Senior High School Students

Sex	Frequency	Percentile
Male	50	48.5
Female	52	50.5

Perceived Learning Environment of Gen. Flaviano Yengko Senior High School Students, S.Y. 2016-2017

The computed mean of 4.120 and a standard deviation of 0.462 showed that the generally, the students of Gen. Flaviano Yengko Senior High School has a high perception on learning environment.

Table 3. Perception of Learning Environment of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

Perception of Learning Environment	Mean	Standard Deviation	Verbal Interpretation
Student Cohesiveness	4.067	0.587	Positive
Teacher Support	4.155	0.637	Positive
Involvement	3.843	0.676	Positive
Task Orientation	4.273	0.554	Highly Positive
Cooperation	4.126	0.611	Positive
Equity	4.257	0.613	Highly Positive
Overall	4.120	0.462	Positive

Table 3 shows the respondents' perceived learning environment. It was found that students' cohesiveness is Positive having a mean score of 4.067 and standard deviation of 0.587. It means that students made friendships easily among students in the class, student knew other students in the class, worked well with other class members, helped other class members who were having trouble with their work, and got help from other students in the class.

The students indicated a positive perception on teacher support with a mean of 4.155 and standard deviation of 0.637. It reveals that the teacher took a personal interest in the student, went out of his/her way to help the student, interested in the student's problems, moved about the class to talk with the student and teacher's questions helped the student to understand.

The respondents also show a positive perception on involvement with a mean of 3.843 and a standard deviation of 0.676. It can be said that the teacher asked the student questions, student ideas and suggestions were used during class discussions, asked the teacher

questions, explained his ideas to other students, and were asked to explain how he/she solved problems.

Regarding task orientation, the computed mean of 4.273 and a standard deviation of 0.554 shows a highly positive perception in the respondents. It can be noted that respondents were ready to start this class on time, knew what task he/she were trying to accomplish in this class, paid attention during this class, tried to understand the work in this class, knew how much work he/she had to do.

Students indicated a positive perception on cooperation showed by the computed mean of 4.126 and a standard deviation of 0.611. It implies that respondents shared his/her books and resources with other students when doing assignments, worked with other students on projects in this class, learned from other students in this class, cooperated with other students in class activities, and students worked with him/her to achieve class goals.

The respondents showed a highly positive perception on equity with a mean score of 4.257 and standard deviation of 0.613. This denotes that the teacher gave as much attention to his/her questions as to other student's questions, got the same amount of help from the teacher, as do other students, received the same encouragement from the teacher as other students did, got the same opportunity to contribute to class discussions as other students, and received as much praise on his/her work as other students' work.

Perception of Learning Motivation of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

In table 4 students report high level of intrinsic goal orientation with a mean of 4.162 and a standard deviation of 0.471.

Students report high level of extrinsic motivation with a mean of 4.101 and a standard deviation of 0.529.

Table 4. Perception of Learning Motivation of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

Perception of Learning Motivation	Mean	Standard Deviation	Verbal Interpretation
Intrinsic Goal Orientation	4.162	0.471	High
Extrinsic Goal Orientation	4.101	0.529	High
Task Value	4.332	0.525	Very High
Control of Learning Beliefs	4.250	0.541	Very High
Self-Efficacy for Learning Performance	4.074	0.493	High
Test Anxiety	4.151	0.565	High
Overall	4.178	0.415	High

Perceived Learning Environment and Motivation

The relationship between perceived learning environment and perceived learning motivation was determined using Spearman Rank Correlation Coefficient at 0.05 level of significance. This includes analysis between learning motivation and student cohesiveness, teacher support, involvement, task orientation, cooperation, and equity.

Student Cohesiveness and Perceived Learning Motivation

Table 5 shows that there is a significant relationship between student cohesiveness and perceived learning motivation. The result of the study showed the computed spearman rank correlation coefficient of 0.387 with a P-value of 0.000 at 0.05 level. With this finding, the null hypothesis of no significant relationship between student cohesiveness and perceived learning motivation was rejected. This implies that the student cohesiveness which includes friendships made in class and the rapport among students influences perceived learning motivation.

Table 5. Relationship between student cohesiveness and perceived learning motivation of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

Perception of Learning Motivation	Spearman Rank Correlation Coefficient	P-value	Remarks
Intrinsic Goal Orientation	.186	.061	Accept Ho
Extrinsic Goal Orientation	.356	.000	Reject Ho
Task Value	.260	.008	Reject Ho
Control of Learning Beliefs	.302	.002	Reject Ho
Self-Efficacy for Learning Performance	.393	.000	Reject Ho
Test Anxiety	.301	.002	Reject Ho
Overall	.387	.000	Reject Ho

Teacher Support and Perceived Learning Motivation

Table 6 shows the relationship between teacher support and perceived learning motivation of the students. The null hypothesis of no significant relationship between teacher support and perceived learning motivation was rejected. It was indicated in the computed spearman rank correlation coefficient of 0.222 with a P-value of 0.025 at 0.05 level. This means that teacher support such as personal interest to students, talking and asking questions, giving assistance and help during group and individual activities increase the respondents' learning motivation.

Table 6. Relationship between teacher support and perceived learning motivation of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

Perception of Learning Motivation	Spearman Rank Correlation Coefficient	P-value	Remarks
Intrinsic Goal Orientation	.158	.114	Accept Ho
Extrinsic Goal Orientation	.066	.508	Accept Ho
Task Value	.192	.053	Accept Ho
Control of Learning Beliefs	.158	.113	Accept Ho
Self-Efficacy for Learning Performance	.267	.007	Reject Ho
Test Anxiety	.114	.253	Reject Ho
Overall	.222	.025	Reject Ho

Involvement and Perceived Learning Motivation

Table 7 shows the relationship between involvement and perceived learning motivation of the students. The computed spearman rank correlation coefficient of 0.373 with a P-value of 0.000 at 0.05 level indicates that the null hypothesis of no significant relationship between involvement and perceived learning motivation of the students was rejected. This implies that students who are more motivated are also more involved in their studies.

Table 7. Relationship between involvement and perceived learning motivation of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

Perception of Learning Motivation	Spearman Rank Correlation Coefficient	P-value	Remarks
Intrinsic Goal Orientation	.268	.007	Reject Ho
Extrinsic Goal Orientation	.226	.022	Reject Ho
Task Value	.255	.010	Reject Ho
Control of Learning Beliefs	.215	.030	Reject Ho
Self-Efficacy for Learning Performance	.480	.000	Reject Ho
Test Anxiety	.310	.002	Reject Ho
Overall	.373	.000	Reject Ho

Task Orientation and Perceive Learning Motivation

Table 8 shows the relationship between task orientation and perceived learning motivation. The result of the spearman rank correlation coefficient of 0.549 with a P-value of 0.000 at 0.05 level infers that the null hypothesis of no significant relationship between task orientation and perceived learning motivation was rejected. This indicates that task orientation affects the respondents' perceived learning motivation. This means that respondents are motivated to learn when they start the class on time, when they understand and know how much work they have to do in class,

Table 8. Relationship between task orientation and perceived learning motivation of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

Perception of Learning Motivation	Spearman Rank Correlation Coefficient	P-value	Remarks
Intrinsic Goal Orientation	.463	.000	Reject Ho
Extrinsic Goal Orientation	.397	.000	Reject Ho
Task Value	.513	.000	Reject Ho
Control of Learning Beliefs	.435	.000	Reject Ho
Self-Efficacy for Learning Performance	.406	.000	Reject Ho
Test Anxiety	.399	.000	Reject Ho
Overall	.549	.000	Reject Ho

Cooperation and Perceive Learning Motivation

Table 9 shows the relationship between cooperation and perceived learning motivation of the respondents. The computed spearman rank correlation coefficient of 0.586 with a P-value of 0.000 at 0.05 level indicates that the null hypothesis of no significant relationship between cooperation and perceived learning motivation was rejected. This indicates that respondents are motivated to learn when they have books and resources when doing assignments, when they work and learn with other students during class activities and when making projects

Table 9. Relationship between cooperation and perceived learning motivation of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

Perception of Learning Motivation	Spearman Rank Correlation Coefficient	P-value	Remarks
Intrinsic Goal Orientation	.419	.000	Reject Ho
Extrinsic Goal Orientation	.445	.000	Reject Ho
Task Value	.577	.000	Reject Ho
Control of Learning Beliefs	.422	.000	Reject Ho
Self- Efficacy for Learning Performance	.504	.000	Reject Ho
Test Anxiety	.430	.000	Reject Ho
Overall	.586	.000	Reject Ho

Equity and Perceived Learning Motivation

Table 10 shows the relationship between equity and perceived learning motivation of Gen. Flaviano Yengko Senior High School. Based on the result the computed

Spearman Rank Correlation Coefficient is 0.484 with a P-value of 0.000 at 0.05 level. This implies that the null hypothesis of no significant relationship between equity and perceived learning motivation was rejected. This implies that equity is related to perceived learning motivation. Respondents are motivated to learn in class when teachers give as much attention to their questions as to other student's questions and when they get the same amount of help encouragement, and praise from the teacher as other students.

Table 10. Relationship between equity and perceived learning motivation of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

Perception of Learning Motivation	Spearman Rank Correlation Coefficient	P-value	Remarks
Intrinsic Goal Orientation	.339	.000	Reject Ho
Extrinsic Goal Orientation	.319	.000	Reject Ho
Task Value	.390	.000	Reject Ho
Control of Learning Beliefs	.410	.000	Reject Ho
Self-Efficacy for Learning Performance	.442	.000	Reject Ho
Test Anxiety	.352	.000	Reject Ho
Overall	.484	.000	Reject Ho

Perceived Learning Environment and Perceived Learning Motivation

Table 11 show the overall relationship of perceived learning environment and perceived learning motivation. Results show that there is a significant relationship between perceived learning environment and perceived learning motivation. The data showed that the computed Spearman Rank Correlation Coefficient value of 0.601 with a P-value of 0.000 at 0.05 level. The result, rejects the null hypothesis that there is no significant relationship between respondents' perceived learning environment and learning motivation. This implies that perceived learning environment is related to perceived learning motivation in terms of intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy for learning performance and test anxiety.

This was supported by the study of Logan (2011) that states that a number of factors influence motivation and engagement during the early adolescent years including students' experiences, thoughts, and behaviors. He also stressed that the most influential of these

dynamics include transitions, learning experiences, teacher relationships, parent relationships, stress, anxiety, and coping skills.

Table 11. Relationship of perceived learning environment and perceived learning motivation of Gen. Flaviano Yengko Senior High School, S.Y. 2016-2017

Perception of Learning Motivation	Spearman Rank Correlation Coefficient	P-value	Remarks
Intrinsic Goal Orientation	.417	.000	Reject Ho
Extrinsic Goal Orientation	.428	.000	Reject Ho
Task Value	.490	.000	Reject Ho
Control of Learning Beliefs	.437	.000	Reject Ho
Self-Efficacy for Learning Performance	.581	.000	Reject Ho
Test Anxiety	.449	.000	Reject Ho
Overall	.601	.000	Reject Ho

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

The following highlights the findings of the study:

1. What is the demographic profile of the respondents in terms of:

- a. **Age** Majority of the Grade 11 students at Gen. Flaviano Yengko Senior High School has an age of 16.
- b. **Sex** Most of the respondents were female.

2. What is the perceived learning environment of the respondents in terms of:

- a. **Students' Cohesiveness**
- b. **Teachers' Support**
- c. **Involvement**
- d. **Task Orientation**
- e. **Cooperation; and**
- f. **Equity**

Based on the Spearman Correlation Coefficient, it was found out that the students perceived learning environment was **High** except for Equity which was **Very High**. In general, the Grade 11 students at Gen. Flaviano Yengko Senior High School has positive perception on learning environment

3. What are the respondents level of learning motivation in terms of:

- a. Intrinsic goal orientation**
- b. Extrinsic goal orientation**
- c. Task value**
- d. Control of learning beliefs**
- e. Self-efficacy for learning performance; and**
- f. Test anxiety**

Findings showed that the respondents has a **High** perception on learning motivation except for Task Value and Control of Learning Beliefs which is both **Very High**. Overall result of the study in the level of learning motivation, it was found out that the Grade 11 students has a **High** perception on learning motivation.

4. Are there significant relationship between the respondents' perceived learning environment and their level of learning motivation?

There was a significant relationship between learning environment and learning motivation of Grade 11 students at Gen. Flaviano Yengko Seniot High School in terms of intrinsic goal orientation, extrinsic goal orientation, task value, control of learning beliefs, self-efficacy for learning performance and test anxiety.

CONCLUSIONS

From the presented and interpreted results of the study, the following conclusions are made:

- 1. The Grade 11 students at Gen. Flaviano Yengko Senior High School is dominated by students with an age of 16 and most of them are female.
- 2. The perceived learning environment of the respondents was **Positive**.
- 3. The level of learning motivation of the respondents was also **High**.
- 4. The perceived learning environment and learning motivation of Grade 11 students at Gen. Flaviano Yengko Seniot High School in terms of intrinsic goal orientation,

extrinsic goal orientation, task value, control of learning beliefs, self-efficacy for learning performance and test anxiety has a significant relationship.

RECOMMENDATIONS

The following are the constructed recommendations based on the foregoing summary and conclusions:

1. The school heads should develop plans and programs to improve the learning environment that focus on teacher support to make student feel that they are important in class. Involvement may promote student to increase class participation and demonstrate equity in classroom to show equal treatment in school. In addition, they encourage parental involvement most especially mothers to increase students' motivation thru the conduct of seminars that will inform parents of their important role in school and in their children's education. Moreover, administration should develop institutional policy that will lessen test anxiety among students to make them more confident in taking examinations.
2. Teachers are encouraged to develop strategies and conduct school activities that will promote student cohesiveness in GFYSHS to increase camaraderie among learners.
3. An action research that focuses on student motivation be conducted in Gen. Flaviano Yengko Senior High School to increase students' interest in learning is also recommended.
4. A similar study should be conducted in the Division of Imus City in order to make reforms and school improvements to increase perceived learning environment and learning motivation.

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THE ROLE OF SCHOOL MANAGEMENT TEAMS IN IMPLEMENTING INCLUSIVE EDUCATION IN THE MANGAUNG AREA I SOUTH AFRICA

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This exploratory case study is part of a larger study that assessed the role of principals and school management teams (SMTs) in leading and managing schools with a diversity of learners' needs in South Africa. Prior to 1994, South African education was characterised by separation and segregation. Learners were taught separately on the basis not only of race, but also of (dis)ability. A well-resourced separate special education system served the needs of mainly white learners. Black learners with disabilities either attended school with little support or not attend at all. One of the first tasks of the post-apartheid government was to ratify a new constitution, which was enacted in 1996, entrenching equality and human rights, including the right to education and freedom from discrimination. The population of the study comprised 150 school managers (principals and HOD's) randomly selected according to the geographical area. Data were collected by means of questionnaires and analysed using Statistical Package for the Social Sciences SPSS (version 20). The study revealed that the shift towards Inclusive Education has placed a strain on School Management Teams (SMT) in South Africa because they were trained for either mainstream education or specialised in a field. Likewise, mainstream education has not been designed for diversity or for responding to the needs and strengths of its individual learners. Therefore, the task of ensuring that social justice and equity goals are met for every learner is a challenge for mainstream schools. Challenges to the realisation of inclusive basic education in South Africa are compounded further by the pertinent issues underlying the implementation of basic education in the country. such as, equality in education, the financing of basic education, the nature of the state's duties pertaining to the provision of basic education, and the interpretation of the notion of basic education. The understanding of inclusive education in South Africa has also been impacted by historical factors, such as the apartheid policy of exclusion of the masses from mainstream basic education, and the subsequent need to "include" everyone in post-apartheid education. The role of educational leaders such as principals and school management teams (SMTs) is critical in leading and managing schools with a diversity of learners' needs. School leadership determines the tone and successful attainment of set objectives at schools and is paramount for developing policies, aims and strategies for creating an inclusive school culture, through providing support, and for identifying external factors that may hinder the development of an inclusive school environment. We argue that visionary and dedicated school leaders with a strong devotion to inclusive and democratic values and principles are necessary for schools to move towards the implementation of a more successful inclusive and democratic system.

Key words: Inclusive Education, school management teams

INTRODUCTION

The Constitution of the Republic of South Africa, Act 108 of 1996, states that no form of unfair discrimination, directly or indirectly, should be practised. Smit and Mpya (2011) point out that education systems in most countries, especially in developing ones such as South Africa, have to a great extent failed to address the diverse needs of learners and have not adhered to this constitutional right of many learners. This non-adherence to the aforementioned constitutional right has resulted in a great number of dropouts and failures. Informed by these inadequacies to accommodate learners' needs, the Department of Education responded to the situation by introducing a policy on inclusive education.

With the introduction of the policy on Inclusive Education, as published in The Revised Education White Paper 6 on Special Education of 2001, (2015), the Department of Education made a commitment to ensure that all learners would have equal opportunities to be educated and welcomed in all schools. The policy indicates that all learners should be supported to develop their full potential irrespective of their background, culture, abilities or disabilities, gender or race. These values of the Constitution include human dignity, the achievement of equality, and the promotion of human rights and freedoms non-racialism and non-sexism. This means that there may be no discrimination on the grounds of race or sex, the rule of law and the Constitution as the supreme law and everything has to be done according to the law, and the Constitution is the highest law. As stated by Smit and Mpya (2011), all learners have to be given the fundamental right to basic education consequently addressing the imbalances of the past by focusing on the key issues of access, equality, and redress.

According to Walton and Lloyd (2011), the successful implementation of inclusive education relies largely on the teachers, including the principal and the school management team, since they engage directly with the learners on a daily basis. Also, Muthukrishna and Sader in (Magare, Kitching & Roos (2010) assert that the focus in the implementation of inclusive education should be on the development of enabling education structures, systems and learning methodologies that meet the needs of all learners. Because the implementation of inclusive education is becoming a reality in South Africa, main-stream educators have to include learners with barriers to learning in their classes. Prior to 1994, educators were trained only for either mainstream education or specialised education to support learners with barriers to learning. Despite their limited training, many educators seem able to cope with the

challenges posed by inclusive education the leadership style in the school organisation probably has a significant impact on the educational process(Gous, 2009). The leadership and management approach employed by the School Management Team (SMT) to a large extent, determines the way in which a particular school would be effective in the implementation of an inclusive education programme.

AIM OF THE STUDY

The aim of the study was to investigate the role of school management teams in the implementation of inclusive education at selected schools in the Mangaung Metropolitan Municipal area.

RESEARCH QUESTIONS

The study sought to address the following research questions:

- What does the concept inclusive education mean and how can the effective and efficient management of inclusive education assist in the delivery of education?
- What are the factors that contribute to the gap between inclusive education and the delivery of education in schools?
- Are school management teams equipped with the skills and training to manage inclusive education in schools?

METHOD

The study followed both a literature study and an empirical investigation. The literature study provided a picture effective and efficient management of inclusive education by principals and SMT's. A literature study is intended to support statements and points of view with research evidence, as empirical justification requires reference to other research (Creswell, 2012; Leedy and Ormrod, 2014). The literature consulted in this study provided a theoretical framework against which the findings were interpreted and discussed.

Instrument

The instrument used to collect data in the study was a questionnaire. An overview of the concept of inclusive education indicating how managing inclusive education can assist in the delivery of education, and to establish and analyse the factors that contribute to the gap between inclusive education and delivery of education by principals and SMT's in sampled schools were measured on a 5 point Likert-type scale ranging as follows: "Strongly Agree" (1); "Somewhat Agree" (2); "Somewhat Disagree" (3); "Strongly Disagree" (4); and "Don't Know" (5). The questions listed in the structured questionnaire in this study were developed from a literature study on inclusive education and the role of the SMT in the implementation of inclusive education, and from expert opinions. These questions were grouped into two sections, namely Section A and Section B. Section A of the questionnaire dealt with the personal and demographic profile of the respondents who took part in this study. Section B dealt with the responses of the respondents with regard to the role of the SMT in the implementation of inclusive education.

Population and sample

The population of this study comprised of all the principals, deputy principal/s, and heads of departments at selected schools in the Mangaung Metropolitan Municipal area. A stratified random sampling method was used according to the geographical area (township schools and former model C schools in the city) where this study was conducted. Schools selected were accessible to the researchers.

The total sample comprised of 150 participants (SMT members), 70 participants (SMT members) in Bloemfontein, 40 participants (SMT members) in Thaba Nchu and - 40 participants (SMT members) in Botshabelo of the selected schools in the urban, semi-urban, and rural areas of the Mangaung Metropolitan Municipal area.

Data collection

The empirical data was collected amongst school managers (the principal, deputy principal and head of departments) at selected schools in the Mangaung Metropolitan Municipal area in the Free State using questionnaires. All the selected schools were visited personally to administer the questionnaires. The completed questionnaires were collected immediately after completion.

Data analysis

The design and development of the final questionnaire was achieved in collaboration with the North West University's Statistical Consultation Services using the Statistical Package for the Social Sciences (SPSS). Furthermore, data were analysed using the Statistical Package for the Social Sciences (SPSS).

The questionnaires were processed by the Statistical Consultation Services of the North-West University (the Potchefstroom campus) using SPSS (Pallant, 2007). Responses were entered as frequencies and converted to percentages to make them easy to compare and convenient to display as tables (frequencies and valid percentages were used). Basic descriptive statistics were employed to describe the quantitative data, in terms of deriving conclusions, standard deviations, mean and distributions of the questionnaires.

Ethical considerations

Permission to conduct the study at the selected schools was sought from the Free State Department of Education and consent letters were sent to the sampled schools. Participants individually consented. Assurance was given that data collected will be treated with utmost confidentiality and anonymity.

RESULTS AND DISCUSSION

Out of the 150 questionnaires that were given to the respondents for voluntary completion, 149 (99.3%) were returned. The high and satisfactory response rate implied that valuable deductions could be made from the data.

Biographical data of participants

Table 1 provides information on the gender of the respondents.

Table 1: Gender of respondents (N=149)

Gender	Frequency	Percentage (%)
Male	71	47.7
Female	78	52.3
Total	149	100

Table 1 show that 47.7% of the respondents were males, while 52.3% were females.

Table 2: Population group (N = 149)

Gender	Frequency	Percentage (%)
Asian	0	0
White	28	18.8
Coloured	19	12.8
African/black	102	68.5
Total	149	100

Table 2 provides information on the population group of the respondents. shows that SMTs of the selected schools in the Mangaung Metropolitan Municipal area, are black (68.5%), followed by white (18.8%), and Coloured (12.8%).

Table 3: Age group

Age group	Frequency	Percentage (%)
18 – 29	6	4.0
30 – 39	17	11.4
40 – 49	56	37.6
50 – 59	65	43.6
60 – 69	5	3.5
Total	149	100

As reflected on Table 3, the majority of the respondents (43.6%) in this study are between 50 and 59 years. The table further indicates that the minority of respondents (3.4%) are between 60 and 69 years. Respondents younger than 17-years-old did not participate in this study, as they usually are not employed yet and would not occupy a management position.

Table 4. Home language of respondents (N=149)

Home language	Frequency	Percentage (%)
English	3	2.0
Zulu	1	0.7
Xhosa	7	4.7
Setswana	39	26.2
Sesotho	50	33.6

Afrikaans	42	28.2
Other	2	1.3
Missing	5	3.4
Total	149	100

As reflected on Table 4, out of all the respondents in this study, 34.7% speak Sesotho at home, followed by Afrikaans with 29,2%, Setswana with 27,1%, Xhosa with 4.9%, English with 2.1%, Zulu with 0.7%, and language unknown with 3,4%. This study further indicates that the sample is representative in terms of home language, as the two most spoken languages in the municipal area are also two of the three official languages of the Mangaung Metropolitan Municipality – Sesotho, Afrikaans and English. The two most spoken languages in the Free State are Sesotho (64.20%) and Afrikaans (12.72%), according to the Census of 2011 (Statistics South Africa, 2011).

Table 5: Educational qualification (N=149)

Educational qualification	Frequency	Percentage (%)
Diploma	21	14.1
Bachelor's degree	48	32.2
Honours degree	57	38.3
Master's degree	19	12.8
Other	4	2.7
Total	149	100

As reflected in Table 4.5, almost half of the respondents who are members of an SMT in this study have acquired a postgraduate qualification (51.1%), followed by 32.2% who indicated that they have an undergraduate degree, and 14.1% who indicated that they have a diploma. The table also shows that 2.7% of the respondents indicated that they have qualifications other than a diploma, an undergraduate degree, an Honours degree, or a Master's degree.

Table 6: Current management position (N=149)

Current management position	Frequency	Percentage (%)
Head of Department (HOD)	100	69.4
Deputy Principal	30	20.8

Principal	14	9.7
Missing	5	3.4
Total	149	100

Respondents were asked to indicate their current management position; as reflected on table 6, 100 (69.4%) are Heads of Departments (HOD), followed by 30 (20.8%) Deputy Principals, then 14 (9.7%) Principals (9.7%) and 5 (3.4%) respondents did not indicate their current management positions.

Table 7: How long in current management position? (N=149)

How long in current management position?	Frequency	Percentage (%)
Less than 1 year	12	8.1
1 – 10 years	72	48.3
11 – 20 years	37	24.8
21 – 30 years	20	13.4
More than 31 years	5	3.4
Missing	3	2.0
Total	149	100

Table 4.7 indicates that more than (56.4%), of the respondents in this study have been in their current management position for less than 10 years followed by 25.3% who indicated that they have been in their current management position between 11 and 20 years, 13.7% indicated 21 to 30 years, and 3.4% indicated more than 31 years.

Table 8: What type of school are you a manager at? (N=149)

Gender	Frequency	Percentage (%)
Primary school	47	31.5
Secondary/high school	79	53.0
Combined school	22	14.8
Missing	1	0.7
Total	149	100

Table 8 shows that 53.4% of the respondents indicated that they are at a secondary or high school, followed by 31.8% who indicated that they are at a primary school, and 14.9% who indicated that they are at a combined school.

Table 9 presents the responses obtained from the participants for section B of the questionnaire (relating to the participants' response to the role of school management teams (SMT's) in the implementation of inclusive education at schools). The data from the responses were summarised with percentages (%) and also missing in percentage (%), mean, and standard deviation. The frequency analysis for each enabler was calculated and reported on per statement as a percentage (%) and covered "Strongly Agree" (1); "Somewhat Agree" (2); "Somewhat Disagree" (3); "Strongly Disagree" (4); and "Don't Know" (5). The descriptive statistics were calculated and reported per statement as: number of missing answers; mean; and standard deviation.

The "Don't Know" (5) answers were not used in the calculation of the statements' means and standard deviations, because very few respondents marked the "Don't Know (5) answer on the questionnaire. Thus, it will have no practical or statistical significance (Ellis, 2014).

Table 9: Participants' responses with regard to questions in Section B (N=149)

Question	Statement or question	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Mis-sing	Mean	Standard Deviation
10	I have an understanding of what inclusive education is all about.	43.6	40.9	13.4	0.7	1.3	1.71	0.723
11	I have an understanding on the policies of inclusive education.	26.2	49.0	20.1	2.0	0.7	1.98	0.750
12	I have an understanding on the principles of inclusive education.	23.5	55.0	15.4	2.0	0.7	1.96	0.701

13	I have the necessary training to implement inclusive education.	18.1	36.9	29.5	8.7	0	2.31	0.892
14	I have an understanding of what are the barriers for the implement-ation of inclusive education.	24.8	50.3	20.1	2.7	0	2.01	0.757
15	The skills and leadership I have are useful for the implement-ation of inclusive education.	18.8	53.0	18.8	6.0	0	2.13	0.792
16	The school have plans and strategies in place for the implement-ation of inclusive education.	17.4	43.0	26.8	10.7	0	2.32	0.893
17	The principal and SMT sell the vision of the school by ensuring that the policy on inclusion is addressed in most staff meetings.	18.8	50.3	22.1	7.4	0	2.18	0.828
18	The principal and the SMT	18.8	41.6	32.9	5.4	0	2.25	0.826

	encourage the optimal attainment of resources for inclusive education.							
19	The principal and the SMT have a procedure of monitoring and evaluating the progress made with regard to inclusive education.	12.1	43.0	31.5	10.7	0	2.42	0.847
20	The monitoring and evaluating system by the principal and the SMT in respect of assessment encourages the achievement of all learners.	28.2	40.9	24.8	6.0	0	2.09	0.877
21	The principal and the School Management Team (SMT) encourages classroom discipline based on mutual respect and understanding.	51.7	40.3	6.7	0.7	0	1.56	0.652
22a	The principal and the School	36.2	51.0	10.1	2.7	0	1.79	0.729

	Management Team (SMT) have a plan of action to check that educators are concerned with supporting the learning and participation of all learners.							
22b	The school is engaging all stakeholders in order to assist with the implementation of inclusive education.	23.5	49.0	19.5	6.7	0	2.10	0.839
23	The school does have learning material (resources), such as computers and desks for the implementation of inclusive education.	19.5	37.6	28.9	12.1	0.7	2.34	0.935
24	The school ensures that the rights of all learners are protected and ensure that all learners are treated fairly and with respect.	53.7	36.2	8.7	1.3	0	1.58	0.709

25	The principal and School Management Team (SMT) create a safe, friendly, and welcoming school climate for learners and parents/families as well as staff, based on collaboration and inclusive-ness.	47.0	38.3	12.1	2.7	0	1.70	0.784
26	All learners take part in extramural activities outside the classroom.	14.8	39.6	28.2	17.4	0	2.48	0.949
27	The school makes its building physically accessible to all people.	25.5	45.0	19.5	9.4	0	2.13	0.906

In Table 9, 84.5% of the respondents indicated that they have an understanding of what inclusive education is and whereas 65.2% respondents indicated that they have an understanding of the policies of inclusive education. Even so there is still a disparity between policy and what actually happens in schools (Gous, 2009; Nel, Müller, Hugo, Helldin, Bäckmann, Dwyer, & Skarlind; 2011), also state that many teachers in South Africa are ill-prepared to meet the needs of diverse learners, hence the development of a negative attitude towards inclusion. This is exacerbated by a lack of strategies for teacher support and systematic training. Inclusive Education and Training System, at all levels of the system, that retard the progress that is being made in the development of an Inclusive Education and Training System.

Regarding the principles of inclusive education, 78.5% indicated that they have an understanding of the principles of inclusive education. This is supported by the fact that the Education White Paper 6 provides guiding principles for the new education system it envisages for South Africa, and includes the following: protecting the rights of all people and making sure that all learners are treated fairly; ensuring that all learners can participate fully and equally in education and society; providing equal access for all learners to a single, IE system; and making sure that all learners can understand and participate meaningfully in the teaching and learning process in schools.

In Table 9, 55% of the respondents indicated that they have the necessary training to implement inclusive education. Some respondents seemed confused because they did not understand what they were supposed to do. Others were worried because they had not been trained to teach children who were not able to participate in learning activities like the other children in their classes. Some teachers felt that inclusive education was an extra burden because they did not understand that it was an important part of outcomes-based education (OBE). Because of all these misunderstandings, some teachers were resistant to inclusive education at first. However, despite their limited training, many educators seem to be able to cope with the challenges posed by inclusive education. 75.1%% of the respondents indicated that they have an understanding of what the barriers for the implementation of inclusive education are and 71.8% indicated that they have the skills and leadership needed for the implementation of inclusive education. The training programmes that educate teachers on how to accommodate and teach learners with disabilities are generally a week or two long, and teachers report that although these brief training programmes are helpful, they are insufficient (Stofile (2008). The programmes also tend to focus on developing a few skills, whereas teachers often need far more comprehensive training programmes. Furthermore, the time allocated to the departmental workshops is insufficient – too short and not presented frequently enough, according to the Revised Education White Paper 6 on Special Education of 2001 (2015). The duration of training is a worrying factor as inclusive education depends on the capacity of the school, and therefore on the capacity of educators to be innovative and to implement differentiation. Harmuth (2012: 3-4) indicates that many teachers state that they do not receive formal training and development regarding the accommodation of the diverse learning needs of learners, and the in-service training which they receive for inclusive education is too short.

Still in table 9, 72.5% of the respondents indicated that their schools are engaging all stakeholders in order to assist with the implementation of inclusive education. The aforementioned is supported by the Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System of 2001, which states that community involvement is imperative in changing the education system. To understand the new approach and programmes, there has to be engagement in the development and support of all educators and stakeholders. All educators and stakeholders need to be trained and oriented to manage diversity through the development of the inclusive learning programmes. Also, 89.9% of the respondents indicated that their school ensures that the rights of all learners are protected and ensures that all learners are treated fairly and with respect. The aforementioned is supported by Smit and Mpya (2011:29), who state that all learners should be given the fundamental right to basic education, thereby addressing the imbalances of the past by focusing on the key issues of access, equality, and redress. And 70.5% indicated that their school buildings are physically accessible to all people. The 1994 Salamanca Statement and Framework for Action states that schools should accommodate all children regardless of their physical, intellectual, social, emotional, linguistic or other conditions.

CONCLUSION

Successful implementation of inclusive education depends on the attitudes and actions of principals, SMTs, and the investment of other school personnel as they create the school culture and have the ability to challenge or support inclusion. Visionary and dedicated school leaders with a strong devotion to inclusive and democratic values and principles are necessary for schools to move towards the implementation of a more successful inclusive and democratic system.

RECOMMENDATIONS

In view of the findings and to assist principals and SMTs to ensure that facilitative measures are put in place to enable them to effectively and efficiently manage and lead inclusive schools for better education delivery, the following recommendations are made:

- SMT'S, educators and stakeholders should be trained and oriented to manage diversity through the development of the inclusive learning programmes. The principal and SMT must be pro-active and constructive in facilitating the

relationships and support networks between the school, non-governmental organisations, civil-based organisations, other government departments, staff members, and parents/families with the goal of addressing barriers to learning and teaching.

- The Department of Education needs to address the disparity between the Education White Paper 6 on Special Needs Education: Building an Inclusive Education and Training System, and what actually happens in schools. This dilemma is clearly illustrated by challenges such as incoherent conception and understanding of the strategic intent and approach towards developing an Inclusive Education and Training System, as articulated in the Inclusive Education Policy, at all levels of the system, which retards the progress that is being made in the development of an Inclusive Education and Training System.

LIMITATIONS OF THE RESEARCH

The results of this study cannot be generalised to the whole population of the principals, deputy principal/s, and heads of departments in the Mangaung Metropolitan Municipal area due to the sample size, sample frame and sampling method used in this study.

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The study of peer review effects on the self-efficacy for MOOC learners

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Abstract

The aim of this study was to determine if peer reviews influence MOOC learners' self-efficacy. A questionnaire was applied to explore 506 MOOC learners' attitude toward peer reviews, which would reflect their self-efficacy. AMOS, a one-way ANOVA, a correlation analysis, and a regression analysis were used to analyze the results and it was found that, if MOOC learners had a positive attitude toward peer reviews, their self-efficacy was higher. Thus, peer reviews were found to have a significant effect on learners' self-efficacy and frequent peer reviews increased it whereas less frequent peer reviews led to a low level of self-efficacy.

Key Words: MOOC learner, peer review , attitude, self-efficacy

1. Introduction

Dave Cormier proposed the concept of Massive Open Online Courses in 2008, and as MOOC study became popular, many scholars began to focus on whether it could affect learners' self-efficacy (Littlejohn, Hood, Milligan, & Mustain, 2016). In 1977, Albert Bandura, the founder of the theory of social learning, proposed the self-efficacy theory to explain why people are motivated to believe in their ability to succeed in certain situations.

Since teachers and students exist in a relatively separate time and space in the online learning environment, students cannot receive timely feedback to amend their learning process. Therefore, the evaluation of network teaching should focus on an assessment of the learning process, the results of which can be used to help learners to gradually improve their learning outcomes (Zhiqiang M., Xuejiao W., & Qinqin L, 2014). However, some current network teaching evaluation methods still attach importance to the assessment of learning outcomes and fail to evaluate the efficacy of the learning process itself. In order to solve this problem, MOOC courses began to use "Peer Reviews" as a way to evaluate the teaching strategies and methods.

Peer reviews are perceived to enable students to play a more active role in their learning by giving them an opportunity to communicate, think and cooperate, as well as enhancing their autonomy in learning (Li S., & Sitao Z, 2014). Self-efficacy is closely related to learning behavior and has the ability to predict academic motivation and academic achievement (Banban L., & Jinfen X, 2014). Based on these facts, peer assessment and self-efficacy play an important role in learning behavior.

The research questions that correspond with the purpose of this study are as follows;

1. What is the attitude of MOOC learners toward peer assessment?
2. What is the attitude of MOOC learners toward self-efficacy?
3. What is the attitude of MOOC learners toward the impact of peer reviews on their self-efficacy?

2. Questionnaire design and data collection

2.1 Questionnaire design

The research questionnaire consists of three parts, the first of which is designed to collect the respondents' basic personal information, such as their gender, education, grade and professional background. This data is in the form of descriptive statistics.

The second part is designed to screen the respondents to ascertain their validity by examining their use of MOOC platforms, the number of MOOC courses in which they have participated, and the number of peer reviews they have received.

The third part is divided into peer reviews and self-efficacy. The peer review part is based on Wen & Tsai's University students' perception of and attitude toward (online) peer assessment with the aim of determining the respondents' attitude toward peer acceptance (T1), equity (T2), learning effect (T3).

The self-efficacy part refers to Lin Shi-fu's "Web-based learning self-calibration and verification of energy meter" and mainly focuses on learning strategies (Z1), computer and network usage (Z2), and communication and interaction (Z3). Experts were invited to comment on the number of tables, topics for discussion, corresponding final opinion, and the final revised scale. The model is shown below (Figure 1).

The questionnaire contains a total of 24 statements that relate to the respondents' learning experience and feelings about MOOC to which they are asked to rate their level of agreement using a 5-point Likert scale, in which 1 equals 'totally disagree', 2 equals 'disagree', 3 equals 'average', 4 equals 'agree', and 5 equals 'totally agree'.

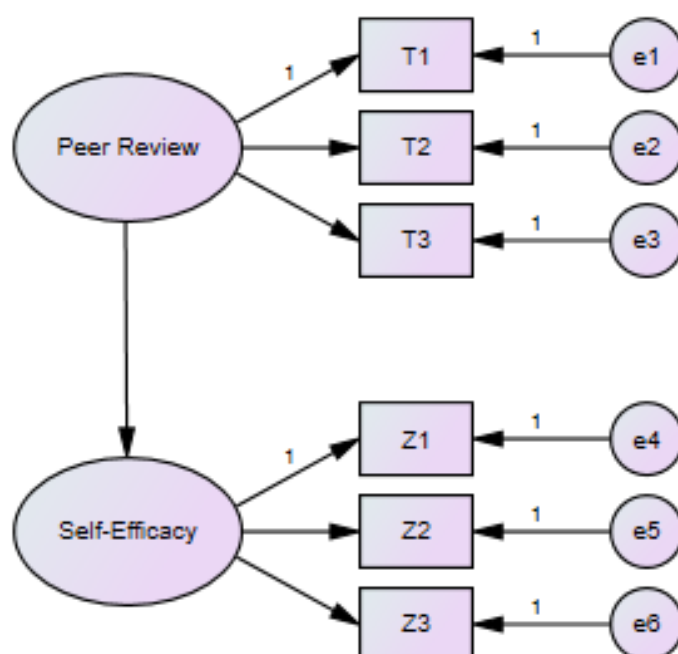


Figure 1 Model diagram

2.2 Data collection

MOOC learners include all kinds of people in various trades; however, college students were chosen to respond to the questionnaires, since they constitute the largest proportion of MOOC learners.

This questionnaire was web-based following a number of researchers who have studied MOOC-theme QQ groups and it was distributed to a range of students from freshmen to senior undergraduates. The survey data was collected in two phases, the first of which was from 15 to 20 November 2016 when a total of 200 questionnaires were collected. The collection was completed in the second phase from 22 November to the beginning of December 2016 and the reliability and validity of the evidence obtained were tested after the second phase.

According to WU Minglong (2006), a national sample should reach 1000; however, 720 questionnaires were finally collected from college students in Shaanxi, Hubei, Shandong, Beijing and the other 28 provinces, municipalities and autonomous universities, producing a recovery rate of 72.0%. Babbie defined a recovery rate of at least 50% as "appropriate", at least 60% as "good", and more than 70% as "very good" (Babbie, 2004). After screening the questionnaires for validity, 506 were found to be valid, accounting for 70.27% of the total; therefore, the sample met Babbie's requirements.

3. Data analysis

3.1 Descriptive statistical analysis

206 males responded to the questionnaires, accounting for 40.7% of the total, and 300 females responded, accounting for 59.3% of the total.

In terms of education, only one of the respondents was educated to high school level and below, while the remaining 99.8% possessed a college degree or above.

As for the number of MOOC courses attended, 311 of the respondents had attended 1-2 courses, accounting for 61.5% of the total; 122 had attended 3-4 courses, accounting for 24.1% of the total; and 73 had attended 5 or more courses, accounting for 14.4% of the total.

336 respondents had participated in peer reviews 1-2 times, accounting for 66.4% of the total; 108 of them had participated in them 3-4 times, accounting for 21.3% of the total; and 51 of them had participated in peer reviews 5 times or more, accounting for 10.1% of the total number of respondents.

In terms of their professional background, 71 of the respondents had majored in Natural Sciences,

accounting for 14.0% of the total; 51 had majored in Agricultural Sciences, accounting for 10.1% of the total; 43 had majored in Pharmaceutical Sciences, accounting for 8.5% of the total; 138 had majored in Engineering and Technical Sciences, accounting for 27.3% of the total; and 203 had majored in Humanities and Social Sciences, accounting for 40.1% of the total number of respondents.

3.2 Measurement of reliability and validity

The statistical analysis software SPSS22.0 and Amos 21.0 structural equation model analysis software were used in this study to determine the reliability and validity of the scale. According to Wu Minglong (Minglong W, 2003) when using Cronbach's α coefficient for a reliability analysis, a coefficient of 0.8 or more is preferable and 0.7-0.8 is acceptable. As shown in Table 1 below, the Cronbach's α of the variables in this study were all above 0.8, indicating that this scale is sufficiently reliable to produce accurate research results.

Table 1 Scale reliability coefficient

	Dimensions	Coefficient	Overall coefficient
Peer review	Acceptance (T1)	.865	.935
	Fairness (T2)	.850	
	Learning impact(T3)	.873	
Self-efficacy	Learning Strategies (Z1)	.874	.930
	Computer and Network Use (Z2)	.858	
	Communication and interaction (Z3)	.856	

A confirmatory factor analysis (Confirmatory Factor Analysis, CFA) was used in this study to validate the construct of the scale. According to Bagozzi and Yi (1988), if the load factor is greater than 0.7 and the average coefficient of variation (Average Variance Extracted, AVE) is greater than 0.5, the composite reliability (Composite Reliability, CR) must be greater than 0.7. If the model meets these conditions, it has good construct validity, as shown by the present research data in Table 2 below.

Table 2 Dimensions of the data

Dimensions	variable	Factor Loading	CR	AVE
Peer Review	T1	0.85	0.895	0.7397
	T2	0.86		
	T3	0.87		
Self-Efficacy	Z1	0.73	0.8771	0.7085
	Z2	0.88		
	Z3	0.90		

The confirmatory factor analysis AGFI Index GFI and the resulting adjusted 0.976 and 0.938, respectively, are in line with an acceptable range, based on structural equation modeling. Therefore, the construct of the summary data related to the degree of adaptation is valid, as shown in Table 3 below.

Table 3 Overall adaptation table

Fitness index	Single factor	Adaptation standard
CMIN/DF	4.366	1-5
RMR	0.015	<0.1
RMSEA	0.08	0.05-0.08
GFI	0.976	>0.8
AGFI	0.938	>0.8
NFI	0.907	>0.9
CFI	0.987	>0.8
IFI	0.988	>0.8

The internal fitness evaluation of the model can be divided into two parts, one of which is the evaluation of the measurement mode and the other is the evaluation of the structural model. (1) Each observation variable in the research model can correctly measure a potential variable; (2) The same observed variable cannot produce significant loadings for different potential variables (Arbuckle & Wothke, 1999). This study is based on the results obtained by Fornell and Larcker (1981) when the CR is greater than 1.96. The data for the convergence validity analysis of this study is summarized in Table 4 below.

Table 4 Convergent validity

	S.E.	C.R.	P
T1	.017	11.676	***
T2	.015	11.284	***
T3	.015	10.777	***
Z1	.022	14.071	***
Z2	.014	10.019	***
Z3	.013	8.995	***

It can be seen from the above table that the CR value of the six variables of the study were greater than 1.96; therefore, it can be said that the convergence of the variables in this study is valid.

(1) MOOC learners' peer review and self-efficacy

As shown in Table 5 below, the respondents have a positive attitude toward peer reviews in terms of their acceptability, fairness, and learning effect. The mean of their self-efficacy in terms of learning strategies, computer and network use, communication and interaction was greater than the median of 3, indicating an improvement in their self-efficacy

Table 5 Descriptive statistics of Dimensions

Variables	Mean	Std.Dev
T1	3.4689	.82976
T2	3.4832	.78725
T3	3.6334	.81371
Z1	3.4190	.82615
Z2	3.5919	.78677
Z3	3.5642	.76419

(2) Difference between MOOC Learners' Participation in Peer Reviews and Self – efficacy

An ANOVA was used to analyze the self-efficacy of MOOC learners who participated in peer reviews. The self-efficacy of each group was significantly different based on the number of peer assessments (Table 6), The impact was significant greater after 3-4 peer assessments and more than 5 than it was after 1-2 assessments. In other words, the more peer reviews there were, the greater the impact on the respondents' self-efficacy.

Table 6 ANOVA analysis of the number of peer reviews and self-efficacy

	Mean	Standard deviation	F value	Afterwards test
A 1-2 peer reviews	3.46	.689	11.01***	B>A
B 3-4 peer reviews	3.75	.628		C>A
C 5 of more peer reviews	3.77	.613		

***p<0.001

According to the results of the ANOVA analysis, there were significant differences in the self-efficacy of the respondents ($F = 11.01$, $p < 0.001$). After the LSD test, when the MOOC learners participated in 1-2 peer reviews, their self-efficacy was lower than at other times.

(3) Relationship between peer reviews and the self-efficacy of MOOC learners

In this section, a Pearson's correlation analysis was used to examine the correlation between peer reviews and self-efficacy, and to explore the correlation between peer assessment and self-efficacy. According to Hinkle, Wiersma, and Jurs (1982) a correlation coefficient of 0.9 or more represents a very highly correlation, 0.7-0.9 a high correlation, 0.5-0.7 a moderate correlation, 0.3-0.5 a low correlation, and 0.0-0.3 very little correlation. The level of significance of the correlation of the variables of peer reviews and self-efficacy is shown below.

Table 7 Correlation of the variables of peer reviews and self-efficacy

	T1	T2	T3	Z1	Z2	Z3
T1	1.00					
T2	.761**	1.00				
T3	.727**	.724**	1.00			
Z1	.498**	.535**	.574**	1.00		
Z2	.575**	.601**	.680**	.657**	1.00	
Z3	.614**	.641**	.694**	.643**	.793**	1.00

**p<0.01

The correlation between Acceptance and Learning Strategies was low, but close to 0.5. Acceptance and Computer and Network Usage, Communication and Interaction were moderately correlated with each other in terms of fairness and self-efficacy. There was a significant correlation between the three variables in terms of performance and a significant correlation between the three variables in terms of learning effect and self-efficacy with learning effect, computer and network use, and communication and interaction close to 0.7.

(4) Effect of peer assessment on the self-efficacy of MOOC learners

The results in the previous section showed that MOOC learners were correlated with each other's self-efficacy. The results in this section will demonstrate whether peer reviews can influence the self-efficacy of MOOC learners. Using the enter method, a total regression analysis of self-efficacy was predicted by the dimensions of peer reviews. The Durbin-Watson value was 1.907. The VIF values of "Acceptance", "Fairness", and "Learning Effect" were 2.808, 2.783 and 2.488 respectively. Therefore, there was no collinearity problem. The results are shown in Table 8 below.

Table 8 Regression analysis of the layers of the influence of peer reviews on self-efficacy

	Non - standard regression coefficient	β SD	Standard regression coefficient	T
T1	.080	.042	.094	1.914
T2	.217	.044	.241	4.932***
T3	.420	.040	.483	10.437***
constant	.968	.102	--	9.477***
R ² correction value		0.566		
F value		22.703***		
N		506		

***p<0.001

The level of fairness and learning effect in peer reviews has a predictive power for overall self-efficacy, which is significant ($p < .001$). The β values of fairness and learning effect in peer assessments are all positive, indicating that the greater the fairness and the learning effect, the greater the impact on self-efficacy.

The Durbin-Watson value was 1.907, as the independent variable of self-efficacy. Learning strategy was the dependent variable and acceptability, fairness and learning influence were the independent variables, and the results are shown in Table 9 below.

Table 9 Regression analysis of self-efficacy as a learning strategy

	Non - standard regression coefficient	β SD	Standard regression coefficient	T
T1	.062	.060	.062	1.042
T2	.232	.062	.221	3.712***
T3	.374	.057	.369	6.550***
constant	1.036	.145	--	7.137***
R ² correction value		0.357		
F value		94.492***		
N		506		

***p<0.001

As shown in Table 10 below, the Durbin-Watson value was 1.899, which was defined as the dependent variable of self-efficacy in terms of computer and network use and the dependent variables of peer review in terms of fairness and learning effect.

Table 10 Regression analysis of self-efficacy in terms of computer and network use

	Non - standard regression coefficient	β SD	Standard regression coefficient	T
T1	.071	.051	.075	1.410
T2	.190	.053	.190	3.580***
T3	.472	.049	.488	9.697***
constant	.968	.124	--	7.832***
R ² correction value		.487		
F value		160.530***		
N		506		

***p<0.001

As shown in Table 11 below, the Durbin-Watson value of self-efficacy was 1.901, which was defined as the dependent variable .

Table 11 Regression analysis of self-efficacy in terms of communication and interaction

	Non - standard regression coefficient	β SD	Standard regression coefficient	T
T1	.107	.047	.116	2.257*
T2	.228	.050	.235	4.585***
T3	.413	.045	.439	9.076***
constant	.900	.116	--	7.787***
R ² correction value		.524		
F value		186.366***		
N		506		

*p<0.1 ***p<0.001

4. Research conclusion and discussion

Based on the research questions, data analysis and related results, the discussion is summarized as follows:

(1) Attitude of MOOC learners toward peer reviews

According to the results of the peer-peer attitude-questionnaire, the MOOC learners agreed with three levels, namely, acceptance, fairness, and learning effect. Learning effect had an average score, while fairness scored highly, followed by acceptance. The effect of MOOC peer assessments on self-study was found to be high, and learners can observe other people's work through assessment, realize different ways of thinking and obtain inspiration to achieve the purpose of mutual learning and expand the scope of their knowledge. Sadler & Good summarize peer learning and peer reviews from a meta-cognitive perspective. Peer reviews have a significance that goes beyond the content itself. The opportunity to deepen their understanding and read other people's point of view will enable students to broaden their way of thinking (Sadler & Good, 2006). Meanwhile, the mean score of the learning effect was significantly higher than that of the other two dimensions. The scores of each question about the learning effect were average, and the scores of fairness and acceptance were similar.

The overall score of acceptance was above the median of 3, indicating that most MOOC students have a positive attitude toward peer reviews. The fairness of MOOC peer reviews has been questioned and challenged. Many scholars have questioned students' ability to review their peers and provide valuable feedback (Kauza, 2014). Sadler & Good conducted an experiment, which confirmed that students' achievement had a very high consistency ($R = 0.91 \sim 0.94$) (Sadler & Good, 2006). Similarly Piech, Huang & Chen studied the Coursera course on the HCI platform, where students are given the results and confirmed that teachers give grades that still have consistency (Piech et al., 2013). However, in their studies, Liu et al caution the need to develop detailed rules and tips for peer assessment in order to achieve fairness (Liu et al., 2014). The MOOC platform should be randomly assigned to avoid the impact of traditional factors, such as students' relationships. Of course, peer assessment cannot just focus on scores; rather, it should be regarded as feedback, to stimulate learners' enthusiasm to learn. The results of the previous studies discussed above are consistent with those of this study.

(2) MOOC learners' self-efficacy

It is proposed in this study that the ability of the learner is based on the functions of the MOOC platform.

Significant differences were found in the self-efficacy of the respondents. For example, the self-efficacy of those who had participated in self-assessment 3-4 and 5 or more times was significantly higher than that of their peers who had only participated once or twice. This infers that students' self-efficacy is higher the more they participate in peer assessment. However, this may be due to the small size of the sample population, resulting in two pairs of people who participated 5 or more times and 3-4 times not achieving a significant comparison. This result is similar to the argument of Xu Yunhong and Wang Ru, namely, that the number of peer reviews will enable learners to have a more accurate cognition of the process and principle of mutual evaluation. This cumulative experience promotes the setting of clear standards and improves their corresponding abilities. This is then followed by internalization and the constant enhancement of their self-confidence, which has a positive effect on their self-efficacy (Yunhong X., & Ru W, 2014).

There were three variables of self-efficacy in this study, namely, Learning Strategy and Computer and Network Usage; Communication and Interaction and Computer and Internet Use; and Communication and Interaction and Learning Strategy. The Computer and Internet Use scores represented the recent development of computer and network technology, as well as its corresponding popularity, that enables more people to access such technology on a certain basis. The results confirmed that Fang Xu computer MOOC learners' self-efficacy was better when they found it easier to learn, and when learners' computer self-efficacy was better, they had more confidence in their ability to learn (Xu F, 2015).

Secondly, in terms of communication and interaction in the MOOC network environment, peer communication and interaction between learners plays an essential role in promoting the development of

learning, improving the learning outcomes, and exposing learners to new ideas (Hongyan W., & Weiping H, 2013).

It was evident from the discussion of the problem through to the final data analysis results that learning strategy attained the lowest score. This indicates that the learning strategies of MOOC learners in China are significantly different compared to the other two levels. Firstly, the scores are relatively low for planning their learning and self-restraint but not for the other two dimensions. Yunfan C & Ming Z (2014) observed and analyzed the impact of students' personal motivation to complete their homework and found that the majority of students who participate in MOOC find it difficult to do so, mainly because of the lack of time planning, and the results of this study are similar.

(3) Effect of Peer Reviews on Self - efficacy

This was the third problem of this study, and according to the results of the data analysis, firstly, peer assessment and self-efficacy have a mutual relationship, since the results showed a significant correlation coefficient of 0.74**. This was followed by peer assessment and learning effect, learning, computer and network use, and communication and interaction. It is also important to note that a significant correlation was found between learning , equity and learning effect; between learning effect and computer and network use, communication and interaction with the highest coefficients of 0.68 **, 0.694 **, indicating the learning effect of self-efficacy on computer and network use, and communication and interaction. Acceptance had a lower coefficient of self-efficacy, indicating that these factors had a weak relationship with each other.

The subsequent linear regression analysis showed a significance ($F = 220.703$, $p < 0.001$), but fairness and learning impact had a positive effect on self-efficacy overall, whereas acceptance and self-efficacy were not significant. Fairness may be more prominent in the MOOC environment than in the traditional classroom because of the mutual understanding between students. Another influencing factor is that, in the network environment on a MOOC platform, peer assessments are anonymous and random in nature, which tends to enhance the fairness of learners' self-efficacy (Wen-Tseng C & Chang-Sheng C, 2012). The MOOC study inevitably has to face the important influence of learning. When MOOC learners review the work of their peers, they are constantly comparing themselves with others, thereby deepening their understanding of themselves, and at the same time, this has a positive impact on their own learning and promotes the upgrading of their self-efficacy (Guomin D., Xibin H, & Juan Y, 2016).

The results were similar to the above results, and the acceptability of peer assessments did not make a significant difference to self-efficacy learning strategy, computer and network use. The results showed that the degree of acceptance had an effect on the self-efficacy of peer-to-peer interaction ($T = 2.575$, $p < 0.05$), but only in terms of communication and interaction. Therefore, based on these results, the acceptance of peer assessments affects students' self-efficacy during the course of communication and interaction, but it does not have a significant effect on the other variables examined in this study.

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Toward Maturation of Processes for Lifelong Learning

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Abstract

Lifelong learning is extremely important to the success of individuals as well as teams and entire organizations. It has been pointed out many times (Hess, 2014; Senge, 1990, 2006) that individual (lifelong) learning is the basis for team learning. And team learning is the basis for bigger revenues and better profits for any size firm. Hess (2014) has even suggested that we continue to learn or we die. In this research, we will articulate for the first time ever, the processes for lifelong learning. Then, we will suggest some practices that are commonplace within lifelong learning. As we will see, this is a necessary first step to maturation of the processes for lifelong learning. What we are doing in this research is to first identify the processes involved in lifelong learning and what practices are currently used to accomplish those processes. For example, one process a lifelong learner should acquire as a discipline is to keep a journal of what works, what does not.

To be a lifelong learner, the learner should first have a lifelong vision and goal of where s/he wants to go, what s/he wants to become. Such a goal must be measurable so that progress can be ascertained. Lifelong learning must be goal- or vision-driven. Then, each learning increment can be measured in terms of its contribution to the measurable objective(s). Second, the lifelong learner should keep a journal of what works, what does not as mentioned above. Third, the lifelong learner should take time to reflect on the lessons-learned as documented within the journal. It becomes important to review the content of the journal and to reflect on that content. So yet another important process is that of reflection. Fourth, the lifelong learner should be willing to try 'new' practices, but learn from them. If the new practice works out, then increased benefit/revenue/profitability results; in either case, learning takes place as to what does or what does not work and why.

In this paper, we endeavor to take lifelong learning to higher levels of maturity as a discipline by identifying and defining the indigenous processes and practices. What are the processes within lifelong learning? What best practices exist within those processes? What inputs/outputs/tools and techniques are appropriate for each process? Still, other learning processes include conversational learning, lecture learning, learning how to manage and manipulate personal conflicts, learning how to overcome resistance to the achievement of our goals, learning to use our subconscious (a vast resource of capabilities), learning how to use mental rehearsal and simulation, and so on.

Lifelong learners learn how to unlearn bad habits, bad disciplines. Lifelong learners use reason and intuition as complementary pairs (Senge, 2006). Lifelong learners know how to 'program' their subconscious to give them optimal solutions to life's problems (Senge, 2006). Lifelong learners develop the understanding that cause and effect are often not close in time and space. Lifelong learners see and understand the complexity of their interconnectedness to the outside world. Still, more practices associated with lifelong learning include developing a more systemic worldview, reflecting on tacit assumptions, expressing one's vision and listening to others' visions, and joint inquiry into different people's views of current reality. The processes associated with each of these functionalities are being identified, defined and documented in this research.

The methodologies we employ involve both empirical inductive studies as well as analytic deductive analyses involving logic. We are interested not in just creating lifelong learners, but lifelong generative learners. These are learners who understand the causal structures that produce the patterns of behavior that create the reactive events (Senge, 2006, pp. 52-53). It is at this level that fundamental, mitigating solutions can be arrived at.

Keywords: Lifelong learning, Maturity, Team learning, Best practices

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Triggers of student protests in South Africa

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No one could have foretold that the soiling of the Cecil Rhodes statue with faeces at the University of Cape Town (UCT) on March, 9th 2015 would spiral South African universities and the general public into a state of confusion and frustration because such an act was peculiar in the post-apartheid era. The cause of the uncertainty was that African students' expressed discontent relating to their exclusion and marginalisation within the higher education system. While this debate has been ongoing and often premised on fees, the authorities have shown little enthusiasm to its resolution. Hence, when the UCT event inspired the formation of myriad student movements across all higher education institutions, which ultimately morphed into the Fees Must Fall Movement (#FMF). Consequently, all concerned parties from the university Vice-Chancellors, the Minister of Higher Education and Training and to the President had no other choice but to take decisive action to the fee plea that students had presented. The purpose of this paper is to give an expose of the issues that triggered the country wide student "uprising" as gathered from interviews from one of the institutions in South Africa.

Keywords: Born -free, protests, student activism, social justice and university

Introduction

The South African Higher Education (HE) presents peculiar dynamics that are rooted in its history of racial segregation. Coming from a brutal political dispensation, South Africans were not only weary but believed that democracy was the panacea for all social ills. Hence, on that proverbial day, Qumani Macwele threw faeces on the Rhodes statue (subsequently called Rhodes Must Fall #RMF) in a bid to highlight the level at which Black students felt excluded at Historically White Universities (HWU), the nation was astounded (Bosch, 2016; Kors, 2016). The surprise was because South Africans believed that those born during the 90s or born frees were shielded from the depravity of apartheid and had no cause for complaining. Whereas it is common cause that the majority of Blacks are economically excluded, there has not been such a public outrage on the effects of systemic and cultural violence. For instance, during apartheid, the University of the Witwatersrand (Wits) defied the government by admitting some Black students, “only” subjected to social and not academic segregation. On the eve of democracy, the institution had a sizeable number of black students, a sign of its liberal attitude. Periodically, students and academics raised their concerns about the exclusive nature of their academic environment, but the status quo remained. Hence the #RMF movement became a trigger to address the long standing issues that they have expressed, leading to the formation of the #TransformWits. Its purpose was to escalate the issues that students faced, rooted in the artefacts, institutional culture and the alienating curriculum. The movement was almost parallel with the #OutsourcingMustFall, which highlighted the issues of low income earners on October 14th, 2015, students shut down their campus in response to the looming 2016 tuition fee increases. In the background, there was a protest about the supposed demolishing of a student residence complex for a car park. This as one of the few spaces that students from low -income families could afford (Godsell, 2015; Lenyaro, 2015; Musker, 2015).

Background

Desegregation of the HE sector took effect in the 1990s following the unbanning of political parties and release of political prisoners. Before then, Black students could only access white institutions upon the approval of the minister of education. Subsequently, there was an unprecedented influx of black students at these institutions as these offered far superior education unlike the Historically Black Universities (HBU). The admission of black students at HWUs posed various challenges. For example, some universities instead of introducing a one language medium of instruction policy opted for a parallel medium, which prevented student integration. Apart from the lack of student integration, there were reports that the academic support programmes oversubscribed Black students whereas some lecturers subjected them to racial taunts (Farrell & Jones, 1988; Kgosithebe & Luescher, 2015; Puttick, 2011). Additionally, the scarcity of African senior faculty staff in influential positions compounded students’ feelings of exclusion. These of the conditions continue to prevail at various campuses.

An overview of protests

Student activism forms the life-blood of universities and is a sign of students who are aware, engaged and willing to act to change the undesirable. Student activism is common in HE because of the following reasons, firstly, university education exposes students to social justice issues. Secondly, the majority of the students are young and idealistic. Thirdly, HE brings together young people with different dispositions creating cross pollination of ideas. Lastly, students have extensive leisure time, which allows them to engage in extramural activities (Cloete & Maassen, 2015; Ervin, 2011; Kistner, 2008; World Forum for Democracy, 2015). Student activist can use low or high risk protests to express their issues (Tilly, 2004). Low risk protests use conventional and normative forms of objection that pose little or no risk to the protestors nor the authorities. Examples thereof include writing a complaint to an official or signing a petition. The latter type employs creative, festive, non-confrontational and violent diffusing methods (Miguel, Sierralta, Manuel, & González, 2016). Disruptive and violent tactics can accompany violence towards others and or

property, with such actions used to secure entitlements for all groups (Brancati, 2014; Mccosker & Johns, 2013; McPhail & Wohlstein, 1983). Disruptive tactics can move from being non-confrontational to violent; the key determinant is the context.

Triggers of protests

Triggers are catalysing events to protests and indicate that institutions although non-entities have an influence in the manner in which those inhabiting them react towards them and each other. Effective organisations have a supportive and caring climate seen in the way in which those in authority communicate and treat their subordinates (Pratto, Sidanus & Levin 2006). Organizational culture is a conglomeration of how institutional processes and systems are built and it has a bearing on the perception of those within the organisation (Suransky & van der Merwe, 2014). While institutional cultures aim to be representative of their diversity, they tend to lean towards the most influential culture. For instance, the University of the Witwatersrand (Wits) as an English institution, reflects the Anglo-culture, thus impacting on the cohesion of the campus; making conflict inevitable. Reason being that “the university is an important location for the ensuing identity work, as a site where discourses collide, are distorted or articulated (Walker, 2005, p. 52). In this regard, one can not deny that unaddressed issues will form part of the protests. Because institutional relations at universities continue to reflect the set patterns of racial segregation (Mabokela, 2000) and breaking such require concerted efforts on the part of the institutions (Wertheim, 2014).

Methodology

The study presents the phenomenological results of a mixed methods approach investigating student activism concerning the experiences of students who were part of the 2015/2016 March #FMF protest action. Participants were five females and a male student, all but one were in the Natural Sciences, whereas the rest were in the Management Sciences, Education and Law. Two participants were pursuing postgraduate studies, Honours and Masters and the rest were in the third and fourth year. All of the participants were actively involved in the protest action. The following discussion details the aspects of institutional culture that the students’ regarded as the triggers of protests.

Results and discussion

Lack of transformation

Transformation is a much-punted word in the South African nomenclature that gained traction in the 1990s when it was undeniable that the country was moving towards democracy. Transformation as a concept, attracts different meanings depending on the one’s perspective, despite its expansiveness, it means change (Hungwe, 2013). Transformation of HE is “part of the broader process of South Africa’s political, social and economic transition, which includes political democratisation, economic reconstruction and development, and redistributive social policies aimed at equity” (Department of Education, 1997). Changes needed not be tangible but also focus on the non-tangible issues that can delay the efficacy of the transformation process if not properly addressed (Department of Education, 2008; Nasima & Wickham, 2013). Whereas the institutions have made an effort to increase access to HE, racially the academic staff population is often the inverse of the student population (Govinder, Zondo, & Makgoba, 2013; Sheehan, 2009). The same applies for HBUs which are mono-racial. Compounding the issue was the finding that a qualitative study on transformation at a merged institution revealed that less than half of the university leaders were not aware of the transformation agenda at their institution (Ngcamu & Teferra, 2015). In light of the above, it is no wonder that the Minister of Higher Education and Training including delegates at the Summit for Higher Education identified the lack of transformation as the main challenge that permeates South African institutions. The roots thereof stemming from the perceived refusal of the institutions to dissociate with colonial and apartheid values (Department of Higher Education and Training, 2015; HESA, 2015)

However, then the thing is all these organisations within the university had been engaged with the management about transformation; it seemed to be a process. But then obviously

*we believed that our institution is also run by capitalist and Jewish capitalist #FMF Male
Activist/ Leader*

*You have intellectual con...debates. We have academic discussions about this stuff, and
when you speak transformation, we speak about these things. So when you get here and
suddenly when you speak about stuff you are being intimidated, or you are being
threatened. It really shows you how it further shows how really your life is cheap. I think
it, particularly because if you speak about these injustices and inequalities issues, that
you go through it. Female Student Leader 2*

The above statements reflect the frustrations of students about the prevalent dynamics within the institution. Students cite that they felt silenced because of the lack of response and the intimidation from the management. While, the first statement is a bit forceful, the second is rather subdued, masking some form of resignation. Moreover, the responses indicate that tertiary institutions might be denying students academic freedom and other skills necessary for adulthood. HE represents student attitudes, potentialities and their capabilities (Wilson-Strydom, 2011). For the universities transformation meant increasing student numbers, without addressing attendant values that alienate students who are not part of the cultural hegemony (Bozalek & Leibowitz, 2012; Hungwe, 2013). People from the influential classes are oblivious to these dynamics because the values and practices of formal education are their reality (Boughey, 2012; Oloyede, 2009; Steyn, 2007). Hence, campuses do not take kindly to the “cultural” minorities who do not adapt to the institutional culture (Farrell & Jones, 2008).

African students face systemic violence ingrained in the day to day processes that determine how an institution carries out its activities (Swartz, Harding, & De Lannoy, 2012; Žižek, 2008). The delays of the management in addressing transformation signals the subtle manner in which the institution violates black students. Under such conditions, black students have to devise means to adapt by distancing themselves from their social structures or commit cultural suicide (Kim & Irwin, 2013). However, their assimilation of the hegemonic culture has its shortcomings because despite their efforts, their low-income status makes it hard for them to earn the middle-class status because they lack “cultural, social, and personal capital” (Lehmann, 2013, p. 12). Transformation challenges cannot be blamed on the Universities alone as “legitimate demands have become entangled and embroiled in party contestations and the struggle for access to resources, and the maintenance of privilege” (Cloete, 2016, p. 4) making the state also liable.

Exclusions

Academic exclusions have made a serious dent on the promotion of access to the previously marginalised groups. While there has been a growing trend to students’ gaining access to tertiary education, a greater number is dropping out of the system, the lack of finance often cited as the primary cause. However, one cannot discount that some students find it difficult to deal with the responsibilities of studenthood and fail their modules. Various attempts to remedy the situation through bursaries and loans have proved insufficient to cover the ever-increasing number of students, but also the inflation rate has rendered these futile. The following statistics bear testimony to the regression that African students face at HE institutions, across the country. “Only about one in four students in contact institution graduate in regulation time”; only 35% of the total intake, and 48% of contact students graduate within five years”, and that “it is estimated that some 55% of the intake will never graduate” (HESA, 2014). HE sector in Africa continues to be a massification of the elites because it is accessible to only those who can afford to pay (Maassen & Cloete, 2014). Staying longer bears financial consequences especially for the student who drops out of HE because the majority of students rely on the government student loan. Exclusion are not only applicable to the students from low income families but children of middle class professionals like teachers and nurses because they cannot afford fees nor do they qualify for the study loans. This group of students are referred to as the “missing middle”. The

insufficiency of loans is based on the fact that in light of declining state subsidies, the South African HE sector greatly relies on tuition fees and third stream income for their operational costs (HSRC & Department of Higher Education and Training, 2016; Universities South Africa, 2015). Cost sharing reflects the decrease in government subsidies, the increase in student numbers and the unfavourable world economy (Klemenčič, 2011). Unlike in some African countries paying for tuition fees has always been a norm in the country. Structural Adjustment Programmes (SAPS) eliminated this benefit. Hence students, continue to oppose attempts to raise tuition fees and or levies (Materu, Obanya, & Righetti) in (Altbach & Salmi, 2011).

I have found that universities are also run like business. They don't care, when there is no longer that element of 'we actually care' because you are at the end of the day a person. It's just like they are going to kick you out and the next person that has money is going to come in. So not because we want to fight the system and whatever. We are just saying implementation, we're not fighting, it's not a new thing that is why we have an inter-generational speak because you understand it. You can trace it that this has been going on. So now you can't keep on talking about one thing over and over again. Female Student Leader 3

June exams and the requirement to settle debt beforehand, created a crazy cocktail. Female Student Leader 1

Literature reveals that fees and services are among the main reasons for students to engage in protests (Cele, 2014; Omari & Mihyo, 1991; Zeilig & Dawson, 2008). Issues about the lack of services, like accommodation and inadequate facilities are more prevalent in the HBUs, unlike the HWUs, although the situation is changing as more African student are flocking to the HWUs (Habib, 2001; Imenda, Kongolo, & Grewal, 2002) putting pressure on the system. For instance, Wits and UCT had their students protesting about the lack of accommodation, whereas UWC students cited that the accommodation fees were unaffordable, calling for their reduction (Gasnolar, 2016; Luescher-Mamashela, 2010). The statement below emphasises the point

The imminent closure of residence, rather the demolishing of the Parktown residences, to make a car park. This is the only affordable residence where the majority of the black students can live

Debt puts undue stresses on students and might hamper their ability to perform their academic tasks because they expend more of their energy trying to secure funding. Moreover, some of these students forego enjoying their time as they spend their time in employment to cover their basics. A UK study focussing on the experiences of first-year students revealed that they faced various challenges like going hungry, uninhabitable accommodation and long working hours (Yorke & Longden, 2008). These experiences might result in their dropping out or failing to perform academically. Fees are one of the burdens for student ability to succeed in the HE sector (Department of Education, 1997).

Whereas fees do facilitate entry into HE institution, aptitude and capability to handle academic tasks are necessary. Studenthood is a stressful life path, as revealed in a recent study in the UK found that university students were less happy and more anxious than the general population. Vulnerability to emotional distress included living away from home with strangers, preoccupations with their success, increased debt and whether their degrees will earn them suitable employment (Brown, 2016). Accordingly, social connectedness and social capital are primary determinants of their mental and physical health (Jdaitawi, 2015). Students who connected to their institutions are less likely to revolt because they trust each other (Dolan & Connolly, 2013; Woodrooffe, 2011). Most importantly social engagement increases academic performance (Lawson & Masyn, 2015). Social class is not the only determinant of academic success, but it brings forth other challenges that students face due to unequal power relations that prevent participation and collaboration (Kathi, Cooper, & Meek, 2007).

Poor communication

Students cited that there was poor communication between them and the university authorities. This assertion is in light of the efforts that the universities have made to extend students' spaces for self-expression and interaction.

"We are tired of talking fees for what? It doesn't help 'we have received your proposal comrades, and we look into it actually we have opened a new commission. 'Female

Student leader 3

Even on numerous occasions, I've been to 11th Floor, we went there, and on this occasion we actually spoke about where we volunteer at the food bank, and we spoke about how there is no food, and there are poor students who need food, and we tried to keep the conversation going, and I mean months went past before something actually happened and only when there was a strike at education campus were those issues addressed. #FMF Student Activist /Leader 1

We engaged in peaceful negotiations with the management four months prior to the #FMF.

Student Leader 1

The above reveal that students do not necessarily seek to be combative to the authorities, but collaborative. The repeated trips to the office of the Vice –Chancellor reflect their sense of hope and belief in the management's ability to resolve student issues. However, also students are aware of their level of power, thus the escalation. Despite this, the sense of frustration on the part of the student is palpable. Communication forms the basis for the smooth functioning institutions as it affords a voice to those involved within the institution. As a two-way process, communication is reliant on timeous a feedback. Meaning that for the communication process to be effective and efficient, there needs to be some form of consensus between the parties that are involved. Although it is a process of engagement, communication and power dynamics are linked (Postma, 2016). Subsequently, various studies indicate that the long winded and secretive decision-making processes are sources of protests (Cele, 2014; Konings, 2009; Muya, 2014) that lead to some student leaders relying on personal connections to resolve student issues (Mugume, 2015). When students believe that the management is not giving them feedback at a reasonable time, relations between these two parties are likely to be negatively affected. Whereas the administration tries its best to involve the students and give them the necessary feedback, the crux of the matter lies in the attention that given to the issue including its resolution. Poor communication creates a rift between the parties concerned breeds mistrust, escalates the conflict to violence causing irreparable to damage to the relationship.

Mistrust of students leadership/breakdown

Student leadership plays a crucial role in the running of the university as they elevate the voices of the students. Whereas the original objective of this body is to advocate for the interests of students, this role appears to have taken a different turn. Historically, student leaders' tasks included curriculum design and selection of lecturing staff (Barker, 2008) a function assumed by the academics. While still maintaining their combative nature, student politics have taken a different route as national party politics have polarised the efficacy of the student leaders. Various studies across the world have revealed how politicians have granted rewards to student leaders who upheld their directives. Apart from securing a lucrative career in politics, immediate rewards, the ability to function without interference from the university authorities and getting a greater chunk of the student budget (Giustozzi, 2012; Mugume, 2015; Omari & Miho, 1991; Rodríguez Tejada, 2015). Trust is valuable in relationships as it fosters belonging, identification and cohesion between stakeholders within the institution. When subordinates trust their leaders, it becomes easy for them to relinquish their power as they believe that they would act in their best interests. Trust enhances the influence and power that those in authority can enjoy, including how they can exercise such (Hollander-Blumoff & Tyler 2011; Pauwels 2014; Bain 2015).

The whole system should be relooked and sort of changed. Even your SRC, even your SRC should be more of just a student body, speaking on behalf of students, for students and I mean them. Not influenced by politics or even management I mean #FMF Female Activist 1

The protests at Wits were controlled, but then again we need to understand that after that there was a break-away, the SRC from the whole Fees Must Fall and the students were still determined to carry on because we felt after the announcement of no fee increment. I didn't know where it actually came from but then so you'll find that after the break-away from SRC there were sort of like party politics that were coming into play, because now you know our SRC predominantly and PYA set-up will be uum, umm, controlled by Luthuli House who kept on saying "Go back to class, you've attained 0% increment". But then you had other students who were saying it's not even about that, we haven't even begun. So from then one, you'll also get the Wits management playing on that, on the divisions. So they play on the divisions, and then obviously it just becomes more frustrating to the other students. #FMF

Male Activist

With the onset of the protests the student leadership were at the forefront of the protests, the situation changed when there were allegations that the leaders were having secretive meetings with the national political leadership, receiving a monetary donation allegedly from the Presidents' significant other and urging the students to stop with the protest. Additionally both the VC and the Minister of Higher Education accused the SRC leaders of dishonesty because they have on several occasions retracted on the agreements. Both are referring to "politics of duplicity and being thrown under the bus." (SAFM News, October 3 2016). The students' responses and those of the authorities reveal the twin pressures inherent in a student leadership that is affiliated to a political party, where one is caught between differing agendas of the party and students. As a result, the students formed a leaderless non-partisan movement that representative and counter party hegemony. This movement rejected the fee increase freeze because they indicated that students will still be liable to pay for fees albeit on the 2015 rates, leading to the continuation of the protests. Regrettably, while the countermovement was a unifying force, for the authorities perceived it was illegitimate because it did not follow the formally set processes to represent students. Under normal circumstances, student leaders are elected, with the national electoral commission overseeing the process to ensure credibility, adherence to the law and accountability (Bonakele, Thabakgale, & Mxenge, 2008; Nyundu, Naidoo, & Chagonda, 2015). Although students argued that movements are organic, it took a while before the management engaged with them. Whether it was because of the fee increment or the mistrust of the SRC, it seems that the breakaway was inevitable. A case in point is that the 2015 student elections were postponed several times because of disruptions from dissatisfied students. These students claimed that the Jewish Student Association (JSA), an alliance partner of the Progressive Youth Alliance (PYA) was not in good standing because of it misappropriating funds (Sekhotho, 2015). Therefore, the environment was already tenuous and favourable to contesting the legitimacy of the PYA. Apart from the institutional political dynamics, students have shown a growing weariness with their SRCs across the country, with more shunning the elections (Malila, 2016; Tracey, 2015). The current state of affairs is not peculiar as in the apartheid years student leaders were not independent (Badat, 1999). One might deduce that the silencing of the voices of the students might be a sign of a government that is trying to maintain its grip on power as other parties in the continent had used students for this end. As a result, for the student leaders to regain trust from their constituency it is imperative that political affiliations be done away with (Moreku, 2014).

Reaction to protest

Universities students are not hesitant to express their dissent to the authorities. The methods they use often depend on the response of those in authority. Before the student shutting down the institution, the student leadership and other sectors of the institution raised issues with the management, which cover broad transformation issues, namely student financial

exclusion, exclusive institutional culture, lack of African academics and employment conditions of low earning staff. Whereas the institution has incrementally made progress to address the concerns raised, the organizational culture prevailed. Subsequently, when students shut down the campus, the university termed their protest as illegal and cited that those engaging in such actions will attract sanctions.

After the break, we came back to a military barracks, there were police everywhere and all these private securities. I think obviously, these guys had gone back and really restructured. It shows again that they are not willing to listen, they are willing to spend this much of money on security, but they are not willing to listen. #FMF Male Activist

One cannot discount the fact that a day before the shutdown some lecture halls were vandalised. However the response of the institution was threatening as it seemingly tried to discourage students from partaking in any action. The use of scare tactics to dissuade students from acting in a particular way is counteractive because they strengthen the students' resolve to continue with the protest (della Porta & Diani, 2006; Duncan, 2016). *You are painting the school campus with security, it is so hostile[....] So obviously they respond to that but they respond in "aaaagh way that doesn't scare me, I am capable to go this far, and this is how bad I want it as well, and you cannot suppress me, you can't suppress how I feel". If you put a security guard there that is going to kick me or arrest me, I can also fight for myself. Female Student Leader 2*

Lamentably, the engagement strategies authorities oscillate between negotiation and threats, also a form of violence (Alence, 1999; Cele, 2014; Maseko, 1994). Secondly, the institution tried to isolate students, citing that it was only a few hundred out of the thousand students who were protesting. Therefore the desires of the majority to continue with academic activities cannot be subverted. Emphasis on numbers served to isolate student issues and bring in disunity in the movement (SAFM News, September 30, 2016). Accordingly, the the number of those involved in the movement and the intensity of a grievance determine its efficacy. The larger the space that a movement occupies, the more pertinent its issue, numbers also illustrate the worth, commitment and unity (Mccosker & Johns, 2013; Tilly, 2004).

Apart from threats, isolating the movement and reliance on security personnel, the university obtained interdict that applied an apartheid law to bar the students from protesting (Naidoo, 2016). The students continued with the action because they deemed the act null and void. As the protests continued, the police officers became heavy handed on the students, for example on trying to approach the police for some conversation, a student leader was shot several times at close range with rubber bullets though her hands being raised to show non violence. Although the government has recognised the necessity for police officers to use less repressive styles of engagement (Ministry of Police, 2011) their demeanour has yet to change.

Recommendations

The study findings make the following recommendations:

- 1) Designing and offering compulsory modules on social cohesion and justice to all students. The teachings need to provide students opportunities to come up with suggestions to work on the challenges that arise from the lack of transformation and how to build institutional cohesion.
- 2) Creating platforms for communication at the institutions, to amplify different voices across the student populace, particularly in light of the weakened SRC. Essentially, it is imperative that university management reduce the bureaucratic processes that students see as impediments from getting timely feedback.
- 3) Reconsidering decoupling student politics from national affiliation and influence, to reduce student political party conflicts that seem to have escalated to violence over the years

Conclusion

Protests are integral to daily life, the mode of operation being the primary distinctive factor. Hence, they are unavoidable and require that the university authorities be responsive and proactive in dealing with students issues. Moreover, also determine those that are likely to cause conflicts with students. With South Africa, still undergoing a process of transformation, power struggles can not be over ruled. However, one cannot discount the role of the university authorities in the escalation of conflict with students. The basis of the assertion is that the issues that students are presenting are long standing as they were expressed more than four decades ago, regrettably with those at the fore front currently seen as acting like gate keepers. For instance, the 1976 national student protests issues were for quality free education, curriculum relevance and responsiveness (Heffernan, 2015; Hirson, 1979; Leader, 2012). In essence, the student's are frustrated because of the perceived inaction on the part of the authorities. The bottom line is that the adults in general, need to realise that activism has moved beyond politics to community activism, an all embracing term. Emphasis on student accountability and adhering to the rule of law is essential to building trust within the institution, with consideration to the role that external influences have in instigating student protests. In effect "South Africa urgently needs to rework its identity and recreate social networks, but in the climate of neo-liberalism and capitalism, the state has become disempowered in driving this agenda" (Nkomo & Dolby, 2004). Consequently, it is the responsibility of the South African population to recreate their society.

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UPGRADING THE LITERARY COMPETENCIES OF LITERATURE STUDENTS THROUGH STRATEGIC INTERVENTION ACTIVITIES

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Abstract:

Upgrading the literary competencies of literature students using strategic intervention activities was conducted with 53 BSE (Bachelor of Secondary Education)-II students as subjects of the study. A diagnostic test was given before the treatment period to determine their performance level in Literature.

Findings show that the top five least learned competencies in literature were: recognizing date, author, or work by style, and or content; identifying details of a character through cultural and historical context; interpreting a given passage of a prose and poetry; recognizing meaning and tone and recognizing conventions and genres, allusions and references, grammatical structures and rhetorical strategies and literary techniques.

To improve the least learned competencies, the researchers designed intervention activities. After the treatment period, the same test was given to the respondents to determine the effectiveness of the strategic intervention activities in teaching Literature.

The results between the pre-tests and post tests revealed that the mean difference of -2.476 in the pre-test and post test for strategic intervention activities was found highly significant. Highly significant difference was also found between the respondents' mean score for the traditional teaching method as manifested by the computed t-value of -2.927 with a computed probability value of .008.

Keywords: literary competencies, strategic intervention activities

Introduction

Many literature teachers feel the need to help students develop their learning strategies specially to upgrade their literary competencies. One major function of literature is to interpret and transform the world, but how will this function if the students don't know how literature works.

Literary competence is the ability to recognize themes of a text, how themes in the plot may be reflected by themes in the sub-plot, values and attitudes conveyed and point of view of the narrator. The task of the teacher is to help the students to acquire at least some of these skills which make up literary competence. This can be done by helping the students to guess the meanings of unfamiliar vocabulary, find relationship between characters, by dramatizing a section and by conducting debates. (Lazar ,1993 Neranjani, 2011).

Intervention activities will help in enhancing the literary competencies of the learners who study literature. Students will be motivated to learn literature and they will be actively engaged in different tasks.

Gone were the days with the use of blackboards with chalk and paper and pen test in teaching literature. The teacher holds crucial role in developing and enhancing strategies as a determinant of quality teaching particularly that of Literature subjects. Time has come to integrate modern teaching strategies into the schools, colleges and universities for efficient learning and teaching.

This study aimed to upgrade the literary competencies of Literature students through strategic intervention activities.

Methodology

The study used the experimental method of research. A total of 53 BSE-II students were used as the population of this study. Data were gathered from BSE-II, major in Physics with 21 respondents and 32 respondents from the BSE –II, major in English.

English Literature was the assigned topic under World Literature when this study was about to be conducted so the researchers adopted and modified a pre-test based from the Literature in English Test Practice Book. A 50-item test was prepared in line with the approved syllabus of World Literature course. The said pre-test was administered to both control and experimental groups before the students were subjected to a particular teaching method.

The scores from the pretest of both the control and experimental groups were arranged from highest to lowest. From the 53 respondents, 27% or 14 students with the lowest scores were identified and segregated as the lower group. Then, the correct answers of the lower group were tallied to determine the least learned skills.

The Physics major students were given the intervention activities while the English majors were engaged in traditional methods of teaching since the English majors have the advantage in literature subjects; they were engaged in traditional methods of teaching.

After finding the least learned competencies, the researchers used the designed intervention activities to develop and upgrade the said least learned skills.

Results and Discussion

Table 1 presents the least learned competencies of the respondents in the pre-test before exposing them to strategic intervention activities and traditional learning activities.

Before the intervention programme, it can be noted that the respondents' least learned skill in literature is recognizing date, author, or work by style, and or content. This simply

means that they have little knowledge or background about English authors, periods or dates and even the literary work or genre itself.

Next least learned skill is identifying details of a character through cultural and historical context. It reveals that the respondents have difficulties in character analysis because they have little background on dates or periods of such literary works when they were written.

The third least learned skill or competency is interpreting a given passage of a prose and poetry. This reflects that the respondents have limited vocabularies and limited knowledge on understanding the deeper meaning of a passage extracted from prose and poetry.

The fourth least learned competency is recognizing meaning and tone which is closely related to the fifth least learned competency which is recognizing conventions and genres, allusions and references, grammatical structures and rhetorical strategies and literary techniques. This reveals that the respondents are thirst in acquiring knowledge and in developing their literary competencies.

Table1. List of least learned competencies in World Literature before intervention activities.

Least Learned Competencies Before intervention programme	Rank
Recognizing date, author, or work by style, and or content.	1
Recognizing conventions and genres, allusions and references, grammatical structures and rhetorical strategies and literary techniques.	5
Identifying details of a character through cultural and historical context	2
Recognizing meaning and tone	4
Interpreting a given passage of prose and poetry	3

Designed Intervention Activities

From the findings of the least learned skills of the respondents before exposing to the treatment, the researchers came up with intervention activities in relation to the list of lessons indicated in the table 1. Five activities were planned and designed for the intervention programme in order to develop the literary competencies.

Activity One

1. Literary Competence: Recognizing date, author, or work by style, and or content.
2. Methods employed: Audio-Visual method-teaching with OHP
Public Speaking method- panel discussion through character portrayal
3. The activity process: Power point presentation was used in presenting the famous English authors together with their works and the date or period it was written. For the activity, the class was divided into two groups. Each group will be given a designated periods in the history of English literature covering the authors, period and their literary works. They will be asked to present a panel discussion through character portrayal.

Activity Two

1. Literary Competence: Recognizing conventions and genres, allusions and. references, grammatical structures and rhetorical strategies and literary techniques.
2. Methods employed: Audio-Visual method-teaching with video
Project method: Graphic Representation
3. The activity process: A video was used in presenting the literary devices and techniques. For the activity, a graphic presentation was employed. Students are asked to make a visual

representation of the plot, characters, or setting. Crayons, water color, pencil or the like can be used as drawing materials.

Activity Three

1. Literary Competence: Identifying details of a character through cultural and historical context.
2. Methods employed: Audio-Visual method- teaching with film
Cooperative learning and Sculpting
3. The activity process: The film Beowulf will be presented to the class. After watching the movie, the class will be divided into four groups with an assigned task. Group 1 will explain the setting; group 2 will discuss the conflicts; group 3 will explain the themes of the movie and group 4 will do the sculpting. Members of group 4 will recreate the important scenes in the story through a kind of a montage or tableau set-up. One member acts as the sculptor who sculps a scene using his/her group members as the sculpted objects.

Activity Four

1. Literary Competence: Recognizing meaning and tone.
2. Methods employed: Audio-Visual method- teaching with OHP
Public Speaking method-Movie Trailer
3. The activity process: The story will be discussed through power point presentation. For the activity, the students will be grouped into five. Students will prepare a 1-minute teaser about the story as if it is a film. There is a voice-over announcer to narrate something about the story. The other students in the group act out the chosen scenes for the trailer.

Activity Five

1. Literary Competence: Interpreting a given passage of prose and poetry.
2. Methods employed: Audio-Visual Method- teaching with OHP
Project method-Biographical Montage
3. The activity process: Before the discussion, the students will be grouped into 5. Students collect or make photos, objects, things, pictures of places relevant to the author's life. These are mounted on a cartolina or illustration board, even a simple folder, and arranged or laid out creatively. After this activity, the lesson will be given through power point presentation.

Differences between Means of Pretests and Posttests

Table 2 presents the results of the t-test analysis when the mean scores of the respondents in the pretest and posttest in strategic intervention activities and traditional teaching methods were compared.

As indicated in the table, the mean difference of -2.476 in the pretest and posttest for strategic intervention activities was found highly significant as implied by the computed t-value of -3.972 with a probability value of .001. This highly significant difference was brought by the fact that the computed probability value is less than the .05 significance level.

Highly significant difference was also found between the respondents' mean score for the traditional teaching method as manifested by the computed t-value of -2.927 with a computed probability value of .008.

Table2. Difference between Means of Pretest and Posttest

Learning Strategy	Mean	SD	t-computed	p-value
Strategic Intervention Activities	-2.476	2.857	-3.972	.001
Traditional Method	-2.190	3.430	-2.927	.008

p value=.05

Results affirmed that performance of the respondents in the pretests for the strategic intervention activities and traditional learning activities really differ from their performance in the posttests.

Conclusion

There was highly significant difference between the level of respondents' achievement in pretest and posttest in World Literature after engaging to strategic intervention activities and traditional methods of teaching. This reflects that the intervention activities used were effective in upgrading the literary competencies of the students.

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Using Smartphone Technology in Classroom

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Abstract

The number of smart phone owners is growing significantly all over the world. Because of their multi-functionality, portability, and connectivity, these tiny handheld gadgets keep students connected to the Internet 24/7. However, many teachers and students are unaware of the power of the applications and resources in their hands which facilitate the classroom management.

The aim of this study is to introduce a novel time saving smartphone technology “Absence Tracker” which can be used to enhance the classroom management and smooth the educational process. Attendance has been always a significant issue in many universities and colleges and a foremost concern for teachers. Instructors in almost all universities and colleges in the UAE verify the identity of student's attendance by human recognition utilizing facial and voice recognition. This old-fashioned method is undeniably time-consuming when it comes to big classes. In this research paper, the researchers provide a new attendance checking method taking advantage of the smart phone technology. This application is developed to take students' attendance as they enter the class using their own smart phones. It also determines the courses, sections, sessions and teachers assigned to each class.

Keywords: Smart phone, absence tracker, bluetooth, server, class management

Introduction

“There’s a strong correlation between student attendance and final grades” (Yin, in McCune, 2015, p.2). Student absence unpleasantly affects the entire “well-being of classes” (White, 1992) and creates a “dead,” tiresome, and unpleasant classroom environment (Brauer, 1994). Thus, attendance has been always a significant issue in many universities and colleges and “a main concern for instructors” (Devadoss and Foltz 1996).

Taking attendance in classrooms has been always a great hassle to instructors. In our educational institutions, attendance is taken manually either by calling out students’ names or by passing around a piece of paper to be signed by them. That is to say, a teacher has to look at a student, check his/her name and go to the next student. If the check in process takes almost five minutes in a 50-minute class, that is taking up to 10% of class time just on attendance. And if students merely have to sign in, especially in a large classroom, they might sign in for their friends who are not physically present in the classroom. Consequently, instead of having to manually calculate the total attendance figures, the new smartphone application introduced in this paper, Absence Tracker, shall do the work for the instructors.

The aim of this research paper is to provide a new time saving method to take students’ attendance using smartphones. It is a simple and convenient way to track attendance for any big class as it simplifies teachers’ tiresome job of taking classroom attendance. It fully integrates with students and teachers’ smartphone devices and eases the track of the attendance by saving valuable class time that can be spent lecturing or discussing subjects with students. Absence Tracker is a mobile application based on the new technology “iBeacon” which relies on low power consuming Bluetooth. This application is developed to track students’ attendance as they enter the class using their own smart phones.

Why Smartphones

The learning process is positively swayed by smart phone technology as they provide educators and students with the benefits of PCs and laptops. “Many students now have pocket technology that is much more powerful and innovative than the equipment used in early manned space flights” (Carey, 2012, p.2). The cumulative educational features of the smart phones have made these devices part of the “key current trends of educational applications for new technologies” (Wu et al., 2012, p. 818).

Integrating smartphones in the educational process is not optional anymore. It is a requirement in a world full of visuals and sounds. Teachers who do not use them will definitely look awkward when dealing with their digital native students. “Due to the incredible versatility and internet capabilities of smartphones, educators are beginning to praise their upsides and take steps to minimize their downsides.” Smartphones give students a wealth of creative options to enhance their classroom experience, including: Access to the internet for research and referencing, access to e-mail, the ability to snap a picture of the day’s homework assignment jotted on a whiteboard or record a short audio of a key lecture moment, keep track of schedules and dates, cope with distracted and disengaged students, obtain virtually instant assistance to solve problems, whether in-class or on a more strategic level, and have potential solutions examined by a reliable group of partners. “If educators teach respectful and appropriate use of technology in the classroom and use it to build their skills as well, the future of education technology looks bright.” (Hennessy 2015, p.1)

Smartphones have been popular in the UAE for long. “Students own mobile phones with very advanced features” (Santos & Ali, 2012) and “bring them to schools and universities” (Burns & Lohenry, 2010). As digital natives, students use these tools to access the Internet and “make use of communication services” on a daily basis. (Melton & Kendall, 2012)

Given the high ownership rate, it seems logical to find out new prospects to integrate students' smart phones in education (Fritschi & Wolf, 2012) as positive learning results can be achieved by encouraging students to bring their personal mobile devices to the classroom and use them to enhance their learning (Scornavacca et al. 2009). Though some educators might think that applying smartphone technology in their classrooms is a massive management challenge, they instantly realize the incredible computing power they possess in their hands when allowing these devices in classrooms. Students, who are instinctively digital natives, could be easily directed to use their phones to serve the educational purposes.

Related Works

A few research papers have been published earlier to promote the automatic attendance systems in education. Most of these papers do focus mainly on applications installed in the instructor's mobile phone. In the following lines, we shall briefly refer to some of these proposals.

In 2014, Murthy and Douglas in their research paper "Architecture of Next Generation Apache Hadoop Mapreduce Framework" suggested attendance tracker software to be installed in the teachers' smart phones. This software enables teachers to connect with their students' mobile phones through Bluetooth. Then the presence of students can be confirmed through the transfer of the mobile phones' media access control of students to their instructor's smart phone (Murthy, 2014).

In October 2014, Min Choi, Jong-Hyuk and Gangman published a research paper titled "Attendance Check System and Implementation for Wi-Fi Networks" in the International Journal of Distributed Sensor Networks. The paper initiated a Wi-Fi service for checking attendance of users in which a token is generated only to a user/student who is close to a boss/teacher. If a member has the token, the smart application of the member will connect and report to attendance server. Otherwise, the smart application of the member will report to the server that the users/students are not close to the boss/teacher. By this way a manager/instructor can easily check the member's attendance. The research proposes that unlimited number of devices can be supported and the researchers made use of Wi-Fi scan to the manager/teacher's "AP enabled smart devices, resulting in an enhanced scalability" (Choi, 2014).

Fingerprint is another confirmation method of taking attendance. It is done by utilizing "extraction of minutiae technique and the system that automates the whole process of taking attendance". This technology has been applied to confirm the identity of users as the biometrics is concerned with the measurements of sole human physical or behavioral features. However, it is becoming difficult to monitor the attendance of the authentic user throughout a session (Rao, 2013). Another research paper underlines a prototype technology that applies facial recognition system to screen authentic students. A network-based algorithm was applied to check face detection, and another face method was applied to perform facial recognition. The trial outcomes proved the possibility of real-time constant user verification for high-level safety information systems (Introna, 2011)

Last but not least, QR is used to check students' attendance as well. It is a mobile system based on a QR code that is being presented to students at the start of each class. All what students need to do is to scan the code in order to confirm their attendance (Masalha and Hirzallah, 2014)

Absence Tracker

Absence tracker is a user-friendly mobile application that saves the lecture time and automates the manual work done by teachers. It is very economic, accurate and secure and it reduces

paper work as well. It does not only track the attendance of the students, but also tracks their performance in the classroom.

Preparing students' names and IDs in Absence Tracker application is a hassle free job. It takes no more than a few minutes to set up a class portfolio and then the teacher receives different reports that students can either view in their mobile phones or print. They can also export them to excel program, download and share via Google drive or store on SD card. By using Absence Tracker, teachers can certainly connect with their students by exchanging electronic emails or text messages right from the application. Furthermore, a teacher can easily determine a class and allocate students to this class. The tables integrated in the app offer educators with a distinct indication of the numbers: General attendance, individual attendance, the total sum of attendees, courses, sections and sessions. The overviews contain the entire attendance statistics and notes. Last but not least, educators and students could easily transfer the attendance information when buying new mobile phones.

Devices Needed

To implement this technology in the classroom, three devices are required: Smartphone application, iBeacon, Server Database as shown in figure 1. By using an installed application in students' smart phones, students will be notified when they get into the classroom and the application will automatically display "check in" button so they could click it on. IBeacon is in charge of identifying whether a particular student belongs to the relative class or no using a serial number for each class postulated in the student's smartphone application. Accordingly, if the student is identified, s/he will be able to see the check in button and click it on to send the data from his/her smartphone to the server. Hence, the server starts to analyze the data and verifies the information related to each student.

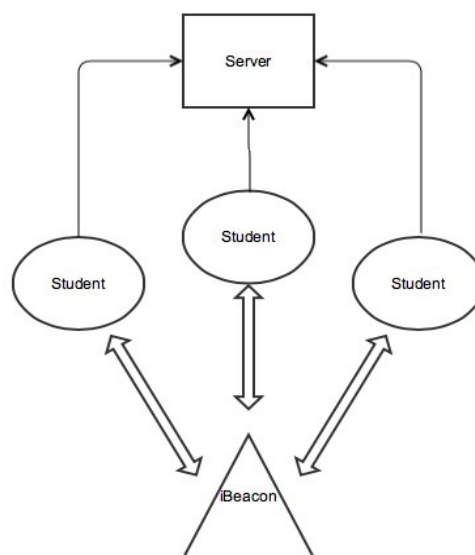


Figure 1

Smartphone Application

Smartphone application is the part where the student interacts with the system using software user interface. It is important to provide a simple user interface so that students can straightforwardly utilize the application while taking their attendance. The application is

programed using three computer languages “Java script, HTML, CSS” and Phone Gap is used to allow the application to be installed in multiplatform operating systems iOS and android. Phone Gap is a mobile development framework that enables software programmers to build applications for mobile devices using JavaScript, HTML5 and CSS3, instead of relying on platform-specific APIs like those in iOS, Windows Phone or Android. It also enables wrapping up HTML, CSS and Javascript code depending on the platform of the mobile phone. It extends the features of HTML and Javascript to work with the device. The successive applications are packed as applications for dispersal and have access to native device APIs.

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8" />
  <meta name="viewport" content="width=device-width, user-scalable=yes,
    initial-scale=1.0" />

  <title>SES</title>

  <style>
    @import 'page.css';
  </style>

  <script>
    // Redirect console if running from Evothings Workbench.
    if (window.hyper) { console.log = hyper.log }
  </script>

  <script src="jquery.js"></script>
  <script>
    $(function(){
      $("#includedContent").load("index2.html");
    });
  </script>

</head>
<body>
  <div class="my-page" id="page-default">
    <div class="my-header">
      
    </div>
    <div class="my-content">
      <h1 align="center">AUST</h1>
      <p style.textalign="center">Please move within range of the iBeacons.</p>

      <div align="center" >
        <p id="result"></p>
      </div>
      <div>
        <input style="position:absolute; bottom: 130px;" type="text" id="idnum1" value="Enter Your ID...">
        <button style="position:absolute; bottom: 100px;" onclick="setid()">set id!!</button>
        <p id="result"></p>
      </div>
    </div>
  </div>
</div>
```

Figure 2: Sample of the code used in programming the application

The mobile application itself is divided into two pages: The first page is seen by students when they enter the class as shown in figure 3

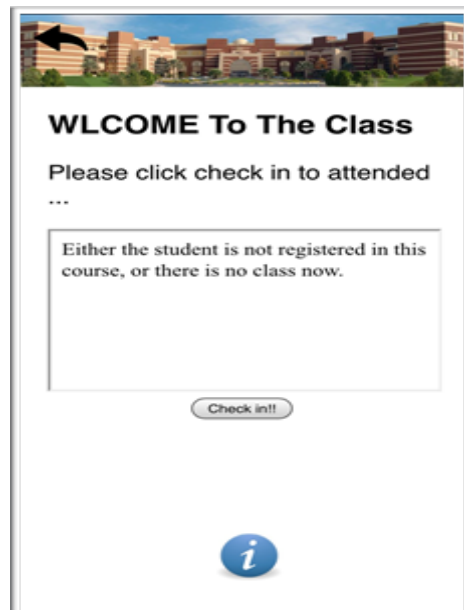


Figure 3

The second page shows where each student sets his/her ID number as shown in figure 4. Then students click check in, if they are registered and confirmation messages are sent to their mobile phones. Otherwise, they are informed that either they are not registered or there is no class in the meantime.

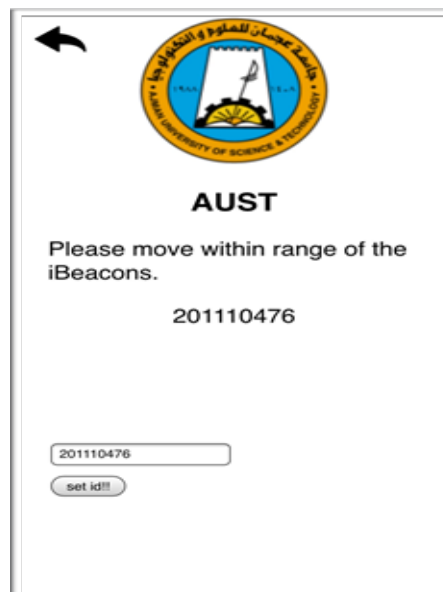


Figure 4

Implementing iBeacon

Beacons are types of Bluetooth low energy devices that broadcast their location to nearby portable electronic devices. This technology enables smartphones, tablets and other devices to perform actions when in close proximity to an iBeacon. iBeacon uses Bluetooth low energy proximity sensing to transmit a universally unique identifier picked up by a compatible app or operating system. The identifier can be used to determine the device's physical location or trigger a location-based action on the device such as a check-in on social media.

The role of the beacon in this system as mentioned earlier is to notify students when they get into their classes by sending notification to the application installed in their smartphones and

show them the attendance page to check in their presence. The device used in this experiment as an iBeacon is a low energy Bluetooth Arduino microcontroller called “Light Blue Bean.”

Server “Database”

The database has different categories and each category has different sections. All the data are gathered according to these categories. Figure 5 shows all the database categories:

1. Attendance
2. Courses
3. Registered Courses
4. Sections
5. Sessions
6. Students
7. Teachers

	Table	Action
☐	ATTENDANCE	     
☐	COURSES	     
☐	REGISTERED_COURSES	     
☐	SECTIONS	     
☐	SESSIONS	     
☐	STUDENTS	     
☐	TEACHERS	     
	7 table(s)	Sum

Figure 5

These categories have all the required information for the absence tracker, and all of them are connected to each other. For example, student Adam is registered in the Reading Course with Dr. Hana in section1, so student Adam will not be able to attend the Writing Course with Dr. Sara. Simultaneously, the same student cannot attend the Reading Course with teacher Sara in case Hana and Sara are teaching the same course. Below is an overview of each specific category of the system:

Categories:

1. Attendance

Attendance table shows the total number of students who attend the classes and their ID numbers. Teachers can access this page to check the overall attendance of students and export them (figure 6).

Server: localhost ▶ Database: a4648689_smartes ▶ Table: ATTENDANCE

Browse

Structure

SQL

Search

Insert

Export

Import

Operations

Empty

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐	<u>ID</u>	int(30)			No		auto_increment	
☐	SESSION_ID	int(30)			No			
☐	STUDENT_ID	int(30)			No			

Figure 6

2. Courses

The course table contains the name and code of each course in the same major (figure 7)

Server: localhost ▶ Database: a4648689_smartes ▶ Table: COURSES

Browse Structure SQL Search Insert Export Import Operations Empty Drop										
	Field	Type	Collation	Attributes	Null	Default	Extra	Action		
☐	<u>ID</u>	int(30)			No		auto_increment			
☐	COURSE_CODE	varchar(30)	latin1_general_ci		No					
☐	COURSE_NAME	varchar(100)	latin1_general_ci		No					

Figure 7

3. Registered Courses

This table attaches the section ID with the student ID to prevent students from attending other sections with different timings (figure 8)

Server: localhost ▶ Database: a4648689_smartes ▶ Table: REGISTERED_COURSES

Browse Structure SQL Search Insert Export Import Operations Empty									
	Field	Type	Collation	Attributes	Null	Default	Extra	Action	
☐	<u>ID</u>	int(30)			No		auto_increment		
☐	SECTION_ID	int(30)			No				
☐	STUDENT_ID	int(30)			No				

Figure 8

4. Sections

This table is connected to course and teacher tables to have the IDs of the teachers and courses taught and attach them to the section number (figure 9)

Server: localhost Database: a4648689_smartes Table: SECTIONS

Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐ <u>ID</u>	int(30)			No		auto_increment	
☐ SECTION_NUMBER	varchar(30)	latin1_general_ci		No			
☐ COURSE_ID	int(30)			No			
☐ TEACHER_ID	int(30)			No			

Figure 9

5. Sessions

This is an important table in the database that has the class time and date attached to the section ID (figure 10).

Server: localhost Database: a4648689_smartes Table: SESSIONS

Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐ <u>ID</u>	int(30)			No		auto_increment	
☐ SECTION_ID	int(30)			No			
☐ START_TIME	time			No			
☐ END_TIME	time			No			
☐ DATE	date			No			

Figure 10

6. Students

This table contains the names of the students registered in the collage and combines them in two columns: Student Name and ID (figure 11).

Server: localhost Database: a4648689_smartes Table: STUDENTS

Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐ <u>ID</u>	int(30)			No		auto_increment	
☐ STUDENT_NUMBER	varchar(30)	latin1_general_ci		No			
☐ STUDENT_NAME	varchar(100)	latin1_general_ci		No			

Figure 11

7. Teacher

Teacher's table is managed by the teacher and contains more specifications to control the input information as shown in figure 12.

Server: localhost ▶ Database: a4648689_smartes ▶ Table: TEACHERS

	Field	Type	Collation	Attributes	Null	Default	Extra	Action
☐	ID	int(30)			No		auto_increment	    
☐	TEACHER_NAME	varchar(100)	latin1_general_ci		No			    

Figure 12

How attendance is taken via smartphone

First of all, when a student enters the beacon area, the beacon sends notification to the student's smart phone informing him/her that they are in the right classroom. The new designed application which is installed in the student's smart phone opens automatically (see figure 13). The mobile application will automatically ask the student to enter his/her ID to complete the process. After that the ID will be sent to the database to check if the ID is available in the database, and will send the student a message that s/he attends successfully. If not, the student will receive a message that confirms either the student is not registered in this course, or there is no class at the moment. After the student is checked, the ID will be saved in the data to be monitored by the instructor.

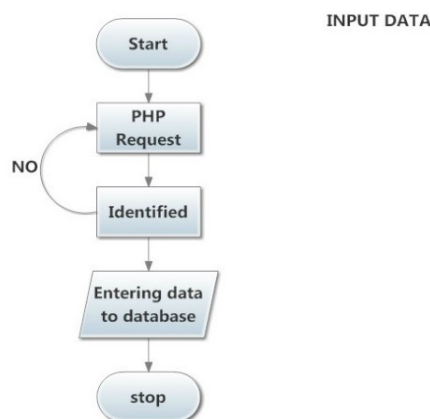


Figure 13

After that, the teacher can see the name and ID of the student through a web page that has a table containing the section number, student name, student ID and attendance. Figure 14 shows the procedures of showing data from the database

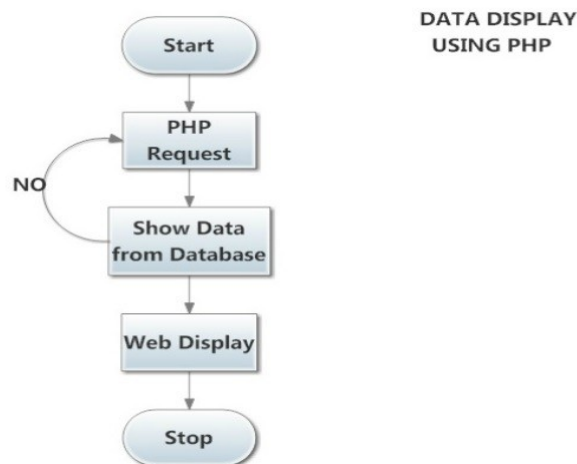


Figure 14

PHP coding

In general, this code is designed to take attendance by sending the student ID to the database and notifying the student that s/he successfully attends the classroom.

```

View file AttendClass.php
<?php
1. $servername = "mysql13.000webhost.com";
2. $username = "a4648689_ahmad";
3. $password = "72589118a";
4. $dbname = "a4648689_smartes";
5. $StudentNum = $_GET['StudentNum'];
6. $CourseNum = "2701110";
7.
8. // Create connection
9. $conn = mysqli_connect($servername, $username, $password, $dbname);
10.
11. // Check connection
12. if (!$conn) {
13.     die("Connection failed: " . mysqli_connect_error());
14. }
15.
16. //Set timezone
17. mysqli_query($conn, "SET time_zone = '+04:00'");
18.
19. /*
20. Query to check the following
21. 1. The student is registered in the course
22. 2. There is a class (session) in this day and time (date and time)
23. */
24. $sql = "SELECT S.ID STUDENT_ID,
25. S.STUDENT_NUMBER,
26. S.STUDENT_NAME,
27. SE.ID SESSION_ID,
28. SE.SECTION_ID,
29. SE.DATE,
30. SE.START_TIME,
31. SE.END_TIME
32. FROM REGISTERED_COURSES RC
33. INNER JOIN SECTIONS SEC ON RC.SECTION_ID = SEC.ID
34. INNER JOIN COURSES C ON SEC.COURSE_ID = C.ID";
  
```

The below code is used to show the teacher how a student attends his class and counts him/her attendant as explained earlier.

View file show.php

```

1. <?php
2. $servername = "mysql13.000webhost.com";
3. $username = "a4648689_ahmad";
4. $password = "72589118a";
5. $dbname = "a4648689_smartee";
6.
7. // Create connection
8. $conn = mysqli_connect($servername, $username, $password, $dbname);
9.
10. // Check connection
11. if (!$conn) {
12.     die("Connection failed: " . mysqli_connect_error());
13. }
14.
15. //Set timezone
16. mysqli_query($conn, "SET time_zone = '+04:00'");
17.
18.
19. $sql = "SELECT SEC.SECTION_NUMBER 'Section Number',
20. S.STUDENT_NUMBER 'Student Number',
21. S.STUDENT_NAME 'Student Name',
22. (SELECT COUNT(*) FROM ATTENDANCE A INNER JOIN SESSIONS SE ON A.SESSION_ID = SE.ID WHERE SE.SECTION_ID = SEC.ID AND A.STUDENT_ID = S.ID) 'Attendance Count'
23. FROM REGISTERED COURSES RC
24. INNER JOIN SECTIONS SEC ON RC.SECTION_ID = SEC.ID
25. INNER JOIN COURSES C ON SEC.COURSE_ID = C.ID
26. INNER JOIN STUDENTS S ON RC.STUDENT_ID = S.ID
27. WHERE C.ID = 1";
28.
29. $result = mysqli_query($conn, $sql);
30. $fields_num = mysqli_num_fields($result);
31.
32. echo "<div align='center'><img align='middle' src='http://www.ajman.ac.ae/upload/6bba5c1952628cf9e1759270152e89c5.png'></div>";
33. echo "<h1 align='center'>Attendance for Intro to Engineering (2701110)</h1>";
34. echo "<table border='1' align='center'><tr>";
35.
36. // printing table headers

```

Conclusion

With the blowout of educational technologies all over the world, using smartphones in classrooms became inevitable. The above study provides a practical and convenient example of integrating student personal devices in classrooms to enhance the learning process. This new attendance checking example implements an appropriate and accurate method that takes advantage of smart phone technology. It completely incorporates with students and teachers' smartphone devices and eases the track of students' attendance. By doing so, it saves the class time that can be spent doing class activities and enhances students' learning experience. Absence tracker not only checks students' attendance in no time, but also advises instructors of the vital role mobile phones can play in education. It also informs the educational institutions about the implications of bringing personal devices into classrooms.

The only drawback of this technology is that it cannot determine if the student leaves the classroom right after s/he is checked present or from using other student's smartphone to check in. In order to overwhelm this limitation, other researchers are invited to explore more advanced mobile phone applications and functions that can precisely cover this gap.

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Video-Based Instruction in an Environmental Studies Course: Analysis of Knowledge Gain Variance

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Abstract

The present study aims on the effectiveness of video-based instruction in a course entitled "Environmental Studies" to impart environmental knowledge among undergraduate students. The pretest-posttest evaluation method was employed to obtain the scores before and after showing a video on a selected environmental theme to a population of 89 students enrolled over a period of four semesters. The students enrolled in these semesters (considered as four groups) were of varying demographics i.e., nationality, age and gender. The well-known Analysis of Variance (Single Factor) statistical technique was used to compare the knowledge gain levels among the four groups using MS Excel Data Analysis Tool. The One-Way ANOVA compares the means between the groups of interest and determines whether any of those means are statistically significantly different from each other. The statistical analysis was performed using 99% confidence level. The pretest and posttest analysis reveals that there is a significant difference between the means of pretest and posttest knowledge levels of all four groups and overall. The P-value = 0.0000 computed for overall is less than 0.01 i.e. at 99% confidence level. The findings conclude that all four groups gained knowledge after using video-based instruction method in the environmental course.

Keywords: Knowledge gain, pretest-posttest evaluation, cognitive learning, ANOVA

Introduction

A successful pedagogical system should enable the instructors to address the learners' needs and understand the variations in teaching styles and approaches. Under the constructivist framework, active learning has received significant attention in the field of teaching and learning practices. Prince [1] defines active learning as an instructional pedagogy that engages students in the learning process such that the emphasis of learning is on the learner himself, rather than that of the teacher or instructor. In this framework, effective learning will occur only when learners discover and construct essential information for themselves [2]. The researcher in the field of education have examined the uses of advances in computer science and technology that allow the instructors to use instructional multimedia educational technologies to enhance the process of students' learning. The potential role of multimedia in learning has long been a matter of debate among researches [3]. A sensible use and integration of different types of media is known to play an important role in the process of learning. The field of educational technology is overwhelmed with studies how theoretical knowledge and scientific principles of learning can be applied to learning problems that arise in a classroom. Experts in educational technology seek new and effective ways of organizing the teaching and learning process through the best possible application of technological appliances [4]. The video instructions have been used in a variety of teaching environments and have been found very effective medium for students learning, regardless of discipline [5]. This media has also been used as a training or instructional tool. Huhra [6] provide a useful overview of the advantages of video technology in the context of professional supervision. Some of key advantages include the ability of video to impact changes in a trainee's self-perception, self-analysis and enable supervisors to more accurately evaluate trainees. This paper is an attempt to assess the effectiveness of video-based instruction in a course entitled "Environmental Studies" to impart environmental knowledge among undergraduate students.

Research Methodology

The study was undertaken at Al Ghurair University (AGU), Dubai, United Arab Emirates (UAE), located at latitude and longitude 25.1099° N and 55.4069° E, respectively. The UAE occupies a total geographical area of about 83,600 square kilometers. The country is a federation of seven emirates, and was established on December 2, 1971. The constituent emirates are Abu Dhabi (which serves as the capital), Dubai, Sharjah, Ajman, Umm al-Quwain, Ras al-Khaimah, and Fujairah. AGU student population is a mix of students from these seven emirates and the children of expatriates residing in the UAE. The study employed the pretest-posttest evaluation method to obtain the scores before and after showing a video on a selected environmental theme to 89 students enrolled over a period of four semesters. The AGU class rooms are equipped with the state of the art ICT and multimedia technologies to support the class room activities. Students were briefed about the process to familiarize them with the pretest-posttest method. The pretest process assessed students' knowledge about the selected environmental theme prior to the administration of the educational intervention in the form of a video-based instruction about that particular theme. At the end of the video, the students were asked to complete the posttest questionnaire which was identical with the pretest tool to assess their knowledge about the environmental theme after the educational intervention.

Analysis of variance (ANOVA) is the most efficient parametric method available for the analysis of data obtained in various studies. The method was originally designed to test the differences between several different groups of treatments thus circumventing the problem of making multiple comparisons between the group means using t-tests [7]. The data obtained in the present study has been analyzed by Analysis of Variance (Single Factor) using MS Excel Data Analysis Tool.

Research Hypotheses of the Study

For this study, a null hypothesis was framed and tested. Testing the null hypothesis was introduced by Fisher [8] while the alternate hypothesis was suggested by Neyman and Pearson [9]. Testing of the null hypothesis has its basis in the falsification theory [10] who suggested that we cannot conclusively affirm a hypothesis, but we can conclusively negate it. The null hypotheses framed for the present study is as follows:

“There is no significant difference between the means of pretest and posttest scores of students instructed through video-based teaching and conventional teaching”.

Data Collection

The study used assessment data of 89 students in pretest and posttest in a course entitled “Environmental Studies” spanned over a time period of four semesters and considered as four groups as shown in Table 1. A short test of 50 marks was prepared that administered to the group of students in an environmental studies class before and after showing a selected video on an environmental theme. The tests were marked to obtain students’ scores to carry out the analysis.

Table 1: Groups details

	<i>Semester</i>	<i>No. of Students</i>
<i>Group 1</i>	Winter 12 – 13	9
<i>Group 2</i>	Fall 13 – 14	27
<i>Group 3</i>	Winter 13 – 14	34
<i>Group 4</i>	Fall 14 – 15	19
All Four Groups		89

In addition, a number of relevant literature and previous research studies were also reviewed from published and unpublished sources, journals, books, and so on, to prepare and supplement the literature review for this research study.

Analysis and Finding

The analysis of results acquired in this study has been performed through statistical data analysis techniques using 99% confidence level. The comparison of students’ score average and variance, group-wise and overall, is shown in Figure 1 and Figure 2, respectively. It is evident from both figures that students’ score average is higher in the posttest whereas the variance is decreased in all four groups. Similar trend is shown in the overall average and variance when the data is analyzed for all four groups together. This clearly shows that the students have gained knowledge after the educational intervention in the form of video-based instruction.

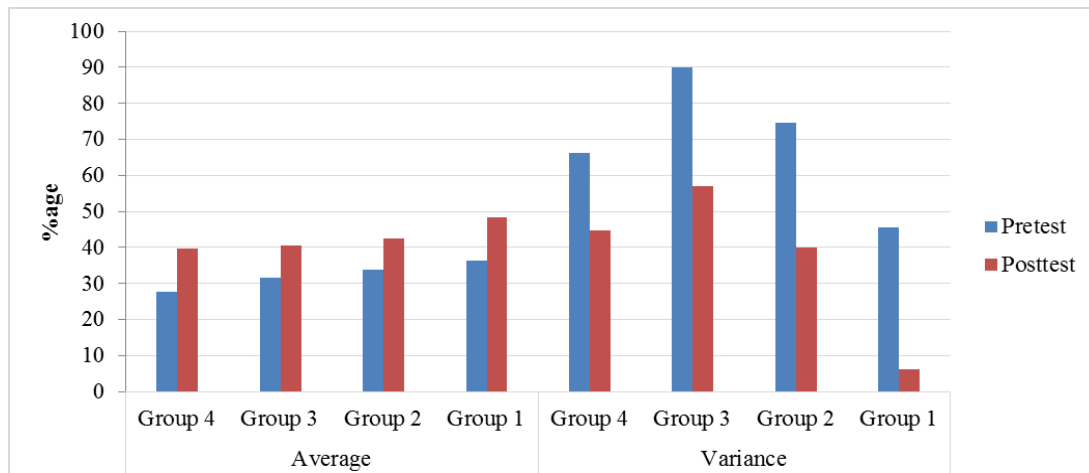


Figure 1: Group-wise comparison of average and variance (pretest and posttest)

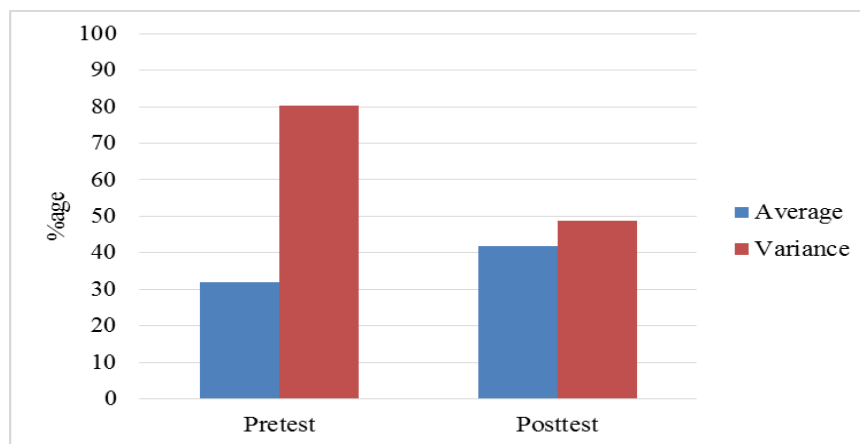


Figure 2: Overall comparison of average and variance (pretest and posttest)

The results of ANOVA applied on the pretest and posttest scores of students enrolled in Winter 2012 – 13 (Group 1 as designated in Table 1) are given in Table 2.

Table 2: Result of ANOVA for Winter 2012 - 13 (Group 1)

Source of Variation	SS	df	MS	F	P-value
Between Groups	660.1	1	660.1	25.4	0.000120439
Within Groups	415.6	16	26.0		
Total	1075.6	17			

SS: sum of squares, df: degree of freedom, MS: mean square

For Group 1, $P\text{-value}$ (0.00012) < α (0.01) where α is confidence level which shows that the pretest-posttest scores are significantly different. Hence, the null hypothesis “*There is no significant difference between the means of pretest and posttest scores of students instructed through video-based teaching and conventional teaching*” is rejected at 99% confident level. The ANOVA was applied on pretest and posttest scores of students registered in Fall 13 – 14 (Group 2), Winter 13 – 14 (Group 3), Fall 14 – 15 (Group 4), and overall. Due to limitation of the space we only present the $P\text{-values}$ computed for each group and overall in (Group number, $P\text{-value}$) format; (1, 0.000120), (2, 0.000115), (3, 0.000057), (4, 0.000018) and (Overall, 0.000000). The $P\text{-values}$ computed for each group and overall is less than 0.01 that allows us to reject the null hypothesis framed for this study in each group and overall.

Therefore we can conclude that the null hypothesis is not true and the students instructed through video-based instruction gain high scores as compared to those students who were taught using conventional methods. A similar conclusion was reported by [11] in a study of using films as a medium of instruction for environmental education. They found that teaching environmental concepts to the children through films was more effective than teaching by conventional method. Another study [12] also confirmed the benefits of using video as an instructional medium in teaching varying subjects to adults, youths and children in schools. Some studies [13, 14] have shown that thematic instruction can increase student motivation and achievement.

Conclusion

Best pedagogical practices require that the educators should make their teaching more interesting and appealing to students. One of the effective practice is to use multimedia technologies. By using effective instructional pedagogy the students can be exposed to various learning experiences and engagements that allow learners to discover and construct essential information for themselves. The findings of the present study provide a reasonable justification and foundation for the usage of video-based instruction. The performance of students with different age, gender, and demographics can vividly improve the knowledge gain when they are exposed to video-based teaching and instruction. Adopting a variety of instructional methodologies including video-based instruction in an environmental studies course is highly recommended.

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What's blocking the integration of technology in teaching?

The disciplinary barrier

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What's blocking the integration of technology in teaching?

The disciplinary barrier

What barriers hinder the use of ICT tools in teaching among teachers of the disciplines?

This paper will present findings from which we can conclude that the disciplinary barrier is one of the variables that impede implementation of a consistent and systematic teaching ICT.

We focused on teachers who teach writing, on the assumption that the use of certain functions is necessary to promote writing.

For the study, we developed a questionnaire that is valid in terms of research. The questionnaire contained 60 statements divided into five parameters. The first part has three parameters (24 statements) to examine the integration and use of ICT tools in teaching, and the second part (36 statements) had two parameters to examine attitudes towards integration of the tools into teaching. In total, the questionnaire covered the following five parameters:

- a) Skillfulness – the extent of mastery of the ICT tools
- b) Writing – using ICT tools for teaching and learning for the generation of written content
- c) Evaluation – using ICT tools for assessment purposes in teaching
- d) Attitude – attitudes towards the use of ICT and its change in teaching practices
- e) Self-efficacy – perception of self-efficacy regarding the use of ICT tools in teaching.(28)

This study involved a sample of 391 first language teachers. As a rule, all these teachers teach in the secondary school system in Israel.

Like other studies (e.g. Kim et al., 2012), this study found that teachers have positive attitudes towards integrating ICT into teaching, but these positive attitudes are insufficient to directly impact language teachers' use of these tools to generate written content. Nevertheless, the study indicates that first language teachers do not tend to use ICT tools to generate written content, or do so only rarely.

Hence, the question arises – what barriers hinder the use of ICT tools in teaching among teachers of this discipline?

We believe that one of the barriers is what we call "disciplinary barrier".

Key words: disciplinary barrier; ICT tools in teaching; Writing

The place of Technology in the discipline

Studies show that it is very difficult to implement changes in teaching, learning and assessment methods at school (Fullan, 2000; Halverson & Smith, 2009; Harris, Mishra & Koehler, 2009). In recent years, there have been many attempts to define parameters for teachers' nature and ability to use innovative educational technologies effectively in their work (Avidov-Ungar, 2011; Coffman, 2009; Halverson & Smith, 2009). These studies are based on the assumption that innovative technologies pose unique pedagogical challenges for teachers, ones that require changes in the teaching-learning process. Researchers are trying to examine the key factors that impact the effectiveness of the implementation of new technologies at school (Hattie, 2009) and teachers' transitioning to a new paradigm that also involves changes in their teaching, learning and assessment practices (Halverson & Smith, 2010; Becker, 2001; Wallace, 2004; Venezky & Davis, 2002). Studies show that implementing changes in teaching practices involves great difficulties and that the teachers' abilities and beliefs are a professional-pedagogical factor of primary importance for this change to actually occur (Cunningham, 2009; De Freitas & Oliver, 2005; Fullan & Smith, 1999; Halverson & Smith, 2010; Selwyn, 2010). Moreover, studies on the implementation of innovative learning technologies in the education system usually report that the main causes of failure or disappointment typical of most implementation processes are mainly linked to teachers' knowledge and their attitudes towards the change (Ertmer, Ottenbreit-Leftwich & Tondur, 2015; Hattie, 2009).

Technology is significantly changing the face of society and of the world of employment, and economic-social-political reality demands that we reexamine and revise some of the teaching paradigms that worked well in the pre-digital era (Bonk, 2010). Given the accelerated pace of technological development in recent years, the education system is facing new and complex challenges (Bauer & Kenton, 2005). Adapting the education system to the 21st century involves several key components that impact the quality of teaching-learning-assessment processes, including teaching and learning in a digital environment, cultivating Computer and Information Literacy (CIL) as well as cultivating reading and writing literacy in the digital space (Lorenz, Eickelmann & Gerick, 2015; Fraillon, Ainley, Schulz, Friedman & Gebhardt, 2014; Koberg, Detiennen & Heppard, 2003).

Despite the progress in the integration of computers in education, there remains a certain malaise deriving from the significant gap between the potential of the computer revolution and the reality in schools (Ertmer & Ottenbreit-Leftwich & Tondur, 2015; Bauer & Kenton,

2005; Hicks, & Turner, 2013) among both students and teachers. One of the characteristics of this gap pertains to the degree of implementation of ICT tools in teaching-learning-assessment processes when teaching a particular discipline (Bauer & Kenton, 2005; Keengwe & Onchwari, 2008), since integrating tools that serve the objectives of the discipline can be extremely valuable for promoting pedagogical change. Based on this malaise, this study seeks to examine the degree of use and implementation of ICT tools in a particular discipline. To this end, a special questionnaire was developed and administered to a large sample of first language teachers in Israel.

The starting assumption of this study is that the integration of ICT tools suited to the objectives and features of a discipline will generate a change in teaching and learning patterns, and will enable a new pedagogy based on the use of ICT tools in teaching (Law, 2008). Consequently, at the core of this study lies the development of a research tool to assess the degree to which teachers are using ICT tools in their teaching-learning-assessment processes. The article presents the development, validity and reliability of this questionnaire, which was administered to Hebrew language teachers in secondary schools in Israel. It examines five parameters relating to teachers' subjective perspectives (Kim et al., 2012) in two main areas: the extent of use of ICT tools and attitudes towards their use. The parameters relate to teachers' degree of mastery and use (Skillfulness), the extent of their use to generate written content (Writing), and for purposes of assessment (Evaluation) (Duke, 2011). In addition, the parameters also relate to teacher's attitudes towards the ICT tools (Attitude) and accordingly to their sense of self-efficacy regarding the use of these tools (Self-efficacy) (Mishra & Koehler, 2006). With this in mind, this study seeks to understand the nature of these aspects among teachers and at the same time validate a research tool that may promote understanding of this aspect of teaching a discipline, in this instance teaching Hebrew as a first language.

Generic literacy skills and Disciplinary literacy skills

The program for CIL development is based on the international IEA proposal for ICIL (International Study of Computer and Information Literacy), which focuses on two main categories: a) gathering and managing information, including knowledge of the technological system and how to use it, access to information and evaluation of it; b) creation, editing and sharing of information. For each category, the necessary skills are listed for the various production tools: file management, use of the computer and peripheral equipment, a word

processor, presentation program, spreadsheet, the internet – information and communication (Schulz et al., 2010).

CIL constitutes an integral part of various disciplines and thus the responsibility for strengthening these skills lies with all the teachers. However, one should distinguish between generic skills that every teacher and student must master and skills that are particularly prominent in a given discipline that they serve explicitly. The generic skills are those that every learner must master, regardless of discipline, as they constitute a means of study, such as the ability to locate information in a text and integrate information from different sources, look for internal and external information (Britt, Goldman & Rouet, 2012), navigate a digital book and use the technological tools specific to the digital book. It is important to note that studies indicate that understanding digital text obliges the readers to apply reading and comprehension strategies in a new context (Eden & Eshet, 2012; Heinrichs & Lim, 2010). On the one hand, they must apply the same reading and comprehension processes and strategies as for a printed text, and on the other hand, they also have to apply new skills suited to the digital text (Shannon, 2008; Cohen, 2006).

While the generic skills are a means to learning, in language classes they are an essential component of the discipline. Such classes teach reading comprehension explicitly – how to locate and integrate information, and how to read a digital text. Thus the use of CIL skills, and in particular word processing functions such as highlighting sentences, cutting and pasting, creating tables etc. are essential in promoting literacy skills. Another key component in language teaching is writing – one of the cornerstones of the learning process in educational institutions that is expressed in academic discourse both as a means and as an end. In language classes writing (i.e. ‘learning-to-write’) is emphasized as an end (Bartlett, 2007). A question arises about the place of technology in the writing processes.

In a similar vein to the discussion held on generic and disciplinary literacy, a discussion concerning the digital generic and disciplinary literacy is put forward. This is the reason for our belief that teachers’ mastery of ICT tools, particularly those that explicitly promote writing, is vital and not optional.

Methodology

Research participants

This study involved a sample of 391 first language teachers. As a rule, all these teachers teach in the secondary school system in Israel. About half of them (52%) teach only in middle school, about one third (28%) teach only in high school and the rest teach in both middle and high school. Almost all the teachers have academic education: almost half (48.7%) have a

B.Ed, a slightly smaller percentage (44.6%) have an M.Ed, and the rest either have a PhD (2.3%) or have not completed any academic degree (4.4%). Seniority among these teachers ranges from veterans of up to 43 years to novice teachers with one year of seniority. The average seniority is 17.95 years and the median is 18 years (SD 10.64 years). Segmentation of participant seniority by decades shows that 30.8% are relatively new teachers with up to 10 years of seniority. 27.9% are teachers with between 11 and 20 years of seniority and the rest (41.3%) have over 20 years of seniority

The disciplinary barrier

Scholars indicate two types of barriers to integrating technology into teaching: an environmental barrier, including end-user equipment such as computers and other technological aids, internet access and teachers' knowledge of technology, and a human barrier – all those elements relating to the human factor and the beliefs and perceptions of the individual (Ertmer, Ottenbreit-Leftwich, & Tonduer, 2015; Kim et al., 2012). Implementing ICT requires technological knowledge, but in order to realize the potential of technology to the fullest, pedagogical knowledge is also required (Mishra & Koehler, 2006). However, technological and pedagogical knowledge will not necessarily lead to optimal integration of technology into teaching and learning. This study adds an additional, third barrier to those mentioned above, which we will call a “**disciplinary barrier**”. It appears that in order to promote integration of technology into teaching, we must identify those technological tools that will help teachers advance the teaching of their specific discipline and gain profound understanding that these tools can greatly promote the teaching of the discipline and in the particular case of this study, promote the teaching of first language writing and reading literacy that supports better writing.

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The Correlation between the Reading Comprehension Level and the Ability to Analyze Word Problems of Grade 7 Learners

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This research aimed to discover the relationship between reading comprehension level and word problem analysis skill of Grade 7 students through a correlational design. Respondents were selected through systematic random sampling, every odd number student was chosen from the sample frame of 731 students. Data were collected using questionnaire (comprised of thirty-five (35) questions; math sentences and/or phrases, and word problems) and the Scholastic Reading Inventory (SRI). Pre-testing to ten (10) initial respondents who were not actual part of the study sample and validation of questionnaires of three (3) Mathematics professionals were conducted to prove its reliability and validity. Results revealed a Cronbach's alpha value of 0.91 which were interpreted as excellent. Furthermore, the research results revealed that 58.95% of the respondents are below basic and 2.18% of them are advanced readers. Findings also showed that 45.41% of them have a word problem analysis skill that is equal to their grade level. A Pearson-r formula giving a coefficient of 0.378 was utilized to correlate the two variables. Based on the results, there is a low positive correlation between reading comprehension and word problem analysis. Moreover, a regression analysis is conducted to determine a simple relationship between the two variables. It shows that there is an average increase of 0.55 points per 100 point-lexile increase from a standard average score of 7.435 out of 35 items. This implies that reading comprehension minimally affects the word problem analysis of the students.

Keywords: reading comprehension, word problem, relationship

CHAPTER 1

THE PROBLEM AND ITS BACKGROUND

One great asset of a student is that he/she is able to understand what he/she is reading. When a student is able to understand thoroughly the article at first reading, without any aid of vocabulary materials, then the student probably has high reading comprehension ability. Reading comprehension is the ability of a student to understand written articles with his/her own knowledge. Moreover, comprehending what one reads means that you understand the printed symbols in terms that have meaning for you, that relate to you (Roldan, A., 2010.) If students have a high comprehension level, it is an advantage for he/she can easily understand sequence of directions and sentences. Also a student with high comprehension level can be regarded as one who excels in the field of English. Books are major instruments for a student to gain such comprehension level. But, there are majority types of books that use English as its medium. Mathematics is one. Textbooks seem to play an important role in mathematics education at all levels (Foxman, 1999) and therefore, reading activity and reading comprehension play a vital role.

Relevantly, solving word problems in Mathematics involves reading comprehension in order to attempt to solve the given problem. Commins (1979, 1984) in studies of the language skills of bilinguals, concluded that a certain level of linguistic proficiency seemed to be necessary for academic achievement. This is a fact because language competency or comprehension level, allows one to make reasoning as the tool to organize thoroughly the concepts of what he/she is reading (Commins, 1979, 1984). According to MacGregor and Price (1999), vocabulary, number and symbol sense, as well as the ability to read and comprehend word problems are important factors effecting achievement in math. However, they also believed that the correlation between the two is much deeper (MacGregor and Price, 1999). The ability to translate the word problems into equations lies on the relationship between the reading comprehension level of the student and its knowledge on basic skills in math.

Based on theories of reading comprehension and a literature review, it found out that the relationship under study is complex and that the reading process can affect as well as act as an integral part of the problem solving process but also that not much research has focused on this relationship. Most research in mathematics education about reading comprehension has been done in a manner that reduces reading to a potential obstacle for learning (Borasi& Siegel, 1990), for example, by focusing on how limitations in reading ability affect learning in mathematics or on readers' misunderstandings of a written task and how this can influence the solving of the task (Borasi& Siegel, 1990). This paper aims to review the relationship between the reading comprehension skill and word problem skill.

BACKGROUND OF THE STUDY

Reading is one of the skills that one must nurture. In fact, reading is applied in everything that one does in everyday life. It is a must for every person to enhance their reading skills. This is one major key to learn majority of the ideas and facts one wants to know. Coming hand in hand with reading, one must also comprehend what he/she is reading. Reading is useless if one is not able to understand what he/she read. Thus, there is a need to improve students' comprehension skills. Relevantly, it is a known notion that those who master English have poor knowledge in Mathematics. One part

of this knowledge is to analyze word problems. Since word problems are in paragraph form, comprehension level constitutes the analysis of the word problem. A word problem can be answered correctly as long as the analysis of the given problem is correct. Moreover, the learner should have verbal ability and language skill to read and understand the problem (James, A. & Alwan, J., 2011.) Thus, comprehension level plays a vital role in solving word problems.

According to Philippine-IRI Test, 36.5% of the Grade 6 students are still frustrated readers, meaning, these students, still, are not able to read and understand the text they are reading. Furthermore, these students who are frustrated reader have the probability to have a hard time to go with the flow of lessons when they reach secondary level or Grade 7.

THEORETICAL FRAMEWORK

According to the latest revision of Bloom's Taxonomy (2001), there are six levels of cognitive process starting from the most simple to the most complex. The levels are as follows: remembering, understanding, applying, analyzing, evaluating, and creating. The research study focused on the first four levels of Cognitive Domain. However, remembering and understanding fall under the reading comprehension skill of the respondent. Application level becomes evident when the respondents use their basic knowledge in Mathematics. Last is analysis through breakdown of the concepts in the problem and thus, relating different givens into one whole concept.

In addition to what has been said is the Information Processing Theory (Annonat, R., 2009). This theory focuses on what goes on inside the learner– learning, memory, and performance. Many of the skills before and during reading stages focus on the mechanisms readers dynamically employ to comprehend a reading material. An example of this theory is monitoring comprehension through metacognition wherein students focus themselves on thinking beyond what they think. Thereafter, the students are able to adapt to their own reading process to ensure comprehension – fix-it-up strategies. These fix-it-up strategies are used by the students to process data and translate the ideas that they comprehend into one single concept in Mathematics that they will use to analyze the entire word problem.

Piaget's Constructivism Theory (Vega, V., Prieto, N. 2012) says that through processes of **accommodation** and **assimilation**, individuals construct new knowledge from their experiences. It tests how students combine their new knowledge with their already created schemas. Much of the after reading stage focuses on the skills the readers dynamically employ to comprehend a reading - building their own interpretations of new information.

CONCEPTUAL PARADIGM

Figure 1.1 Research Paradigm

The researchers utilized a test to quantify both reading comprehension skill and word problem analysis skill. The researchers adopted the SRC(Scholastic Reading Count) program of Dr. Yanga's Colleges, Inc. (DYCI). Using this program, the students underwent a test of comprehension level. They read excerpts from different books and then chose the best answer from the given options. After the test, the lexile or the reading comprehension level showed the computation and score of the students. After which, the same set of students took the word problem tests and gauge their word problem analysis skill. When the researchers gathered the two quantities, both were compared and results were accumulated.

STATEMENT OF THE PROBLEM

The main problem of this study is to determine relationship existing among Grade 7 learners' reading comprehension level and their ability to analyze word problems.

Specifically, the research study answered the following questions:

1. What is the reading comprehension level of the Grade 7 learners?
2. How may the respondents' ability to analyze word problems be described?
3. Is there any significant relationship between the student's reading comprehension skill and their ability to analyze word problem?

HYPOTHESIS

H_0 - There is no significant relationship between the students reading comprehension skill and their ability to analyze word problems.

SCOPE AND LIMITATION

This study is confined only in determining the levels of reading comprehension of the students and their capability to analyze word problems not in solving.

The respondents are the grade seven students who were enrolled in DYCI in the school year 2015-2016 consisting of 229 participants. The number of respondents was acquired with the Sloven's Formula. The total number of Grades Seven Students is 731. The researchers used a 5% margin of error.

The researchers chose the grade seven (7) students because they are still under the transition of learning styles and environment. Similarly, it is the time when learners are starting to grasp the Formal Operational Stage (Piaget's Stages of Cognitive Development) – when the child typically begins to develop abstract thought patterns (James, A. & Alwan, J., 2011.) Moreover, they are still building foundation of knowledge and learning.

SIGNIFICANCE OF THE STUDY

The conducted study shall benefit the following and shall add up as their new knowledge:

Students. This study will help students understand the importance of enhancing their reading comprehension skills and shall motivate them to harness also their mathematical skills.

Teachers. This study will let the teachers make a better guide for teaching. For English teachers, they can prepare well the materials for comprehension activities. And for Mathematics teachers, they can devise the process for the students to learn the skill easier and with greater retention.

Parents. This study will be significant to them because they can monitor their child in terms of their ability to analyze word problems through reading comprehension skill.

Researchers. The study acts as a help to boost more their resourcefulness, perseverance, and knowledge to the researchers. By means of this study, the researchers could apply what they have learned from their educators in the College of Education.

Future Researchers and Writers. The study will benefit the future researchers for it will serve as their guide and related literature.

DEFINITION OF TERMS

- Grade 7 Learners – they are the students of Dr. Yanga's Colleges Inc. who are taking the SRI exam.
- Lexile – is the quantitative value of the reading comprehension level of the student.
- Reading Comprehension – is the ability to read text, process it and understand its meaning,
- SRI (Scholastic Reading Inventory) – is a computer program that quantifies the reading comprehension level of the students.

- Word Problems – it is any mathematical exercise expressed as a hypothetical situation explained in words.

REVIEW OF RELATED LITERATURES AND STUDIES

The Importance of Comprehension

According to Beers (2003) comprehension is both a product and a process, something that requires purposeful, strategic effort on the reader's part- anticipating the direction of the text (predicting), seeing the action of the text (visualizing), contemplating and then correcting whatever confusions we encounter (clarifying), connecting what is in the text to what is in our mind to make an educated guess about what's going on (inference) (p. 45-46). Therefore, in order to help students improve, teachers must spend more time in explicit instruction. Ness (2011) shares research that has shown comprehension strategies become automatic after eight weeks of continual instruction (p. 98). Unfortunately, many teachers struggle with teaching comprehension because they are unsure of the best practices and the difficulty in finding programs that are research-based (Dole & Liang, 2006).

The Association between Mathematical Word Problems and Reading Comprehension

Mathematics performance and reading skills have been shown to be closely related. For example, Light and DeFries (1995) showed that difficulties in arithmetic were associated with reading ability development. Moreover, studies focusing on children with learning disabilities have shown that difficulties in reading and in math often co-occur (e.g., Geary, 1996; Geary, Hamson, & Hoard, 2000; Jordan, Hanich, & Kaplan, 2003; Jordan, Kaplan, & Hanich, 2002; Jordan & Montani, 1997). For example, Jordan et al. (2002) found in a two-year longitudinal study that reading disabilities predicted children's progress in mathematics, but mathematics disabilities did not affect children's progress in reading.

In addition, previous research has shown that math word problem-solving performance and reading comprehension skills are both related to overall reasoning skills. The reasoning strategies behind these skills have frequently been discussed in the light of methods used for classifying Maths word problem structures (Fuchs & Fuchs, 2002; Fuchs, Fuchs, & Prentice, 2004; Jordan & Hanich, 2000) and reading comprehension question types (Bowyer-Crane, 1998; Lindeman, 2000; Magliano, Trabasso, & Graesser, 1999), respectively.

Reading and Math: What is the connection?

According to Ladson-Billings (1997), an important feature that should be in the reform of mathematics education is the expectation for students not merely to memorize formulas and rules and apply procedures but to engage in the processes of the mathematical thinking. In short, they should be expected to do what mathematicians and other professional users of mathematics do. Such a mathematics education program is based on engaging students in posing and solving problems rather than on expecting rote memorization and convergent thinking.

U.S. school children continue to lag behind students in other highly technological nations in mathematics and science achievement. The reasons for this lag

are multiple and include teachers without adequate preparation in mathematics and science; unimaginative approaches to teaching; teacher misassignment; poorly constructed textbooks curriculum; and cultural bias toward the unimportance of math education and the myth that it is only for a select few to master.

Mathematics functions as a feared and revered subject in one's culture. People fear it because of the belief that it is too hard, and we revere it because we believe it signals advanced thinking reserved only for "smart people." Both these perceptions are myth.

No one would readily admit to being unable to read, but many proclaim with pride their inability to perform even moderately complicated math problem. According to Ladson – Billing (1997), Asian parents attribute their students' math failures to lack of effort, whereas most U.S. parents were more likely to suggest that their children's poor performance was attributable to a lack of innate ability.

Mathematics teaching in a school has traditionally emphasize, repetition, drill, convergent right-answer thinking, and predictability. Students are asked to perform similar tasks over and over. They are rarely asked to challenge the "rules" of mathematics. They are rare asked how their prior knowledge and experiences might support or conflict school mathematics. Ladson – Billings (1997), contends that middle-class culture demands efficiency, consensus, abstraction, and rationality. Unfortunately, these features reflect the experiences and understandings of only one segment of our society.

Word Problem Solving in Contemporary Math Education: A Plea for Reading Comprehension Skills Training

In the last decades, mathematical word problem solving has gained much attention from both researchers and educational practitioners (Campbell, 1992; Hegarty et al., 1995; Hajer, 1996; Depaepe et al., 2010; Hickendorff, 2011, 2013; Moreno et al., 2011; Boonen et al., 2013; Swanson et al., 2013). Mathematical word problems refer to mathematical exercises that present relevant information on a problem as text, rather than in the form of mathematical notation (Rasmussen and King, 2000; Timmermans et al., 2007). Hence, effectively solving a mathematical word problem is assumed to depend not only on students' ability to perform the required mathematical operations, but also on the extent to which they are able to accurately understand the text of the word problem (Lewis and Mayer, 1987; Hegarty et al., 1995; Van der Schoot et al., 2009; Jitendra and Star, 2012). Both of these aspects are related in such a way that developing a deeper understanding of the text of the word problem serves as a crucial step before the correct mathematical computations can be performed. Hence, a key challenge for word problem solvers is to get an adequate understanding of the problem statement (Lee et al., 2009; Thevenot, 2010; Boonen et al., 2013).

Two individual skills are relevant in this regard. First, an important factor contributing to a deeper understanding of the text of the word problem is the ability to construct a rich and coherent mental representation containing all (the relations between the) solution-relevant elements that are derived from the text base of the word problem (De Corte et al., 1985; Hegarty et al., 1995; Pape, 2003). That is, word problem solvers have to use a problem-model strategy in which they translate the problem statement into a qualitative mental representation of the problem situation hidden in the text (Pape, 2003; Van der Schoot et al., 2009). This mental representation subsequently allows

them to make a solution plan and execute the required mathematical operations. Although successful word problem solvers appear to employ such a problem-model strategy by drawing on their mental representation skills, less successful problem solvers often adopt an impulsive, superficial direct translation strategy, in which they only focus on selecting the presented numbers that, in turn, form the basis for their mathematical calculations (Verschaffel et al., 1992; Hegarty et al., 1995).

The second important individual skill in word problem solving success substantiated by research evidence is the influence of a student's reading comprehension abilities (Pape, 2003; Van der Schoot et al., 2009; Boonen et al., 2013). It has been suggested that reading comprehension abilities are especially helpful in dealing with semantic-linguistic word problem characteristics such as the sequence of the known elements in the text of the word problem, the degree to which the semantic relations between the given and unknown quantities of the problem are made explicit, and the relevance of the information in the text of the word problem (De Corte et al., 1985, 1990; Verschaffel et al., 1992; Marzocchi et al., 2002).

Furthermore, reading comprehension skills appear to be more important in overcoming such textual complexities than being able to use one's mental representation skills (De Corte et al., 1985, 1990). This might explain why the use of a problem-model strategy is not sufficient in all circumstances. That is, word problems containing semantically complex features require both accurate mental representation skills and reading comprehension skills, whereas for word problems with a lower semantic-linguistic complexity, well-developed mental representational skills might be sufficient.

SYNTHESIS

In a generation where technology is given so much importance, and where everyone seems to be inseparable to it, we cannot deny that somehow it is affecting how students perceive education. Their time is being divided from the least up to the most important things to do. Because of this, their motivation to improve themselves through reading is decreasing. Unlike in the past, when there is no any disturbance, reading is a form of recreation (Romero, A. & Romero, R., 1985). As a result, students' reading comprehension is not being enhanced, and it affects their critical thinking and reasoning skill. However, in order to help students improve, teachers must spend more time in explicit instruction.

On the other hand, reading – being regarded as the first step to any field of study (Roldan, A., 2010), it is very evident that it is absolutely essential that one must possess this skill. Mostly in Mathematics, although it is known to be using numbers, words or texts still play a vital role to it. One example is the word problem analysis, a strategy being used to engage students in solving Math equation in a situational manner. In this strategy, being good in Mathematics is not enough. It is indispensable to have good reading skill with good comprehension to perform the computation well.

Hence, broadening one's intellectual horizon through reading must be given high importance. Through this, doors will open for enhancement of skill in other fields and grasp new ideas and concepts with great understanding.

CHAPTER 2

RESEARCH METHODS

RESEARCH DESIGN

The researchers aimed to determine the relationship between reading comprehension and the ability to analyze word problems and thus the researchers decided to use a correlation type of research. Best, J. and Kahn, J. (2003) stated that correlation is the relationship between two or more paired variables or two or more sets of data. Moreover, it is a quantitative method of research in which two or more quantitative variables from the same group of subject are tested to determine their relationship/co variation between the said variables (Waters, J., 2001).Theoretically, any two quantitative variables can be correlated as long as there are scores on both variables from the same participants. Thus, the research was made to compare the results of each individual in the sample to each other in terms of their reading comprehension level and their ability to analyze word problems.

RESEARCH LOCALE

This study was conducted in Dr. Yanga's Colleges Inc.- Secondary Department in Wakas, Bocaue, Bulacan. The participants needed in this research were the grade seven students. One of the main reasons why the researchers chose the said school is that the school is collaborated with the Scholastic Inc. wherein they implement reading campaign program– the SRI. Thus, the researcher adopted the program and included as part of the research instruments.

RESEARCH PARTICIPANTS

The respondents of the research were the Grade 7 students. They are officially enrolled in the school year 2015-2016 at Dr. Yanga's Colleges Inc. Wakas, Bocaue, Bulacan. The respondents consist of 229 students. The respondents were chosen through a systematic sampling wherein every odd number student was picked from the sample frame of 731 students.

RESEARCH INSTRUMENT

The researchers used a questionnaire type of instrument in order to quantify the students' reading comprehension and ability to analyze word problems.

The first instrument utilized by the researchers is the Scholastic Reading Inventory or SRI from Scholastic Inc. SRI is a computer program that quantifies the reading comprehension level of a student. It is composed of excerpts from different books wherein the students were asked to answer basic questions, predict outcomes, and infer certain situations based on the given excerpt through what the students understand from the excerpts. Questions in the program were of choices and from there; the students will pick the best answer. Each choice has a corresponding number of points. The comprehension level of the students is computed through their answers and the time span of answering – accuracy and speed of comprehending. The reading comprehension level is measured in lexile scores.

The researchers adopted the SRI program of Scholastic Inc. because Scholastic Inc. is an international company that promotes reading campaign in order for the

students in different schools to increase their reading comprehension skills. SRI is one of their programs in order to monitor whether a certain student improves his/her lexile score or not.

The second instrument that the researchers used is a researcher made questionnaire which focused on the student's ability to analyze word problems. This questionnaire consists of two parts: part one is the translation of sentences to mathematical equation and part two is the problem solving analysis. Ten (10) questions are given to part one for each correct item and five (5) different word problems from different fields of Mathematics are given. Each word problem comes with questions from basic analysis of word problems – that is what is asked; what is the hidden question; what is/are given; what is the operation to be used; and what is the number sentence. Each correct answer in the questionnaire is equivalent to one (1) point. Total number of scores is 35. The raw scores of the respondents were gathered.

Data Gathering Procedure

Figure 2.1 Data gathering procedure flowchart

Before the gathering of data, the researchers submitted a letter to DYCI to ask permission to conduct a survey to the respondents. After the letter has been approved, the researchers sent another letter to DYCI - SRI Coordinator for the list of Grade 7 students and their corresponding lexile score. Then, the researchers analyzed the scores and conducted a Systematic Random Sampling to determine their respondents. After which, they conducted the survey for word problem analysis to the respondents. Survey was conducted every Math class hour. Individual scores of respondents on lexile scores and survey score were recorded. Recorded scores were evaluated and compared until they come up with the results.

STATISTICAL TREATMENT

In order to come up with the desired result, the researchers had utilized a Pearson Product-Moment Correlation Coefficient or Pearson r. The coefficient is given as:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}}$$

Where n = number of respondents

X = data of the first variable

Y = data of the second variable

Pearson r measures the significant correlation between the two variables that is, reading comprehension skill and word problem analysis.

Also, the researchers utilized z-score to normalize the raw scores. Z-score is given as:

$$z = \frac{x - \mu}{\delta}$$

Where x = student's raw score

μ = mean

δ = population standard deviation

Z-scores are converted into stanine scores to standardize the score into a nine-point scale.

ETHICAL CONSIDERATIONS

The primary concern in the research study is the confidentiality and informant's dignity. Other ethical consideration must be observed which includes rigor and beneficence.

Beneficence – The researchers try to lessen different types of harms and discomfort in order to achieve balance between the potential benefits and the risk of being an informant.

Establishing Rigor –Different strategies are needed to establish rigor. Through strengthening and validating the reliability of the study, rigor has been established.

Human Dignity – Self-Determination is one of the rights of every informants/respondents of the survey.

Justice – It is the right to fair treatment and the right to have privacy.

CHAPTER 3

RESULTS AND DISCUSSIONS

This chapter includes the analysis and interpretation of data collected from data-gathering procedures. It contains the qualitative measurement of the variables needed to acquire the desired result. It also contains tables and graphs for visual presentation of data.

Measurement of Reading Comprehension Level

All grade seven students of Dr. Yanga's Colleges, Inc. are subjected into a reading comprehension exam to quantify their reading comprehension skill with the help of Scholastic Reading Inventory (SRI) of Scholastic Inc. The following are the reading comprehension level of the respondents that are taken from a 95% level of significance of the population.

Table 3.1 Reading Comprehension Level

Reading Comprehension Level	Advanced	Proficient	Basic	Below Basic
Number of Respondents	5	20	69	135
Range of Lexile Scores	1050 and above	850 to 1049	550 to 849	549 and below
Intervention Level (Based on Performance Standard)	Above Grade Level	On Grade Level	Below Grade Level	Far Below Grade Level
Average Lexile Score (Respondents)	1197	937	696	262

The student's reading comprehension level is classified into four namely, advanced, proficient, basic, and below basic. The respondent is said to be **advanced** if he/she got a score equal or greater than to 1100. This also implies that the respondent has an exceptional reading comprehension and can read and understand a variety of books. Five of the respondents fall under this level with an average lexile score of 1197. The respondent is said to be **proficient** if he/she got a score ranging from 850 to 1099. This implies that the respondent has an average reading comprehension and can read books that are recommended for Grade 7 students. Twenty of the respondents fall under this level with an average lexile score of 937. However, respondents who got a lexile score of 550 to 849 are classified as **basic** readers. This indicates that the respondent's reading level deviates minimally from his/her expected level. Sixty-nine of the respondents is basic readers with an average lexile score of 696. Moreover, 135 of the respondents fall under the **below basic** level which mean that the respondent's reading level is far below from their expected level. It may imply that their reading comprehension level is like a Grade 4 elementary students. Range of lexile scores at this level is 549 and below. The respondents average lexile score on the below basic group is 262.

Based on observations, it can be seen that 58.95% of the respondents are below basic. This means that more than half of them lacks in reading comprehension skill and indeed, needs more practice exercises to develop their skill since their performances can be compared

to an elementary student. Also it can be observed that there are a very low number of respondents that belong to the advanced level of reading comprehension. Only 2.18% of them had developed a reading comprehension skill that is beyond their grade level. This is, in fact, true because it needs exercise to develop such skill as stated in Thorndike's Law of Exercise(Vega, V., Prieto, N. 2012.)

The table also shows that as a student approaches a high level of reading comprehension, the number of students is decreasing. Due to the individual differences of the intelligences of the respondents, it is likely to occur that there are lesser respondents that will attain the advanced level of comprehension. Such occurrence can be similarly stated to Jerome Bruner's Cognitive Learning Theory(Vega, V., Prieto, N. 2012.) According to his theory, a priori knowledge and posteriori knowledge shall be combining to each to produce new learning outcome. Same is true with reading comprehension and word problem analysis. Reading comprehension serves as the old knowledge to be used and integrated to the word problems for them to solve the situation and since every single person has a different a priori knowledge which serves as the basis of their intelligence, the more likely to occur that levels of comprehension differ for one another.

Measurement of Word Problem Analysis

The respondents are asked to answer translation and word problems to measure their word problem analysis. The data gathered/raw scores from the results of the test have been subjected into a normal distribution to standardize the scores in the form of stanine. The succeeding table shows the frequency of the students under each stanine score with its corresponding intervention level.

Table 3.2 Word Problem Analysis (WPA) Skill

Levels of WPA	Intervention Level	Stanine - WPA	Frequency	Percentage
Below Basic	Very Poor	1	5	2.18 %
	Poor	2	17	7.42 %
Basic	Nearly Poor	3	21	9.17 %
	Low Average	4	41	17.90 %
Proficient	Average	5	71	31.00 %
	High Average	6	33	14.41 %
Advanced	Above High Average	7	16	6.99 %
	Nearly Superior	8	14	6.11 %
	Superior	9	11	4.80 %

The researchers make use of the same descriptive levels as the reading comprehension skill in describing the word problem analysis. Stanines 7, 8, and 9 constitutes the advanced level of problem solving making up 17.90% of the respondents. Respondents at this level can apply different approaches in analyzing problem solving. They are at the peak of Bloom's Levels of Comprehension. Stanines 5 and 6 builds up the proficient level wherein 45.41% of the respondents belong at this level. Respondents at this level can critically think on the best way to solve word problems. They are at the critical level of Bloom's Levels of Comprehension. However, stanines 3 and 4 makes up the basic level of word problem

analysis. This level has a percentage of 27.07% of the whole respondents. At this level, the students can only integrates the givens in a certain word problem part by part without the use of critical thinking. They are only at the interpretative level based on Bloom's Levels of Comprehension. Nine and eight tenths percent (9.80%) of the respondents falls under stanines 1, and 2 which is categorized as the least level of word problem analysis, the below basic. At this level, the respondents can only literally translate expressions or even mimics what is exactly written on the word problem. They are the respondents at the bottom of Bloom's Levels of Comprehension, the literal level.

From the results indicated in Table 3.2, it can be observed that 31.00% of the respondents fall under the average level with stanine five. Based to a normal distribution, the highest clustered group in a norm shall fall under stanine five. This is reflected on the results of word problem analysis. These mean that 31.00% of the respondents have that basic foundational knowledge on how to deal with word problems. Also, almost half of the respondents are in the proficient level which means that 45.41% has a word problem analysis skill that is equal to their current graded level. This also represents that most of them exercises their word problem analysis skill. Moreover, there are still 9.6% in the below basic level and 27.07% in the basic level of the respondents that needs further development in their word problem skills. A total of 36.67% of the respondents are statistically high for an intervention level ranging from low average to very poor which suggests that there is a need for a better learning process for the students.

Correlation of Reading Comprehension and Word problem analysis

The individual respondents' data on reading comprehension and word problem analysis has been compared with each other. The variables have been correlated using Pearson r moment correlation to see the significance of each other.

Table 3.3 Lexile Score and Word problem analysis

	Average Score	Standard Deviation	alpha	r - value	r – critical value	Decision	Qualitative Interpretation
Lexile Score	476.66	290.79	0.05	0.378	0.138	Reject Null Hypothesis	Low Positive Correlation
Word Problem Analysis	10.07	4.38					

Table 3.3 shows that the computed r value (0.378) is greater than the r-critical value (0.138) which makes it to reject the null hypothesis at an alpha value of 0.05. It means that there is a significant correlation between the two variables. Interpreting its significance, it can be said that there is a low positive correlation between the reading comprehension and word problem analysis. It implies that reading comprehension minimally affects the word problem analysis and vice versa but still, there is a correlation between the two. Such occurrence is similar to Miller's Information Processing Theory (Vega, V. & Prieto, N., 2012) wherein students create their own fix-it-up strategies during reading stage in order to comprehend the word problem they are trying to analyze. In addition, fix-it-up strategies are individualized reading process that students make to guarantee themselves a comprehension. But since fix-

it-up strategies are individualized, each student may come up with their own different analysis than the others. Subsequently, word problem analysis requires a single-thought response, meaning, that analysis may come in different paraphrases but still, gives one single idea about the word problem. Therefore, fix-it-up strategies alone cannot analyze word problems to its fullest extent because this individualized strategy may suggest multiple responses that may be unnecessary for the analysis of word problems. Thus, respondents had constructed new knowledge based from their experiences (that includes mathematical experiences) through the process of accommodation and assimilation (Piaget's Constructivism Theory as cited in Vega, V. & Prieto, N., 2012). They fuse their new knowledge from the read word problem with their previous knowledge in mathematics to come up with the best analysis and so, application of Mathematical concepts shall run through for the analysis of word problems after understanding the thought of the given problem as cited in Bloom's Levels of Comprehension (Corpuz, B. & Salandanan, G., 2013).

The table also presents the average lexile score of the respondents which is 476.66 with a standard deviation of 290.79 and the average raw score of the respondents in word problem analysis which is 10.07 with a standard deviation 4.38. In addition to, standardizing both data in a percentile rank will yield the sane results.

Table 3.4 Correlation of reading comprehension skills and word problem analysis based on percentile ranks.

	Average Percentile Rank	Average Stanine	Qualitative Interpretation	alpha	r-value	r-critical value	Decision	Qualitative Interpretation
Reading Comprehension Skill	12	3	Below Basic	0.05	0.373	0.138	Reject Ho	Low Positive Correlation
Word Problem Analysis	48	5	Proficient					

Table 3.4 shows the correlation of reading comprehension skills and word problem analysis based on percentile ranks. The table proves that the correlation coefficient or r – value is almost of the same value even with the use of percentile ranks and stanines. Percentile ranks are students' individual rank based on a z –score/normalized score in a normal/standardized distribution of scores while stanine (standard nine) converts the students' scores based on a nine point scale given that stanine 5 means average/proficient (Parreno, E. & Jimenez, R., 2006). An average percentile rank of 12 and an average stanine of 3 suggests that most of the respondents needs to undergo further reading comprehension training. A drastic improvement in respondent's reading comprehension skill may result in a leap of word problem analysis skill from an average percentile rank of 48 and an average stanine of 5 to a better rank.

Tables 3.3 and 3.4 proves that there is a relationship between reading comprehension skill and word problem analysis skill and thus, language skill and word problem analysis shall come hand in hand (James, A. & Alwan, J., 2011).

Figure 3.1 Graphical Representation of Reading Comprehension Skill and Word Problem Analytical Skill

Figure 3.1 shows the graphical relationship of reading comprehension level and the word problem analysis. The graph shows that there is a positive inclination between the variables. It implies that there is a positive correlation between reading comprehension level and word problem analysis and they do affect each other. The graph also reflects on the data on table 3.3. Using linear regression analysis, a trend line was formed with a formulated equation of $y = 0.0055x + 7.4355$ where x is the lexile score and y is the raw score on word problem analysis based on a 35-point item. The formula formed can predict the performance of a student in word problem analysis based on its reading comprehension skill. The formula can be derived and interpreted as 0.55 score-point increased in word problem analysis per 100 point-lexile increased in reading comprehension skill. Furthermore, and even with a lexile score of zero (0), the student can also approximately score 7 out of 35 points in a word problem analysis test.

Moreover, the graph shows that there are same lexile levels but with different scores of word problem analysis and vice versa. This means that there are other factors between the reading comprehension level and word problem analysis that will relate each other that is not identified by the research. Thus, multiple regression analysis can be recommended as the other factors are identified.

On the other hand, it can be observed that there are two outliers in the upper portion of the graph under 30-35 raw score which means that there are students who can harness their problem solving skill at an almost maximum extent without fully utilizing their reading comprehension skills.

CHAPTER 4

SUMMARY, CONCLUSIONS, RECOMMENDATION

This chapter includes the summary of results and findings that the researchers had collected and analyzed. It gives a synopsis of the stated problems that the researchers enumerated to the summary of findings. It also provides the conclusion and recommendations.

The respondents of the entire research are composed of two hundred twenty-nine grade 7 students of Dr. Yanga's Colleges, Inc.

Summary of Findings

The following are the results collected from the analysis of data gathered.

A. Reading Comprehension Level

The reading comprehension levels of the respondents are categorized into four – Advanced, Proficient, Basic, and Below Basic. Most of the respondents (58.95%) belong to the below basic level which conveys that there is a need for reading comprehension development for the respondents.

B. Word Problem Analysis

Word problem analysis can be described based on stanine scores. Stanines score is a nine-point standard score that normalizes the raw score of the respondents. Stanines can be interpreted with intervention level given as Superior, Nearly Superior, Above High Average, High Average, Average, Low Average, Nearly Poor, Poor, and Very Poor. The intervention level is grouped into four with the same terminologies with the Reading Comprehension Level for parallelism. Stanine 5 or the average level has the highest percentage of respondents based on the clustering of stanine.

C. Correlation of Reading Comprehension and Word Problem Analysis

Lexile Scores and Word Problem Analysis had been correlated using Pearson Product-Moment Correlation Coefficient. The researchers got an r – value of 0.378 which is greater than the r – critical value 0.138. This denotes that there is a significant relationship between the reading comprehension and word problem skill. An r – value of 0.378 indicates that there is only a low correlation between the two variables.

To predict the performance of the students, an equation has been formulated in the form of $y = 0.0055x + 7.4355$ where x is the lexile score and y is the raw score on word problem analysis based on a 35-point item based from regression analysis.

Conclusion

From the results of the gathered data, the reading comprehension level of the students has been measured through lexile score. It follows that majority of the students fall under below basic level and signifies that most of them need more reading comprehension development.

Problem solving analytical skill has been measured through stanine score and reflects a standard distribution with majority of the cluster (stanine five) has an average level of problem solving analytical skill.

Based on the research findings, the researchers had found out that there is a significant correlation between reading comprehension and word problem analysis. It conveys that reading comprehension can affect the word problem analysis of grade 7 students minimally since that there is a low positive correlation between the said two variables.

Recommendations

With the results and findings that the researchers come up with, it is clear that the following entities related to the conducted research may and shall take the following recommendations to further improve the research, and help the learners develop their word problem analysis skill through honing their reading comprehension skill.

Future Researchers may utilize questionnaire with an equal point value for better measurement of both variables. In addition, they may use and create other instruments in gauging the reading comprehension level and apply methods on higher respondents in terms of age. Likewise, they may consider other factors that affect word problem analysis, such as interest.

Teachers shall tap the higher order thinking skills of the students and utilize good art of questioning when teaching the learners to improve their comprehension. Furthermore, they can use creative reading activities and graphic organizers to enhance students' comprehension.

The School shall provide programs to improve the performances of the students. Moreover, they can include Mathematical word problem solving approach in gauging students' reading comprehension level, through Scholastic Reading Inventory program.

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