

Challenges of the 21st Century: Exploring Teachers' Perspectives on Literacy Resilience

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ABSTRACT

The education systems realized that in order for students to face new challenges, such as the challenges of artificial intelligence, and to be able to adapt to changes in the 21st century, they need cognitive and meta-cognitive skills. Literacy resilience is essential in this context.

Literacy resilience is defined as the ability to deal with literacy challenges through linguistic literacy skills in combination with SRL processes (Amir and Heisman, 2022; Amir, 2024 (under review). The combination between the two fields: linguistic literacy and SRL forms a basis for learning and can enable learners to face the challenges of the 21st century.

This essay examines the challenges of the 21st century through the lens of literacy resilience, with a specific focus on the perspectives of teachers who play a central role in fostering and cultivating the literacy resilience of their students.

409 teachers in Israel from elementary, middle and high schools participated in the study. They answered a dedicated questionnaire that tested the teachers' perceptions of the importance of literacy resilience in dealing with the challenges of the 21st century.

The research findings indicate that teachers place a high value on literacy resilience as it helps learners integrate into society and face the challenges of the 21st century. However, according to the teachers, they do not have enough theoretical and practical knowledge to cultivate reading resilience.

The findings highlight the paramount importance of literacy resilience for students in the 21st century and highlight the need for focused efforts in teacher professional development.

Keywords: 21st century challenges, literacy resilience, linguistic literacy, SRL, professional development of teachers

6 INTRODUCTION

The 21st century is unfolding with unprecedented challenges that require a reassessment of the skills essential for individuals to succeed in this dynamic era. This section examines the challenges of the 21st century with a specific focus on linguistic literacy and Self-regulated learning (SRL) skills. The 21st century poses complex challenges that demand critical thinking and problem-solving skills. Students must develop the ability to analyze situations, think creatively, and formulate innovative solutions to multifaceted problems (Trilling & Fadel, 2012). Cultivating critical thinking skills is essential for students to analyze information critically, question assumptions, and formulate informed opinions. Problem-solving skills enable them to tackle real-world challenges effectively.

6.1 21st-Century Challenges Concerning Linguistic literacy Skills

The OECD defined 14 key skills, categorizing them into three types: Literacy; Core Skills; Personality Characteristics.

Linguistic literacy is the ability to recognize, understand, interpret, produce, and communicate through texts in a variety of contexts. This includes both the ability to understand and evaluate the relevance and quality of spoken and written texts (OECD (2019; 2021).

The challenges of reading comprehension in the 21st century extend beyond traditional texts and encompass a multitude of digital sources. Therefore, reading comprehension skills are central to navigating and extracting meaning from a variety of texts. Readers need not only to understand traditional print materials but also to adapt these skills to diverse digital formats (Snow & Canto, 2018). This challenge requires individuals to cultivate strong linguistic literacy skills to effectively discern, evaluate, and synthesize information. Moreover, as readers navigate the vast digital landscape, the ability to critically engage and understand information from diverse online platforms becomes essential for making informed decisions and participating in modern discourse (Anderson & Rainie, 2017; Kiili et al., 2018). The exponential growth of technology requires students to be technologically literate and adaptable. Beyond basic digital skills, they must cultivate a mindset of continuous learning, staying abreast of emerging technologies and acquiring the ability to leverage them for innovation (Weller, 2020).

As people face the challenges of the 21st century, linguistic literacy skills, including writing and text production, are emerging as key ingredients for success.

Writing proficiency remains a foundational linguistic skill. In addition to traditional writing, students must cultivate the ability to communicate effectively in diverse digital contexts, adapting their writing styles to various platforms (Graham, et al., 2017). The challenges of writing in the 21st century extend beyond the traditional realm to encompass a digital landscape where individuals engage in multifaceted text production. Writing is not just about crafting essays or reports but involves creating content for various platforms, including social media, blogs, and websites. (Kiili, et al., 2018).

In the 21st century, the advent of artificial intelligence (AI) introduces new dimensions to writing. Writers now, more than ever, engage in text production using AI platforms that assist not only in generating content but also in refining and editing texts. This shift challenges traditional notions of authorship as writers collaborate with AI tools to enhance the quality and efficiency of their writing.

This evolution in writing practices reflects the dynamic nature of modern communication. Educational systems must adapt to prioritize the development of these linguistic literacy skills, ensuring that individuals are well-equipped to navigate the complexities of the contemporary world effectively.

Linguistic literacy helps learners achieve their goals and develops their critical thinking and critical reading. However, without Self-Regulation Skills and Executive Functions, the learner will not succeed, and it will be more difficult for the learner to face new challenges.

6.2 21st-Century Challenges Concerning SRL Skills

Self-regulated learning (SRL) is a circular, conscious and intentional process by which learners achieve their learning goals. The perception of the learner as active and independent in planning (setting goals, planning time, etc.), executing (monitoring) and evaluating actions is the basis of SRL theories (Pintrich & De Groot, 1990; Pintrich, 2000; Zimmerman, 2000; Zimmerman et al., 2023). Cognition, metacognition, and motivation are interdependent components of SRL (Pintrich, 2000; Zimmerman, 2000).

Self-regulated learning skills play a central role in enabling people to adapt to the rapid pace of technological advancement. The ability to set goals, monitor progress and regulate

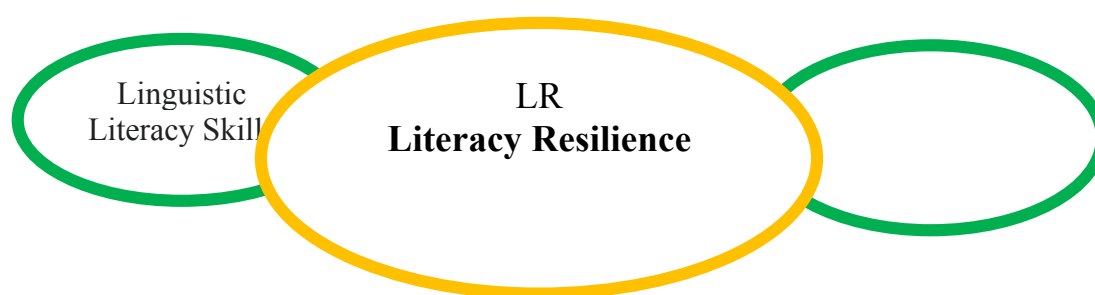
cognitive processes becomes necessary for continuous learning and skill acquisition (Zimmerman, 2008). SRL skills empower people to regulate their learning processes, foster adaptability and resilience in the face of evolving challenges (Paris & Winograd, 2019).

Linguistic literacy skills serve as a foundation for literacy resilience. The ability to understand, interpret and communicate through language is essential for navigating the complexities of the modern world. Yet literacy resilience is incomplete without acknowledging the role of self-regulatory skills. SRL involves the ability to set goals, monitor progress, and regulate one's cognitive processes and behaviors to achieve optimal learning outcomes.

6.3 Literacy Resilience

The concept of "literacy resilience" (LR) is grounded in a theoretical framework that interconnects linguistic literacy and self-regulated learning (SRL) skills. , as illustrated in Figure 1. Literacy resilience is defined as the capacity to persist in the face of linguistic challenges and effectively navigate through a blend of linguistic literacy skills and SRL processes.

Figure 1 The Literacy Resilience Model



As depicted in the model diagram, literacy resilience finds its foundation in two anchors: literacy skills and SRL skills.

Self-regulated learning constitutes a cyclical process, where the student engages in a sequence of activities. Initially, they plan for a given task, outlining strategies and approaches. Following this, the student actively monitors their performance during the task, paying attention to the efficacy of their chosen methods. The crucial phase of reflection follows, wherein the student contemplates the outcome, identifies strengths, acknowledges areas for improvement, and assesses the overall process. This reflective insight becomes a guiding force for the subsequent phase, as the student utilizes it to adjust their strategies and

adequately prepare for the next task in an ongoing and iterative cycle. (Pintrich, 2000; Pintrich & Zusho, 2002; Zimmerman, 2000; Zimmerman et al., 2023).

Linguistic literacy encompasses the capacity to identify, comprehend, interpret, generate, and communicate through texts across diverse contexts. This proficiency involves not only understanding and assessing the significance and quality of both spoken and written texts but also the ability to produce such texts (Sälzer, 2018; Taylor, 2014). The learner is anticipated to adeptly command a rich linguistic repertoire, navigating seamlessly between various modalities—spoken and written—to convey clear and purposeful meanings. Mastery in linguistic literacy includes the ability to respond logically to both spoken and written texts, as well as the aptitude to organize texts with an appropriate linguistic blend tailored to the context of the discourse (Berman & Ravid, 2008; Lichtinger & Kaplan, 2011). Ravid & Tolchinsky, 2002; Tolchinsky, 2022

The synergy between these components forms the basis for constructing literacy resilience. Literacy skills encompass cognitive abilities such as meta-linguistic and meta-textual awareness, while SRL skills encompass executive functions and emotional functions.

In the dynamic landscape of 21st-century challenges, literacy skills and a robust sense of self-efficacy in managing literacy tasks play a crucial role in nurturing resilience among learners. This assumes heightened significance, particularly when students grapple with challenges related to independence and encounter difficulties in executing tasks autonomously. The complexities of contemporary tasks, such as information retrieval, assessing information reliability, navigating multiple sources, integrating and synthesizing diverse information, honing research skills, engaging in critical reading, and producing coherent texts, underscore the need for a heightened level of literacy resilience. The ability to autonomously surmount these literacy challenges, coupled with a strong sense of self-efficacy, forms the bedrock of literacy resilience in the face of 21st-century demands. Importantly, this resilience not only enhances the learner's ability to navigate literacy demands but also significantly contributes to their emotional resilience. In essence, literate resilience is intricately linked to meta-linguistic and meta-textual awareness, executive functions, and emotional functions, empowering learners to effectively confront and overcome the unique challenges posed by the contemporary learning landscape.

According to this conceptualization, literacy resilience refers to a learner's ability to persevere in linguistic challenges by leveraging a combination of linguistic literacy skills and self-regulated learning (SRL) processes. This resilience is evident in the learner's independent

handling of assignments requiring diverse literacy skills, self-directed engagement with oral and written texts, proficient learning management, autonomous planning, and the execution of literacy tasks from initiation to completion. Additionally, it involves the learner's awareness in identifying challenges, selecting appropriate strategies, and engaging in reflective dialogue about their learning.

The development of literacy resilience is a gradual process, resulting from mastery in various skills (speaking, listening, reading, and writing) combined with metacognitive, meta-linguistic, and meta-textual awareness, as well as self-management. These abilities manifest in the learner's behaviors, thoughts, and self-efficacy to effectively tackle literacy-related challenges. Literacy resilience empowers learners to be independent, reducing the reliance on teacher or adult mediation over time.

Informed by the theoretical review, the study seeks to investigate two primary focal points:
The significance of Literacy Resilience in tackling the challenges of the 21st century
the degree of use of activities that foster literacy resilience

7 METHOD

7.1 Procedure Instrument and Participants

The study participants consisted of teachers who voluntarily enrolled in a professional development course addressing the challenges of the 21st century. The course was structured into various content clusters, with 20 courses offered in total. Nine of these courses featured a specific cluster, comprising 12 out of the total 30 hours, dedicated to exploring the significance of literacy resilience in confronting 21st-century challenges. The cluster was delivered by instructors who had undergone training conducted by the researcher. The researcher, however, did not actively participate in the courses. The decision to exclude the literacy resilience cluster in some courses was driven by a shortage of instructors trained in this specific area. During the initial session of the literacy resilience , teachers were invited to voluntarily and anonymously complete a questionnaire. Out of the 483 teachers participating in the courses. , 391 teachers opted to fill out the questionnaire. The questionnaire was administered online, allowing participants approximately 15 minutes for completion, with additional time granted to those requiring it Table 1 below provides an overview of the key characteristics of the study population.

Table 1 Study Population - Background Characteristics

Study Population		N	%
Main teaching profession	Hebrew teachers	342	87.5%
	Other	49	12.5%
Education	Senior Teacher	17	4.4%
	BA	190	48.7%
	MA	174	44.6%
	PhD	9	2.3%
Seniority	10 years or less	120	30.8%
	11-20 years	109	27.9%
	More than 20 years	161	41.3%
Total		391	100%

The sample comprises 391 teachers, predominantly focused on language instruction (87.5%), while the remaining educators specialize in diverse subjects such as science and humanities. In terms of academic qualifications, the majority of teachers hold academic degrees, with approximately half (48.7%) possessing a Bachelor of Education (B.Ed.) degree, and a slightly lower proportion (44.6%) holding a Master of Education (M.Ed.) degree. A small percentage have earned a Ph.D. (2.3%), while a minority lack academic education (4.4%). The range of teachers' experience spans from those with no prior experience to individuals with a seniority of 43 years. The average seniority among teachers is 17.95 years, with a median seniority of 18 years (Standard Deviation: 10.64)

7.2 Research Questions

- (a) The importance of literacy resilience in dealing with the challenges of the 21st century
- (b) The degree of use of activities that foster literacy resilience

8 FINDINGS

The findings reported below relate to the validity and reliability of the questionnaire. The significance of linguistic literacy in tackling the challenges of the 21st century.

The first domain is The significance of linguistic literacy in tackling the challenges of the 21st century. Accordingly, this domain should widely be seen as the degree to which teachers perceive the contribution of literacy to dealing with the literacy challenges of the 21st century.

For 10 items, as presented in Table 2 below, participants addressed each item according to the following four-level Likert scale : : (1) never (2) sometime, (3) often (4) almost always.

Table 2 The importance of literacy resilience in dealing with the challenges of the 21st century

Items	M	SD	Factor loadings
To address the requirements of the 21st century, it is important to place a strong emphasis on imparting 21st century skills (for example, cultivating critical thinking, cultivating independent learners, and developing linguistic literacy skills to effectively present, explain, or demonstrate information).	3.73	0.57	.811
To address the literacy requirements of the 21st century, it is important to develop learning assignments and other educational content on online platforms.	3.81	0.43	.848
To address the requirements of the 21st century, it is important to use different strategies to promote students' independence in learning (for example, let them deal with their difficulties on their own, encourage them to use different strategies, etc.).	3.86	0.38	.717
To address the requirements of the 21st century, it is important to encourage students to engage in reflective thinking even during and after completing the task.	3.39	0.78	.764
To address the requirements of the 21st century, it is important to teach the students through a portfolio that includes both processes and reflective thinking.	3.39	0.76	.746
To address the requirements of the 21st century, it is important to cultivate the students' presentation, discussion and collaborative writing skills.	2.86	1.00	.516
To address the requirements of the 21st century, it is very important to master literacy skills in reading, writing and speaking.	2.36	1.04	.656
To address the requirements of the 21st century, teachers in all fields of knowledge need to integrate literacy skills (for example, knowing how to evaluate information, merge information, write in collaborative platforms, present information, etc.) in their lessons.	2.26	1.12	.547
To address the requirements of the 21st century, teachers in all fields of knowledge need to combine independent learning skills and formulate tasks that they can do on their own.	3.53	0.80	.665
To address the requirements of the 21st century, it is important to foster	2.52	1.15	.588

Items	M	SD	Factor loadings
an environment in the classroom that supports students in developing self-management skills of their learning			
The significance of Literacy Resilience in tackling the challenges of the 21st century	3.7	0.57	
explained variance percentage			30.8%
Reliability (α)			0.870

Following the completion of the factor analysis on the ten items reflecting the significance of literacy resilience in addressing the challenges of the 21st century, the results revealed a one-factor structure with a variance of 30.8% (refer to Table 2). The Cronbach's alpha for this set of items was calculated to be .870. Participants' average scores amounted to 3.17 (SD=0.57), underscoring the high importance of literacy resilience in confronting the challenges of the 21st century.

The second domain pertains to literacy resilience, encompassing the acquisition of practices and principles that promote both literacy skills and self learning capabilities. Consequently, participants were tasked with assessing eight items, detailed in Table 3 below, utilizing a four-level Likert scale: (1) never (2) sometime, (3) often (4) almost always.

Table 3: Factor analysis on the degree of use of activities that foster literacy resilience

Items	M	SD	Factor loadings
When I conduct classes, I place a strong emphasis on instilling 21st-century skills. This includes fostering critical thinking, nurturing independent learners, and developing linguistic literacy skills for effectively presenting, explaining, or demonstrating information.	2.87	1.04	.513
I need additional guidance and knowledge in the area of literacy skills and creating tasks that encourage students to follow their learning and think about it.	2.97	1.09	.588
I use different strategies to promote students' independence in learning (for example, letting them deal with their own difficulties, encouraging them to search for answers to their questions, encouraging them to use different strategies, etc.)	2.97	0.99	.654
When I give an assignment that requires literacy skills, I promote student autonomy by encouraging them to select a strategy that best aligns to successfully complete the assignment.	2.60	1.12	.619

I develop assignments, including my own online tasks, to promote self-learning among students (at least 2 assignments per year).	1.93	0.91	.433
I explicitly integrate literacy skills into lessons alongside the development of goal-setting, problem-solving, planning, and self-control skills.	1.41	0.72	.479
literacy resilience	2.46	0.63	
explained variance percentage			7.55%
Reliability (α)			.709

After conducting factor analysis on the six items representing literacy resilience, the results indicated a single-factor structure with a variance of 7.55% (Table 3). The Cronbach's alpha for this set of items was determined to be .709. Furthermore, as illustrated in Table 3, the average scores of the participants are 2.46 (SD=0.63), signifying a moderate application of skills that promote literacy resilience.

9 CONCLUSIONS

The findings indicate a noteworthy consensus among participants regarding the significance of literacy resilience in addressing the challenges of the 21st century. Educators widely recognize the importance of fostering 21st-century skills, including critical thinking, cultivating independent learners, and developing linguistic literacy skills. There is a strong agreement on the necessity of creating learning assignments and educational content on online platforms, as well as using diverse strategies to promote students' independence in learning. Encouraging reflective thinking during and after tasks also emerges as a crucial aspect, though opinions show some variability. While there is a general agreement among participants on the importance of encouraging reflective thinking during and after tasks, there are variations in how strongly individuals hold this view. The higher standard deviation associated with this particular aspect of the survey indicates that responses were more spread out or diverse compared to other statements. In practical terms, some participants might strongly emphasize the significance of reflective thinking in the learning process, while others may have a more reserved or diverse perspective. This variability in opinions highlights the nuanced nature of educators' views on this specific aspect of literacy resilience, indicating that it might be an area where perceptions differ more significantly compared to

other surveyed aspects. It emphasizes the need for further exploration and understanding of the factors contributing to this diversity in perspectives.

Additionally, The findings reveal a broad consensus among participants regarding the perceived value of teaching through portfolios and the importance of combining independent learning skills. This alignment signifies a shared recognition among educators on the efficacy of these instructional approaches in fostering literacy resilience. However, the emergence of diverse perspectives becomes particularly evident in areas related to students' presentation, discussion, collaborative writing skills, and the mastery of literacy skills in reading, writing, and speaking. The higher standard deviations associated with these aspects indicate a greater degree of variability in participants' opinions. This variability suggests that while some educators strongly emphasize the significance of cultivating specific skills, others may hold different or more nuanced views.

Regarding the findings on literacy resilience, the data reveals a unifying factor structure with a variance of 7.55%, indicating satisfactory internal consistency. The average score is 2.46, indicating a moderate level of engagement with these activities. The standard deviation of 0.63 suggests some variability in teachers' responses, highlighting that there are differences in the degree to which teachers incorporate activities supporting literacy resilience in their practices.

The moderate average suggests that, on average, teachers are moderately engaged in activities aimed at fostering literacy resilience. However, the standard deviation implies a degree of diversity in teachers' approaches, with some being more proactive in implementing such activities while others may be less involved.

This variability could stem from a range of factors, including differences in teaching styles, perceptions of the importance of literacy resilience, or varying levels of familiarity with effective strategies. To further enhance teachers' implementation of activities supporting literacy resilience, tailored professional development programs could address these diverse needs, providing targeted support to educators aiming to enhance literacy resilience in their classrooms.

Among the findings, an interesting item stands out: "I explicitly combine literacy skills in lessons alongside the development of goal-setting, problem-solving, planning, and self-control skills" received a lower average score of 1.41. This indicates that, in practice, teachers may encounter challenges in seamlessly integrating literacy skills with the broader spectrum of self-regulated learning (SRL) skills (Heaysman, & Kramarski, 2022; Šašić. 2023).

Teachers widely recognize the importance of fostering self-regulated learning (Panadero, 2017) and mastery of linguistic literacy (Tolczynski 2022), which includes skillful movement between spoken and written discourse to represent clear meanings that focus on goals and respond logically to speech or written text (Berman & Ravid, 2008; Tolchinsky 2022). However previous studies show that teachers feel unsure how to promote students' SRL and stimulate SRL to a limited extent (Kistner et al., 2015; Šimić Šašić et al., 2023; Vandeveld et al., 2012).

In the classroom, teachers can benefit from specific interventions that bridge the gap between literacy skills and SRL skills. This may involve adapting teaching techniques, creating tailored learning materials, or designing classroom activities aimed at holistically nurturing both aspects (Kistner, 2015). Collaborative planning and reflection sessions among educators can foster the sharing of successful practices and insights, enhancing the collective understanding of how to effectively integrate literacy and SRL skills.

These findings have implications for the professional development of teachers, emphasizing the need for targeted training programs that specifically address the integration of literacy skills and SRL skills (Avidov-Ungar & Zamir, 2024; Avidov-Ungar, 2023; Jansen, 2019). Professional development initiatives should equip educators with practical strategies and methodologies to seamlessly blend these two critical components into their teaching practices. Workshops, collaborative sessions, and accessible resources can guide teachers in creating a cohesive approach to literacy resilience.

In the dynamic landscape of 21st-century challenges, literacy skills and a robust sense of self-efficacy in managing literacy tasks play a crucial role in nurturing resilience among learners. This assumes heightened significance, particularly when students grapple with challenges related to independence and encounter difficulties in executing tasks autonomously. The complexities of contemporary tasks, such as information retrieval, assessing information reliability, navigating multiple sources, integrating and synthesizing diverse information, honing research skills, engaging in critical reading, and producing coherent texts, underscore the need for a heightened level of literacy resilience. The ability to autonomously surmount these literacy challenges, coupled with a strong sense of self-efficacy, forms the bedrock of literacy resilience in the face of 21st-century demands. Importantly, this resilience not only enhances the learner's ability to navigate literacy demands but also significantly contributes to their emotional resilience. In essence, literate resilience is intricately linked to meta-

linguistic and meta-textual awareness, executive functions, and emotional functions, empowering learners to effectively confront and overcome the unique challenges posed by the contemporary learning landscape.

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