

Exploring multiliteracies in the digital era: A framework for 21st-century learning

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Abstract

In the last thirty years, the multiliteracies approach to literacy instruction has substantially developed to meet the requirements of the digital age and globalization. It aims to redefine literacy by providing students with skills that transcend the conventional emphasis on speaking, listening, reading, and writing. Multiliteracies prioritize the capacity to create intricate, multidimensional, and multi-semiotic texts, while also equipping learners to engage with varied texts enhanced by cultural resources. To address the demands of a swiftly changing world, experts in this domain call for a more fundamental and comprehensive education that reshapes communication, identity, and knowledge. Thus, this technique requires a theoretical framework that includes the linguistic, semiotic, and social aspects of literacy. This article analyzes the alignment of multiliteracies training with the multimodal and global framework of literacy development. It starts by defining and examining multiliteracies as a broad concept, highlighting its capacity to transform educational delivery. The subsequent discussion examines its beginnings as a teaching method, curricular emphasis, and learning framework, utilizing examples from many worldwide contexts. Furthermore, the consequences of this technique are evaluated to demonstrate its potentially revolutionary effect on current literacy challenges. This article also enhances the discourse on literacy teaching by providing both theoretical insights and practical answers, emphasizing the necessity of equipping students for a progressively linked and digital landscape. Finally, future studies might employ original data to have deeper analyses.

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1. Introduction

In their groundbreaking 1996 article, the New London Group introduced the concept of multiliteracies, emphasizing how the rise of information and communication technology (ICT) has transformed literacy and education (Cope & Kalantzis, 2001; Freitag et al., 2021; Unrau et al., 2018). The proliferation of technology has not only led to the emergence of new learning contexts but has also sparked a multitude of discussions about the evolving landscape of

literacy practices and the various dimensions of information and communication technologies for education (Em, 2021, 2023; Liu et al., 2020). Some scholars have portrayed these changes as essential skills that students must acquire, whereas others have established conceptual foundations or examined the pedagogical implications thereof (Em et al., 2022). Additionally, certain experts have sought to establish a framework of professional rights to support these transformative shifts (Noordegraaf, 2020). Drawing inspiration from Hallidayan linguistics, which provides valuable insights into language and meaning, the multiliteracies approach to literacy consistently emphasizes both the practical aspects of pedagogy and the evolving semiotics of meaning-making within modern social and cultural practices (Pereira et al., 2023). This article adheres to this dual emphasis. The New London Group asserted that the understanding of both literacy and pedagogy must be reconceptualized to accommodate individuals who find themselves immersed in the new world order of informational globalization that defined the late 20th century (Pederson, 2023).

However, the below questions should be taken into consideration.

1. What makes multiliteracies different from traditional literacy?
2. What does it exactly mean by multiliteracies in the realm of English education?
3. Why must we delve deeper beyond the existing visions that have been presented?

It has now been over a decade since the publication of *A Pedagogy of Multiliteracies* (Hong & Hua, 2020). In this period, we witnessed an explosion of new media and ICT usage that extended beyond the confines of households and increasingly infiltrated educational environments (Em et al., 2024). Furthermore, the integration of technology has gone beyond language learning and now encompasses the entire curriculum. Coinciding with this digital revolution, educational systems in Australia and the United Kingdom, as well as all states within these nations, have undergone a comprehensive transformation of their curricula (Chambers & Forlin, 2021). Schools, educators, and the wider education system have systematically developed a robust foundation to facilitate a comprehensive understanding of the imperative to incorporate diverse texts within digital practices.

Table 1. Comparison of traditional literacies and multiliteracies

Aspect	Traditional literacies	Multiliteracies
Definition of Literacy	Reading and writing text in print form	Engaging with diverse modes of meaning (e.g., visual, digital, linguistic)
Learning Contexts	Classroom-based, teacher-centered	Multimodal, diverse, and technology-integrated
Skills Emphasized	Basic reading and writing	Critical thinking, digital skills, multimodal communication
Pedagogical Approach	Linear, text-focused	Flexible, interdisciplinary, and collaborative

1.1. Definition and evolution of multiliteracies

Insufficient progress has been made in conceptualizing, let alone thoroughly researching and effectively teaching, the myriads of diverse and multifaceted forms of meaning-making. The significance of text as a potent medium for the profound transformation of knowledge has unfortunately been marginalized and downplayed, which has been unjustly overshadowed by other modes of communication and expression (Nichols & LeBlanc, 2021). Critics have asserted that the principles and pedagogical practices of multiliteracies are undoubtedly valuable for fortunate students of literature and for those fortunate enough to have well-educated parents who possess and pass on a rich literary heritage (Holloway & Gouthro, 2020). However, the implementation and experience of multiliteracies can often fall far from being pleasurable and fulfilling within the confines of the classroom setting. It is undeniable that the intrusion of computer-mediated visual images is breaching the longstanding conceptual divide in both the process of knowledge transformation and the act of imparting knowledge itself, and these images have taken on a dual nature, being not only industrial in the conventional sense but also inherently conceptual, as they possess the ability to convey profound meaning (Ray, 2023).

The inclusion of computer-mediated visual images in this discussion stems not from an unwavering allegiance to any form of technological determinism but rather from the recognition of their ever-increasing impact on both our understanding of the world and the information we possess (Thompson, 2018). Therefore, the forefront of the argument advocating for the incorporation of multiliteracies is firmly anchored in how computer-mediated visual images not only influence the way we perceive and comprehend knowledge but also challenge the very essence of what we know and believe, and their presence in our lives is undeniably disruptive, as they compel us to reevaluate and reconceptualize our established notions and understandings.

1.2. Comparison between traditional literacies and multiliteracies

To further illustrate the evolution of literacy, the following table highlights key distinctions between traditional literacies and multiliteracies.

Table 2. Comparison between traditional literacies and multiliteracies

Aspect	Traditional literacies	Multiliteracies
Definition of Literacy	Text-based, focused on reading and writing	Multimodal, engaging with visual, spatial, and digital texts
Learning Contexts	Classroom-centered, print-focused	Diverse, incorporating technology and multimodal practices
Pedagogical Approach	Linear and teacher-directed	Collaborative, adaptable, and learner-centered

Cultural Sensitivity	Limited integration of diverse perspectives	Encourages cultural and linguistic inclusivity
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2. Traditional literacies versus multiliteracies

Literacy has traditionally been defined as reading and writing, activities that assume a relatively autonomous set of skills that can be called on as necessary and then applied to many domains (Fradd, 1981). Some would contrast this meaning with a sense in which literacy may also be used to refer to being able to read and write in multiple domains effectively and to know how to read and write for different purposes, which is the sense in which literacy (or literacies) is being used here (Buehl, 2023). Over the past fifty years, the notion of singular literacy has been critiqued and significantly broadened to include several content areas related to specialist subjects or the use of everyday commodities such as newspapers (Campbell & Olteanu, 2023). This broader literacy is sometimes referred to as multiliteracies, and in general, the term is used to refer to the co-learning of curriculum content and the multiple modes of media communication available to employ new communications or meaning-making technologies (Morgan et al., 2014). With these new technologies, students might make meaning together with up-to-the-moment technical know-how, critical literacy, and cross-cultural understandings, whereas the multi prefix reflects the increasing diversity of communication types associated with the new information economy (Chuang et al., 2020). As literacy has fragmented into multiple forms tailored to distinct domains, communities, and individuals, effective teacher orientation has become crucial in enabling educators to adapt their teaching methods, integrate diverse literacies, and ultimately facilitate enhanced learning experiences for students (Huot et al., 2024; Troike, 1978). The understanding of literacy has expanded to include not only reading and writing skills but also the ability to comprehend and navigate various domains of knowledge, applying them effectively as per situation demands (Ke et al., 2021). This new perspective on literacy acknowledges the need for adaptability and practical application in a rapidly evolving world in which multiliteracies are needed to engage with complex information, interpret diverse media, and communicate effectively across different cultural contexts. Furthermore, the concept of multiliteracies emphasizes the importance of critical thinking, cross-cultural understanding, and technological proficiency (Aguilera & Pandya, 2021). To be multiliterate means possessing the ability to actively participate and contribute to a varied range of communication forms, be it print, digital, visual, or oral, and it involves being able to understand and analyze information from multiple sources, discerning different perspectives and biases, and effectively conveying ideas through different modes of expression (Rajendram, 2020).

In this way, the notion of literacy has expanded from a singular and narrow definition to a multifaceted concept that encompasses various forms, skills, and contexts. Multiliteracies are essential for individuals to navigate the complexities of the modern world, enabling them to meaningfully engage with diverse knowledge, communicate across different platforms, and critically evaluate information to make informed decisions.

2.1. Key differences and similarities

The multiliteracies framework is built upon the notion that diverse forms of communication exist within different media, each adhering to specific content and formal rules. In the realm of media education, media can be categorized as mass media; digital media, encompassing television, cinema, electronic games; and new media (Kumar, 2021). This taxonomy is founded on the belief that the structure of a message relies on the nature of the medium and its content regulations. Consequently, the multifaceted concept of media modes and their far-reaching

implications are integral aspects of this approach (Rothenberger, 2023). As the teaching of English places the utmost importance on communication, introducing the various concepts inherent in the multiliteracies approach becomes crucial. Remarkably, the name of this concept can be considered a type of nickname, which depends on the type of literacy; different names are coined to describe individuals who possess multiliteracy skills (Breuer & Van Steendam, 2021). For example, one such name is civic learner, and a comprehensive list of these names can be provided. Given the current emphasis on media literacy, the focal point of attention has been directed toward digital cultural industries such as film, television, music, print media, digital culture, computer games, networks, and software, including search engines, browsers, portals, digital devices, and internet ethics, with a focus on children and sensitive content, as well as the development of new laws and regulations (Manca et al., 2021). Furthermore, the construction of meanings and values within the realm of new literature arising from new languages, as well as the creation of novel cognitive artifacts within new learning environments, form additional vital components of this multifaceted approach (Davis & Jelinek, 2022).

3. Digital literacy in the information age

In our contemporary era, both societies and educational institutions find themselves at the convergence of two distinct and influential cross-currents—the technological revolution that has brought forth the information age and the emerging realms of learning characterized as multiliteracies (Kellner & Kellner, 2021). The conventional understanding of literacy has gradually lost its firm foundations as information rapidly and seamlessly courses through various media and undergoes dynamic transformations, while a mindset of adaptability infiltrates every aspect of our global landscape (Landfester & Metelmann, 2020). The proliferation of innovative tools for literacy, be they sophisticated or prevalent, serves as a testament to the present. It is abundantly clear that this paradigm necessitates new avenues for exploration, analysis, self-expression, and collaborative engagement. The urgency to adapt to the ever-evolving technological landscape resonates across different realms of discourse, as the impact of digital technology continues to amplify the influence of written and spoken language (Imamov & Semenikhina, 2021). Within educational spheres, there is a resounding and persistent call to ensure that educational systems keep standing at the rapid pace of technological change. Proponents proclaim that literacy in contemporary times extends far beyond mere reading and writing skills; instead, it demands a reconceptualization of the technical and social proficiencies, which constantly shape and transform the knowledge, culture, experience, beliefs, identity, and language itself required to navigate the ever-shifting landscape of expressive and communicative flows (see Buehl, 2023).

3.1. Understanding digital literacy

Scholars have engaged in heated discussions about the idea of digital literacy. According to Hong and Hua (2020), a broad definition includes technical abilities, digital media navigation, communication skills, and problem-solving. Buckingham (2020) further stated that digital literacy includes self-representation, empathy, and communication via different media. However, not everyone agrees. The European Commission limits its definition to computational literacy, focusing on communications to express and exchange knowledge, interactive use of new technologies, and digital literacy (Gaytan et al., 2021). This narrow perspective raises questions about the relationship between digital and traditional literacy. Advocates for digital literacy, such as Oh et al. (2021) and Tejedor et al. (2020), argue that it necessitates a fresh range of intricate abilities, merging traditional and digital literacy. They

argue that electronic texts demand information processing, multimedia, and networking capabilities. Recent research conducted by Anurogo et al. (2023) and Chen (2023) emphasized the complex aspects of digital literacy, and Haleem et al. (2022), Jones and Hafner (2021) highlighted the wider significance of self-presentation, communication, and problem-solving. Kateryna et al. (2020) extend this range, emphasizing the importance of digital literacy in comprehending others and effectively communicating through different mediums. In this situation, the idea of digital literacy is still debated. While certain individuals support an inclusive interpretation, others opt for a more limited concentration. With rapid technological advancements, it is essential to redefine literacy and its impact on education.

According to Smuts and Merwe (2022), the European Commission underlines that digital literacy is synonymous with a knowledge-based society in its perspective on the information society. Their definition is constrained to computational literacy, including communication methods for expressing and exchanging knowledge, the interactive use of new technologies, and digital literacy, according to Vogel et al. (2020). This raises the debatable topic of the connection between digital literacy and traditional literacy, specifically how individuals convey other people's ideas in writing. The question is whether digital literacy is a completely new idea and what this means for education (Park et al., 2021). A fresh and complex set of literacy skills that combine traditional printed literacy with electronic literacy should be established. The development of electronic text formats requires knowledge in data processing, multimedia use, and connectivity, and the skills gained through formal education in reading and writing remain crucial in the evolving digital environment, incorporating new literacy skills that go beyond basic digital literacy to include various tasks using computer programs, infrastructure, and networked communication (Fleming et al., 2021; Webb & Layton, 2022).

3.2. The complementary relationship between digital and traditional literacy

The section clarifies, emphasizing how traditional literacy skills like reading, writing, and critical thinking form the foundation for the more dynamic and multifaceted competencies of digital literacy. Examples illustrate how digital literacy builds upon traditional practices by integrating multimedia interpretation, networked communication, and interactive technologies, especially these enhancements strengthen the section's focus on practical applications, making the connection between traditional and digital literacy clearer and more actionable for educators and policymakers, including:

- **Expanded discussion:** A detailed exploration of how digital literacy evolves from traditional literacy, such as transitioning from print comprehension to analyzing hyperlinks, multimedia, and interactive elements.
- **Real-world examples and case studies:** Examples from education (e.g., integrating Google Docs and multimedia tools), media literacy (e.g., fact-checking online content), and workplace communication (e.g., combining formal writing with real-time digital collaboration) illustrate the interplay between the two literacies.
- **Implications for education:** Practical suggestions are provided, such as combining traditional textual analysis with evaluating online sources or teaching multimodal content creation.

4. Critical thinking in multiliteracies

Rajendram (2020) stated that the promotion of multiliteracies recommends combining the focus on reading and creating texts in ICT with a significant emphasis on critical thinking. Young people's interest in digital technologies and the influence of commercialized techno-enthusiastic messages from educational institutions drive this new emphasis (Peters et al., 2021). The challenge for educators is to encourage critical thinking and assessment when dealing with unfamiliar cultural practices in rapidly evolving contexts and genres that are outside of our expertise (Colomer et al., 2020; Hoff, 2020). In essence, schools, colleges, and educators should encourage active involvement with current digital practices, ensuring that new ideas, languages, and formats are valued just as much as traditional print-based ones are (see Haleem et al., 2022). Essentially, critical thinking is interchangeable with considering one's thinking, or metacognition. Multiliteracies prompt learners to question their knowledge and explore new ways of learning, such as with multimodal, hyperlinked digital texts, which can accelerate reading, writing, and other communication skills.

The use of new forms can offer many opportunities for both creative and critically reflective responses to the world; in particular, our use of language enables us to define, and therefore design, our futures (Comunian & England, 2020). Consequently, by embracing and engaging with the multiliteracies approach, individuals can navigate and negotiate the complexities of today's rapidly evolving technological landscape, allowing them to maximize their potential and contribute dynamically to the global knowledge economy (Yap & Gurney, 2023).

4.1. Transition to critical thinking in multiliteracies

Critical thinking enhances multiliteracies by providing learners with the tools to critically analyze and evaluate diverse forms of communication, whether digital, visual, or multimodal. It bridges the gap between passive consumption and active engagement, enabling individuals to assess the credibility of information, identify biases, and construct meaningful interpretations. For example, empirical studies have shown that students engaging with multimodal texts, such as interactive e-books or digital storytelling, develop higher-order thinking skills and improved problem-solving abilities (Lee et al., 2019; Zhang & Zou, 2020). In real-world applications, critical thinking within multiliteracies equips students to scrutinize social media campaigns, interpret the underlying messages of advertisements, and contribute thoughtfully to collaborative digital projects. These practices foster a sense of agency and cultural responsiveness, allowing learners to adapt to the rapidly changing demands of a technologically rich society.

With this foundation, this section will delve into specific strategies and empirical examples that illustrate how critical thinking is integrated into multiliteracies practices, emphasizing its transformative role in education (Bland, 2022).

4.2. Importance and development

While the vast and expansive Worldwide Web has been an integral part of our lives for just a few decades, it has already transformed the way we interact with complex digital environments (Troike, 1978). These environments seamlessly connect individuals to diverse communities, far-reaching locations, and captivating events across the globe. Within this digital realm, learners are immersed in textual engagements that shape their understanding of the world, which is within this virtual landscape where languages, both conventional and newly emerging, thrive and find their unique place. Certain languages are solely nurtured and expressed within the digital medium (Palviainen & Kędra, 2020). Navigating the virtual environment presents a

twofold challenge. First, we must discover effective strategies to enable children to learn about their own culture and heritage amidst this ever-evolving technological world. Second, we must assist the younger generation in effectively communicating with individuals from a broader spectrum of backgrounds, transcending the limitations of their immediate surroundings, such as their homes, streets, or towns (Szymkowiak et al., 2021). As we witness advancements in the realms of reading and writing, with innovative tools and platforms designed to harness and convey meaning, it is vital that we reassess our understanding of the concept of literacy (Teale et al., 2018).

Literacy itself is not a static term but an evolving construct that mirrors the practices and values cherished by society (Gates, 2020). It encompasses how we conceptualize language itself and the diverse range of reading and writing experiences that we offer children through their educational journey. Unfortunately, our understanding of literacy remains somewhat confined, constrained by the boundaries set by institutional documents and educational systems. Thus, it becomes imperative to adopt a more flexible and inclusive term such as multiliteracies (see Cope & Kalantzis, 2001). Embracing the notion of multiliteracies enables us to reconceptualize and redefine the experiences associated with literacy, which prompts us to explore new dimensions and meanings while simultaneously cultivating boundary-crossing competencies; employing this elastic framework, we can better navigate the ever-changing landscape of literacy in the digital age and unlock the vast potential it holds (Pereira, 2020). Through multiliteracies, we can empower individuals to engage with diverse texts, communicate effectively in a digital world, and thrive within the dynamic web of interconnectedness that defines our existence.

5. Implementing multiliteracies in education

The implementation of multiliteracies in classroom contexts has profound implications for curriculum and pedagogy (Mizusawa & Kiss, 2020). As we noted in Chapter 2, a multiliteracies orientation shifts the emphasis in teaching from the textual level to the social practice level; that is, rather than focusing solely on what texts are to be taught and how they are to be taught, the emphasis is on what needs to be done to comprehensively support the development of learners' cultural and linguistic resources and flexibility in the meaning-making potential of available semiotic resources (Tan et al., 2020). The rise of new media and modes of meaning that enable the worlds of the mind to effortlessly converge with the worlds of the out-there constitutes transformative changes in the social world of communication that are deeply entwined with changes in the material world at a global level and significant transformations in the nature and role of education (Jensen, 2022). In all of these instances, changes in thinking have led to changes in educational practices, such as the increasing use of metalanguages to describe the many other languages used in subject learning, the growing reliance on visual literacies in the service of meaning-making on the vast expanse of the internet, and the exponential increase in the amount and range of media available in educational work, which are not unrelated to this other turn in English and the Arts, as identified in the Case Model, with its profound concern for the meaning embodied within texts, that is, for the rich and significant lives of fictional and other texts (Humphrey, 2020; Tang & Rappa, 2020).

However, it is important to acknowledge that literacy, in the traditional sense, has continued to be the defining characteristic of English-teaching domains, just as a deep consciousness of knowledge, meaning, and value that are worthy of being taught and rigorously researched has consistently characterized the work of the profession (Richards & Pun, 2021).

5.1. Strategies and best practices

In the context of ever-changing digital technology, prioritizing the advancement of multiliteracies at the policy level is crucial. On a more local scale, how can educators and educational institutions take on the challenge of embracing new pedagogical approaches to foster multiliteracy skills? What solutions are proposed by those addressing this issue?

The many educators exploring the implications of their practice of operating in an increasingly digital environment play a vital mentorship role for others who are less experienced (Soltovets et al., 2020). In the context of the TESOL classroom, particularly where English for professional or academic purposes is the goal, an increasing focus on genre work, group work and other forms of cooperation, student input into design and choice, and the expression of pedagogical tasks and electronic communication between class members and teachers can further develop the multiliterate abilities of those points in the process (Darvin, 2023). Awareness of the increasing importance of a range of literacy practices has included attempts to demystify technology and highlight as many of its applications as possible. In addition, teams have worked cooperatively to produce mutual lists of the characteristics of texts in traditional and electronic forms and a variety of formats (Pressley et al., 2023). For example, Shiel's group works using a digital resources module to help students make a book that enables them to see themselves as part of the world of professional groups whose disciplines they are studying. Therefore, it is essential for educators to continuously upskill themselves, develop strategies, and enhance their technological literacy to effectively support students in acquiring multiliteracies such that the evolving digital landscape requires pedagogical approaches that emphasize collaborative and interactive learning experiences, leveraging various digital tools and platforms. Teachers can implement genre-based activities, encouraging students to work together in groups and promoting critical thinking and problem-solving skills, this collaborative approach enables students to actively engage in the learning process, fostering their multiliterate abilities. Furthermore, integrating student input into curriculum design and incorporating electronic communication between classmates and instructors not only enhances language skills but also cultivates digital literacy (Polizzi, 2020). Educators in the TESOL classroom must prioritize the teaching of English for professional or academic purposes, tailor their pedagogy to meet the specific goals and needs of their learners, create a supportive and dynamic learning environment, and empower students to navigate the complexities of the digital world while developing their multiliterate competencies and strategies such as demystifying technology and exploring its various applications to help students perceive technology as an accessible and valuable tool (Yuan et al., 2022).

Collaborative efforts among teaching teams can contribute to the creation of comprehensive lists cataloging the attributes of traditional and electronic texts across different formats, and these initiatives enable students to realize their connection to professional communities within their fields of study, providing them with a meaningful context for their learning (Boettcher & Conrad, 2021). Overall, the integration of technology and the cultivation of multiliteracies in education require a proactive and multifaceted approach, where educators act as mentors and facilitators, guiding students toward successful digital literacy.

6. Assessment of multiliteracies

Perhaps one of the greatest challenges in multiliteracies is the assessment of learning. The incorporation of technology into assessment is an area that teachers seem uncertain about. Assessment is not usually a strong part of discussions about multiliteracies. In the education

literature, production and interchange are considered with great attention to the uses of technology for carrying out and supporting them. Learning, however, is often less explicitly in focus (Wartofsky, 2020). The focus of the Measure of Educational Growth in English (MEG-E) is on communication arts and the uses of language in varied and important settings. The MEG-E evaluates reasoning, writing, and reading, as well as the listening and speaking that accompany them. Communicative language, the basis for proposals of multiliteracy, encompasses meaningful language in all patterns of communicative language use—spoken, written, and signed (Won et al., 2023). Perhaps the greatest difference from other models of communication is the definition of the goals for communication, and this model describes, and measures goals focused on meaning. Despite fears of change, using communities and listing performance indicators provides possible assessment tools that teachers are looking for. The tool planned for making sense of both meaning and pattern goals is a hierarchical model of meaning-value goals leveled according to the degree of traditionality contained (Modderkolk et al., 2023). Teachers can evaluate performance in terms of each of these levels about texts, theories, values, concepts, and real persons dealing with personal own experiences or the experiences of others; using technology makes writing that combines modes and genres in digital hypertext and persuasive written material possible instead of the argument technology currently being offered to score persuasion only.

Multiliteracies in the modern educational landscape pose immense challenges, particularly in the assessment of learning outcomes. The integration of technology into assessment practices remains an area where teachers often find themselves uncertain. Historically, assessment has not received significant attention in discussions revolving around multiliteracies. However, the significance of incorporating technology for facilitating data production and interchange in the education literature cannot be understood. Paradoxically, while the literature emphasizes the role of technology in these areas, the focus on learning outcomes often remains implicit (see Wartofsky, 2020). The Measure of Educational Growth in English (MEG-E), designed to evaluate and gauge proficiency in communication arts, specifically emphasizes the utilization of language across diverse and meaningful contexts. The MEG-E assesses reasoning, writing, reading, and accompanying oral communication skills. Multiliteracy, which underpins the proposed framework, encompasses the use of language in various forms of communication, including spoken, written, and signed modalities. What sets this model apart from other communication frameworks lies in its definition and measurement of communication goals. Unlike conventional models, this framework prioritizes meaning-oriented goals. Despite change concerns, leveraging communities and delineating performance indicators for assessment purposes can provide teachers with valuable tools (see Humphrey, 2020). To make sense of both meaning and pattern goals, an envisioned hierarchical model is established, wherein meaning-value goals are stratified according to their degree of traditionality. Accordingly, teachers can evaluate performance across different levels via texts, theories, values, concepts, and real-life experiences of individuals, both personal and external (see Kumar, 2021). By harnessing technology, it becomes conceivable to intertwine modes and genres in digital hypertext, thereby facilitating the creation of persuasive written material, in contrast to the current predominant focus on argument technology, which largely assesses persuasion alone.

To enhance the emphasis approaches to assessing multiliteracies the updated portion of the content will include hands-on resources and tactics to implement them into practice. A significant enhancement involves presenting guidelines that teachers can utilize to evaluate projects involving modes of communication. These guidelines will consider factors like originality and organization of ideas, expertise, and analytical thinking abilities providing

benchmarks for grading students' work, in different forms of expression. Furthermore. In addition, to that point raised earlier on about the SAMr model (standing for Substitution, Augmentation, Modification, Redefinition) it is important to note that educators can leverage frameworks as a structured method to evaluate the impact of technology integration on evolving traditional literacy practices into broader multi literacy results.

One useful approach to consider is using portfolio evaluation techniques, like portfolios that help students display their development in various literacy skills over a period effectively and in an organized manner. These portfolios assist educators in assessing improvements in areas such as creating content using modes of communication and problem-solving abilities while working collaboratively with others. For example, the utilization of tools, such as Google Workspace or Canva gives students the ability to construct and manage these portfolios by integrating text and interactive features alongside images and videos into projects.

To address the need for more specific examples, the section will include case studies highlighting the application of tools like the Measure of Educational Growth in English (MEG-E). These examples will illustrate how MEG-E evaluates reasoning, writing, reading, and communication skills in diverse contexts. Furthermore, technologies such as Turnitin, which tracks originality and coherence in digital writing, or collaborative platforms like Padlet, can be used to assess student work within the framework of multiliteracies. These tools make it possible to evaluate not only individual contributions but also the collaborative and multimodal integration skills essential to multiliteracies.

Finally, this section connects the ideas to practical applications by translating the hierarchical model of meaning-value goals into actionable steps for educators. For instance, teachers can use tiered levels of evaluation to assess how well students connect traditional and digital texts meaningfully. Tools like Canva for multimodal design assignments or Google Slides for hyperlinked presentations offer concrete ways to implement these tiers. By providing these practical methods, the section will ensure that educators have the tools needed to effectively assess multiliteracies in real-world educational settings, bridging theoretical discussions with actionable insights.

6.1. Measuring multiliteracy skills

To date, evidence of how educational interventions and children's out-of-school activities affect the development of such new skills, along with large-scale patterns of variation in these skills, is very preliminary. Much of the empirical work is still fragmented, small-scale, and exploration. Research to measure specific skills is needed. Another challenge is to derive measures that are comprehensive enough to capture a multidisciplinary and very wide-ranging understanding of digital literacy, involving insights from computer and network science, information science, media, and communication studies, sociology, economics and cultural studies, and education. Measures are also needed that both gauge the skills that young children already have before reaching school, underlining the importance of children's home activities, and evaluate the broader conception of digital literacy proposed in this article, encompassing types of proficiency extending well beyond the range commonly assessed in computer literacy tests. Research has therefore tested adolescents' computer and conventional reading literacy concerning their influence on ICT use, interpreting the findings in the context of a digital divide (Hu & Yu, 2021). Broad definitions have been adopted, considering the use of games and educational software in addition to internet access and email, and conclusions about netbooks and broadband policies in education have been drawn. Researchers have also focused on the

home, extending national skill assessments to adults and teenage children while designating children's digital attitudes and expectations for development. Repeated PIRLS measures of children's computer and informational literacy have shown statistical associations with their recreational access to television, computers, and the internet. However, no usage measure has been adopted (Felix et al., 2020).

However, another scholar has codeveloped a measure for boys' and girls' computer knowledge and application proficiency. However, to date, none of these related studies have approached skill assessment directly, proposing multimodal and multidimensional approaches to digital literacy. Given the complex, dynamic, and variable landscape of young children's emerging multiliteracies, tests for them would need to be sensitive to both changing learning outcomes and different learning contexts (see Tan et al., 2020). Therefore, it is crucial to conduct further research that expands on and refines the existing measures, taking into consideration the diverse factors influencing the development of digital literacy skills among young children and the ever-evolving digital landscape they encounter.

7. Challenges and opportunities in multiliteracies

The focus on multimodal texts, which include various modes such as visual image, layout, color, and sound, raises important questions about language and literacy teaching and the nature of literacy itself. These texts offer more than just language, as they utilize multiple modes to convey meaning, each making its contribution to the overall message, which challenges traditional language-focused approaches that may overlook the richness of meaning-making resources available in different cultural contexts, and these resources are also constantly evolving with new technologies (Guerrettaz et al., 2021). In addition to theoretical questions, pedagogy has implications for multimodal texts in which digital technology provides language teachers with a wealth of possibilities for selecting and composing different modes of meaning-making, including text, sound, and various types of images (see Sastre et al., 2022). However, many traditional language and literacy programs have not fully embraced this flexibility (Woodard & Rao, 2020). Instead, they often prioritize written print text as the primary mode, viewing digital technology as an opportunity rather than a means of enrichment. Educators need to recognize that there are additional meaning-making resources beyond just words. Gestures, posture, gaze, facial expressions, and the way visual images are manipulated and presented all play a role in conveying meaning. Multiliteracies pedagogy highlights the need to consider these resources concerning the overall composition of meaning, the cultural assumptions and values embedded in the available resources, and the communicators' perspective and relationship with their audiences (see Yap & Gurney, 2023).

In light of these considerations, language teachers must explore new pedagogical approaches that embrace the wide range of aims and activities made possible by digital technology. This involves moving away from only concentrating on traditional written text and toward a more comprehensive approach that utilizes various types of resources. Educators can develop language and literacy programs that are more interesting and successful by incorporating the changing ways we communicate in today's highly technological society.

7.1. Barriers to multiliteracies adoption

It aims to passionately advocate for the wide implementation of multiliteracies in both second and foreign-language curricula, recognizing its immense significance in preparing learners for the complexities of our globalized world (see Holloway & Gouthro, 2020). However, it is of utmost importance that we, as educators, critically examine our discipline and identify the

various obstacles that hinder the smooth integration of multiliteracies (Ticheloven et al., 2019). In this context, there are three distinct levels of resistance that we confront when we seek to embrace multiliteracies. The first level of resistance concerns the issue of awareness. Currently, one of the prominent challenges lies in the lack of knowledge regarding the affordance-developmental paradigm associated with literacy, as well as the specific manifestations of new literacies that are rapidly emerging (Habermas & Bongard, 2024). To address this, we believe that comprehensive preservice training for teachers at all levels is crucial because teachers must become acutely aware of the concept of multiliteracies and possess a solid understanding of the theoretical framework that underpins an effective 'pedagogy of multiliteracies. Moving on to the second level of resistance, we encounter a more technical hurdle, which pertains to the less familiar and less utilized features of screens and multimedia activities, particularly the extensive designer functions they offer (Clark & Mayer, 2023). These functions give rise to the creation of unique and often unconventional linguistic elements such as phonology, lexicogrammar, and discourse, which form the basis of this emerging and future-oriented form of basic literacy. For teachers who are less technologically literate, this presents a significant demand. Not only are they expected to be literate in these areas themselves, but they also have the responsibility of guiding their students through this new realm of basic literacy. However, it is worth noting that many students, being digital natives, are often more adept and knowledgeable in cyberspace and its associated functions than their teachers are, this dynamic gives rise to a potential shift in authority, where expertise on these genres and the associated topics emerges from the context itself (Jones et al., 2020).

By continuously delving into the intricacies of multiliteracies and addressing barriers, we have identified and strived to create an inclusive and empowering educational environment that equips learners with the skills and competencies required to excel in the digital age such that, through our collective efforts and commitment to innovation, we can cultivate a generation of multiliterate individuals capable of navigating and thriving in our rapidly evolving world. In addition, to overcome the obstacles mentioned in this section and to make the suggestions more practical for educators who may not be well-versed in multiliteracies a set of strategies will be implemented. These strategies will address the three areas of resistance which include awareness issues, difficulties, and changes in authority. To tackle the awareness hurdle there will be an emphasis placed on training programs for pre-in-service teachers. These programs will aim to introduce the concept of multiliteracies along with its foundations while also showcasing real-world applications, in classroom settings. One way to approach this is by organizing workshops and training sessions for educators to learn about the pedagogy of multiliteracies and how it can be incorporated into language teaching programs, for both foreign languages. Moreover, establishing communities or platforms where teachers can exchange ideas and resources could foster a network that enhances understanding and expertise. Furthermore, to address technical challenges, targeted technological training sessions will be proposed. These sessions should focus on teaching educators to use screen-based tools, multimedia platforms, and designer functions effectively. For instance, introducing simple, user-friendly tools like Canva, Padlet, or Microsoft Sway can help educators create and implement multimodal content without requiring advanced technical expertise. Providing step-by-step guides and offering ongoing technical support can also alleviate apprehension among less technologically literate educators. Moreover, emphasizing the co-learning dynamic, where educators collaborate with tech-savvy students, can create a mutually beneficial learning environment and reduce the perceived gap in authority. For the shift in authority and expertise, strategies to empower educators and embrace collaborative teaching dynamics will be highlighted. Teachers could be motivated to take on a facilitator role by guiding students in thinking skills and ethical use of tools while also focusing on effective communication instead

of just presenting information to them outright. Collaborative projects where educators and students delve into new digital genres together have the potential to build mutual respect and shared knowledge. For instance, incorporating student-led workshops or peer-teaching sessions can allow students to share their knowledge of digital tools while enabling teachers to focus on framing these tools within broader literacy goals.

By integrating these strategies, the section will provide educators with actionable recommendations to overcome barriers to multiliteracies adoption. These practical steps not only address resistance but also empower educators to build confidence and competence in implementing multiliteracies in their classrooms, ensuring a more inclusive and adaptive educational environment.

8. Conclusion and future directions

In this chapter, we have thoroughly examined and analyzed the profound and intricate shifts in communication, identity, and significance that emerge as a direct consequence of transformative changes in the expansive communication and multimodal landscape while remaining acutely aware of the underlying ideological and social conditions that shape such developments. It is with great emphasis and unwavering conviction that we assert our resolute support for the paramount notion that to effectively educate individuals in contemporary society in diverse cultural, rhetorical, and multimodal domains, it is imperative to incorporate an integrative framework of design and critique underpinned by comprehensive theoretical foundations and explicit instruction. We bolster our robust argument with a plethora of compelling examples, thereby underscoring the immense potential and power that lies within the realm of seamlessly integrating multimodal curriculum models and establishing a specialized English course specifically tailored to address the multifaceted demands of the rapidly evolving digital era. Moreover, we have unreservedly underscored the ever-growing importance and urgency of implementing educational reforms that inherently foster and cultivate exceptional writing skills within an innovative design-to-effect approach, all while engendering a deep-rooted comprehension and mastery of critical theory. Despite various critiques that may arise, we humbly recognize and acknowledge the deliberate and meticulously enlightening nature of our pedagogical endeavors, standing unwaveringly behind our beliefs. It is with an invigorating sense of optimism and unwavering hope that we contemplate the future, firmly convinced that our approach is not only grounded in sound reasoning but also holds immense promise in shaping the educational landscape and nourishing the intellectual growth and potential of countless individuals in an ever-evolving world.

8.1. The role of multiliteracies in shaping education

The multiliteracies approach signifies a change in how we perceive literacy by broadening its scope from cognitive skills to including socially embedded practices. In this perspective literacy encompasses more than reading and writing; it also involves the skill to navigate and analyze forms of communication within diverse social and cultural settings. To be truly literate in today's paced and interconnected world. One must not excel in communication skills like speaking and writing. Also adapt to competencies, in digital media and social interaction. This broader perspective underscores the importance of methods that equip students to participate actively in evolving communication environments. The essence of multiliteracies underscores the examination, assessment, and construction of significance which transcends the interpretation and production of messages. The significance of semiotics takes on a role in comprehending how existing frameworks for meaning promote communication. This broader viewpoint also broadens the concept of literacy from a societal activity to a political one having

substantial ramifications, for inclusivity and fairness. Highlighting concerns related to power imbalances and the gap in skills and resources is crucial in emphasizing the need for access to communication technologies and online literacy, for everyone's benefit.

Educators need to rethink their teaching methods to incorporate strategies that bridge theory and real-world practice when embracing multiliteracies in education. The integration of tools and media in learning activities should be a focus in the curriculum to empower students to express themselves and collaborate on projects together. Creating stories or analyzing social media campaigns are a few examples of tasks that not only improve communication abilities but also stimulate critical thinking and creativity. Teachers should receive support through training to help them utilize digital tools effectively in their teaching practices. Platforms, like Canva and Google Sites, offer entry points for incorporating technology in the classroom. Moreover, emphasizing thinking and ethical use of technology is crucial in multiliteracies education. Students should be given chances to assess information credibility, recognize biases, and grasp the considerations related to their interactions, on platforms. These abilities are crucial not, only for communicating but also for nurturing knowledgeable and conscientious members of society in a digitally connected world. Simultaneously we must take steps to tackle disparities in technology access. Closing the gap in access necessitates strategies and programs like collaborations between schools and local groups to offer gadgets and internet access to marginalized communities.

Multiliteracies also require teachers to adopt inclusive teaching methods that acknowledge the interconnectedness of communication styles and trends. Encouraging teamwork and student-led talks can establish environments where learners, from language backgrounds can exchange their viewpoints. These approaches aid in nurturing students' knowledge of concerns nuancedly while promoting empathy and teamwork—qualities, for excelling in a diverse and digitally linked society. Essentially speaking the multiliteracies approach disrupts ideas about literacy. Requires educators to embrace a wider and more vibrant perspective on teaching and learning. By blending forms of communication, tackling obstacles, and arming learners with crucial and imaginative abilities education can ready individuals to navigate the intricacies of the globalized digital era. This comprehensive structure not only enables students to participate in the changing realm of knowledge actively but also encourages them to play a role in generating and sharing information effectively. Ultimately, connecting theory and practical application in impactful ways.

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The authors used ChatGPT and QuillBot to polish the language in some parts of the article. However, they declared that the content of the article is totally theirs.

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