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An AI-Supported Global Competence Framework for English Literacy: Integrating Language Use, Contextual Adaptation, and Intelligent Support

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Abstract

The growing integration of artificial intelligence (AI) into language learning has redefined the nature of English literacy, particularly in the context of global competence. While existing research has explored AI-supported learning in terms of performance and processes, limited attention has been given to how AI reshapes the overall structure of language competence required in global communication. Addressing this gap, this study proposes an AI-supported global competence framework for English literacy, conceptualizing competence as the integration of language use, contextual adaptation, and intelligent support. Within this framework, English literacy is understood not merely as linguistic proficiency but as the ability to deploy language effectively across dynamic and culturally diverse contexts. AI is positioned as both an enabling and shaping force that supports communication, guides adaptation, and mediates interaction. By integrating insights from applied linguistics, global competence theory, and AI-supported learning, the study offers a structured model that captures the evolving nature of language competence in technologically mediated environments. The proposed framework provides a theoretical foundation for future research and offers implications for designing language education systems that prepare learners for global communication in the age of artificial intelligence.

Keywords

Artificial intelligence, English literacy, Global competence

1. Introduction

The increasing integration of artificial intelligence (AI) into communication and learning environments has fundamentally transformed how language is used, interpreted, and mediated (Aitchison, 2012;

Selwyn, 2019). In contemporary global contexts, English is no longer employed solely as a tool for direct human-to-human interaction but is increasingly embedded within technologically mediated systems, where AI participates in, supports, and shapes communication processes. This shift raises important questions about the nature of English literacy and the competencies required for effective participation in global communication.

Traditionally, English literacy has been conceptualized as a combination of linguistic knowledge and communicative skills, including reading, writing, speaking, and listening. However, in a rapidly evolving technological landscape, such definitions may no longer adequately capture the complexity of language use. Individuals are now required not only to produce and comprehend language but also to navigate AI-supported communication environments (Bachman, 1990; Pennycook, 2017), adapt to diverse cultural and situational contexts, and make strategic use of technological tools. As a result, English literacy must be reconsidered as a multidimensional construct that extends beyond language proficiency.

Existing research on AI in language education has predominantly focused on learning processes and outcomes, such as improved accuracy, enhanced engagement, or increased efficiency. While these studies provide valuable insights into how AI supports language learning, they offer limited understanding of how AI reshapes the broader structure of language competence. In particular, there is a lack of theoretical frameworks that define what constitutes English literacy in AI-mediated global contexts and how different dimensions of competence interact (Bialystok, 2001; OECD, 2018).

At the same time, research on global competence has emphasized the importance of intercultural communication, adaptability, and the ability to function effectively in diverse environments. However, these frameworks have largely been developed independently of advances in AI, and thus do not fully account for the role of technology in mediating communication. The intersection between AI-supported language use and global competence remains underexplored, creating a gap in both theory and practice. Addressing this gap, the present study proposes an AI-supported global competence framework for English literacy. The framework conceptualizes competence as the integration of three interrelated dimensions: language use, contextual adaptation, and AI-mediated support. By positioning AI as both an enabling and shaping force, the study aims to provide a comprehensive model that reflects the evolving nature of language competence in technologically mediated environments. This perspective not only advances theoretical understanding but also offers practical implications for designing language education systems that prepare learners for global communication in the age of artificial intelligence.

2. Literature Review

2.1 English Literacy and Its Expanding Scope

English literacy has traditionally been defined in terms of linguistic competence and communicative ability, encompassing skills such as reading, writing, speaking, and listening. Early models of literacy

emphasized the mastery of language structures and the ability to comprehend and produce texts effectively. Over time, these models have expanded to include communicative competence, which incorporates not only grammatical knowledge but also sociolinguistic and pragmatic awareness (Canale, M., & Swain, 1980; Kern, 2000).

In recent decades, the concept of literacy has undergone further transformation, evolving toward more comprehensive understandings that include digital literacy and multiliteracies. These perspectives recognize that language use is situated within broader social and technological contexts, requiring individuals to navigate multiple modes of communication and adapt to changing environments. However, while these developments have broadened the scope of literacy, they have not fully addressed the implications of AI as an active participant in communication (Council of Europe, 2020; Leu, Kinzer, Coiro, Castek, & Henry, 2017).

The emergence of AI-mediated communication introduces new dimensions to literacy. Language users must now engage with systems that generate, interpret, and modify linguistic input, thereby influencing how meaning is constructed and conveyed. This shift suggests that English literacy can no longer be understood solely as an individual capability but must be reconceptualized as a distributed competence involving both human and technological components.

2.2 Global Competence and Contextual Adaptation

Global competence has been widely discussed as a key objective of education in an increasingly interconnected world. It is generally defined as the ability to communicate effectively across cultural boundaries, understand diverse perspectives, and adapt to different social and communicative contexts. Central to this concept is the notion of contextual adaptation, which involves adjusting language use according to situational demands and cultural expectations (Gee, 2015; Jenkins, 2015).

Research in this area highlights the importance of flexibility, awareness, and responsiveness in communication. Individuals with high levels of global competence are able to interpret contextual cues, select appropriate linguistic strategies, and modify their communication to achieve desired outcomes. These abilities are particularly important in environments where communication is complex, dynamic, and culturally diverse.

However, existing models of global competence have largely been developed in pre-AI contexts and therefore do not fully account for the role of technology in shaping communication. As AI becomes increasingly integrated into communicative practices, contextual adaptation must also include the ability to navigate and utilize technological mediation. This suggests that global competence should be redefined to incorporate not only intercultural awareness but also technological awareness.

2.3 AI as a Mediator of Language Use

The role of AI in language use extends beyond its function as a learning tool. In many contexts, AI acts as a mediator that influences how communication is structured, interpreted, and executed. For example, AI systems can generate responses, suggest linguistic forms, and provide real-time feedback, thereby shaping the interaction between users and their communicative environment (Holmes, Bialik, & Fadel,

2022; Kern, 2000).

This mediating role has important implications for how language competence is conceptualized. Rather than being solely an internal capability, competence increasingly involves the ability to interact effectively with AI systems and to leverage their affordances for communication. This includes selecting appropriate inputs, interpreting AI-generated outputs, and integrating technological support into communicative practices.

At the same time, the use of AI introduces new challenges. The availability of automated support may reduce the need for certain linguistic processes, while also requiring new skills related to evaluation, adaptation, and control. Understanding how these dynamics influence language competence requires a shift from viewing AI as an external aid to recognizing it as an integral component of communication.

2.4 Toward an Integrated Framework

Despite the growing body of research on English literacy, global competence, and AI-supported communication, these areas have largely developed in parallel, with limited integration. Existing studies tend to focus on specific aspects of competence, such as linguistic skills, intercultural awareness, or technological use, without considering how these dimensions interact within a unified framework.

This lack of integration presents a significant gap in understanding how language competence is constructed and enacted in AI-mediated environments. In particular, there is a need for a framework that captures the interplay between language use, contextual adaptation, and AI-mediated support, and that reflects the complexity of communication in contemporary global contexts (Hymes, 1972; OECD, 2018).

The present study addresses this need by proposing an AI-supported global competence framework for English literacy. By integrating insights from applied linguistics, global competence theory, and AI research, the framework provides a comprehensive perspective on how language competence is redefined in the age of artificial intelligence.

3. An AI-Supported Global Competence Framework for English Literacy

This study advances a framework-level conceptualization of English literacy in AI-mediated environments by positioning competence as the integration of language use, contextual adaptation, and AI-mediated support. Rather than treating these dimensions as parallel competencies, the proposed framework conceptualizes them as interdependent components that co-evolve within technologically mediated communication. In this view, English literacy is not a fixed set of skills but a dynamic capability that emerges from the coordinated deployment of linguistic resources, situational awareness, and intelligent support in real-time interaction (Aitchison, 2012; Selwyn, 2019).

At the core of the framework lies language use as the foundational dimension of competence. Language use encompasses the ability to comprehend and produce discourse that is coherent, purposeful, and responsive to communicative goals. In AI-mediated contexts, however, language use extends beyond individual production to include the ability to orchestrate communication in conjunction with

technological systems. This involves selecting appropriate linguistic forms, interpreting system-generated outputs, and integrating these outputs into ongoing interaction. As such, language use becomes a hybrid practice in which human and AI contributions are interwoven, requiring users to manage not only linguistic accuracy but also interactional effectiveness.

Closely intertwined with language use is contextual adaptation, which captures the capacity to adjust communication according to situational, cultural, and pragmatic demands. In global environments, effective communication depends on sensitivity to audience, purpose, and sociocultural norms. The framework emphasizes that such adaptation is not a peripheral skill but a central component of competence, shaping how language is selected, modified, and interpreted. In AI-mediated communication, contextual adaptation acquires an additional layer of complexity, as users must account for how technological systems interpret context and generate responses. This requires an expanded form of awareness that integrates cultural understanding with technological judgment, enabling users to align AI-supported communication with situational expectations.

The third dimension, AI-mediated support, represents the distinctive contribution of the framework. AI is conceptualized not merely as an external aid but as an active participant that mediates communication processes. It provides linguistic suggestions, generates content, and shapes interactional dynamics, thereby influencing both the form and the trajectory of communication. Competence in this dimension involves the ability to engage with AI systems strategically, including selecting appropriate inputs, evaluating generated outputs, and integrating technological support into communicative practice. Importantly, effective use of AI requires a balance between leveraging system capabilities and maintaining control over meaning construction, ensuring that communication remains purposeful and contextually appropriate.

The framework posits that global competence emerges from the interaction of these three dimensions rather than from their independent development. Language use provides the means of expression, contextual adaptation ensures relevance and appropriateness, and AI-mediated support enhances and reshapes communicative possibilities. Their interaction forms a dynamic system in which competence is continuously negotiated and refined. For instance, the integration of AI-generated language into a culturally sensitive interaction requires not only linguistic accuracy but also the ability to evaluate the suitability of the output within a given context. In this sense, competence is enacted through the coordination of multiple processes rather than the application of isolated skills.

A defining feature of the proposed framework is its emphasis on the distributed nature of competence. In AI-mediated environments, communicative ability is no longer located solely within the individual but is distributed across human and technological components. This distribution does not diminish the role of the learner; rather, it redefines it. Users must develop the capacity to manage interactions with AI systems, making informed decisions about when and how to rely on technological support. This involves a continuous process of calibration, in which individuals adjust their use of AI in response to contextual demands and communicative goals.

The framework also highlights the adaptive and iterative nature of competence development. As learners engage in AI-mediated communication, they refine their ability to integrate language, context, and technology, leading to increasingly sophisticated forms of interaction. This process is not linear but involves ongoing adjustment as learners encounter new contexts and technologies. AI systems contribute to this process by providing feedback and alternative formulations, which can expand the range of available communicative strategies. However, the effectiveness of this process depends on the learner's ability to critically engage with AI outputs and to integrate them meaningfully into communication.

Taken together, the AI-supported global competence framework provides a comprehensive account of how English literacy is redefined in contemporary communication environments. By integrating language use, contextual adaptation, and AI mediation into a unified model, the framework moves beyond traditional definitions of literacy to capture the complexity of communication in the age of artificial intelligence. It offers a theoretical foundation for understanding how competence is constructed, enacted, and developed in technologically mediated contexts, thereby contributing to both research and practice in language education.

4. Discussion and Implications

The framework proposed in this study offers a reconceptualization of English literacy by situating it within AI-mediated global communication contexts. Rather than viewing literacy as a set of individual linguistic skills, the model positions it as a multidimensional and distributed competence that emerges from the interaction of language use, contextual adaptation, and AI-mediated support. This shift extends existing theoretical perspectives by highlighting that language competence in contemporary environments is no longer solely defined by what individuals know or can produce independently, but also by how effectively they integrate technological resources into communicative practice.

A key theoretical implication of the framework lies in its redefinition of competence as a relational and dynamic construct. Traditional models of communicative competence have emphasized internalized knowledge and skills, with context treated as an external variable. In contrast, the present framework foregrounds the interdependence between linguistic performance and contextual conditions, suggesting that competence is continuously negotiated in interaction. The inclusion of AI mediation further expands this perspective by introducing technology as an active participant in communication, thereby transforming the boundaries of what counts as competent language use.

The framework also contributes to discussions of global competence by integrating technological awareness into existing models of intercultural communication. While previous research has emphasized the importance of cultural sensitivity and adaptability, it has not fully accounted for the ways in which AI systems shape communicative processes. By incorporating AI-mediated support as a core dimension, the model acknowledges that effective global communication increasingly involves navigating interactions that are partially structured by intelligent systems. This perspective underscores

the need to expand definitions of global competence to include the ability to critically and strategically engage with technological mediation.

From a pedagogical standpoint, the framework suggests a shift in focus from isolated skill development to the design of learning environments that support integrated competence. Language education in AI-supported contexts should aim not only to improve linguistic accuracy but also to cultivate learners' ability to adapt language use across contexts and to manage interactions with AI systems. This implies the need for instructional designs that combine authentic communicative scenarios, opportunities for contextual variation, and guided engagement with AI tools. In such environments, learners are encouraged to develop flexible strategies for communication, rather than relying on fixed patterns of language use.

The framework further highlights the importance of maintaining learner agency in AI-mediated environments. While AI systems provide powerful support for communication, overreliance on automated outputs may limit learners' ability to make independent communicative decisions. Effective competence development therefore requires a balance between leveraging AI capabilities and retaining control over meaning-making processes. This balance is essential for ensuring that learners remain active participants in communication rather than passive recipients of system-generated language.

In terms of future research, the proposed framework opens several avenues for investigation. Empirical studies are needed to examine how the three dimensions of competence interact in real-world communication settings, particularly in contexts where AI plays a significant role. Longitudinal research would be valuable for exploring how learners develop the ability to integrate language, context, and technology over time. Additionally, further work is needed to identify the conditions under which AI-mediated support enhances or constrains communicative competence, as well as the individual differences that influence learners' engagement with such systems.

Overall, this study provides a comprehensive framework for understanding how English literacy is redefined in the age of artificial intelligence. By conceptualizing competence as an integrated and adaptive system, it offers both theoretical and practical insights into the evolving nature of language use in global contexts. The framework not only contributes to ongoing discussions in applied linguistics and education but also provides a foundation for designing language learning environments that prepare learners for effective communication in technologically mediated worlds.

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