

Digital Literacy in College English Reading in the Chinese Context - A Literature Review

Abstract

This literature review critically examines the role of digital literacy in English reading within Chinese higher education, underscoring the transformative impact of digital tools and methodologies on language instruction. This literature study undertakes a thorough analysis of 16 studies, complemented by an additional 24 articles (2015 – 2024) from the Web of Science for comprehensive bibliometric analysis, so that it could enrich the understanding of digital literacy in English reading education by exploring the critical role of functionality and interactivity. The review calls for a balanced approach that acknowledges both the benefits and challenges of employing digital tools in educational settings. It also focuses on the necessity for ongoing research to gauge the specific influence regarding digital tools on reading comprehension, and to address any biases that may influence perceptions of digital literacy's role in education. By focusing on the Chinese educational landscape, this study seeks to broaden the conversation around the global implications of digital literacy in English reading. This investigation aims to bridge research gaps and guide the development of pedagogical strategies that leverage digital tools to create transformative learning experiences.

Key words: digital literacy, English reading, digital tools, benefits and challenges, Chinese colleges

1. Introduction

1.1 Background

Currently, the existing knowledge of digital literacy is a growing trend in education. Additionally, the importance of digital literacy for English reading among college

students in China has been increasingly recognized. The objective of this literature is to provide an overview of the current situation of digital literacy in the context of English reading, identify trends and gaps, and propose suggestions for effective incorporation into college English teaching practice in the Chinese context.

Studies have shown that digital literacy, including the use of different digital devices, can impact reading comprehension levels. This is justified by the study (Ho *et al.*, 2023) examined the impact of digital silent word reading examinations. The results indicated that the tablet group achieved better results than the laptop and paper ones, which suggests that the impacts of comprehension skills on the reading section vary depending on the digital device used. In contrast to Ho *et al.* (2023), Lu (2016) emphasized the transformative potential of digital tools in revamping traditional teaching methodologies, while Reiber-Kuijpers, Kral, and Meijer (2021) highlighted the numerous benefits digital reading offers, such as enhanced accessibility and interactivity. Empirical studies by Ávila (2021) and O' Brien, Seward, and Zhang (2022) further explored the positive impacts of interactivity on reading comprehension within digital literacy practices. Suwanto *et al.* (2022) advocated for the integration of digital literacy into the curriculum to expand students' knowledge and skills, preparing them for the digital era's demands. Additionally, the study by Purnama *et al.* (2021) emphasized that digital literacy could enhance students' academic achievement by affecting the output of learning outcomes, particularly by facilitating the use of e-learning. These findings from different countries suggest that digital literacy practices, such as utilizing various digital tools and being aware of language structures, can have a significant effect on English reading comprehension among college students in China.

However, the integration of digital tools in education is facing challenges, including limited support and resources for educators (Kesson, 2020; Serra & Gilabert, 2021) and the need for high-quality digital resources to create inclusive learning experiences (Park, 2017). It has been shown that digital literacy practices have a big impact on how well people understand English reading (Purnama *et al.*, 2021; Ho *et al.*, 2023)

This means that we need a more complete approach that includes both metalinguistic knowledge and digital information literacy.

Although much progress has been made in comprehending the positive effects of digital technology on improving reading skills and comprehension, their constant advancement still brings up new aspects and difficulties in the field of digital literacy in English reading in China, particularly regarding resource access, cultural sensitivity, and the effective integration of digital tools (Park, 2017; Ávila, 2021; Vorobel, Voorhees, & Gokcora, 2021). This literature review will identify critical research gaps, including the need for in-depth investigation into the effectiveness of specific digital tools in enhancing reading comprehension and addressing potential biases, such as confirmation bias and techno-optimism, which may influence the perception of digital literacy's role in education (Barrett & Rose, 2020; Roza, 2021; Sanders *et al.*, 2021). This study will provide a comprehensive account of the methodology employed in conducting a realist literature review. To customise the diverse needs of learners, a balanced approach to the pros and cons of digital literacy in English reading should be considered.

The study's general framework comprises three sections, including this introductory one. The second chapter starts by outlining the procedures used for discovering and evaluating all the literature. Subsequently, the study will proceed to collect and synthesise the obtained results, presenting the literature in accordance with every investigation inquiry. The last section of the paper elucidates the way this study has encompassed the formulation of the conceptual framework for constructing futures.

1.2 Key Terms and Process of Review

This investigation will utilise a two-stage approach to research that encompassed bibliometric analysis. According to Ellili (2022), bibliometric analysis enables investigators to pinpoint the key results from earlier investigations, emphasise the

theoretical basis of a particular study area, and generate hypotheses for novel investigations. The beginning of the research involved employing bibliometric techniques to evaluate the effectiveness of the study domain of digital literacy in English reading among college students in China. Subsequently, the emphasis shifted to creating an illustration of the sources related to this subject.

Bibliometric analysis, as elucidated by Wang *et al.* (2020), serves as a valuable method to determine the most influential studies in a specific field. The proposed methodology entails conducting quantitative analysis by examining the degree of similarity between papers inside bibliographic databases, as highlighted by Jain *et al.* (2021). Many databases, such as Scopus, Dimensions Database, Google Scholar, and Web of Science, are available for bibliometric analysis. The researchers examined the application of digital learning in English reading by utilising the Web of Science as a comprehensive database that facilitates bibliometric analysis, as highlighted by Doninck (2023). This platform enables academics to systematically investigate and evaluate prominent studies within certain academic disciplines by quantitatively measuring the effect and significance of scholarly publications. Through bibliometric analysis on Web of Science, researchers can track trends in literature, identify key publications, and gain insights into the intellectual landscape of various research domains (Nouri *et al.*, 2019).

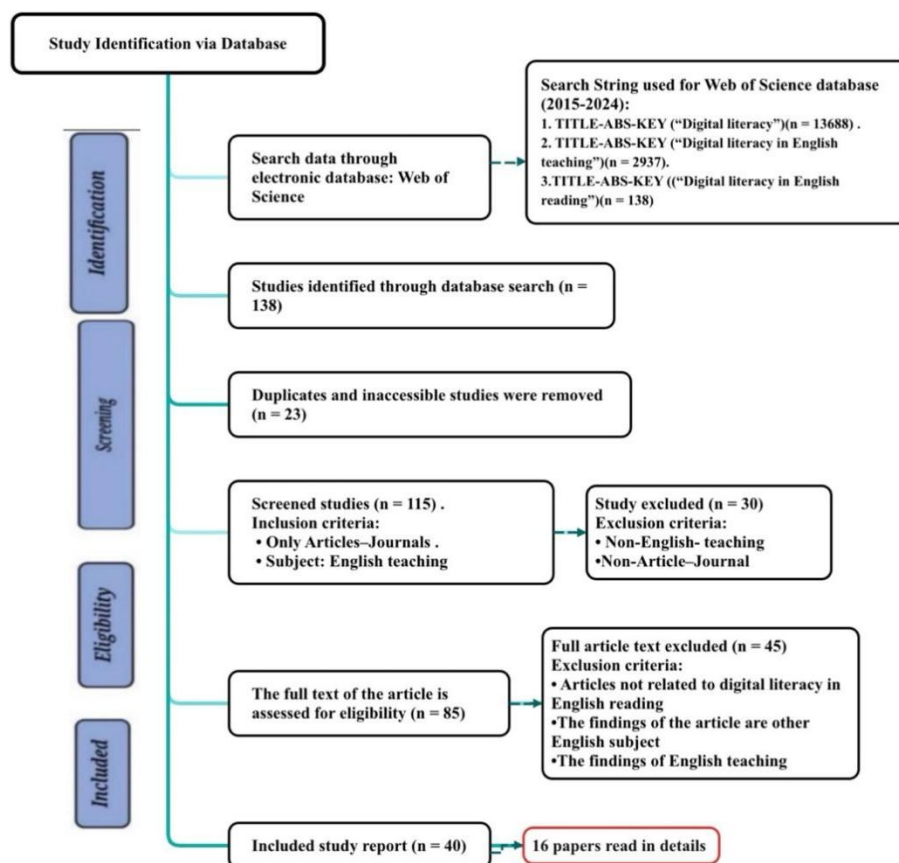
Through a rigorous selection and qualifying procedure, the present literature study aims to undertake a thorough examination of a total of 16 scholarly publications, complemented by an additional 24 articles, and verifies for validity and dependability. First, an in-depth approach was used to locate pertinent publications utilising search terms associated with digital English reading. Following that, the Web of Science Core Collection database was used, which is renowned for its vast scope and accurate bibliographical information. After constantly using the selection requirements to exclude unnecessary entries, forty research papers from various nations made up the ultimate collection. The rigorous evaluation procedure, when combined alongside the

application of well-established and universally acknowledged records, substantially augments the information's trustworthiness. Additionally, the data collection's credibility is bolstered by the incorporation of papers written within the past decade (2015 - 2024), which includes a wide array of studies that is emblematic of the subject. The dataset's comprehensiveness allows for a thorough examination of research trends and patterns, as noted by Xu *et al.* (2022) in their study on ecotourism and sustainable development. Furthermore, Zhang and Yu (2021) emphasise the importance of utilising the Web of Science database in the terms of bibliometric analysis. due to its comprehensive coverage of high-quality journals and citation records. Therefore, a meticulous and comprehensive approach to dataset selection is vital for generating reliable insights and advancing knowledge within various research domains.

A thorough and rigorous literature review is necessary to identify an effective approach for selecting subjects, gather information and ideas, and briefly summarise prior research. The researchers used the keywords ("Digital literacy in English teaching" OR "Digital English reading" OR "English reading") AND ("Digital literacy" OR "Technological Education") while screening the Web of Science Core Collection database regarding English teaching items issued from 2015 to 2024. The investigators examined the Web of Science database core collection, which encompasses every category, paper kinds, with dates until 2024, during the investigation's next stage. To enable viewers to readily repeat this subject and reach comparable conclusions, the standard of the literature review must be reliable. This must also be beneficial to practitioners and academics. Evaluating various kinds of literature reviews is typically thought to be difficult. To aid investigators in assessing literature reviews and investigating and assessing the review criteria for rigour and depth, a few guidelines could be utilised as a starting point. Meanwhile, 138 records that had a title, abstract, and keywords relative to digital literacy in English reading will be identified. Researchers removed 98 records during the filtering of 138 items which included a heading, abstract, as well as and key phrases. The appropriateness of

the all item was subsequently assessed, which resulted in 40 articles. Figure 1 depicts the statistical synthesis performed with the 40 papers that left when 98 data were dismissed. In this literature review, a comprehensive analysis will be conducted on a total of 16 papers, supplemented by an additional 24 articles.

Figure 1. Diagram demonstrating the sequential steps involved in the inclusion and exclusion of papers.



1.3 Research Aims and Research Questions

The significance of English reading in college teaching is a complex area of study, especially the impact of digital literacy on English reading in Chinese colleges. This section will mainly focus on the initial research aim and research question. The objective of this literature is to analyse the current condition of studies pertaining to digital acquisition of English reading in the context of China 's universities, ascertain prevailing patterns and deficiencies, and propose suggestions for effective incorporation.

Recent empirical studies underscored the beneficial impacts of interactive learning modalities on reading comprehension skills as part of broader digital literacy initiatives (Ávila, 2021; O' Brien, Seward, & Zhang, 2022). Suwanto *et al.* (2022) further advocated for the integration of digital literacy into academic curricula, and they argued that such an approach not only broadened students' knowledge horizons but also fostered a set of comprehensive competencies, thereby aligning educational practices with the exigencies of the digital era. This adaptation involves equipping educators with the tools and expertise to effectively integrate digital technology into their methods of instruction, so learners obtain an educational experience that prepare for potential issues. However, the integration of digital tools in education is not without its challenges. Kesson (2020) and Serra and Gilabert (2021) highlighted the difficulties educators face due to limited support and resources. Park (2017) added that there was limited access to high-quality digital resources that reflected students' diverse cultural backgrounds, which could hinder efforts to create inclusive learning experiences for ELLs. Serra and Gilabert (2021) noted that the high costs associated with digital serious games and adaptive systems further complicated the adoption of technology-enhanced learning approaches.

This literature review highlights the need for further research into the effectiveness of specific digital tools in improving reading comprehension and addressing potential biases, such as confirmation bias and techno-optimism, that may affect digital literacy's role in education. Creating educational interventions that are effective and suited to the different requirements of students requires an integrated strategy that considers the advantages and disadvantages of digital resources. To enhance comprehension of the existing knowledge on digital literacy in English reading in China, the following inquiries are presented:

RQ1: What digital tools and resources are used in English reading courses in different countries? (questionnaire)

RQ2: How do university teachers and students think can these tools and resources help develop digital literacy in English reading? (follow up interview)

In summary, this literature review aims to enrich the discourse on digital literacy in English reading in the Chinese universities context and provide an in-depth evaluation of the current body of research concerning its benefits, limitations, and effective implementation strategies. It delves into identifying prevailing research trends and voids, underscores the critical role of adept diverse digital tools, and proposes actionable insights for seamlessly integrating digital learning methodologies into educational settings. The introductory segment underscores the significance and pertinence of digital learning to scientific pedagogy, laying a foundational context for the ensuing analysis. Serving as a valuable tool for educators, policymakers, and scholars, this review seeks to illuminate the transformative potential of digital learning in revolutionising English reading teaching practices and elevating student achievement levels. The next section will introduce these studies respectively.

2. Literature Review

2.1 Introduction

In English instruction, a significant quantity of research has been written about the incorporation of digital literacy in English reading. This review will examine three main themes that consistently arise across the literature reviewed. The subjects include: the functionalities of digital tools in English reading teaching practices; the interactivity of digital literacy in the English reading classroom; and the opportunities and challenges for educators and learners. Although the literature shows these themes in different contexts, it will mainly focus on their functionalities.

Lu (2016) highlighted the transformative power of digital tools and resources in redefining traditional teaching methodologies, thereby enhancing instructional efficacy and enriching the educational experiences of learners. However, despite the

broad investigation into digital literacy across educational domains, a noticeable gap persists in its application to English reading comprehension among college students in China. In their investigation, Ho *et al.* (2023) explored the effects of digital platforms on reading comprehension, utilising a silent word reading test across various devices such as mobile phones, computers, and tablets. Their findings indicated that tablet users exhibited superior reading comprehension compared to those using computers or traditional paper, underscoring the significant influence of device selection on comprehension outcomes.

This study seeks to illuminate the complex interplay between digital literacy and its impact on college English reading comprehension in the Chinese context. It posits that digital literacy practices, encompassing both the judicious employment of digital tools and a nuanced understanding of linguistic structures, markedly affect English reading comprehension among Chinese college students. Utilising the Web of Science, a key bibliometric analysis tool as highlighted by Doninck (2023), this literature review critically examines the role of digital learning in English reading comprehension. The Web of Science emerges as an invaluable asset for researchers, enabling a thorough and systematic exploration of seminal works across disciplines by quantitatively assessing their impact and significance. The discussion that follows will introduce essential theories related to digital literacy and discuss their implications for enhancing English reading comprehension.

2.2 Theoretical and Conceptual Framework

2.21 Theoretical Framework

This literature review draws upon the theoretical underpinnings of Ruben Puentedura's SAMR model (Puentedura, 2015) to explore the role of digital literacy in English reading comprehension. The SAMR model, which delineates a hierarchy of technology integration levels (substitution, augmentation, modification, and redefinition), serves as a foundational framework for dissecting the multifaceted

impact of digital tools on English reading. This model offers a nuanced lens through which the interplay between digital literacy and English reading can be examined from various perspectives, facilitating a detailed classification of the specific aspects of English reading that are influenced by digital advancements (Lütge *et al.*, 2019). Puentedura (2015) developed the SAMR model, which outlines a four-stage process for assessing the use of technology in educational settings. When technology reaches its replacement stage, it merely takes the place of conventional techniques without producing any additional value. Augmentation, the next level, sees technology not only substituting but also enhancing educational tasks. At the modification stage, technology is used to significantly modify work; at the ultimate level, redefinition, it is used to create work which were formerly impossible (Calderón-Garrido *et al.*, 2020).

As stated by Kukulska-Hulme *et al.*, (2017), the adoption of the SAMR model in educational technology research underscored its utility in scrutinising and refining technology's role in pedagogy, which provided a structured methodology for educators to assess the efficacy of technology in achieving educational objectives, encouraging a shift from mere substitution to transformative educational practices. This structured approach aids educators in contemplating the transformative potential of technology in reimagining traditional educational paradigms. Moreover, the application of the SAMR model across diverse educational settings has proven instrumental in guiding the systematic integration of technology and in fostering enhanced student engagement (Marlatt, 2018). It equips educators with a strategic framework for integrating technology into their pedagogical strategies, thereby facilitating a progression towards more innovative and redefined learning experiences (Marlatt, 2018).

In conclusion, Ruben Puentedura's SAMR model offers educators who want to assess and improve the role of technology in education an invaluable framework. By categorising technology use into four distinct levels-substitution, augmentation,

modification, and redefinition-the model empower educators to harness technology not just as a tool for enhancing traditional teaching methods but as a catalyst for pioneering novel and transformative educational experiences.

2.22 Conceptual Framework

Digital literacy in English reading within the educational sphere is a concept characterised by its complexity and multifaceted nature. Ávila (2021) engage with digital tools, platforms, and content in a meaningful and productive manner. While Ngo Cong-lem and Lee (2020) further explained that digital literacy skills enabled individuals to access online text effectively by using search engines, navigating websites, and locating relevant information. This suggests that digital literacy represents a holistic skill set that enables individuals to adeptly navigate, interpret, produce, and share the richly interactive and multimodal content characteristic of the digital age. Furthermore, Betlem Soler Pardo (2023) highlighted the potential of digital literacy to boost academic performance by facilitating e-learning, thereby improving learning outcomes. This research sheds light on the ways students engages with digital content to bolster their reading skills, indicating that a holistic approach to digital literacy, which includes both metalinguistic knowledge and digital information literacy, could positively affect English reading comprehension, particularly among college students in China. Nonetheless, the challenge is that digital literacy is now such a broad notion that it might apply to practically every scenario in which students involve themselves in English reading.

Broadening the lens to encompass a worldwide view, the research conducted by Ngo Cong-lem and Lee (2020) delves into the realm of digital literacy, focusing on how Vietnamese undergraduate students engage with information literacy and on lexical knowledge and reading comprehension growth. This study sheds light on the dynamic interaction' s students have with digital texts and information, illustrating the shifting paradigms of literacy in today' s digital era. In a similar vein, McLean Davies *et al.*

(2020) discovered diverse literature can broaden students' perspectives and enhance their understanding of different genres and cultural contexts by Australian youth and their reading comprehension abilities, emphasising the critical role that proficient use of digital technologies plays in bolstering comprehension skills. As society and culture evolve, a contemporary set of reading skills, including digital literacy, becomes essential for effectively navigating and comprehending information accessed through the internet and digital devices. However, it is crucial to remember that these studies took place in particular educational contexts, suggesting that the unique qualities and demographic make-up of the participating schools may have influenced the results. Consequently, the contexts of these research settings may act as a constraint on the transferability of the study's findings to other settings.

This body of research underscores the importance of integrating digital literacy with language education, extending beyond the Chinese context to a broader global perspective. Studies on computer-assisted reading education, such as those by McLean Davies *et al.* (2020) and Zuo and Ives (2023), have shown positive outcomes. However, there is a noted lack of research focusing on the application of computer-assisted schema strategy training regarding English as a Foreign Language (EFL) about reading teaching practice in China. This gap presents an opportunity for further exploration into how digital literacy, with their inherent interactivity, creativity, productivity, and imaginative potential, can be leveraged for English language reading instruction. This investigation aims to assess and categorize digital literature in English reading comprehension, exploring their potential to enhance language education.

To sum up, digital literacy emerges as a pivotal component in modern education, intricately linked with enhancing language learning and academic performance. Research highlights its role in enabling learners to engage effectively with digital content, thereby improving English reading comprehension and facilitating e-learning. Studies advocate for a comprehensive approach that combines English reading

teaching with digital information literacy, suggesting significant benefits for language education globally. Despite positive outcomes from computer-assisted reading strategies, there is a call for more research on their application in Foreign Language (EFL) settings, particularly in China. This gap signals an opportunity to further explore digital literacy's potential in enriching language instruction, emphasizing its critical role in navigating the evolving landscape of literacy in the digital age.

2.3 Digital literacy: Modelling a Typology on English Reading in the Chinese Context

In the subsequent sections, a comprehensive framework will be presented, designed to systematically define and classify the development of digital literacy within the context of English reading comprehension. The creation of this model is crucial for laying the groundwork in understanding the pedagogical implications for English reading instruction, particularly focusing on the integration of digital literacy. This model represents a key outcome of current research efforts, highlighting its importance in the evolving landscape of English language education.

2.31 The Functionalities on Digital Tools on English Reading

The literature on digital literacy in English reading encompasses a broad array of digital tools and methodologies. Researchers like Vorobel *et al.* (2021), and Sun *et al.* (2021) have extensively explored digital literacy within classroom settings and beyond, focusing on the Web 2.0 devices' application, such as websites for social networking (McLean Davies *et al.*, 2020) and online gaming platforms (Qiao, Kai & Susanna Siu-sze Yeung, 2023), to foster literacy and language learning (Gordon, 2023; Zuo & Ives, 2023). Additionally, the strategic use of reading strategies in digital environments has been examined (Park, 2017).

In the current study, Lütge *et al.* (2019) reports that the transformative potential of digitalization in foreign language education, noting the emergence of multimodal and

interactive literary forms. This evolution calls for a reevaluation of the traditional boundaries between literary and digital education to effectively incorporate digital literary texts into language learning curricula (Ngo Cong-lem & Lee, 2020; Derksen, Michaud-Leclerc & Souza, 2022). The integration of digital literary forms is posited to reshape foreign language teaching and learning (McLean Davies *et al.*, 2020). However, challenges persist, primarily due to educators' unfamiliarity with digital literacy practices and the uneven distribution of technology access among students and schools. Puente's SAMR model provides a framework for understanding the levels of technology integration in education, from basic substitution to transformative redefinition (Arantes, 2022), suggesting a need to bridge the gap between traditional literary education and digital literacy.

The shift towards digital reading environments prompts new questions about literacy. The SAMR model suggests that digital literacy enhances possibilities within the English reading classroom. E-readers, with their array of features, signify a shift from traditional printed books to screen-based reading activities (Liaw, 2017), with a growing preference among youth for electronic devices over conventional books. According to Nur Asima Sidabutar *et al.* (2022), digital texts follow unpredictable paths in contrast to the linear trajectories of traditional texts, and the limited space of computer screens limits text visibility. While the benefits of print exposure are well documented, the impact of online reading on literacy development remains under-explored (Ngo Cong-lem & Lee, 2020). Research indicates that L2 online pleasure reading significantly predicts learners' lexical knowledge and reading comprehension, though the impact of L2 online text exposure diminishes as language proficiency increases. However, the focus on a specific demographic, such as EFL Vietnamese students, may limit the generalizability of these findings.

Despite the recognised benefits of gamification for literacy outcomes, conflicting findings exist. Qiao *et al.* (2023) observed positive effects of gamification on student engagement and reading comprehension in an English morphological analysis context,

while Elimelech and Aram (2019) emphasised the need to focus on the effectiveness of support types in enhancing literacy skills. It is important to use direct scaffolding in digital games to help students learn English reading, especially since there is a link between language scaffolding and story comprehension in digital settings (Diprossimo *et al.*, 2023) that these differences show. Thus, digital environments incorporating gamification and adaptivity principles emerge as potent tools for enhancing motivation and learning in English reading, but the study did not address potential challenges or drawbacks of using the internet as a learning tool, such as distractions, misinformation, or the need for digital literacy skills.

The literature reveals a dynamic exploration of digital literacy and English reading, highlighting the integration of digital tools and methodologies to enhance literacy and language learning. Researchers have delved into the Web 2.0's application, online gaming, and social networking to foster educational outcomes. The emergence of multimodal and interactive literary forms, which signifies the digitalization of foreign language education, necessitates a reevaluation of conventional educational boundaries to effectively incorporate digital texts. Challenges such as educators' unfamiliarity with digital practices and unequal technology access persist. The SAMR model offers a framework for understanding technology integration levels, advocating for a blend of traditional and digital literacy. Despite the potential of digital environments and gamification to enhance learning, their effectiveness, particularly in diverse educational contexts like China, warrants further investigation.

2.32 The Interactivity of Digital Literacy on English-reading

Classroom

This literature review delves into the role of interactivity in enhancing digital literacy within English-reading classrooms, underscoring its fundamental importance in English teaching. Interactivity not only facilitates equitable communication but also supports skill development and boosts learning outcomes. This chapter, therefore,

provides a critical overview to consolidate these diverse insights and identify gaps in the interactive, multifaceted role of digital literacy within the English reading classroom.

Recent studies underscore the critical nature of interactivity for cultivating engaging learning environments, advancing language proficiency, and encouraging collaborative learning experiences. Specifically, platforms like Instagram (Ávila, 2021) have been shown to significantly enhance student engagement with challenging texts in university English classes. Furthermore, peer interaction is highlighted as essential for maximising learning opportunities and fostering a collaborative learning atmosphere (Qiao, Kai, & Susanna Siu-sze Yeung, 2023). This indicates that, through the creation of Instagram prompts, students engage deeply with texts, exploring the nexus between fiction and nonfiction, understanding character perspectives, and distilling main ideas from complex readings-a task that poses considerable challenges with traditional academic texts.

The literature presents varied perspectives on the nature of interactivity, especially in how learners engage with digital media and literature. Lütge *et al.* (2019) argued for the necessity of defining interactively precise nature, suggesting a diversity of interpretations in existing research. Park's (2017) study on Korean online texts emphasised how interactivity, through clickable elements, multimedia content, simulations, quizzes, and collaborative features, could reflect cultural identities and enhance the learning experience. This interactivity allows learners to navigate content, respond to prompts, make decisions influencing outcomes, and receive immediate feedback. In contrast to Park (2017) and the approach by Derksen *et al.* (2022), which investigated the constraints of internet access on platforms like Wikipedia, Qiao *et al.* (2023) adopted a blended gamified approach in English morphological analysis. This method aims to create a motivating, engaging, and interactive learning environment that not only enhances student collaboration but also significantly improves their overall learning experience.

While various strategies can enhance interactivity and learning, there is a need for comparative research to determine the most effective methods or combinations of interactivity for improving digital literacy in English-reading classrooms. This includes understanding how these methods impact various facets of the learning process, including student motivation, comprehension, engagement, and the development of critical thinking skills. Overall, the research gap that was found means that we need a complete framework to test how well interaction improves digital literacy, along with comparative studies to find the best interactive strategies for teaching English reading.

2.4 The Opportunities for Educators and Learners

In the digital era, the landscape of English reading comprehension is undergoing a transformative shift, necessitating a nuanced understanding of digital literacy's emerging facets. Coiro (2009) posits that the integration of digital reading into our everyday routines necessitates a comprehensive comprehension and evaluation of the novel manifestations of reading literacy associated with digital technology. This literature review delves into the perceptions of university educators and students about digital literacy within English reading comprehension frameworks. As digital technologies evolve, discerning how educators and students perceive and utilise these tools becomes pivotal in crafting pedagogical strategies that seamlessly incorporate digital literacy into the curriculum, thereby augmenting students' learning experiences and outcomes in higher education.

The digital revolution's impact on English education has prompted a reevaluation of instructional content and literacy's curriculum role. Shulman (1986) underscored the necessity of broadening instructional content understanding, a sentiment echoed by Christie & Derewianka (2008), who highlighted literacy's evolving significance. In this digital age, educators' roles have expanded beyond mere technology usage to

include facilitating collaborative learning and critical thinking through digital means (Li & Chen, 2024). Collaborative learning represented a crucial area where digital tools, which have empowered educators to foster teamwork among students (Vorobel, Voorhees, & Gokcora, 2021; Gordon, 2023; and Qiao, Kai & Susanna Siu-sze Yeung, 2023). Moreover, guiding students in critically evaluating digital content is vital for developing information literacy skills in a digital learning environment (McLean Davies *et al.*, 2020; Ávila, 2021).

Recent discussions have increasingly highlighted the evolving role of educators, suggesting that their duties extend well beyond merely employing information and communication technology (ICT) in their teaching practices. This shift is well-documented in contemporary literature, which emphasizes the significance of collaborative learning as a key responsibility of teachers (Vorobel, Voorhees, and Gokcora, 2021; Gordon, 2023; Qiao, Kai, & Susanna Siu-sze Yeung, 2023). Specifically, educators are recognized for their ability to cultivate teamwork and cooperation among students with team-based digital activities. Furthermore, there is a widely acknowledged agreement on the importance of educators in enhancing students' critical thinking skills. This is achieved by guiding students to critically assess the reliability and trustworthiness of digital content, thereby deepening their comprehension of information literacy in a digital context (Ávila, 2021; Vorobel, Voorhees & Gokcora, 2021). This comprehensive approach emphasizes the multifaceted role of educators in not only navigating but also enriching the digital learning landscape.

Gordon (2023) provides compelling evidence for the transformative potential of digital systems in education, illustrating how peer-to-peer online discussions can foster a dynamic learning environment. In these settings, students are exposed to a variety of perspectives, enriching their comprehension and critical engagement with literary works. This concept is further supported by a study conducted in Singapore by Haoning Mah *et al.* (2020), which identified a positive connection between the use of

electronic books by educators and the academic performance of students. Such insights value the importance of equipping teachers with the necessary resources to refine their instructional methods. Liu *et al.* (2018) has put forward a notable approach to achieving this is through personalized learning (Elimelech & Aram, 2019; Zuo & Ives, 2023; Li & Chen, 2024). These studies advocate for the use of digital tools to tailor educational experiences to meet individual students' learning preferences and needs, thereby enhancing the effectiveness of teaching strategies and contributing to improved educational outcomes.

In conclusion, this literature review has explored the perceptions of university educators and students regarding the integration of digital literacy within English reading comprehension frameworks, revealing a consensus on the importance of digital tools in enhancing collaborative learning, critical thinking, and information literacy skills. However, these findings advocate for the continued research to develop and refine pedagogical approaches that not only embrace the technological advancements of the digital age but also ensure inclusivity and accessibility for all learners, thereby enriching the educational landscape in profound and meaningful ways.

2.5 The Challenges for Educators and Learners

The proliferation of digital tools and resources has revolutionised traditional pedagogical approaches, promising to enrich the educational landscape for both educators and students. However, alongside the acknowledged benefits, significant challenges persist, particularly for educators striving to integrate these technologies into their teaching practices.

Previous studies (Kesson, 2020; Serra & Gilabert, 2021) have pointed out the difficulties faced by teachers due to the lack of support (Vorobel, Voorhees & Gokcora, 2021), funding, access to technology, and the maintenance of digital tools.

Park (2017) further emphasised that limited access to high-quality digital resources that reflect students' diverse cultural backgrounds can hinder educators' efforts to create inclusive learning experiences for ELLs. The financial and logistical barriers to implementing digital serious games and adaptive systems (Serra & Gilabert, 2021) underscored the need for additional training and professional development for educators to effectively utilise digital tools. It is evident that it is challenged by the integration of digital technologies into instructional practices (Haoning Mah, Hu, & Yang, 2020; Qiao, Kai, & Susanna Siu-sze Yeung, 2023). Consequently, several aspects of providing adequate teachers' training and assistance remain relatively little unknown.

From the learners' perspective, digital literacies pose unique challenges. Li (2020) discussed how students often employed reading strategies to mitigate language proficiency gaps within digital contexts, yet potential deficiencies in comprehension and subject matter expertise could have long-term consequences (Vorobel, Voorhees, & Gokcora, 2021). However, when adopting digital learning in English reading, there are still some hardships, as Qiao *et al.* (2023) found that limited technological familiarity or difficulties in navigating digital interfaces could impede students' engagement in gamified learning activities. Therefore, the digital divide remains a significant issue, with students from low-income backgrounds facing gaps in digital skills, and the importance of cybersecurity education is increasingly recognized. Additionally, Xu *et al.* (2020) and Vorobel *et al.* (2021) noted the risk of cognitive overload and the ensuing distractions for effective information evaluation, suggesting that more work is necessary to handle such distracting interventions.

This review identifies critical research gaps in the integration of digital literacy within educational settings, highlighting the need for comprehensive solutions to overcome financial and logistical challenges, develop culturally inclusive digital resources, and provide effective educator professional development. Further research is required to explore how digital technology can be seamlessly integrated into instructional

practices to support ELL' s cultural identity development, address the comprehension challenges faced by students in digital literacy, and ensure equitable access to digital tools across diverse student populations. Addressing these gaps is crucial for leveraging digital literacy to enhance English language learning and ensuring students' successful navigation of digital landscapes for learning and beyond.

2.6 Summary

2.61 Research Gaps

The literature review identifies critical gaps in the research on digital literacy within English language education, particularly in the context of its application to English reading comprehension among college students in China. Despite the recognized transformative potential of digitalization in the realm of foreign language instruction and the implementation of models like Puentedura' s SAMR to evaluate technology integration, challenges remain. These include educators' unfamiliarity with digital practices and the uneven distribution of technology access, which hinder the effective incorporation of digital literacy forms into language learning curricula.

Our study aims to address these gaps by exploring the intricate dynamics between digital literacy and English reading comprehension in the Chinese educational landscape. Specifically, we will investigate how digital literacy practices, including the strategic use of digital tools and an understanding of linguistic structures, influence English reading comprehension among Chinese college students. By leveraging comprehensive databases for bibliometric analysis and examining the role of interactivity in digital literacy, this investigation aims to enhance comprehension regarding the fruitful incorporation of digital literacy into instruction in English reading teaching practice.

Furthermore, our study will extend beyond the Chinese context to examine digital literacy' s global implications in language learning. By assessing the effectiveness of

computer-assisted schema strategy training and exploring the potential of digital literacy for English language reading instruction, we aim to fill the noted research void. This investigation will not only enhance our comprehension of digital literacy's impact on language education but also inform pedagogical strategies that leverage digital tools for transformative educational experiences.

2.62 Research Questions

While existing research has touched upon various facets of digital literacy in English teaching, including strategy use, it often presents a fragmented picture, this literature reviews aim to explore the evolving landscape of digital literacy within English reading comprehension in Chinese colleges, guided by a set of refined research questions for uncovering the intricacies of digital tool utilization, perceptions of their effectiveness, and the challenges faced by educators and students likewise. The research questions are as follows:

RQ1: Which digital tools and resources are most utilized in English language courses at Chinese colleges, and how are they integrated into the curriculum? (Method: Questionnaire)

RQ2: What are the perceptions of university educators and students regarding the effectiveness of these digital tools and resources in fostering digital literacy within English language education? (Method: Mixed-methods approach incorporating surveys and interviews)

RQ3: What challenges do educators and students encounter in developing digital literacy skills through English language instruction in China, including issues related to technological familiarity, cognitive overload, and the digital divide? (Method: Interviews and focus groups)

Overall, the objective of this literature review is to offer a thorough comprehension of the present condition of digital literacy in English reading, while also addressing gaps

in the existing literature within the Chinese college setting.

3. Conclusion

This study has explored and diverse nature regarding digital literacy in the context of English reading comprehension, specifically in Chinese higher education. This study has highlighted the significant impact that digital tools and approaches can have on improving English language instruction, based on a thorough analysis of previous studies. The integration of digital literacy into the curriculum has been emphasised for its notable advantages, including higher reading comprehension, increased accessibility and interactivity, and the equipping of students to meet the challenges of the digital age. Furthermore, the review has revealed significant deficiencies in the existing body of research, specifically pertaining to the comprehensive range of effects of digital literacy on learners from various cultural backgrounds, as well as the difficulties connected with the successful incorporation of digital technologies.

The study has additionally highlighted the imperative of adopting a balanced strategy that considers the benefits and constraints of digital tools in English reading. There is a need for additional investigation about the efficacy of digital tools in enhancing reading comprehension, as well as the need to address any biases that could impact the perception of the role of digital literacy in English reading. Furthermore, the analysis underscores the necessity of providing educators with supplementary training and professional development opportunities to proficiently employ digital tools in facilitating the cultural identity development of English reading. By leveraging comprehensive databases for bibliometric analysis and examining the role of interactivity in digital literacy, a more profound comprehension of the optimal methods for incorporating digital literacy into English reading is achieved. It extends the discourse beyond the Chinese context to examine digital literacy's global implications in language learning, aiming to fill the noted research void and inform pedagogical strategies that leverage digital tools for transformative educational

experiences.

This literature review outlines the framework for future studies on the prevalent incorporation of digital tools in English language courses at Chinese colleges, the perceptions of educators and students regarding their effectiveness, and the difficulties faced in developing digital literacy abilities. The objective of this literature is to provide valuable insights about how digital literacy is evolving in the context of English reading comprehension. This research will employ a mixed-method methodology, incorporating assessments such as surveys, interviews, and focus groups. The findings will contribute to the existing literature on digital literacy in English reading in Chinese universities and offer practical insights for effectively integrating digital learning methods into educational settings.

Reference List

	Key readings	Theme	Summary of themes
RQ 1 What digital tools and resources are used in English reading courses in different countries? (questionnaire)	Reading in the (post) digital age: Large databases and the future of literature in secondary English classrooms (Australia)	to explore the potential impact of utilizing large databases of digitized literary texts in secondary English education.	Those papers could provide digital tools and resources are used in college English courses in different countries, for instance, digitized literary texts (Australia & Vietnamese & Koran); digital texts vs. paper texts (the United States); internet (Malawian); game (China); video review (Spain) and so on. Since there are limited researches about digital literacy in English reading in the Chinese context. Therefore, those cases may set a good example to further study with Chinese context.
	Using digital texts vs. paper texts to read together: Insights into engagement and mediation of literacy practices among linguistically diverse students (the United States)	to examine how different media formats, specifically digital and paper texts, impact language and literacy development among linguistically diverse students in educational settings. The study explores students' collaborative interactions, engagement levels, and mediational episodes when using digital and paper books in a cross-age peer-learning literacy program	
	Restricted access: How the internet can be used to promote reading and learning (Malawian boarding secondary schools)	to explore the impact of providing restricted internet access, specifically to Wikipedia, on promoting reading, learning, and academic performance among students in Malawian boarding secondary schools.	
	‘Booktuber: promoting reading and literacy in the classroom among Spanish pre-service teachers through a video review’ (Spain)	The paper emphasizes the use of technology, specifically Booktuber videos, as an innovative tool to promote reading, reflection on literature, and digital competence among students.	
	Exposure to L2 online	to investigate the long-term	

text on lexical and reading growth (Vietnamese)	impact of exposure to online text on English as a foreign language (EFL) learners' lexical knowledge and reading comprehension growth.
Technology-Assisted Reading Instruction for English Language Learners (the United States)	focus on evaluating the efficacy of TARI through summative assessments but notes limited attention to learners' literacy practices and interactive engagement in digital contexts. It also points out a marked lack of alternative approaches to assessing the effectiveness of technology in promoting ELLs' reading progression and a continued emphasis on developing traditional literacy over multimodal literacy.
Multimedia Response: Instagram as a Reading Activity in a University English Class	to explore the use of Instagram as a tool for engaging students with course readings in a university English class, and how incorporating social media platforms like Instagram can enhance students' interaction with dense texts, promote multimodal responses, and foster critical thinking skills in an academic setting.
The effect of the COVID-19 lockdown on bilingual Singaporean children's leisure reading	the lockdown presented opportunities for children to engage in leisure reading and develop important skills, it also highlighted challenges related to resource access, digital literacy, learning losses, and social interaction.
Reading Literature in/against the Digital Age:	examine the impact of digital technologies on literary

	Shallow Assumptions, Deep Problems, Expectant Pedagogies	reading practices and pedagogy. The author challenges the notion that digital platforms are solely responsible for the decline of "deep reading" and argues that traditional literary education practices, such as close reading, also contribute to this erosion. Gordon proposes the concept of "expectant reading" supported by social annotation as a way to re-center reading, restore narrative frameworks, and facilitate socially distributed reading experiences.	
	Understanding how gamification of English morphological analysis in a blended learning environment influences students' engagement and reading comprehension (China)	the development and implementation of a computer-based gamified approach specifically designed to improve English morphological analysis skills among Chinese students learning English as a foreign language	
RQ2 How do university teachers and students think can these tools and resources help develop digital literacy in English reading? (follow up interview)	Impacts of ICT-related factors on students' digital reading literacy: Evidence from high-performing Asian countries and regions (Asian)	to identify and analyze the ICT-related home and school factors that influence digital reading literacy in non-English-speaking contexts in Asian countries and regions.	This review identifies critical research gaps in the integration of digital literacy within educational settings, highlighting the need for comprehensive solutions to overcome financial and logistical challenges,
	Reading literature in/against the digital age: Shallow assumptions, deep problems, expectant pedagogies.(South Africa)	to prompt a critical examination of the evolving relationship between digital technologies and literary reading practices, proposing innovative pedagogical approaches that leverage	

	digital tools to enhance the immersive and meaningful engagement with literary texts.	develop culturally inclusive digital resources, and provide effective educator professional development. Further research is required to explore how digital technology can be seamlessly integrated into instructional practices to support ELL's cultural identity development, address the comprehension challenges faced by students in digital literacies, and ensure equitable access to digital tools across diverse student populations.
Influences of reading online texts in Korean English language learners' cultural identities (Korea)	the advantages of online texts for ELLs include accessibility, authenticity, interactivity, engagement, and personalization, all of which contribute to enhanced language learning, cultural exploration, and motivation in digital literacy contexts.	
Language learners' digital literacies: Focus on students' information literacy and reading practices online (United States)	digital information literacy and online reading practices using social bookmarking tools in a community college setting.	
Is it smart to read on your phone? The impact of reading format and culture on the continued influence of misinformation (Australia and China)	By conducting parallel experiments in Australia and China, the research aimed to explore the impact of reading format and cultural background on memory, comprehension, and susceptibility to misinformation in readers of English and Chinese languages.	
The Determinant Factors Comprising Students' Performance in The Digital Era (Indonesia)	By recognizing these opportunities and challenges, educators can better navigate the digital era to support students' academic success and enhance their learning experiences.	

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