



# Exploring the Digital Literacy of EFL Preservice Teachers: Application and Enlightenment in Chinese Normal Universities

Weiqing Sun, Deping Zou\*

Department of Foreign Languages, Qilu Normal University, Jinan, China  
Email: 13695430479@163.com, \*dpangle@126.com

**How to cite this paper:** Sun, W.Q. and Zou, D.P. (2024) Exploring the Digital Literacy of EFL Preservice Teachers: Application and Enlightenment in Chinese Normal Universities. *Open Access Library Journal*, 11: e12275.

<https://doi.org/10.4236/oalib.1112275>

**Received:** September 9, 2024

**Accepted:** October 14, 2024

**Published:** October 17, 2024

Copyright © 2024 by author(s) and Open Access Library Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

This conceptual study explores the integration and application of digital literacy (DL) in the training of English as a Foreign Language (EFL) preservice teachers at Chinese normal universities. It reflects on the current digital competencies of preservice teachers, the challenges they face in integrating technology into their pedagogy, and the effectiveness of existing teacher preparation programs (TPPs) in fostering essential digital skills. By critically analyzing the alignment of teacher training curricula with the digital demands of modern classrooms, this article identifies key areas for improvement and suggests innovative strategies for enhancing DL in teacher education. The study emphasizes the importance of bridging the gap between theoretical knowledge and practical application, offering recommendations for curriculum redesign and the integration of hands-on digital experiences. The goal is to contribute to the broader educational discourse on how DL can be more effectively embedded in EFL education, ultimately preparing future teachers to navigate the digital landscape of contemporary classrooms.

## Subject Areas

Educational Technology

## Keywords

Digital Literacy, EFL Preservice Teachers, Chinese Normal Universities

## 1. Introduction

In the digital era, advanced technologies have fundamentally transformed communication and information exchange, prompting scholars to extensively explore

the concept of digital literacy (DL) over the past three decades. Originally introduced by Lanham in 1995, DL has evolved from a basic proficiency in navigating digital platforms to a multifaceted skillset encompassing a range of media literacies. Gilster (1997) [1] expanded this definition, emphasizing DL as the ability to discover, evaluate, and effectively use internet content. Today, DL includes competencies such as managing, integrating, and synthesizing digital resources to construct new knowledge, create media expressions, and engage in effective communication (Martin, 2005) [2].

The American Library Association further refined DL as the ability to use information and communication technologies to find, evaluate, create, and communicate information, emphasizing both cognitive and technical skills. In addition, Alkalai introduced a comprehensive model that incorporates pictorial, informational, and social-emotional literacies, marking a significant advancement in understanding the scope of DL.

In China, the rise of digital information technology has spurred local scholars to adopt and adapt these global perspectives. Chinese researchers have tailored the definitions of DL to align with the unique socio-technical contexts of Chinese education. These adaptations emphasize not only the critical and creative aspects of DL but also its practical applications in everyday life and learning (Tejedor *et al.*, 2020; Hijón-Niera *et al.*, 2023) [3] [4]. Furthermore, DL now encompasses critical thinking, problem-solving, and an understanding of ethical and security concerns related to digital technology use (Jia & Bava Harji, 2022; Prior *et al.*, 2016) [5] [6].

Despite these advancements, research on DL, particularly in the context of English as a Foreign Language (EFL) teacher education, still faces several challenges. Previous studies have largely focused on defining DL and identifying its components, but they often lack comprehensive frameworks that address the practical integration of DL into teacher preparation programs (TPPs). Furthermore, many studies emphasize the technical aspects of DL, while insufficient attention is given to the pedagogical challenges EFL preservice teachers face in applying these skills in real-world classroom settings. There is also a gap in analyzing how existing TPPs are aligning their curricula with the growing demands of DL, particularly in China, where the digital landscape presents unique challenges and opportunities.

This study aims to address these gaps by examining the integration and application of DL in the training of EFL preservice teachers at Chinese normal universities. Specifically, it focuses on two key research questions.

- 1) How can digital literacy be effectively integrated into EFL classrooms in normal universities?
- 2) What are the implications for EFL preservice teachers' teacher preparation programs and curriculum design?

Through a critical analysis of the literature and theoretical perspectives, this study evaluates the extent to which TPPs prioritize DL development and identifies the gaps in current practices. By providing an in-depth analysis of the existing

research and offering practical recommendations, this study seeks to enhance the understanding of how DL can be more effectively incorporated into EFL classrooms, contributing to the broader discourse on teacher education reform. It also aims to highlight the shortcomings in previous research, focusing on the need for innovative approaches that address both the theoretical and practical dimensions of DL integration.

## **2. Review of Past Studies about EFL Preservice Teachers' DL**

The DL of EFL preservice teachers has been a focal point of numerous educational studies. These studies have underscored the pivotal role of DL in shaping the future of education, particularly in the context of teacher training programs. The literature reveals a consensus on the necessity for preservice teachers to not only master digital tools but also to understand their pedagogical applications and the broader implications for student learning. The review of past research highlights a dichotomy: while the integration of Information and Communication Technology (ICT) in educational curricula is on the rise, there exists a notable disparity between the theoretical knowledge imparted and the practical skills required in the classroom. This section delves into the definitions, roles, and expectations placed upon preservice teachers, as well as the challenges they face in achieving DL, setting the stage for a more detailed exploration in the subsequent sections.

### **2.1. Definition and Role of Preservice Teachers**

Preservice teachers, defined as students in secondary and higher normal schools or normal university students, are integral to the future of education. They are expected to possess exemplary moral character, a well-grounded professional mindset, extensive cultural and scientific knowledge, good physical and mental health, and outstanding teaching skills. Upon graduation, they are fully prepared to become competent educators. This study focuses on students majoring in EFL learning in normal majors in colleges and universities, covering their entire undergraduate learning stage from the first to the fourth year, with a particular emphasis on EFL preservice teachers for horizontal comparison.

### **2.2. The Importance of Digital Literacy in Teacher Education**

DL is a critical component of preservice teachers' education, impacting the quality of teaching and playing a significant role in integrating technology into the classroom. DL for preservice teachers is not just about proficiency in using digital technologies but also includes the ability to make sound pedagogic-didactic judgments and an awareness of the implications these technologies have on learning strategies and the digital culture of students (Ilhami *et al.*, 2021) [7]. Since 2010, educational institutions worldwide have been incorporating ICT into their curriculum to enhance the professional development of preservice teachers (Valtonen *et al.*, 2017) [8].

Despite the recognized importance of DL, many preservice teachers graduate

without acquiring sufficient digital competence skills. This gap between the digital demands of their future careers and the level of digital technology training received during their education is a significant concern. Studies have shown that EFL preservice teachers often feel inadequate when it comes to integrating digital technologies into teaching and learning processes (Instefjord & Munthe, 2016) [9]. The lack of shared experiences, examples, and strategies from teacher educators leaves preservice teachers with passive, theoretical knowledge about digital technologies.

To bridge the gap, it is necessary to provide EFL preservice teachers with courses that prioritize the use of ICT tools for instructional activities. Authentic experiences such as field experiences and teaching internships can further encourage the integration of ICT tools into their teaching practices. The alignment between technological knowledge and pedagogical knowledge is crucial for developing contemporary pedagogical skills. Subject specialists and technology specialists can be valuable resources in overcoming these challenges.

### **3. The Integration of Digital Literacy in the EFL Classroom in Normal Universities**

In the evolving landscape of education, the integration of DL into the EFL classroom has become a cornerstone for preparing preservice teachers at normal universities. This section will explore the multifaceted nature of DL, its impact on EFL education, and the challenges faced by EFL preservice teachers in acquiring and applying these skills. The current state of DL integration will be delved into, gaps in teacher training programs will be identified, and strategies to enhance the digital competencies of EFL preservice teachers will be explored.

#### **3.1. The Imperative of Digital Literacy in EFL Education**

Several studies have provided insights into the integration of DL in EFL education. Hamilton *et al.* (2016) [10] analyzed different approaches to teacher engagement with digital multimodal composition, while Sánchez-Cruzado *et al.* (2021) [11] proposed a teacher training plan for digital skills based on the INTEF framework. These studies underscore the significance of EFL preservice teachers' DL in facilitating the successful integration of technology into language instruction and emphasize the necessity for continuous support and training to enhance preservice teachers' DL skills.

Normal universities are designed to equip emerging preservice teachers with the essential skills for their future careers. The optimal approach involves fostering DL through in-person classroom engagement and hands-on teaching opportunities (Ottestad *et al.*, 2014) [12]. However, a prevailing sentiment among professionals is that teachers are not adequately prepared to incorporate technology seamlessly into their teaching methods (Lid, 2013) [13]. This lack of training can lead to educators entering the profession with doubts about their ability to harness educational technology effectively (Jamalvandi *et al.*, 2017) [14]. The integration

of digital technology in education is an irreversible trend, and a substantial body of literature has emerged concerning the DL of EFL preservice teachers, focusing on various aspects of EFL education, including teacher-student interactions and the development of TPPs.

### **3.2. The Role of Technology in Enhancing Language Learning**

The advent of modern technologies has enabled EFL learners to engage in language learning within an educational setting (Nariyati *et al.*, 2020) [15]. Studies have examined the consequences of integrating diverse technologies into education, highlighting the significance of face-to-screen language learning in enhancing language skills (Aslam *et al.*, 2021) [16]. Integrating technology into classroom instruction requires EFL teachers to seek innovative approaches that enhance student motivation and facilitate learning. The educational advantages of digital information technology have made technology increasingly intertwined with the EFL teaching and learning. Without a proficient level of DL, EFL preservice teachers will struggle to develop the same skills in their students during future EFL instruction. (Kahveci, 2021) [17].

The studies on EFL preservice teachers' DL reveal various challenges and solutions. Justefjord and Munthe (2016) [9] identified a scarcity of evidence regarding technology integration within curriculum documents for TPPs. Shively and Paliolis (2018) [18] highlighted the strategic potential of digital thinking in developing a digital literacy curriculum. Baran *et al.* (2019) [19] emphasized the need for continuous appraisal and feedback to improve EFL preservice teachers' practical TPACK proficiencies. Hsu and Lin (2020) [20] found that self-reported knowledge and attitudes toward ICT utilization significantly influence EFL preservice teachers.

## **4. Enlightenment for EFL Preservice Teachers' Teacher Preparation Programs and Curriculum Design**

The integration of digital literacy into EFL preservice teachers' education is a complex and multifaceted endeavor that requires a concerted effort from both TPPs and curriculum design. The success of this integration hinges on the ability of TPPs to provide comprehensive and practical training that equips EFL preservice teachers with the skills and confidence to leverage technology in their future classrooms.

### **4.1. Enlightenment for EFL Preservice Teachers' Teacher Preparation Programs**

TPPs play a critical role in shaping the future of education by equipping preservice teachers with the necessary skills to integrate digital literacy into their teaching practices. Benson and Huh examine the patterns of interactions between teachers and preservice teachers within an EFL literacy class, highlighting the importance of a supportive learning environment. Tzotzou emphasizes the need for comprehensive training courses that outline specific objectives and methodologies for both educators

and preservice teachers.

Some findings reveal a widespread issue where EFL preservice teachers struggle with integrating information communication technology into their teaching practices due to insufficient instruction and support during their TPPs (Akram *et al.*, 2022) [21]. Faculty members often provide inadequate training, which hinders EFL preservice teachers' ability to overcome barriers in the classroom (Kahveci, 2021) [17]. This gap between self-reported proficiency and actual technology literacy levels underscores the urgency for intervention in TPPs.

#### 4.2. Enlightenment for EFL Preservice Teachers' Curriculum Design

Curriculum design is a critical component in addressing the challenges faced by preservice teachers. There is a recognized need to redefine the core curriculum to effectively incorporate 21st-century skills, a process that is both challenging and ongoing (Tondeur *et al.*, 2012) [22]. Cherner & Mitchell (2021) [23] discuss the challenges faced by curriculum policymakers and researchers in the context of globalization, including the need to respond to global economic pressures and address inequality and under-achievement among disadvantaged learners.

To ensure the effective implementation of 21st-century skills, it is crucial to integrate them into all aspects of education, including curriculum and instruction in EFL digital teaching (Li, 2022) [24]. Sundarwati & Pahlevi (2021) [25] advocate for more comprehensive preparation in computer-assisted language learning (CALL) within TPPs to foster positive attitudes towards technology integration. Research across diverse language contexts confirms that integrating CALL into language education modules can enhance EFL preservice teachers' ability to effectively utilize technology in their future teaching practices (Montiel & Gomez-Zermeño, 2022) [26].

In preservice education, the primary objective involves fostering the capacity of individuals to acquire the skills necessary for teaching EFL preservice teachers should be viewed not only as individuals gaining fundamental teaching skills but also as active participants who engage in reflective practices to make informed decisions about their teaching (Khan & Abid, 2021) [27]. Educators in normal universities play a vital role in supporting the growth of preservice teachers during their training, ensuring they are equipped with the knowledge and competencies to navigate the digital landscape effectively.

### 5. Conclusions

It can be seen that various studies have provided insights into the development of DL among EFL preservice teachers. Justefjord and Munthe (2016) [9] identified a scarcity of evidence regarding technology integration within curriculum documents for TPPs. Shively and Palilonis (2018) [18] highlighted the strategic potential of digital thinking in developing a digital literacy curriculum. Hsu and Lin (2020) [20] found that self-reported knowledge and attitudes toward ICT utilization signi-

ificantly influence preservice teachers.

In conclusion, the DL of EFL preservice teachers is a multifaceted issue that requires a comprehensive approach. Future research should focus on developing strategies that integrate DL into the TPPs, ensuring that preservice teachers are well-equipped to face the digital demands of the 21st-century classroom. The future of DL in EFL education lies in equipping teachers with the knowledge and competencies required to navigate the digital landscape and leverage technology as a valuable tool for enhancing language learning experiences. Continuous professional development initiatives can play a crucial role in empowering EFL preservice teachers to embrace and leverage digital resources, thereby maximizing the potential benefits of technology integration in EFL education.

### Funding Statement

Shandong Province Higher Education Curriculum Ideological and Political Research “Research on the Construction of a Diverse Intelligence Evaluation System for the ‘Understanding Contemporary China’ English Major Course from the Perspective of New Liberal Arts” (Project Number: SZ2023011).

2023 Provincial college students’ innovation and entrepreneurship training program project “Shandong Province Higher Education Curriculum Ideological and Political Research “Memories of the Yellow River, Blossoming the Essence of the Era: A Study on Digital Empowerment Strategies for the External Promotion of Lv Opera” (Project Number: SZ2023011).” (Project Number: S202414276013).

### Conflicts of Interest

The authors declare no conflicts of interest.

### References

- [1] Pool, C.R. (1997) A New Digital Literacy a Conversation with Paul Gilster. *Educational Leadership*, **55**, 6-11.
- [2] Martin, A. (2005) DigEuLit—A European Framework for Digital Literacy: A Progress Report. *Journal of eLiteracy*, **2**, 130-136.
- [3] Tejedor, S., Cervi, L., Pérez-Escoda, A. and Jumbo, F.T. (2020) Digital Literacy and Higher Education during COVID-19 Lockdown: Spain, Italy, and Ecuador. *Publications*, **8**, Article No. 48. <https://doi.org/10.3390/publications8040048>
- [4] Hijón-Niera, R., Gómez-Gómez, M., Pérez-Marín, D. and Santacruz-Valencia, L. (2023) Analysis of the Implementation of a Framework for Teachers’ Digital Competence in Preservice Teacher Training. *Aloma: Revista de Psicología, Ciències de l’Educació i de l’Esport*, **41**, 59-70. <https://doi.org/10.51698/aloma.2023.41.1.59-70>
- [5] Jia, S. and Bava Harji, M. (2022) Systematic Review of Mobile-Assisted Task-Based Learning Based on WOS (2013-2022). *Journal of Information Technology Education: Research*, **21**, 571-595. <https://doi.org/10.28945/5034>
- [6] Prior, D.D., Mazanov, J., Meacheam, D., Heaslip, G. and Hanson, J. (2016) Attitude, Digital Literacy and Self Efficacy: Flow-On Effects for Online Learning Behavior. *The Internet and Higher Education*, **29**, 91-97. <https://doi.org/10.1016/j.iheduc.2016.01.001>

- [7] Ilhami, A., Diniya, D., Susilawati, S. and Vebrianto, R. (2021) Digital Literacy of Pre-Service Science Teachers as Reflection of Readiness toward Online Learning in New Normal Era. *Thabiea: Journal of Natural Science Teaching*, **4**, 207-216. <https://doi.org/10.21043/thabiea.v4i2.9988>
- [8] Valtonen, T., Sointu, E.T., Kukkonen, J., Häkkinen, P., Järvelä, S., Ahonen, A., *et al.* (2016) Insights into Finnish First-Year Pre-Service Teachers' Twenty-First Century Skills. *Education and Information Technologies*, **22**, 2055-2069. <https://doi.org/10.1007/s10639-016-9529-2>
- [9] Instefjord, E. and Munthe, E. (2015) Preparing Pre-Service Teachers to Integrate Technology: An Analysis of the Emphasis on Digital Competence in Teacher Education Curricula. *European Journal of Teacher Education*, **39**, 77-93. <https://doi.org/10.1080/02619768.2015.1100602>
- [10] Hamilton, E.R., Rosenberg, J.M. and Akcaoglu, M. (2016) The Substitution Augmentation Modification Redefinition (SAMR) Model: A Critical Review and Suggestions for Its Use. *TechTrends*, **60**, 433-441. <https://doi.org/10.1007/s11528-016-0091-y>
- [11] Gutiérrez-Ángel, N., Sánchez-García, J., Mercader-Rubio, I., García-Martín, J. and Brito-Costa, S. (2022) Digital Literacy in the University Setting: A Literature Review of Empirical Studies between 2010 and 2021. *Frontiers in Psychology*, **13**, Article ID: 896800. <https://doi.org/10.3389/fpsyg.2022.896800>
- [12] Ottestad, G., Kelentrić, M. and Guðmundsdóttir, G.B. (2014) Professional Digital Competence in Teacher Education. *Nordic Journal of Digital Literacy*, **9**, 243-249. <https://doi.org/10.18261/issn1891-943x-2014-04-02>
- [13] Lid, S.E. (n.d.) PPU's relevans for undervisning i skolen.
- [14] Jamalvandi, B., Sadeghi, H. and Soleimani, H. (2017) Computer Assisted Language Learning and EFL Teachers' Literacy: A Case in Iran. *International Journal of English Linguistics*, **7**, 201-214. <https://doi.org/10.5539/ijel.v7n1p201>
- [15] Nariyati, N.P.L., Sudirman, S. and Pratiwi, N.P.A. (2020) EFL Pre-Service Teachers' Perception toward the Use of Mobile Assisted Language Learning in Teaching English. *International Journal of Language Education*, **4**, 38-47.
- [16] Aslam, R., Khan, N., Asad, M.M. and Ahmed, U. (2021) Impact of Technological Pedagogical Content Knowledge on Teachers' Digital Proficiency at Classroom in Higher Education Institution of Pakistan. *Interactive Technology and Smart Education*, **18**, 119-130. <https://doi.org/10.1108/itse-11-2020-0222>
- [17] Kahveci, P. (2021) Language Teachers' Digital Literacy and Self-Efficacy: Are They Related?
- [18] Shively, K. and Palilonis, J. (2018) Curriculum Development: Preservice Teachers' Perceptions of Design Thinking for Understanding Digital Literacy as a Curricular Framework. *Journal of Education*, **198**, 202-214. <https://doi.org/10.1177/0022057418811128>
- [19] Baran, E., Canbazoglu Bilici, S., Albayrak Sari, A. and Tondeur, J. (2017) Investigating the Impact of Teacher Education Strategies on Preservice Teachers' TPACK: The Impact of Teacher Education Strategies on TPACK. *British Journal of Educational Technology*, **50**, 357-370. <https://doi.org/10.1111/bjet.12565>
- [20] Hsu, Y. and Lin, C. (2020) Evaluating the Effectiveness of a Preservice Teacher Technology Training Module Incorporating SQD Strategies. *International Journal of Educational Technology in Higher Education*, **17**, Article No. 31. <https://doi.org/10.1186/s41239-020-00205-2>
- [21] Akram, H., Abdelrady, A.H., Al-Adwan, A.S. and Ramzan, M. (2022) Teachers'

- Perceptions of Technology Integration in Teaching-Learning Practices: A Systematic Review. *Frontiers in Psychology*, **13**, Article ID: 920317. <https://doi.org/10.3389/fpsyg.2022.920317>
- [22] Tondeur, J., van Braak, J., Sang, G., Voogt, J., Fisser, P. and Ottenbreit-Leftwich, A. (2012) Preparing Pre-Service Teachers to Integrate Technology in Education: A Synthesis of Qualitative Evidence. *Computers & Education*, **59**, 134-144. <https://doi.org/10.1016/j.compedu.2011.10.009>
- [23] Cherner, T. and Mitchell, C. (2020) Deconstructing Edtech Frameworks Based on Their Creators, Features, and Usefulness. *Learning, Media and Technology*, **46**, 91-116. <https://doi.org/10.1080/17439884.2020.1773852>
- [24] Li, B. (2021) Ready for Online? Exploring EFL Teachers' ICT Acceptance and ICT Literacy during COVID-19 in Mainland China. *Journal of Educational Computing Research*, **60**, 196-219. <https://doi.org/10.1177/07356331211028934>
- [25] Sundarwati, E. and Pahlevi, M.R. (2021) EFL Teachers' Challenges and Opportunities of Emergency Remote Teaching during the Covid-19 Pandemic: Narrative Inquiry. *Language and Education Journal Undiksha*, **4**, 74-85.
- [26] Montiel, H. and Gomez-Zermeño, M.G. (2022) Rock the Boat! Shaken by the COVID-19 Crisis: A Review on Teachers' Competencies in ICT. *Frontiers in Education*, **6**, Article ID: 770442. <https://doi.org/10.3389/educ.2021.770442>
- [27] Khan, Z.H. and Abid, M.I. (2021) Distance Learning in Engineering Education: Challenges and Opportunities during COVID-19 Pandemic Crisis in Pakistan. *The International Journal of Electrical Engineering & Education*. <https://doi.org/10.1177/0020720920988493>