

# ***Enhancing Digital Literacy in International Chinese Language Teachers: Strategies and Outcomes***

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**Abstract:** The research specifically aims to outline and amplify strategies that can improve the digital competencies of international Chinese teachers. By examining various educational frameworks and technological implementations, the study sheds light on the challenges and opportunities presented by the digital landscape in education. The findings of this research offer actionable recommendations for educators, administrators, and policymakers, aimed at fostering a more digitally competent teaching workforce. These recommendations are intended to not only enhance the teaching and learning experience but also to guide future research and inform policy-making within the field of International Chinese Education. This contributes to a broader understanding of the pivotal transformations necessary to adapt to and prosper in the digitally driven global educational environment.

**Keywords:** digital literacy, International Chinese education, strategies, outcomes

## **1. Introduction**

In an era where digital transformation is pervasive, reshaping societal, economic, and cultural landscapes globally, the integration of digital technologies into the educational domain has emerged as a pivotal endeavor. This integration is recognized as crucial by governments, educational institutions, and corporations worldwide, leading to concerted efforts to harness digital tools to bolster educational outcomes. The significance of this shift is underscored by data from the China Internet Network Information Center (CNNIC), which reports a staggering 1.079 billion internet users in China as of June 2023, with a notable 96.8% internet usage rate. Remarkably, the digital proficiency among the population is on the rise, with 86.6% of internet users possessing basic digital skills—a clear indicator of the digital era's deep penetration into everyday life. [1]The educational sector is not immune to these shifts, with the National Education Informatization 2.0 Action Plan emphasizing the development of 'Internet + Education' as a strategic national goal.[2]

However, the realm of International Chinese Education—a field critical to the global dissemination of Chinese language and culture—faces a pressing challenge: the digital literacy of international Chinese teachers lags behind, inadequately aligning with the evolving demands of educational development. The imperative for teachers to be digitally literate—possessing the knowledge, skills, and attitudes to effectively leverage digital technologies in teaching—is increasingly evident, driven by the rapid advancement of information technology and the escalating demand for technological applications in education.

Despite the acknowledged importance of digital literacy and the foundational research laid out by existing studies, a significant gap persists—most research has remained theoretical, offering limited practical guidance for actual implementation. This study seeks to bridge this divide by integrating a comprehensive literature review with empirical field research, specifically focusing on the digital literacy enhancement of international Chinese language teachers. Utilizing A province as a focal case study, this research endeavors to validate and refine practical strategies and recommendations aimed at bolstering digital literacy among these educators.

Through detailed literature analysis and methodical field research, this study not only illuminates the prevailing gaps in the literature but also, through practical examination at A province, seeks to verify the effectiveness and applicability of its recommendations. By doing so, it aims to catalyze the harmonization of theoretical insights with practical applications, thus contributing to the advancement of digital literacy in the field of International Chinese Education. In undertaking this exploration, the study underscores the critical need for enhanced digital literacy among international Chinese teachers, positioning it as a cornerstone for the sector's development and the broader internationalization of Chinese educational offerings.

## **2. Research Methodology**

This investigation adopts a mixed-methods research design to comprehensively examine and identify effective strategies for enhancing the digital literacy of International Chinese teachers at Hunan province. This approach integrates both quantitative and qualitative methodologies to achieve a nuanced understanding of the digital literacy landscape among these educators, assess the impact of current digital literacy training initiatives, and evaluate the effectiveness of various improvement strategies.

### **2.1. Quantitative Analysis**

The quantitative dimension of this study was executed through the administration of structured questionnaires targeted at a diverse participant pool, comprising management personnel, International Chinese teachers, and students from the 2022 and 2023 cohorts of the International College of Hunan province in China. These questionnaires were meticulously designed to gauge participants' perceptions regarding digital literacy, evaluate the effectiveness of existing digital literacy training programs, and explore the utilization of digital technologies in educational contexts. A total of 300 questionnaires were disseminated, yielding 295 valid responses, indicative of a commendable response rate of 98.3%. The gathered data were subjected to rigorous statistical analysis employing advanced software tools, facilitating the identification of meaningful patterns, trends, and relationships.

### **2.2. Qualitative Analysis**

Complementing the quantitative inquiry, the qualitative component involved conducting semi-structured interviews and focus group discussions with selected participants from the identified cohorts. These qualitative instruments were strategically designed to elicit deep, reflective insights into the personal experiences, perceived challenges, and constructive suggestions of both teachers and students concerning digital literacy enhancement. Key areas of exploration included the practical integration of digital technologies into pedagogical practices, the perceived efficacy of current training and motivational schemes, and prospective directions for future improvements. Qualitative data were meticulously transcribed, systematically coded, and subject to thematic analysis, enriching and providing depth to the quantitative findings.

### 2.3. Ethical Considerations

Adherence to stringent ethical standards was a paramount concern throughout the research process. Rigorous measures were implemented to ensure the confidentiality and anonymity of all participants. Informed consent was obtained from participants prior to their engagement in the study, with explicit assurances regarding their freedom to withdraw from the research at any stage, without repercussion.

By leveraging the strengths of both quantitative and qualitative methods, this study aspires to offer a holistic perspective on the avenues for digital literacy enhancement among International Chinese teachers. It is the expectation that the insights and recommendations derived from this research will serve as a valuable resource for policymakers, educators, and scholars within the domain of International Chinese education, contributing to the ongoing discourse on digital literacy and its pivotal role in educational advancement.

### 3. Analysis of the Current State of Digital Literacy Among International Chinese Teachers

Research on teachers' digital literacy in China has garnered increasing attention, particularly after the Ministry of Education released the "Digital Literacy Industry Standards for Teachers" in 2022. The interest in this field is evident from a variety of studies that have sought to address the different aspects and challenges of enhancing digital literacy among educators, especially in the context of international Chinese teaching where research outcomes have been relatively sparse.[3][4][5]

Li Xiaodong et al. developed a digital capability index system for international Chinese teachers, covering extensive aspects such as digital consciousness, knowledge, technology, teaching, research, and innovation capabilities[6]. Moreover, The research by Wu, Zhou, Li, and Chen adds another layer by examining the factors associated with teachers' competence in developing students' information literacy through a multilevel approach, showcasing the Ministry of Education's efforts to bridge the urban-rural gap in ICT competences. Wu addresses digital literacy in the digital civilization era, proposing a framework for college students in China and underscoring national goals to elevate digital literacy and skills by 2035. [7] Concurrently, Li and Yu focused on the COVID-19 pandemic's impact on teachers' satisfaction, role, and digital literacy, uncovering significant effects on professional roles and the necessity for sustainable educational practices[6][8]. Further studies by Hui Tiangang and Fang Zifan and Xu Juan delve into the conditions and pathways for enhancing teachers' digital literacy, with a special focus on continuous learning and refining the digital capability index system to bolster digital teaching skills.[8][9][10] This is complemented by Li's exploration of ICT acceptance and literacy among EFL teachers in mainland China during the pandemic, highlighting the importance of understanding the intricate mechanisms of ICT use among educators[11][12][13]. Their research aligns with Peng and Yu's literature review that traces the evolution of digital literacy over two decades, emphasizing the need for digital literacy education to adapt to contemporary requirements[14]. Zhang provides insights into the digital literacy of English language teachers by investigating variances associated with gender, education level, and teaching experience, thus offering a perspective on the influence of contextual factors on literacy development.[15][16]

In light of the current state of digital literacy among international Chinese teachers, implementing comprehensive and multifaceted strategies to promote their digital transformation has become an urgent need in the field of education. This transformation process relies not only on the policy support and guidance of educational administrative departments but also on the innovative drive of educational technology companies, the in-depth research and support of academic institutions, and the teachers' personal active exploration and application of new technologies.

### 3.1. Survey Methodology and Subjects

This study targeted international Chinese teachers at Hunan province and conducted a one-semester teaching experiment based on strategies and suggestions for enhancing their digital literacy. Specific measures included: (1) organizing digital technology training for teachers; (2) facilitating teachers' learning of digital technologies; (3) encouraging teachers to actively participate in online teaching practices; (4) encouraging teachers to self-reflect and write cases on improving digital literacy. The subjects of this study were the management staff, international Chinese teachers, and students from the 2022 and 2023 cohorts of the International Colleges of Hunan province. The experiment lasted for one semester (Aug.2023 to Jan. 2024), with data collection and analysis conducted through Questionnaire Star and online interviews.

The survey questionnaires were divided into three categories: management, teachers, and students, focusing on policy formulation and implementation, teaching development and feedback, and student acquisition and effectiveness, respectively. The interview questionnaires revolved around seven parts: basic information, digital awareness, digital knowledge, digital skills, digital ethics, teaching application, and training. A total of 300 questionnaires were distributed, with 295 returned, resulting in an effective recovery rate of 98.3%. (see Figure1) The survey aimed to understand the implementation and effectiveness of strategies for enhancing teachers' digital literacy, providing a reference for further exploring the effectiveness of strategies and practices. Through interviews, teachers expressed their views on the application of digital teaching tools, digital teaching resources, and their evaluation of strategies for enhancing digital literacy.

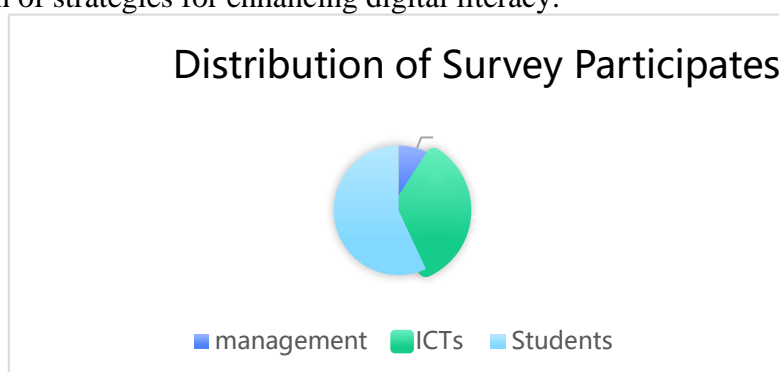


Figure 1: The Distribution of Survey Participates.

### 3.2. Survey Results

#### 3.2.1. General Results

The survey results showed that 96.7% of the managers had a high level of innovative consciousness, actively formulated relevant enhancement policies, and organized teacher training, but lacked effective evaluation and follow-up of training results. 78.2% of the teachers involved in the experiment generally believed that "communicating through online platforms is more efficient than in groups or WeChat groups," "network learning software can provide a lot of relevant knowledge and skills," "some digital tools are also used in the classroom," and "using online learning software in the classroom allows students to better participate in classroom activities." These responses indicate a positive attitude towards digital teaching among teachers, although a small portion of teachers, due to age or years of service, remain cautious about digital teaching and do not pay attention to or directly ignore the implementation of school-level strategies for enhancing teacher literacy, affecting the practicality and effectiveness of the enhancement strategies to some extent. The student group was one of the key subjects of this research, with the largest sample size (168 individuals),

where 91% of students held a positive attitude towards digital teaching by teachers and believed that teachers' digital literacy would directly affect teaching outcomes. A very few students had not yet clarified professional concepts such as "literacy" and "digital literacy." (see Figure2).

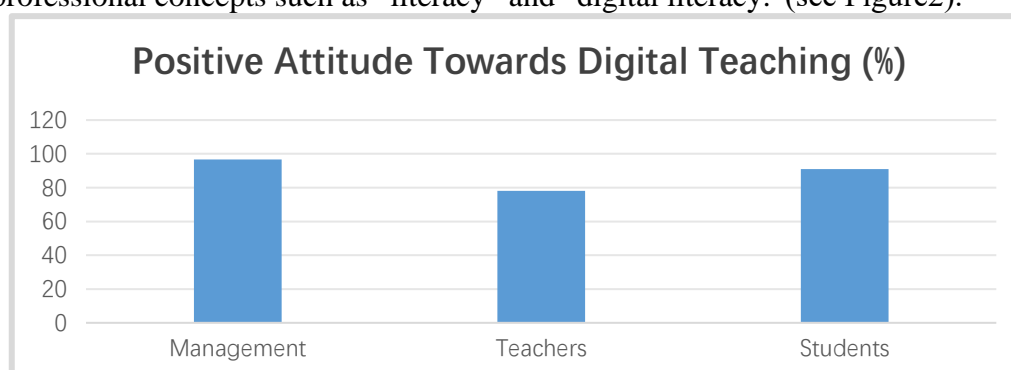


Figure 2: The percentage of three groups of participants.

### 3.2.2. Survey Results Analysis for ICTs

As for the teachers, the subjects of this research include 98 international Chinese language teachers, consisting of 64 males (65%) and 34 females (35%). This investigation addresses digital literacy from six perspectives: awareness, knowledge, skills, ethics, teaching application, and training, aiming to comprehensively understand the digital literacy status of international Chinese language teachers.

#### 3.2.2.1. Digital Technology Awareness

The survey indicates that the choices of all participating international Chinese language teachers surpassed the 80% threshold across various dimensions including attitudes towards the importance of information, intrinsic needs for information, sensitivity and insight, predictive ability and sustained attention, and attitudes towards information technology. This demonstrates a strong awareness of digital technology among the respondents. Furthermore, all 98 teachers (100%) own personal computers, providing a foundational condition for the development of digital literacy.

#### 3.2.2.2. Digital Technology Knowledge

The survey found that 95 teachers (96.94%) possess basic computer operational skills, including proficiency in Windows OS, Word, Excel, and the installation of commonly used software. However, only 21 teachers (21.43%) reported an understanding of the basic principles of computer networking, and 33 teachers (33.67%) were familiar with computer virus protection knowledge.

#### 3.2.2.3. Digital Technology Skills

The investigation reveals that 84 teachers (85.71%) can select appropriate multimedia tools according to teaching needs. Among these, 53 (53.57%) are capable of using basic software like PPT and Flash, while 31 (31.63%) can also utilize more advanced tools such as micro-lessons and MOOCs. Additionally, 76 teachers (77.55%) are able to conduct online teaching via the internet.

#### 3.2.2.4. Digital Technology Ethics

A majority of the surveyed teachers, 78 in total (79.59%), believe it is necessary to cite sources when referencing others' work, indicating a high level of digital technology ethics awareness. Nonetheless, there are 4 teachers (4.08%) who have never considered digital technology ethical issues.

### **3.2.2.5.Digital Technology in Teaching**

96 teachers (97.96%) reported the ability to incorporate digital technology into lesson planning, teaching activities, assignment distribution, and grading. Yet, challenges remain, as 48 teachers (48.98%) identified a lack of sufficient teaching resources and 31 teachers (31.63%) felt their digital technology skills were inadequate.

### **3.2.2.6.Digital Technology Training**

Nearly all the surveyed teachers, totaling 98 (100.00%), have participated in training related to basic computer knowledge. Of these, 24 teachers (24.49%) attended training aimed at enhancing digital technology teaching skills, and 18 teachers (18.37%) participated in multimedia tool application training. The majority opted for training in their spare time, reflecting a positive attitude towards improving their digital literacy.

## **3.3. Findings and Discussion**

By synthesizing surveys and interview questionnaires from relevant parties at the International College of A province, the study summarized factors affecting the improvement of international Chinese teachers' quality and literacy and proposed corresponding improvement measures.

### **3.3.1.Implications for International Chinese Education**

Firstly, the study underscores the critical role of administrative leadership in driving the digital literacy enhancement initiative. The management's commitment to policy formulation and the organization of comprehensive teacher training sessions are identified as key drivers for pedagogical innovation. However, the research highlights a significant gap in the ongoing evaluation and monitoring of these initiatives' effectiveness. This gap points to the necessity for a robust evaluation framework that not only assesses immediate training outcomes but also tracks long-term benefits for teacher development. Implementing such a framework could revolutionize digital literacy programs, ensuring they align with broader educational goals and support the continuous professional growth of educators.

Secondly, the dichotomy in teacher attitudes towards digital teaching methodologies presents a notable challenge. The study reveals that while a majority of teachers embrace digital innovations for their potential to enhance teaching and engagement, a significant minority remains apprehensive, often due to a lack of familiarity, insufficient training, and resistance to change. Addressing this requires a holistic approach that includes psychological support, personalized training, and mentorship programs, which together can foster a culture of openness to digital technologies in education.

Thirdly, the engagement of students play a crucial role in the successful enhancement of teachers' digital literacy. It is observed that a significant majority of students hold a favorable view towards the integration of digital technologies in education, recognizing the direct correlation between a teacher's proficiency in digital skills and the overall learning experience and instructional quality they receive. This positive student attitude towards digital teaching methodologies underscores the growing expectation for digital competence in the educational sphere. However, it has also been noted that a segment of the student body possesses only a nebulous understanding of key professional terms such as "digital literacy." This lack of clarity can lead to diminished enthusiasm and engagement with digitally enhanced learning environments, potentially hindering the full realization of digital teaching's benefits.



### **3.3.2. Contribution to Existing Theories and Practices**

This research contributes to existing theories by providing empirical evidence on the impact of management strategies, teacher attitudes, and student engagement on the effectiveness of digital literacy enhancements. It challenges and expands upon the current understanding by suggesting that successful digital literacy integration involves more than just technological competence; it requires addressing psychological barriers and fostering an ecosystem that supports continuous learning and adaptation.

### **3.3.3. Areas for Further Research**

The findings suggest several areas for further exploration. Future research could focus on developing and testing specific evaluation frameworks to measure the long-term impact of digital literacy training programs. Additionally, studies investigating the psychological barriers to digital adoption among experienced educators could provide deeper insights into designing more effective support systems. Finally, examining the role of student engagement in driving teacher motivation for digital literacy enhancement could offer new perspectives on creating more responsive and dynamic learning environments.

## **4. Practical Recommendation**

To significantly elevate the digital literacy levels among international Chinese teachers, this study, grounded in comprehensive practice and research findings, advocates for a suite of advanced improvement measures. These measures are meticulously designed to tackle the prevailing challenges with a structured approach, ensuring a holistic enhancement of digital competencies. By integrating targeted training programs, personalized learning pathways, and robust support systems, the proposed strategies aim to cultivate a digitally proficient teaching workforce. This initiative not only addresses the immediate need for digital literacy but also prepares educators for the evolving demands of the global educational landscape, thereby fostering an environment of continuous learning and innovation.

### **4.1. Implementing an Evaluation System for Training Programs**

Educational institutions' administrative bodies should take the lead in developing and integrating a comprehensive system for evaluating the effectiveness of digital literacy training programs. This entails conducting pre- and post-training assessments to gauge teachers' digital competencies, along with continuous monitoring to observe the integration of digital skills in teaching practices. Utilizing digital platforms for assessments and incorporating analytic tools to track progress over time will ensure a dynamic understanding of training outcomes. The implementation should commence with the next academic cycle and include periodic reviews every quarter.

### **4.2. Facilitating Teacher Sharing Sessions**

School leadership, in collaboration with digital literacy trainers, ought to organize regular sessions where teachers can share their experiences, challenges, and successes related to the adoption of digital technologies in their teaching practices. Setting up a dedicated online forum or utilizing existing educational technology platforms to facilitate these sessions encourages a culture of openness and collaborative problem-solving. Beginning within the upcoming semester and continuing on a monthly basis, these sharing sessions will significantly contribute to the cultivation of a culture of innovation within the teaching community.

### 4.3. Boosting Teacher Engagement through Incentives

To boost teacher engagement, educational policymakers and school administrators are advised to create incentive mechanisms like professional development credits, rewards, or digital literacy certifications. Designing a clear system of rewards linked to teachers' engagement and achievements in digital literacy training ensures that the rewards are meaningful and aligned with teachers' professional growth objectives. This initiative should be implemented at the start of the next academic year, with ongoing adjustments based on feedback.

### 4.4. Personalizing Training Programs

Digital literacy program coordinators and trainers should tailor training initiatives to meet the diverse needs, backgrounds, and experiences of the teacher cohort, offering specialized support for those less confident with digital tools. By conducting surveys to identify specific needs and preferences and developing a range of training modules, a more inclusive approach to digital literacy training can be achieved. Pairing less confident teachers with mentor teachers for personalized guidance will further enhance the effectiveness of the training. Initial surveys should be rolled out in the next month, with training programs to follow in the subsequent semester.

## 5. Conclusion

The investigation into the digital literacy landscape of international Chinese teachers, particularly within the context of Hunan province, has revealed several critical insights. Systematic training programs, tailored learning pathways, and robust mechanisms for continuous evaluation and feedback stand out as essential for empowering teachers to effectively leverage digital technologies and foster innovation in their pedagogical practices. Moreover, the development of incentive mechanisms, broadening the understanding of digital literacy concepts among students, and sustained managerial support and evaluation of strategy implementation play pivotal roles in the efficacy of these interventions. However, this study acknowledges that enhancing digital literacy is an extensive and continuous journey that demands collaborative efforts from educational administration, tech firms specializing in education, academic entities, and the teachers themselves. Future endeavors should pivot towards the practical applicability and cutting-edge relevance of training content, alongside a heightened focus on catering to the unique needs of individual teachers. Additionally, there is a pressing need to refine and optimize evaluation and feedback processes to ensure lasting improvements in digital literacy and overall teaching quality.

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