

The Study of Chinese Teachers' Perceptions and Practices Towards the Use of Technology in Teaching

*Li Wei*¹, *Sutthiporn Boonsong*^{2*}, *Thanaploysiri Siribansoph*³
Education Faculty, Pathumthani University^{1, 2*, 3}
Corresponding author's e-mail: Thanaploysiri@ptu.ac.th

Abstract

The objectives of this research were (1) to investigate Chinese teachers' perceptions of using technology in teaching at private schools in China, and (2) to explore their actual classroom practices regarding ICT integration. The study employed a mixed-methods research design, gathering both quantitative and qualitative data. The population consisted of 115 primary school teachers from 13 private schools in China, with 26 volunteer teachers participating in semi-structured interviews. The research instruments included a 5-point Likert scale questionnaire (23 items) and online interview questions. Data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) and thematic analysis. The results indicated that teachers demonstrated high levels of awareness ($\bar{X} = 4.25$), ability ($\bar{X} = 4.14$), and readiness ($\bar{X} = 4.10$) toward ICT integration. However, they also faced significant challenges ($\bar{X} = 3.81$), particularly regarding limited resources and internet stability. The study concludes that while teachers possess strong digital competencies and positive attitudes, systematic institutional support and infrastructure improvements are vital for effective technology use in private primary education.

Keywords: Information and Communication Technology (ICT), Teachers' awareness, Teachers' ability, Teachers' readiness, Challenges of ICT integration, Private primary schools in China

Introduction

In the twenty-first century, Information and Communication Technology (ICT) has become a central pillar of educational reform worldwide. Recent studies indicate that effective ICT integration enhances student engagement, instructional flexibility, and learning outcomes in primary education (Ahmed, 2022; Clark, 2024; Kim, 2023). In China, educational modernization policies have emphasized digital transformation, particularly in private school sectors where institutional autonomy allows for rapid innovation. However, the success of ICT implementation depends not merely on infrastructure, but significantly on teachers' perceptions, readiness, and classroom practices (Zhang, 2021; Zhou, 2022).

Teachers' attitudes toward technology are consistently identified as a determining factor in ICT integration (Rahman, 2021; Santos, 2021). Research across Asian contexts shows that positive teacher perceptions are strongly correlated with frequent and meaningful classroom use of digital tools (Chen, 2023; Nguyen, 2023). Similarly, teachers' self-efficacy has been found to significantly predict the depth of ICT application beyond basic presentation software toward interactive and student-centered learning models (Johnson, 2024; Clark, 2024).

Despite high levels of reported readiness in many educational systems, structural barriers such as unstable internet connectivity, insufficient technical support, and limited time for professional development continue to hinder effective implementation (Kowalski, 2022; Ndlovu, 2024; Hassan, 2024). In the context of private primary schools in China, empirical research remains limited, particularly regarding how awareness, ability, and readiness translate into actual classroom practices (Li, 2022; Zhang, 2021).

Therefore, this study seeks to investigate Chinese teachers' perceptions and practices regarding ICT integration by examining four key dimensions: awareness, ability, readiness, and challenges. By aligning quantitative findings with qualitative insights, the research contributes to the growing body of international scholarship on digital transformation in primary education (Ali, 2023; Tariq, 2023).

Research Methodology

This study adopted a sequential explanatory mixed-methods research design, in which quantitative data were collected and analyzed first, followed by qualitative data to help explain and elaborate on the quantitative findings (Creswell & Plano Clark, 2018). This design allowed for a comprehensive understanding of both the extent and the nature of teachers' perceptions and practices regarding ICT integration in private primary schools in China.

The target population comprised all 115 primary school teachers employed across 13 private schools in Guangdong Province, China, during the academic year 2023–2024. For the quantitative phase, all 115 teachers were included as the total population, and a complete census approach was adopted given the manageable population size, yielding 108 valid questionnaire responses (response rate = 93.9%) after excluding incomplete returns. For the qualitative phase, purposive sampling was employed to select 26 volunteer teachers who were willing to participate in semi-structured interviews, ensuring representation across different schools, grade levels, gender, teaching experience, and subject areas. Each interview was conducted online via video call, lasted approximately 30–45 minutes, and was audio-recorded with participants' consent for subsequent transcription and analysis.

The research instruments comprised two components. The first was a structured questionnaire consisting of 23 items measured on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), covering four dimensions: awareness (6 items), ability (6 items), readiness (6 items), and challenges (5 items). The questionnaire was developed by adapting established ICT integration frameworks (Rahman, 2021; Zhang, 2021) and reviewed for language clarity and cultural appropriateness before administration. The second instrument consisted of 10 semi-structured interview questions designed to probe teachers' day-to-day ICT experiences, classroom practices, perceived barriers, and suggestions for improvement. Interview questions were aligned with the four quantitative dimensions to facilitate integration of findings across both phases.

Content validity of the questionnaire was established through review by five experts in educational technology, curriculum development, and research methodology. The Index of Item-Objective Congruence (IOC) was computed for each item; all items achieved IOC values between 0.60 and 1.00, confirming satisfactory content coverage. Items scoring below 0.50 were revised or removed prior to the pilot study. Reliability was assessed via a pilot study with 30 teachers (not included in the main sample), yielding a Cronbach's Alpha of 0.88 for the overall questionnaire (Awareness: $\alpha = .86$; Ability: $\alpha = .84$; Readiness: $\alpha = .85$; Challenges: $\alpha = .81$), all exceeding the acceptable threshold of 0.70. Quantitative data were entered and analyzed using SPSS Version 26.0 with descriptive statistics (frequency, percentage, mean, and standard deviation), interpreted against a five-point scale where 1.00–1.80 = Very Low, 1.81–2.60 = Low, 2.61–3.40 = Moderate, 3.41–4.20 = High, and 4.21–5.00 = Very High. Qualitative data from interview transcripts were analyzed through thematic analysis following Braun and Clarke's (2006) six-phase framework, involving familiarization, coding, theme generation, review, definition, and reporting of key themes. Member checking was conducted with six participants to ensure credibility of qualitative interpretations.

Result

Drawing on both quantitative findings from 108 valid questionnaire responses and qualitative insights from 26 semi-structured interviews, the results provide a comprehensive

understanding of teachers' perceptions, competencies, and practical experiences regarding ICT integration in private primary education in China. Quantitative mean scores are interpreted using the following scale: 1.00–1.80 = Very Low; 1.81–2.60 = Low; 2.61–3.40 = Moderate; 3.41–4.20 = High; 4.21–5.00 = Very High. The findings are organized into five key themes reflecting statistical trends, qualitative patterns, and integrated interpretations across both data sources.

Theme 1: High Level of Awareness Toward ICT Integration

This theme highlights that teachers demonstrated a very high level of awareness regarding the importance and benefits of ICT in teaching, with an overall mean score of 4.25 (S.D. = 0.51), classified as “Very High” on the five-point interpretation scale. At the item level, the highest-rated awareness item was “ICT helps improve student engagement and motivation” ($\bar{X} = 4.38$, S.D. = 0.49), followed by “Using ICT makes lesson delivery more effective” ($\bar{X} = 4.31$, S.D. = 0.52). Teachers widely recognized that ICT enhances teaching effectiveness, supports lesson planning, and improves student engagement.

The quantitative findings indicate that teachers possess a strong conceptual understanding of how technology can facilitate learning. Many teachers viewed ICT not merely as a supplementary tool but as an essential component of modern teaching practices. This awareness reflects the influence of national educational policies, particularly China's “Education Informatization 2.0 Action Plan” (Ministry of Education, 2018), and ongoing digital transformation initiatives in the private school sector. Qualitatively, several interviewees affirmed this awareness; one participant stated that she believes “technology is now part of what being a good teacher means,” highlighting how ICT awareness has become internalized as a professional norm rather than an externally imposed requirement.

However, while awareness was consistently high, qualitative findings suggest that conceptual understanding does not always translate into advanced or innovative classroom practices. Teachers often associated ICT with basic functions such as presentations and video playback rather than interactive or student-centered applications such as gamification, collaborative online platforms, or real-time formative assessment tools. This pattern suggests that awareness, while foundational, requires structured pedagogical guidance to evolve into transformative classroom use (Johnson, 2024; Clark, 2024).

Theme 2: Strong Ability in Using ICT for Instruction

This theme reveals that teachers reported a high level of ability in using ICT tools, with an overall mean score of 4.14 (S.D. = 0.55). At the item level, teachers scored highest on “I can use presentation software (e.g., PowerPoint, Keynote) to deliver lessons” ($\bar{X} = 4.41$, S.D. = 0.47) and “I can search and access online educational resources for teaching” ($\bar{X} = 4.28$, S.D. = 0.51). Scores were comparatively lower for items related to advanced applications, such as “I can design interactive digital learning activities for students” ($\bar{X} = 3.87$, S.D. = 0.68), indicating that technical ability varied considerably by the complexity of the ICT application. Teachers demonstrated strong competence in operating common digital tools, particularly in using presentation software and accessing online educational resources.

The findings suggest that most teachers are technically capable of integrating ICT into their teaching. They are familiar with basic digital tools and can effectively use them to support instructional delivery. This indicates that technological competence is no longer a major barrier in the context of private primary schools.

Nevertheless, the results also indicate that teachers' abilities are often limited to operational use rather than pedagogical integration. While teachers can use technology efficiently for content delivery, many reported uncertainty about how to design interactive, student-centered learning experiences that fully harness ICT's instructional potential. Qualitatively, one participant noted: "I know how to use the tools, but I am not always sure how to make them truly useful for students' learning." This observation aligns with the TPACK (Technological Pedagogical Content Knowledge) framework (Mishra & Koehler, 2006), which posits that effective ICT integration requires not just technological knowledge but its deliberate intersection with pedagogical and content knowledge.

Theme 3: High Readiness and Positive Attitudes Toward ICT Adoption

This theme underscores that teachers exhibited a high level of readiness to integrate ICT into their teaching practices, with an overall mean score of 4.10 (S.D. = 0.58). The highest-scoring readiness item was "I am willing to use new technologies to improve my teaching" ($\bar{X} = 4.30$, S.D. = 0.50), while "I feel confident integrating ICT into my daily lesson plans" scored somewhat lower ($\bar{X} = 3.93$, S.D. = 0.63), suggesting a distinction between attitudinal willingness and operational confidence. Overall, teachers expressed strong willingness to adopt new technologies and demonstrated positive attitudes toward digital innovation in education. The findings suggest that psychological readiness is a significant strength among teachers. Many participants indicated that they are open to change, eager to improve their teaching methods, and motivated to explore new technological tools.

This readiness is further reflected in teachers' proactive efforts to incorporate ICT into their lessons despite existing constraints. Teachers reported experimenting with different tools and adapting their teaching strategies to align with digital learning environments. Qualitative data corroborate this finding: 18 of the 26 interviewees (69.2%) described instances where they independently explored new educational applications or sought out online tutorials to expand their digital teaching repertoire, demonstrating high self-directed professional motivation even in the absence of formal institutional training programs.

However, readiness alone was not sufficient to ensure effective implementation. The transition from willingness to actual practice was significantly influenced by external factors, particularly the availability of institutional support and reliable technological resources. This finding is consistent with research by Ali (2023) and Mohamed (2021), which demonstrates that psychological readiness serves as a necessary but insufficient condition for sustainable ICT integration; enabling environmental conditions must accompany individual motivation.

Theme 4: Persistent Challenges Limiting Effective ICT Integration

This theme reveals that teachers faced considerable challenges in implementing ICT effectively, with an overall challenges mean score of 3.81 (S.D. = 0.72), rated as "High" on the five-point scale, indicating that these barriers were perceived as significant and frequent. At the item level, the most pressing challenge was "Unstable internet connectivity disrupts my ICT-based lessons" ($\bar{X} = 4.12$, S.D. = 0.69), followed by "There is insufficient ICT equipment available for classroom use" ($\bar{X} = 4.05$, S.D. = 0.74). The least severe challenge was "I lack

confidence in using ICT tools” ($\bar{X} = 3.21$, S.D. = 0.81), suggesting that self-efficacy is not the primary barrier, but rather institutional and infrastructural deficiencies.

Teachers reported that insufficient equipment, outdated technology, and inconsistent internet access frequently disrupted classroom activities and reduced the effectiveness of ICT-based instruction. These challenges created frustration and limited teachers’ ability to implement more advanced digital learning strategies. In qualitative interviews, 22 of 26 participants (84.6%) cited internet instability as their most common and disruptive challenge. One teacher described the experience vividly: “I planned an entire interactive activity online, but the internet dropped midway through, and I had to switch to the blackboard with no preparation. The students lost focus completely.” Such experiences underscore the extent to which infrastructure limitations can undermine even well-prepared ICT lessons.

In addition, qualitative findings indicate that lack of dedicated technical support and limited time allocated for professional development further constrained ICT integration. Teachers often had to independently troubleshoot technical problems during lessons, which increased cognitive load and reduced instructional efficiency. Fifteen interviewees (57.7%) reported that their schools had no full-time ICT support staff, forcing teachers to rely on self-directed problem-solving. Furthermore, 19 participants (73.1%) indicated that professional development sessions related to ICT were conducted fewer than twice per semester, and rarely addressed advanced pedagogical applications of technology.

These findings suggest that while teachers possess the necessary awareness, ability, and readiness for ICT integration, structural and institutional barriers play a decisive role in determining the extent and quality of technology use in the classroom. Consistent with Kowalski (2022) and Ndlovu (2024), the data confirm that high individual motivation cannot compensate for systemic infrastructural deficiencies, and that sustainable ICT integration demands coordinated institutional investment alongside teacher capacity building.

Theme 5: Gap Between Perception and Classroom Practice

This theme highlights a critical gap between teachers’ positive perceptions and their actual classroom practices, which represents the central paradox of this study. Although teachers reported very high awareness ($\bar{X} = 4.25$) and high ability ($\bar{X} = 4.14$) and readiness ($\bar{X} = 4.10$), qualitative observations and interview data revealed that the actual classroom application of ICT was predominantly basic and teacher-directed. Among the 26 interviewees, 20 (76.9%) described their most frequent ICT use as displaying slides or playing instructional videos, while only 6 (23.1%) reported regularly using interactive or student-centered tools such as online quizzes, collaborative digital workspaces, or simulation-based activities. While teachers expressed strong conceptual support for ICT integration, their use of technology in classrooms often remained at a surface level.

Teachers frequently used ICT for presentation purposes rather than for interactive or student-centered learning activities. This pattern indicates that ICT integration remains largely teacher-centered, oriented toward content delivery rather than active student engagement or higher-order thinking. This finding can be understood through the lens of the Substitution, Augmentation, Modification, Redefinition (SAMR) model (Puentedura, 2006): the majority of observed ICT use fell within the “Substitution” and “Augmentation” levels, where technology replaces or modestly enhances traditional methods, rather than the “Modification” or “Redefinition” levels that represent truly transformative pedagogy.

The findings suggest that effective ICT integration requires not only technical skills but also deliberate pedagogical transformation supported by ongoing professional development. Bridging the perception-practice gap demands that schools provide structured training in pedagogically-driven ICT application, move beyond generic software tutorials, and create collaborative professional learning communities where teachers can share and refine digitally-

enhanced lesson designs. Without these enabling conditions, the risk is that high investment in ICT awareness and positive attitudes will continue to yield only surface-level classroom outcomes, failing to realize the full educational potential of technology in private primary education (Tariq, 2023; Martinez, 2023).

Discussion and conclusions

The findings of this study reveal a high level of awareness, ability, and readiness among Chinese private primary school teachers, aligning with recent international research demonstrating that teachers increasingly recognize ICT as an essential pedagogical tool rather than a supplementary resource (Brown, 2024; Park, 2025; Tanaka, 2025). The high awareness score ($\bar{X}=4.25$) suggests that teachers conceptually understand the instructional value of technology, consistent with findings from studies in Guangzhou and Beijing private schools (Chen, 2023; Zhang, 2021).

The reported high ability level ($\bar{X}=4.14$) further supports literature indicating that teachers' technological competence has improved significantly in recent years, particularly in presentation tools and digital resource utilization (Kim, 2023; Rahman, 2021). However, as noted in Johnson (2024) and Clark (2024), technical proficiency alone does not automatically guarantee transformative pedagogy. Meaningful ICT integration requires alignment between technological knowledge and instructional design, a dimension that may require deeper professional development.

The strong readiness level ($\bar{X}=4.10$), especially teachers' willingness to adopt new technologies ($\bar{X}=4.30$), reflects patterns observed across Asian and European educational systems (Ali, 2023; Rossi, 2023; Kaur, 2023). Psychological readiness is widely regarded as a foundational condition for digital reform (Mohamed, 2021; Sato, 2021). In this study, readiness appears to be an institutional strength within private primary education in China.

However, the persistent challenges ($\bar{X}=3.81$) echo global findings that infrastructural and systemic barriers remain critical constraints (Kowalski, 2022; Ndlovu, 2024; Wilson, 2024). Limited resources and unstable internet connectivity, as identified by respondents, are consistent with findings in both developing and developed educational contexts (Hassan, 2024; Nguyen, 2023). These results reinforce the argument that institutional investment and policy support must accompany teacher motivation to achieve sustainable ICT integration.

Overall, the study demonstrates that while teachers possess strong digital awareness and readiness, structural conditions determine whether ICT usage remains operational (e.g., PowerPoint presentations) or evolves into innovative, student-centered learning practices. As observed in recent comparative research (Tariq, 2023; Martinez, 2023), leadership support and systemic alignment play decisive roles in transforming willingness into pedagogical innovation.

In conclusion, Chinese private primary school teachers exhibit high professional readiness for ICT integration, but infrastructural limitations and workload constraints restrict deeper instructional transformation. Strengthening institutional support systems, continuous professional development, and infrastructure investment will be essential for moving from functional usage toward meaningful digital pedagogy.

Suggestion

1. Recommendations for Practice and Administration:

Enhancing Infrastructure: School administrators should prioritize budget allocation for upgrading ICT facilities, including high-speed stable internet, modern projectors, and sufficient computers for all classrooms to ensure that no teacher is forced to avoid technology due to equipment shortages.

Continuous Professional Development: Training programs should shift from basic computer operation to advanced pedagogical strategies. Workshops should focus on practical classroom applications, such as designing interactive student-centered activities and using digital platforms for real-time assessment and feedback.

Workload Management: Schools should consider allocating specific time within the weekly schedule for teachers to design and update digital instructional materials. Reducing administrative burdens could provide the mental and chronological space needed for technological innovation.

Support Systems: Establishing a dedicated technical support team and a mentoring system where tech-savvy teachers assist their colleagues can create a collaborative culture of ICT use.

2. Recommendations for Policy:

Standardization and Funding: Educational authorities should develop clear national ICT competency standards for teachers and provide financial support or incentives for private schools to meet high-level technology infrastructure goals.

Collaborative Frameworks: Policymakers should encourage partnerships between private schools and technology companies to provide affordable and effective educational software solutions.

3. Recommendations for Future Research:

Comparative Studies: Future researchers should conduct comparative studies between public and private primary schools to identify unique challenges faced by different sectors.

Longitudinal Approach: A longitudinal study could track how teachers' perceptions and practices evolve over several years of continuous ICT training and infrastructure improvement.

Stakeholder Perspectives: Including the perspectives of students and parents regarding the impact of teachers' ICT use on learning outcomes would provide a more holistic view of technology's role in education.

References

- Ahmed, R. (2022). Teachers' attitudes and classroom practices toward online learning platforms in Egyptian primary schools. *International Journal of Educational Technology*, 9(2), 115–128.
- Ali, M. (2023). Teachers' readiness and challenges toward online teaching platforms in Indonesian primary schools. *Journal of Asian Education Studies*, 14(1), 44–58.
- Anderson, P. (2020). Teachers' perceptions and practices toward ICT integration in primary schools in the United Kingdom. *British Journal of Educational Technology*, 51(4), 1021–1036.
- Brown, L. (2024). Teachers' readiness and challenges toward technology integration in elementary schools in Texas. *Journal of Educational Computing Research*, 62(1), 77–95.
- Chen, Y. (2023). Relationship between teachers' attitudes and ICT practices in private schools in Guangzhou. *Asia-Pacific Education Review*, 24(2), 233–247.

- Choi, H. (2025). Teachers' knowledge, attitudes, and practices regarding blended learning in South Korean primary schools. *Korean Journal of Education Technology*, 41(1), 1–18.
- Clark, S. (2024). Teachers' self-efficacy and technology practices in American elementary schools. *Journal of Educational Research*, 117(3), 289–301.
- Fernandez, R. (2022). Teachers' perceptions toward online learning platforms in Philippine primary schools. *Philippine Journal of Education*, 98(2), 56–72.
- Garcia, M. (2020). Teachers' perceptions and classroom practices toward ICT integration in Spanish primary schools. *European Journal of Teacher Education*, 43(4), 501–517.
- Hassan, K. (2024). Teachers' perceptions and challenges in using digital tools in Nigerian primary schools. *African Journal of Educational Studies*, 16(1), 85–101.
- Hernandez, J. (2022). Impact of professional training on teachers' ICT practices in Mexican primary schools. *Journal of Teacher Education Development*, 10(3), 133–147.
- Johnson, T. (2024). Relationship between teachers' self-efficacy and ICT practices in Australian primary schools. *Australasian Journal of Educational Technology*, 40(2), 211–226.
- Kaur, S. (2023). Teachers' readiness and attitudes toward blended learning in Indian primary schools. *Indian Journal of Educational Research*, 12(1), 55–70.
- Khan, A. (2021). Factors influencing teachers' readiness to use digital technology in Pakistani primary schools. *Pakistan Journal of Education*, 38(2), 99–115.
- Kim, J. (2023). Teachers' attitudes and technology integration practices in South Korean elementary schools. *International Journal of Instruction*, 16(1), 275–292.
- Kowalski, P. (2022). Impact of ICT infrastructure on teachers' classroom practices in Polish primary schools. *Polish Journal of Educational Studies*, 34(2), 145–159.
- Li, H. (2022). Teachers' knowledge and practices regarding ICT integration in rural primary schools in Sichuan Province. *Chinese Journal of Educational Technology*, 46(3), 87–102.
- Lim, R. (2022). Teachers' perceptions and challenges in using digital tools in Singaporean primary schools. *Journal of Learning and Teaching*, 15(2), 66–80.
- Martinez, D. (2023). Impact of school leadership on teachers' ICT integration in Chilean primary schools. *International Journal of Educational Leadership*, 8(1), 39–54.
- Mohamed, A. (2021). Teachers' knowledge, attitudes, and practices toward ICT integration in UAE primary schools. *Middle East Journal of Education*, 6(2), 120–135.
- Ndibalema, P. (2014). Teachers' attitudes toward ICT use in secondary schools. *International Journal of Education and Development Using ICT*, 10(3), 67–84.
- Ndlovu, S. (2024). Teachers' perceptions and challenges in using ICT in South African primary schools. *South African Journal of Education*, 44(1), 1–15.
- Nguyen, T. (2023). Teachers' perceptions and challenges toward ICT integration in Vietnamese primary schools. *Asian Journal of Education*, 9(1), 22–36.
- Omar, H. (2024). Teachers' perceptions toward digital learning tools in Jordanian primary schools. *International Journal of Education Studies*, 17(2), 101–116.
- Park, S. (2025). Teachers' knowledge, attitudes, and practices toward digital learning tools in South Korean primary schools. *Journal of Educational Technology Research*, 28(1), 9–25.
- Peterson, R. (2021). Teachers' attitudes toward online learning tools in Swedish elementary schools. *Nordic Journal of Education*, 41(2), 189–203.
- Rahim, M. (2021). Factors affecting teachers' ICT readiness in Bangladeshi primary schools. *Bangladesh Journal of Education*, 20(1), 33–49.
- Rahman, S. (2021). Teachers' knowledge, attitudes, and practices toward digital technology in Malaysian primary schools. *Malaysian Journal of Learning and Instruction*, 18(1), 101–119.
- Rossi, L. (2023). Teachers' attitudes and ICT practices in Italian elementary schools. *European*

- Journal of Educational Research*, 12(2), 455–468.
- Santos, P. (2021). Teachers' knowledge, attitudes, and practices toward ICT integration in Brazilian elementary schools. *Brazilian Journal of Education*, 26(3), 1–18.
- Sato, Y. (2021). Teachers' readiness to use digital technology in Japanese elementary schools. *Japanese Journal of Educational Technology*, 45(2), 77–92.
- Smith, J. (2020). Teachers' knowledge, attitudes, and practices toward technology integration in primary schools in California. *Journal of Educational Technology Systems*, 49(1), 5–22.
- Tanaka, K. (2025). Teachers' knowledge, attitudes, and practices toward blended learning in Japanese primary schools. *Asia-Pacific Journal of Education*, 45(1), 89–104.
- Taylor, B. (2020). Teachers' awareness and classroom practices toward ICT integration in Canadian elementary schools. *Canadian Journal of Education*, 43(4), 985–1003.
- Tariq, R. (2023). Teachers' readiness and challenges toward digital learning in Turkish primary schools. *Turkish Journal of Education*, 12(3), 205–219.
- Wang, L. (2020). Teachers' perceptions and classroom practices regarding ICT use in Shanghai primary schools. *Chinese Education and Society*, 53(5), 401–418.
- Wilson, G. (2024). Professional development and ICT practices in New Zealand primary schools. *New Zealand Journal of Educational Studies*, 59(2), 245–260.
- Yamada, T. (2025). Teachers' knowledge, attitudes, and practices toward ICT integration in Japanese elementary schools. *Journal of Asian Education Research*, 18(1), 12–28.
- Zhang, Q. (2021). Factors influencing teachers' readiness to integrate ICT in Beijing private primary schools. *Journal of Chinese Education*, 7(2), 150–166.
- Zhou, L. (2022). Teachers' perceptions and challenges in using ICT in rural primary schools in Hunan Province. *Journal of Rural Education in China*, 5(1), 34–49.