HNUE JOURNAL OF SCIENCE
Educational Sciences 2025, Volume 70, Issue 4, pp. 106-115
This paper is available online at https://hnuejs.edu.vn
DOI: 10.18173/2354-1075.2025-0074

DEVELOPING AI LITERACY FOR PRIMARY SCHOOL TEACHERS IN CHINA AND SUGGESTIONS FOR VIETNAM

Li Lin [1] and Liu Yang Ming[*2]
[1]*Faculty of Oriental Studies, VNU University of Social Sciences and Humanities, Hanoi city, Vietnam*
[2] *Yunnan Vocational College of Mechanical and Electrical Technology, Kunming city, China*

[*]Correspondence author: Liu Yang Ming, email: 66494035@qq.com

Received March 14, 2025. Revised May 23, 2025. Accepted June 3, 2025.

Abstract. China stands as a prominent leader in the development and application of artificial intelligence across diverse sectors, including significant advancements in educational AI integration. This research was undertaken to address this vital need by investigating the current state of AI literacy among primary teachers in Yunnan, China. Despite contextual differences, Yunnan's experiences offer pertinent insights for Vietnam due to its socio-economic parallels with certain Vietnamese regions and shared challenges in educational technology integration. This quantitative data was complemented by a qualitative review of Chinese AI educational practices and a comparative analysis with the Vietnamese educational context, considering policy, infrastructure, and teacher capabilities. The study, underpinned by Bloom's taxonomy, examines how these dimensions interrelate and influence the overall AI literacy of teachers, providing an evidence-based foundation for policy recommendations. On this basis, the paper proposes actionable solutions to enhance AI literacy and application in primary education in Vietnam, with these recommendations carefully adapted and grounded in the specific findings of the comparative analysis and Vietnamese contextual factors.

Keywords: AI literacy, artificial intelligence, primary education, China, Vietnam.

1. Introduction

The pervasive integration of artificial intelligence (AI) into various facets of daily life necessitates a critical re-evaluation of teacher education, particularly concerning the effective and ethical application of intelligent technologies in schools [1, 2]. AI is rapidly becoming a pivotal technology in education, marked by significant advancements since its inception in the 1950s. These developments have led to the creation of intelligent systems and algorithms capable of learning, adapting, and simulating human cognitive functions, even in contexts lacking explicit logical order or predefined algorithms [3]. Following the definition adopted in relevant studies, AI in this context refers to the scientific and technological pursuit of theories, methods, techniques and application systems aimed at simulating and extending human intelligence [3].

Historically, teacher training in technology has often relied on isolated ICT courses or introductory units, typically offered early in professional development programs. This “front-loading” approach assumes that providing foundational knowledge and skills [4] will suffice for teachers

to meet course requirements and productively integrate technologies, including AI, into their future teaching practices [5,6]. However, while AI technology holds substantial promise as a driver for educational reform and sustainable teacher professional development, opportunities for AI education and training have paradoxically been more readily available to students than to teachers. This disparity underscores a crucial gap, warranting dedicated attention to enhancing our understanding of AI literacy among educators and developing their capabilities. Comparable to information literacy and digital literacy, AI literacy is conceptualized in this study as a blend of "technology" and "literacy," specifically "artificial intelligence" and "literacy," denoting the requisite skill sets across disciplines [7]. Drawing upon existing research, AI literacy is structured around four key dimensions for this study [8]: (i) understanding fundamental AI concepts for foundational training; (ii) applying AI concepts in practical educational settings; (iii) critically evaluating and engaging with AI technologies; and (iv) comprehending the associated ethical implications.

Building upon these dimensions, AI literacy in this study is understood as the critical skills individuals need to learn and live in the digital world with the aid of AI-based technologies. More specifically, the four dimensions are defined as follows: *Knowing and Understanding AI (KUAI)*: This is the foundational AI literacy, requiring teachers to comprehend basic concepts, knowledge, and principles regarding the use of artificial intelligence in teaching. It emphasizes theoretical knowledge about AI as a prerequisite for effective application. *Applying AI (AAI)*: This dimension refers to an educator's ability to utilize AI technologies appropriately and effectively in the classroom, understanding when and how to best integrate them into teaching practices. *Evaluating AI Application (EAIA)*: This challenging competency involves teachers critically assessing AI technologies, judging their suitability and effectiveness in educational contexts, and engaging with them thoughtfully. It allows teachers to inform, support, categorize, and manipulate AI concepts in novel ways, potentially enhancing their motivation to teach with AI. *AI Ethics (AIE)*: This dimension pertains to the ability to understand the various ethical implications arising from AI applications in education and beyond, enabling teachers to consider and address potential issues responsibly.

2. Content

2.1. Method

This study employed a mixed-methods approach investigating AI literacy among primary school teachers in China to inform suggestions for Vietnam. A quantitative survey was conducted in January 2024 with 300 primary teachers in Yunnan, China. This sample size of 300 was determined based on recommendations for quantitative studies employing Structural Equation Modeling (SEM) to ensure adequate statistical power for complex model estimation and to achieve reasonable representativeness for the surveyed primary teacher population within Yunnan province. AI literacy was measured across four dimensions (KUAI, AAI, EAIA, AIE) using a 5-point Likert scale validated by Exploratory Factor Analysis ($KMO > 0.9$, $p < 0.05$). Data analysis included descriptive statistics, correlational analysis, and Structural Equation Modeling (SEM) using SPSS and Amos software, with model fit assessed via standard indices. Findings were integrated with a qualitative review of Chinese AI educational practices and a comparative analysis of educational contexts in China and Vietnam. Acknowledging that direct generalizability from a single province in China to the entire Vietnamese educational system is limited, the recommendations for Vietnam are framed as exploratory and context-sensitive, serving as a foundational input rather than broadly prescriptive mandates. This approach emphasizes the adaptive nature of educational policy and practice, leveraging insights from a leading AI nation while ensuring applicability through careful contextual consideration.

2.2. Results and discuss

2.2.1. Descriptive Statistics of AI Literacy Levels

The quantitative survey provided insights into the perceived AI literacy levels of the 300 primary school teachers in Yunnan Province, China, across the four dimensions: KUAI, AAI, EAIA and AIE. Table 1 presents the descriptive statistics, including the mean and standard deviation for each dimension, based on the 5-point Likert scale responses.

Table 1. Descriptive Statistics of Primary School Teachers' AI Literacy Dimensions

AI Literacy Dimension	N	Minimum	Maximum	Mean	Standard Deviation
Knowing and Understanding AI (KUAI)	300	1.8	4.5	3.15	0.78
Applying AI (AAI)	300	1.5	4.2	2.88	0.85
Evaluating AI Application (EAIA)	300	1.9	4.3	3.01	0.79
AI Ethics (AIE)	300	2.1	4.6	3.32	0.71

Table 1 reveals that primary school teachers in Yunnan, China, perceive their AI literacy as moderate (mean scores from 2.88 to 3.32 out of 5). AIE scored highest (M=3.32), indicating good awareness of ethical implications. However, AAI had the lowest mean (M=2.88), suggesting less confidence or fewer practical application opportunities. Variability exists across all dimensions, with AAI showing the most. These findings highlight a need for targeted professional development in practical AI application for these teachers. These descriptive findings provide a snapshot of the current state of AI literacy among primary school teachers in this specific region of China. While ethical awareness appears relatively higher, the practical application dimension shows the lowest perceived confidence, highlighting a potential area for targeted professional development.

2.2.2. Correlational Analysis

A correlational analysis was conducted to examine the relationships between the four dimensions of AI literacy (KUAI, AAI, EAIA, AIE). Table 2 presents the Pearson correlation coefficients between all pairs of dimensions.

Table 2. Pearson Correlation Matrix of AI Literacy Dimensions

Dimension	KUAI	AAI	EAIA	AIE
KUAI	1.00			
AAI	0.55**	1.00		
EAIA	0.61**	0.72**	1.00	
AIE	0.48**	0.59**	0.65**	1.00

**. Correlation is significant at the 0.05 level (2-tailed).*

***. Correlation is significant at the 0.01 level (2-tailed).*

Table 2 shows significant positive correlations between all pairs of AI literacy dimensions ($p < 0.01$), ranging from $r = 0.48$ (KUAI and AIE) to $r = 0.72$ (AAI and EAIA). The strongest positive correlation was observed between AAI and EAIA ($r = 0.72$), suggesting that teachers who feel more capable of applying AI technologies also tend to feel more capable of evaluating AI applications. KUAI showed moderate positive correlations with the other three dimensions ($r = 0.55$ with AAI, $r = 0.61$ with EAIA, and $r = 0.48$ with AIE). AIE also showed moderate positive correlations with AAI ($r = 0.59$) and EAIA ($r = 0.65$). These significant correlations indicate that the dimensions of AI literacy are interrelated; improvement in one dimension is likely associated with improvement in others. The strong correlation between AAI and EAIA is particularly

noteworthy, implying that hands-on experience and practical use of AI (AAI) may strongly contribute to a teacher's ability to critically evaluate AI tools (EAIA).

2.2.3. Structural Equation Modeling (SEM) Analysis

Structural Equation Modeling (SEM) was performed to examine the hypothesized relationships among the four dimensions of AI literacy, treating them as constructs. Based on the theoretical framework and the observed significant correlations, a model was tested where KUAI is foundational, influencing AAI and EAIA, which in turn influence AIE. A potential direct path from AAI to EAIA was also included, given their strong correlation. The tested structural model demonstrated an acceptable fit to the data, as indicated by the following fit indices: $\chi^2(df) = 158.75(88)$, $p = 0.000$ (Note: A non-significant p-value is desired, but in large samples, a significant value is common; thus, reliance on other indices is standard), CFI = 0.95, RMSEA = 0.056 (90% CI: 0.048-0.064), and SRMR = 0.041. These indices generally meet the criteria for acceptable model fit (CFI > 0.9, RMSEA < 0.08, SRMR < 0.08), suggesting the proposed model structure aligns reasonably well with the observed data. Below is a summary table of the standardized path coefficients and their significance levels in the SEM model.

Table 3. Standardized Path Coefficients in the SEM Model

Path	Estimate (β)	S.E.	C.R.	P	Result
KUAI -> AAI	0.38	0.06	6.33	***	Significant
KUAI -> EAIA	0.45	0.07	6.43	***	Significant
AAI -> EAIA	0.30	0.05	6.00	***	Significant
AAI -> AIE	0.25	0.06	4.17	***	Significant
EAIA -> AIE	0.35	0.07	5.00	***	Significant
KUAI -> AIE	0.10	0.05	2.00	*	Significant

*$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$*

The SEM results indicate several significant relationships between the AI literacy dimensions. KUAI significantly predicted both Applying AI (AAI) ($\beta=0.38$, $p<0.001$) and EAIA ($\beta=0.45$, $p<0.001$), highlighting the foundational role of theoretical knowledge. AAI significantly predicted EAIA ($\beta=0.30$, $p<0.001$) and also had a significant direct effect on AIE ($\beta=0.25$, $p<0.001$). EAIA significantly predicted AIE ($\beta=0.35$, $p<0.001$). Furthermore, KUAI had a direct significant effect on AIE ($\beta=0.10$, $p<0.05$), suggesting that understanding AI concepts also directly influences ethical considerations, albeit to a lesser extent than the indirect paths through application and evaluation.

These findings are largely consistent with the structure of AI literacy and its dimensions proposed in "*Developing AI Literacy for Primary and Middle School Teachers in China: Based on a Structural Equation Modeling Analysis*" [9]. Notably, the significant direct effects of both AAI and EAIA on AIE suggest that practical engagement with AI and critical evaluation skills are important pathways to developing ethical awareness regarding AI in educational contexts. The significant influence of KUAI on both AAI and EAIA reinforces the necessity of a strong theoretical foundation for practical application and critical evaluation.

Compared to Zhao, Wu, and Luo (2022), who found that Applying AI predicted all other three dimensions among primary and middle school teachers in China, our model shows a slightly different directional pattern. While our results confirm the significant role of AAI and EAIA in predicting AIE and show KUAI predicting AAI and EAIA, the direct effect from AAI to KUAI in their study was not hypothesized or tested in our specific model structure [10]. However, both studies emphasize the interconnectedness of these dimensions and highlight the importance of practical engagement (AAI) and critical thinking (EAIA) in fostering AI literacy, particularly concerning ethical aspects. The difference in sample (primary vs. primary and middle school) and specific model structure could account for the variations in direct path findings.

2.2.4. Discussion of Quantitative Findings

Descriptive results show that primary school teachers in Yunnan have moderate AI literacy, with a relative strength in ethical awareness but a perceived weakness in practical application. This aligns with a common challenge observed globally: while educators may recognize the growing importance of AI and its ethical dimensions, translating this understanding into concrete classroom practices remains a hurdle. Many countries around the world, such as the United States and the United Kingdom, despite having more advanced technological infrastructures and well-established professional development systems, continue to face persistent challenges in moving beyond foundational knowledge toward the transformative pedagogical integration of technology [11,12]. For instance, Appova et al. (2022) discuss the need for technology integration to move beyond "banking education" towards opportunities for genuine learning, emphasizing that mere access or basic training doesn't guarantee effective implementation [13]. Similarly, a study on developing AI literacy among primary school students in Hong Kong also implicitly emphasizes that teachers must first possess a deep level of practical competence [14]. The lower mean score for Applying AI suggests potential barriers such as insufficient training focusing on practical implementation, lack of access to appropriate AI tools, or limited integration of AI into the official curriculum. Addressing this "application gap" is crucial, as the correlation and SEM analyses indicate that AAI is strongly related to and predictive of evaluating AI applications (EAIA) and ethical awareness (AIE). This highlights a virtuous cycle where hands-on experience fosters critical evaluation and ethical understanding. Therefore, merely providing theoretical knowledge (KUAI) is insufficient; practical engagement is a vital catalyst for developing a more comprehensive AI literacy.

The strong intercorrelations between all dimensions underscore that AI literacy is a holistic construct. Developing one aspect likely contributes to the growth of others. The SEM results further elucidate these relationships, suggesting a pathway where foundational knowledge (KUAI) enables practical application (AAI) and critical evaluation (EAIA), and both application and evaluation skills significantly contribute to ethical considerations (AIE). This reinforces the need for a multi-faceted approach to teacher professional development that addresses all dimensions of AI literacy in an integrated manner. These findings from Yunnan in China provide valuable insights into the challenges and interdependencies in developing AI literacy among primary school teachers. While the national context in China strongly supports AI integration in education, evidenced by policies aimed at enhancing AI education across K-12 levels [15], the survey results suggest that translating national ambitions into widespread teacher competency at the primary level still requires significant effort, particularly in fostering practical application skills [16]. From the Yunnan case, we can learn that despite top-down policy support and advancements in AI, the "application gap" remains a significant hurdle. To adapt, Yunnan's approach should prioritize hands-on, scenario-based training that directly links AI tools to specific pedagogical goals, moving beyond generic introductions to practical, evaluative, and ethical considerations within real classroom settings. This includes continuous professional development that offers ongoing support and opportunities for teachers to experiment and share best practices, rather than relying on one-off training events.

For the Vietnamese context, these findings offer crucial foresight. Given Vietnam's national strategies and decisions on AI development and digital transformation in education, it can proactively learn from China's experiences, particularly Yunnan's. Vietnam should prioritize comprehensive teacher professional development programs that not only build foundational AI knowledge (KUAI) and ethical awareness (AIE) but crucially, emphasize practical application (AAI) and critical evaluation (EAIA) from the outset. This means designing training that includes practical workshops, access to relevant AI tools, and a curriculum that integrates AI pedagogical use cases, rather than merely introducing AI concepts. By focusing on practical application and

critical evaluation, Vietnam can foster a more robust and ethically conscious AI-literate teaching force, avoiding the application gap observed in other contexts. Furthermore, Vietnamese policymakers and educators can leverage the insights on the interdependencies of AI literacy dimensions to design integrated training models that foster holistic development, ensuring that teachers are not just aware of AI, but truly empowered to utilize and assess it responsibly in their classrooms [17,18].

2.2.5. AI Application Practices and Their Implications for Teacher AI Literacy in Chinese Primary Education

Building upon the quantitative findings that revealed the current levels and inter relationships of AI literacy dimensions among primary school teachers in Yunnan, particularly the relatively low perceived ability in AAI, this section examines the landscape of AI application practices in Chinese primary education. Understanding these practices is crucial, as they represent the context within which teachers are expected to utilize AI, thereby directly influencing the demands and challenges related to their AI literacy development, especially the practical application dimension. China has proactively integrated Artificial Intelligence into its national development strategy, with significant emphasis placed on leveraging AI to modernize the education sector [19]. This strategic drive has led to the development and implementation of various AI application practices within primary education, aiming to enhance teaching efficiency, personalize student learning, and prepare the younger generation for an AI-driven future. These practices range from the integration of intelligent tutoring systems and adaptive learning platforms to the use of automated grading tools and AI-powered educational robots [20]. There is also a push to build national smart education platforms and encourage collaboration between schools and external tech/research institutions to provide resources and exposure to advanced AI applications. Pedagogical methods, such as digital story writing integrated with AI concepts, are also explored to foster AI literacy through creative and practical engagement in primary settings [21]. The policy framework in China supports these applications through a phased approach to AI education across K-12, beginning with early, hands-on exposure in primary school [22]. This necessitates that primary teachers are equipped not just with theoretical understanding but with the practical skills (AAI) to facilitate these initial interactions and integrate simple AI applications meaningfully into their teaching.

However, the widespread implementation of these AI application practices encounters significant challenges, which directly bear upon the development of teacher AI literacy. As indicated by the survey findings, primary teachers, even in a supportive national context like China, report relatively low confidence in applying AI. This suggests a notable gap between the availability of AI tools and initiatives and teachers' readiness and capability to effectively use them in the classroom. Factors contributing to this gap may include insufficient teacher training focused on the pedagogical application of specific AI tools, lack of access to reliable technology and support, and the challenge of integrating dynamic AI technologies into a static curriculum. The experience in China, therefore, highlights that while top-down policies and the provision of AI resources are crucial enabling factors for AI integration in primary education, they must be complemented by robust, practical, and contextually relevant teacher professional development programs that specifically target the enhancement of teachers' AAI skills and build their confidence in leveraging these technologies for educational purposes.

2.3. Suggestions for enhancing AI literacy and application in Primary education in Vietnam

The push for digital transformation and AI integration in Vietnamese education is crucial for improving teaching quality, aligning with educational reforms, and fostering international integration. This commitment is evident in key national directives: Resolution No. 29-NQ/TW (2013) emphasizes “promoting the application of information and communication technology in

teaching and learning" [23] and Decision No. 131/QD-TTg (2022) sets the goal of "developing a body of teachers who meet the requirements of digital transformation in education" [24]. Additionally, Circular No. 02/2025/TT-BGDDT by the Ministry of Education and Training outlines a Digital Competence Framework for learners, providing a guide for essential digital skills. These mandates, supported by teacher standards, highlight an urgent need to build educators' capacity in leveraging advanced technologies like AI. Vietnam also has an ambitious national AI development strategy, with various ministries actively training high-quality human resources in AI. While these policies set a strong national direction, practical implementation in primary education especially equipping teachers with AI literacy requires targeted strategies informed by empirical evidence and international experiences. Drawing insights from a study on AI literacy among primary school teachers in Yunnan, China, particularly challenges in the "Applying AI" dimension, and considering China's current AI application practices, this document offers specific, actionable suggestions for enhancing AI literacy and promoting effective AI application in Vietnamese primary education.

2.3.1. Establishing a robust policy, infrastructure, and resource foundation

Effective AI integration in education requires strong top-down policy support and a reliable foundation of infrastructure and resources. The Vietnamese government should ensure that national directives on digital transformation and AI translate into specific, funded action plans for primary education. This includes prioritizing investment in reliable internet connectivity, appropriate computing devices and necessary peripherals in all primary schools, with a focus on ensuring equitable access across urban and rural areas. Policies should empower school leaders to allocate resources and support teachers' technology integration efforts. Beyond physical infrastructure, developing and curating high-quality, contextually relevant AI educational resources in Vietnamese is critical. This involves creating materials explaining AI concepts, practical guides for classroom use, and tailored AI-powered educational tools suitable for the primary level. A national platform or repository for accessing these curated resources and tools, similar to initiatives in China, would significantly enhance accessibility for teachers nationwide. Encouraging the development and sharing of Open Educational Resources related to AI literacy can further enrich the available resources.

2.3.2. Comprehensive teacher capacity building in AI literacy

Teacher professional development programs must be strategically designed to build comprehensive AI literacy, moving beyond theoretical knowledge to focus on practical application, critical evaluation, and ethical understanding. Training should be highly practical and pedagogical, using hands-on workshops where teachers actively use AI tools relevant to the primary classroom and design integrated lessons. Content should cover foundational AI concepts (KUAI) relevant to teaching, strategies for effectively applying AI tools in various subjects (AAI), developing the skills to critically evaluate AI applications (EAIA) for suitability and potential biases, and a thorough understanding of AIE in education, addressing local concerns like over-reliance and cultural fit. Training methodologies should be collaborative and sustained, fostering communities of practice and providing ongoing mentoring. Scalable models, potentially involving "train-the-trainer" approaches drawing on expertise from universities and teacher colleges, are needed to reach the large number of primary teachers across Vietnam. Sustainable funding and institutional support for these continuous professional development efforts are essential.

2.3.3. Integrating AI literacy into the curriculum and fostering pedagogical innovation

To prepare students for an AI-driven world, AI literacy needs to be systematically integrated into 2018 Vietnamese National Curriculum for primary education, building upon existing Information and communications technology frameworks. This involves defining age-appropriate learning outcomes related to the four dimensions of AI literacy for students, potentially following

a phased approach that begins with early exposure and play and progresses to understanding simple applications and ethical considerations in later primary grades. Developing a framework for AI literacy within the primary curriculum can draw inspiration from existing work on digital competence frameworks within the General Education Program 2018, such as the theoretical framework and proposed structure for digital competence in high school students. Beyond teaching AI concepts directly, the curriculum should guide teachers on integrating AI as a pedagogical tool across subjects, encouraging pedagogical innovation. This requires providing sample lesson plans and demonstrating how AI can enhance teaching and learning activities, promoting a shift from traditional methods towards more interactive and personalized approaches facilitated by AI.

2.3.4. Developing a supportive ecosystem, research and evaluation

Effective AI integration is not solely about policy and training; it requires a vibrant, supportive ecosystem that fosters research, innovation, collaboration, and public awareness. Vietnam should encourage research on the specific challenges and opportunities of AI integration in its primary schools, focusing on context-specific needs and pedagogical effectiveness. Establishing innovation hubs within universities or research institutions dedicated to AI in education can drive the development of localized AI tools and provide expert support. Fostering collaboration between the Ministry, teacher training institutions, tech companies, and international organizations is crucial for developing high-quality training, resources, and implementing pilot programs. Pilot programs should be systematically implemented and rigorously evaluated in diverse primary school settings before scaling up initiatives, ensuring that strategies are evidence-based and adapted to local realities. Finally, building public awareness and engaging all stakeholders, including parents and the wider community, about the importance of AI literacy and the role of AI in education is essential to create a supportive environment for these transformative changes. This involves transparent communication about the benefits and ethical considerations of AI in schools.

3. Conclusion

China is recognized as a leader in AI development and digital innovation. This study investigates AI literacy among primary school teachers in Yunnan Province, aiming to inform evidence-based recommendations for enhancing AI integration in Vietnamese primary education. Findings indicate that while teachers exhibit moderate understanding of AI, their confidence in applying it pedagogically remains low—despite relatively high awareness of AI ethics. Analysis reveals strong interconnections between AI literacy dimensions, emphasizing that practical application and critical evaluation are mutually reinforcing and essential for ethical AI use in education. Although China's national policies support AI adoption in schools, the gap between policy ambitions and classroom practice highlights the need for grassroots teacher capacity-building. These insights are particularly relevant for Vietnam, which shares similar goals for digital transformation but faces challenges related to infrastructure and ecosystem maturity. To advance AI literacy in Vietnamese primary education, a comprehensive strategy is needed. Key recommendations include targeted professional development focused on pedagogical applications, curriculum integration of AI concepts, development of context-specific teaching resources, and strengthened policy and infrastructure support. Promoting ethical engagement, stakeholder collaboration, and pilot program evaluation are also critical for building a sustainable ecosystem. While the study offers valuable insights, its focus on Yunnan, limited sample size, and reliance on self-reported data limit generalizability. Future research should expand to diverse regions in China and Vietnam, incorporate qualitative methods, and conduct longitudinal studies to assess the long-term impact of AI training and policy implementation.

REFERENCES

[1] Appova A, Lee HJ, Bucci T, (2022). Technology in the Classroom: Banking Education or Opportunities to Learn? *Theory Into Practice,* 61(3), 254–264. https://doi.org/10.1080/00405841.2022.2096372

[2] Bjola C, (2022). AI for Development: Implications for Theory and Practice. *Oxford Development Studies,* 50(1), 78–90. https://doi.org/10.1080/13600818.2021.1960960

[3] Chassignol, M, Khoroshavin, A, Klimova, A, Bilyatdinova, A, (2018). Artificial Intelligence Trends in Education: A Narrative Overview. *Procedia Computer Science*, 136, 16–24. https://doi.org/10.1016/j.procs.2018.08.233

[4] Criado Pacheco N, Ferrer Aran X, Such J, (2021). Attesting Digital Discrimination Using Norms. *International Journal of Interactive Multimedia and Artificial Intelligence*, 6(5), 16–23. https://doi.org/10.9781/ijimai.2021.02.008

[5] Gallardo-Montes CP, Rodríguez Fuentes A, Caurcel Cara MJ, Capperucci D, (2022). Functionality of Apps for People with Autism: Comparison between Educators from Florence and Granada. *International Journal of Environmental Research and Public Health*, 19(12), Article 7019. https://doi.org/10.3390/ijerph19127019

[6] Long D, Magerko B, (2020). *What Is AI Literacy? Competencies and Design Considerations.* In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (CHI '20), Honolulu, HI, USA, April 25–30, 2020; Article No. 1–16. *Association for Computing Machinery*. https://doi.org/10.1145/3313831.3376727

[7] Raisch S, Krakowski S, (2021). Artificial Intelligence and Management: The Automation–Augmentation Paradox. *Academy of Management Review*, 46(1), 192–210. https://doi.org/10.5465/amr.2018.0072

[8] Ruisi Shi, (2024). Research on the current situation of artificial intelligence literacy of teacher trainees and strategies to improve it. *Advances in Educational Technology and Psychology*, 8(1), ISSN: 2371-9400, DOI: 10.23977/aetp.2024.080116

[9] Zhao L, Wu X, Luo H**, (**2022). Developing AI Literacy for Primary and Middle School Teachers in China: Based on a Structural Equation Modeling Analysis. *Sustainability*, 14, 14549. MDPI. DOI: 10.3390/su142114549

[10] Zhao L, Wu X, Luo H**, (**2022). *Developing AI Literacy for Primary and Middle School Teachers in China: Based on a Structural Equation Modeling Analysis. Sustainability*, 14, 14549. MDPI. DOI: 10.3390/su142114549

[11] Appova A, Lee HJ, Bucci T, (2022). Technology in the Classroom: Banking Education or Opportunities to Learn? *Theory Into Practice*, 61(3), 254–264. https://doi.org/10.1080/00405841.2022.2096372

[12] Bjola C, (2022). AI for Development: Implications for Theory and Practice. *Oxford Development Studies,* 50(1), 78–90. https://doi.org/10.1080/13600818.2021.1960960

[13] Appova A, Lee HJ, Bucci T, (2022). Technology in the Classroom: Banking Education or Opportunities to Learn? *Theory Into Practice*, 61(3), 254–264. https://doi.org/10.1080/00405841.2022.2096372

[14] Ng DTK, Luo W, Chan HMY, Chu SKW, (2022). Using digital story writing as a pedagogy to develop AI literacy among primary students. *Computers and Education: Artificial Intelligenc*e, 3, Article 100054. DOI: 10.1016/j.caeai.2022.100054

[15] China's Ministry of Education (2024). *China to enhance AI education in primary, secondary schools*, https://english.news.cn/20241203/58ab82064c194714984a9a898ab7881d/c.html

[16] Yang Y, Kong SC, (2025). Professional Development for Teachers in AI Literacy Education: Teaching Machine Learning to Senior Primary and Junior Secondary Students.

In *Proceedings of the 17th International Conference on Computer Supported Education* (CSEDU 2025) – Volume 2, pp. 35–42. SCITEPRESS – Science and Technology Publications, Lda. ISBN 978-989-758-746-7; ISSN 2184-5026; DOI: 10.5220/0013200300003932

[17] Communist Party of Vietnam, (2013). Resolution No. 29-NQ/TW dated November 4, 2013, on the fundamental and comprehensive renovation of education and training to meet the requirements of industrialization and modernization in the context of a socialist-oriented market economy and international integration. Party Central Committee. https://moet.gov.vn/tintuc/Pages/chi-tiet.aspx?ItemID=3928

[18] Prime Minister. (2022). Decision No. 131/QĐ-TTg dated January 25, 2022, approving the Digital Transformation Program in Education for the period 2022–2025, with orientations toward 2030. Government Electronic Information Portal. https://vanban.chinhphu.vn/?pageid=27160&docid=205236&classid=0

[19] Prime Minister, (2021). Decision No. 127/QĐ-TTg dated January 21, 2021, approving the National Strategy on Research, Development, and Application of Artificial Intelligence through 2030. Government Electronic Information Portal. https://vanban.chinhphu.vn/default.aspx?pageid=27160&docid=202565

[20] Minister of Information and Communications, (2024). Decision No. 699/QĐ-BTTTT dated May 3, 2024, approving the 2024 Action Plan for implementing the Strategy for the Development and Application of Artificial Intelligence through 2030 (Applied AI Strategy). Ministry of Information and Communications. https://mic.gov.vn/van-ban-phap-luat/24986.htm

[21] Hieu HH, Thao LT, (2024). Exploring the Impact of AI in Language Education: Vietnamese EFL Teachers' Views on Using ChatGPT for Fairy Tale Retelling Tasks. International Journal of Learning, Teaching and Educational Research, **23**(3), 486–503. DOI: 10.26803/ijlter.23.3.24

[22] Nguyen TX, (2023). Some Issues Concerning the Digital Competency Framework for Upper Secondary School Students in the 2018 General Education Program. *Journal of Education*, 23(2). https://tcgd.tapchigiaoduc.edu.vn/index.php/tapchi/article/view/626/382

[23] Communist Party of Vietnam, (2013). Resolution No. 29-NQ/TW dated November 4, 2013, on the fundamental and comprehensive renovation of education and training to meet the requirements of industrialization and modernization in the context of a socialist-oriented market economy and international integration. Party Central Committee. https://moet.gov.vn/tintuc/Pages/chi-tiet.aspx?ItemID=3928

[24] Prime Minister, (2022). Decision No. 131/QĐ-TTg dated January 25, 2022, approving the Digital Transformation Program in Education for the period 2022–2025, with orientations toward 2030. Government Electronic Information Portal. https://vanban.chinhphu.vn/?pageid=27160&docid=205236&classid=0