

Teacher's Readiness Level for Using Artificial Intelligence (AI) Based on Teaching Experience

Rajeswary A/P Nerasaman*, Mohd Jasmy Bin Abd Rahman**

Faculty of Education, Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia

DOI: 10.29322/IJSRP.15.03.2025.p15913
<https://dx.doi.org/10.29322/IJSRP.15.03.2025.p15913>

Paper Received Date: 10th February 2025
Paper Acceptance Date: 12th March 2025
Paper Publication Date: 18th March 2025

Abstract- The integration of technology in education has become a crucial aspect in the current digital era. In Malaysia, Artificial Intelligence (AI) has been emphasized in education through the recently introduced Digital Education Policy. This empirical study aims to assess the readiness level of Tamil national type primary school (SJKT) teachers in adopting AI in teaching and learning, based on their experience. A total of 86 randomly selected SJKT teachers from the Segamat district participated in this study. A descriptive and inferential survey methodology was conducted, with data collected via an online questionnaire using Google Form. The findings of this study contributed to the existing literature by addressing the gap in understanding how teaching experience influences AI readiness. Results indicate that there is no significant relationship between teacher's experience and their readiness for AI integration. This suggests that adequate AI-related training should be provided to all teachers, regardless of experience level, to ensure its effective implementation in the future.

Keywords- Artificial Intelligence (AI), technology in education, teacher readiness level, digital education

I. INTRODUCTION

The Fourth Industrial Revolution (IR 4.0) has significantly transformed the education sector through advancements in artificial intelligence (AI), the Internet of Things (IoT), big data, and robotics. These technological changes have reshaped teaching and learning methodologies. In response, the Malaysian Ministry of Education (MOE) has announced the integration of AI into the national school curriculum by 2027. The introduction of the 'AI for Rakyat' initiative underscores the government's commitment to raising AI awareness among Malaysians.

According to Ai-Chu Elisha Ding et al. (2024), integrating AI into education will enhance AI literacy among students. However, effective implementation demands a high level of readiness among educators, as they play a key role in transforming classroom education. The National Education Curriculum 2027, as outlined by MOE, aims to equip students with digital literacy and AI competency. Despite this, the government's initiative has sparked varied perceptions among stakeholders. The integration of AI in primary school education presents significant challenges for teachers, requiring them to adapt their teaching methods and acquire new technological skills.

Research by Musa Adekunle Ayanwale et al. (2022) highlights that teachers' self-confidence is a crucial factor influencing their readiness to teach using AI. To ensure effective AI adoption, educators must be prepared to learn, master new technologies, and align their teaching strategies with students' needs. With adequate readiness, teachers can confidently and effectively implement AI in education, fostering a more meaningful and efficient learning experience. This study aims to bridge the gap by examining the readiness level of SJKT teachers in integrating AI into their teaching, focusing on their teaching experience. The study also seeks to analyze the relationship between teachers' readiness and their teaching experience.

II. LITERATURE REVIEW

Teaching experience plays a crucial role in shaping teachers' confidence in integrating artificial intelligence (AI) into education. Educators with extensive experience may encounter more challenges in adapting to AI compared to newly graduated teachers. Less experienced teachers tend to embrace technological advancements more readily, whereas experienced educators may focus more on the pedagogical approaches required to teach AI (Ayanwale et al., 2022).

A study conducted by Nja et al. (2023) on science teachers in Africa found that teaching experience influences teachers' perceptions of AI's effectiveness in science education. More experienced teachers tend to be cautious when utilizing technological infrastructure but have the potential to become leaders in AI integration with adequate support. These findings align with research by Espartinez (2024), which highlighted that experienced teachers express greater concern about ethical issues and the effectiveness of AI tools like ChatGPT. However, with sufficient training, they are more likely to develop a deeper understanding of AI technology. Similarly, Fu and Weng (2024) emphasized the importance of ethical considerations and teachers' responsibilities in AI implementation, stating that teachers with longer experience prioritize ethical aspects when using AI in education.

Sanusi et al. (2024) examined the social impact of AI education and teachers' intent to prepare students for AI-based learning. Their study revealed that longer teaching experience boosts teachers' confidence in using AI in the classroom. However, they also found that "social good" is a key motivating factor for teachers to integrate AI into the curriculum.

Ding et al. (2024) stressed the significance of AI literacy among teachers, highlighting that professional development programs should cater to different experience levels. Their findings suggest that teaching experience influences teachers' ability to comprehend and implement AI in their lessons. Experienced educators require a more targeted approach to develop comprehensive AI literacy.

Sperling et al. (2024) also emphasized that AI literacy is essential for effective AI integration in classrooms. Their study proposed that experienced teachers should receive specialized training distinct from that of novice teachers, as they are more accustomed to traditional teaching methods and may need additional time to adapt to new technologies.

Lunich et al. (2024) took a different approach by comparing students' and the general public's perceptions of AI-related risks in higher education. While their study primarily focused on students, it provided insights into how individual experiences, including those of teachers, play a significant role in weighing the benefits and challenges of AI adoption in education.

III. METHODOLOGY

This study adopts a quantitative research approach and utilizes a questionnaire as the primary research instrument. The questionnaire consists of three sections, Section A: Demographic information of respondents; Section B: Challenges faced by teachers in integrating artificial intelligence (AI) into education; Section C: Teachers' readiness levels in using AI for teaching and learning.

Responses are collected using a five-point Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Agree, 4 = Agree, and 5 = Strongly Agree. The study population comprises SJKT teachers from 12 Tamil schools in Segamat, Johor. A stratified random sampling technique was employed to select participants. The questionnaire was adapted from previous studies by Ayawale, M.A et al. (2022) and Khodijah Abdul Rahman et al. (2018) and was administered via Google Forms. A total of 112 teachers received the survey, out of which 86 responded.

Data collection was conducted through Google Forms, and the responses were analysed using IBM SPSS Version 27 (Statistical Package for Social Sciences). The analysis involved, Descriptive Statistics which used to analyse respondents' demographics, teaching experience, and teachers' readiness to use AI in education. This was measured using mean scores, frequency, percentages, and standard deviation, following the interpretation guidelines of Nunnally & Bernstein (1994) and Inferential Statistics which applied to examine the relationship between teachers' teaching experience and their readiness to integrate AI into education. Pearson correlation analysis was used to determine the correlation between teachers' challenges and readiness levels in using AI. The correlation coefficient (r) strength was interpreted based on Chua (2014).

IV. RESULTS

Table 1: Demographic Profile of Respondent

Demographic Data	Frequency (N)	Percentage (%)
Gender		
Male	47	54.7
Female	39	45.3
Age		
21-30 years	15	17.4
31-40 years	34	39.5
41-50 years	23	26.7
51 -60 years	14	16.3
Academic Qualification		

Diploma	3	3.5
Bachelor's degree	61	70.9
Master's degree	22	25.6
Teaching Experience		
5 years and below	9	10.5
6- 10 years	23	26.7
11- 15 years	28	32.6
16- 20 years	15	17.4
20 years and more	11	12.8
Teaching Location		
Urban	41	47.7
Rural	45	52.3

This study involved 86 respondents, comprising teachers from SJKT schools in the Segamat district. According to Table 1, 47 respondents (54.7%) were male, while 39 respondents (45.3%) were female. The majority of respondents, 34 individuals (39.5%), were aged 31 to 40 years, making it the most represented age group. This was followed by 23 respondents (26.7%) in the 41-50 age group, 15 respondents (17.4%) aged 21-30, and the least represented group, 14 respondents (16.3%), aged 51-60.

Regarding academic qualifications, the findings indicate that 61 respondents (70.9%) held a Bachelor's Degree, while 22 respondents (25.6%) had a Master's Degree, and 3 respondents (3.5%) held a Diploma.

In terms of teaching experience, the highest percentage, 32.6% (28 respondents), had 11 to 15 years of experience, followed by 26.7% (23 respondents) with 6 to 10 years of experience. Additionally, 17.4% (15 respondents) had been teaching for 16 to 20 years, while 12.8% (11 respondents) had over 21 years of experience. The least experienced group, those with 5 years or less, accounted for 10.5% (9 respondents).

Lastly, in terms of teaching location, 52.3% (45 respondents) taught in rural schools, whereas 47.7% (41 respondents) worked in urban schools.

Table 2: Mean Analysis of Readiness

No	Construct	Mean	SD	Intepretation
1	Attitude towards AI	3.25	.846	Moderately high
2	Trust in AI	3.22	.880	Moderately high
3	Technological Skill and Confidence	3.46	.706	Moderately high
4	Resource Support	3.58	.584	Moderately high

Next, the comparison of mean scores across the readiness constructs is presented in Table 2. The findings indicate that the construct measuring teachers' attitudes towards AI recorded a mean of 3.25 with a standard deviation (SD) of 0.846, while the construct assessing teachers' trust in AI showed a mean of 3.22 with an SD of 0.880. For the construct evaluating teachers' technological skills and self-confidence, the mean was 3.46 with an SD of 0.706. Meanwhile, the construct related to resource support recorded the highest mean of 3.58 with an SD of 0.584. These results suggest that teachers in SJKT schools in the Segamat district demonstrate a moderate to high level of readiness to integrate AI into their classrooms.

Table 3: Pearson Correlation Analysis of the Relationship Between Teachers' Teaching Experience and Readiness Level

Variable		Teaching Experience	Teacher's Readiness Level
Teaching Experience	Pearson Correlation	1	-.116
	Significance (2-tailed)		.286
	N	86	86
Teacher's Readiness Level	Pearson Correlation	-.116	1
	Significance (2-tailed)	.286	

	N	86	86
--	---	----	----

Table 3 presents the Pearson correlation analysis between teachers' teaching experience and their readiness to integrate AI. The correlation coefficient (-0.116) indicates a weak negative relationship between these two variables, and the significance value ($p = 0.286$) suggests that the correlation is not statistically significant.

V. DISCUSSION

The findings of this study indicate that the teachers' readiness level for integrating AI into teaching falls within a moderately high range, with an average score of 3.38. This suggests that SJKT teachers in the Segamat district are generally open to incorporating AI into their classrooms. These results are in line with the study by Alshorman (2024), which found that Science teachers displayed optimism toward adopting AI in education, despite the challenges involved.

However, the Pearson correlation analysis reveals a very weak association between teaching experience and teachers' readiness to use AI. The significance value ($p = 0.286, >0.05$) suggests that the relationship is not statistically significant. This indicates that there is insufficient evidence to establish a direct link between teaching experience and AI readiness in instruction.

Interestingly, the negative correlation suggests that teachers with more years of experience tend to exhibit lower levels of readiness compared to those with less experience. This finding aligns with the research conducted by Lindelani Mnguni et al. (2024), which highlighted that novice teachers, despite having limited teaching experience, are often more receptive to integrating technology into their teaching practices.

VI. CONCLUSION

In conclusion, this study finds that SJKT teachers in the Segamat district, regardless of their years of teaching experience, demonstrate a readiness to integrate AI into the classroom. However, they require sufficient knowledge to effectively incorporate AI into their teaching practices. While teachers possess basic awareness of AI resources, they lack the necessary skills to fully utilize them in instruction. This aligns with the findings of Sperling, K. (2024), who noted that teachers generally have less pedagogical knowledge of AI integration compared to their practical understanding of digital resources.

The integration of AI elements into teaching can create a more engaging and positive learning experience for students. This is supported by research from Bae, H. et al. (2024), which highlights that AI-enhanced learning experiences can increase student engagement. Therefore, educators require adequate training in AI integration within their teaching practices. This aligns with Yim, I. H. Y. (2024), who emphasizes that while teachers are generally open to using AI in education, they need proper training to enhance their understanding and application of AI in the classroom.

Therefore, this study recommends the need for technological training and support for all categories of teachers, regardless of their teaching experience, to ensure a more in-depth and effective integration of AI into teaching and learning.

REFERENCES

- Alshorman, S. (2024). The readiness to use AI in teaching science: Science teachers' perspective. *Journal of Baltic Science Education*, 23(3), 432–448. <https://doi.org/10.33225/jbse/24.23.432>
- Ayanwale, M. A., Sanusi, I. T., Adelana, O. P., Aruleba, K. D., & Oyelere, S. S. (2022). Teachers' readiness and intention to teach artificial intelligence in schools. *Computers and Education: Artificial Intelligence*, 3, 100099.
- Bae, H., Hur, J., Park, J., Choi, G. W., & Moon, J. (2024). Pre-service teachers' dual perspectives on generative AI: Benefits, challenges, and integration into their teaching and learning. *Online Learning Journal*, 28(3), 131-150.
- Dautova, O., Ignateva, E., & Shilova, O. (2021). Readiness of Russian teachers to blended learning. *European Proceedings of Social and Behavioural Sciences*, 2021(EdCW 2020), 44. <https://doi.org/10.15405/epsbs.2021.07.02.44>

- Ding, A. C. E., Shi, L., Yang, H., & Choi, I. (2024). Enhancing teacher AI literacy and integration through different types of cases in teacher professional development. *Computers and Education Open*, 6, 100178.
- Espartinez, A. S. (2024). Exploring student and teacher perceptions of ChatGPT use in higher education: A Q-Methodology study. *Computers and Education: Artificial Intelligence*, 7, 100264. DOI: 10.1016/j.caeai.2024.100264.
- Fu, Y., & Weng, Z. (2024). Ethical and Responsible AI in Education. *Computers and Education: Artificial Intelligence*, 7, 100306. DOI: 10.1016/j.caeai.2024.100306.
- Kim, K., & Kwon, K. (2023). Exploring the AI competencies of elementary school teachers in South Korea. *Computers and Education: Artificial Intelligence*, 4, 100137. <https://doi.org/10.1016/j.caeai.2023.100137>
- Lunich, M., Keller, B., & Marcinkowski, F. (2024). Diverging perceptions of artificial intelligence in higher education: A comparison of student and public assessments on risks and damages of academic performance prediction in Germany. *Computers and Education: Artificial Intelligence*, 7, 100305.
- Lu, H., He, L., Yu, H., Pan, T., & Fu, K. (2024). A study on teachers' willingness to use generative AI technology and its influencing factors: Based on an integrated model. *Sustainability*, 16(16), 7216. <https://doi.org/10.3390/su16167216>
- Marder, R. S., Abdelmalek, G., Richards, S. M., Nadeau, N. J., Garcia, D. J., Attia, P. J., Rallis, G., & Scillia, A. J. (2024). ChatGPT-3.5 and -4.0 do not reliably create readable patient education materials for common orthopaedic upper- and lower-extremity conditions. *Arthroscopy, Sports Medicine, and Rehabilitation*. Advance online publication. <https://doi.org/10.1016/j.asmr.2024.101027>
- Ngao, A. I., Sang, G., & Kihwele, J. E. (2022). Understanding teacher educators' perceptions and practices about ICT integration in teacher education program. *Education Sciences*, 12(8), 549. <https://doi.org/10.3390/educsci12080549>
- Nja, C. O., Idiege, K. J., Uwe, U. E., Meremikwu, A. N., Ekon, E. E., Erim, C. M., Ukah, J. U., Eyo, E. O., Anari, M. I., & Cornelius-Ukpepi, B. U. (2023). Adoption of artificial intelligence in science teaching: From the vantage point of the African science teachers. *Smart Learning Environments*, 10(42). <https://doi.org/10.1186/s40561-023-00261-x>
- Qutub, M. M. T., Bukhari, S. S. F., Fadel, S. A., & Aljuhani, H. S. A. (2023). The future of English as a foreign language teaching and learning in view of the Fourth Industrial Revolution in the MENA region. *Arab World English Journal (AWEJ) Special Issue on CALL*, (9), 67-86. <https://dx.doi.org/10.24093/awej/call9.5>
- Sanusi, I. T., Ayanwale, M. A., & Chiu, T. K. (2024). Investigating the moderating effects of social good and confidence on teachers' intention to prepare school students for artificial intelligence education. *Education and information technologies*, 29(1), 273-295.
- Song, X., Zhang, J., Yan, P., Hahn, J., Kruger, U., Mohamed, H., & Wang, G. (2024). Integrating AI in college education: Positive yet mixed experiences with ChatGPT. *Meta-Radiology*, 2, 100113.
- Sperling, K., Stenberg, C., McGrath, C., Åkerfeldt, A., Heintz, F., & Stenliden, L. (2024). In search of artificial intelligence (AI) literacy in teacher education: A scoping review. *Computers and Education Open*, 6, 100169. <https://doi.org/10.1016/j.caeo.2024.100169>
- Wang, F., King, R. B., Chai, C. S., & Zhou, Y. (2023). University students' intentions to learn artificial intelligence: The roles of supportive environments and expectancy-value beliefs. *International Journal of Educational Technology in Higher Education*, 20, Article number: 51. <https://doi.org/10.1186/s41239-023-00417-2>

- Yim, I. H. Y. (2024). A critical review of teaching and learning artificial intelligence (AI) literacy: Developing an intelligence-based AI literacy framework for primary school education. *Computers and Education: Artificial Intelligence*, 7, 100319. <https://doi.org/10.1016/j.caeai.2024.100319>
- Youssef, E., Medhat, M., Abdellatif, S., & Al Malek, M. (2024). Examining the effect of ChatGPT usage on students' academic learning and achievement: A survey-based study in Ajman, UAE. *Computers and Education: Artificial Intelligence*, 7, 100316. <https://doi.org/10.1016/j.caeai.2024.100316>

AUTHORS

First Author – Rajeswary a/p Nerasaman, BComm, jeiswary07@gmail.com
Second Author – Mohd Jasmy Bin Abd Rahman, Lt.Kol. Prof.Madya, mjas@ukm.edu.my
Correspondence Author – Rajeswary a/p Nerasaman, BComm, jeiswary07@gmail.com