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Fostering Innovation in Classrooms: AI Competence Self-Efficacy Among Elementary School Teachers in Nagaland

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Abstract— **As Artificial Intelligence (AI) continues to reshape the educational landscape globally, it is imperative to assess teachers' readiness and confidence in integrating AI into classroom practices, particularly in regions like Nagaland, India, where digital initiatives are still evolving. This study investigates the status of Teacher Artificial Intelligence Competence Self-Efficacy (TAICS) among primary school teachers in Nagaland across six key dimensions: AI Knowledge, AI Pedagogy, AI Assessment, AI Ethics, Human-Centred Education, and Professional Engagement. A descriptive research design was employed, using a structured self-efficacy scale administered to 252 primary teachers. The results reveal that the majority of teachers rated their overall AI competence at an average level, with relatively stronger self-efficacy in the areas of Human-Centred Education and Professional Engagement. However, notable deficiencies were observed in AI Pedagogy, Assessment, and Ethics, suggesting a gap between conceptual awareness and practical application. Despite statewide advancements such as the introduction of AI tools like *Livi AI* and partnerships with digital learning platforms the study identifies a lack of empirical research assessing teacher competence in this domain. This research, therefore, fills a critical gap by offering baseline data and actionable insights for policymakers and educators. Recommendations are provided for context-specific teacher training, ethical sensitization, infrastructure development, and the promotion of inclusive, AI-integrated teaching practices in Nagaland's primary education system.**

Index Terms— **Artificial intelligence, teacher competency, self-efficacy, AI knowledge, AI pedagogy, AI assessment, AI ethics, human-centred education, professional engagement.**

I. Introduction

Artificial intelligence (AI) is exerting a growing influence on numerous facets of everyday life. These consequences are seen in domains such as education (Zhai et al., 2021), healthcare (Reddy et al., 2019), and politics (König & Wenzelburger, 2020). The future of the Indian education system appears to be technology-driven, as emphasised in the NEP-2020.

After evaluating the essential elements contributing to the success of educational systems in developed nations, policymakers have concluded that these systems must be transformed and restructured to prepare individuals for the integration of Artificial Intelligence (AI), which has the potential to revolutionise the entire educational framework and facilitate necessary advancements. AI has been prioritised over traditional educational technology.

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The use of artificial intelligence (AI) into educational systems is transforming the backgrounds of instruction, learning, and evaluation. AI can aid educators by automating administrative duties (Zawacki-Richter et al., 2019), offering data-driven insights into student performance (Xie et al., 2019), facilitating targeted and effective interventions, and creating lesson plans. AI-driven tools and GenAI platforms provide students with personalised learning experiences by tailoring content and pacing to their specific needs (Baker & Smith, 2019), facilitating knowledge and skill acquisition, and helping to close educational disparities among socioeconomic groups (Chaudhry et al., 2022).

Artificial intelligence is transforming assessment by providing immediate feedback (Heffernan & Heffernan, 2014), minimising biases (Zhou & Brown, 2020), and enabling adaptive testing (Van der Linden & Glas, 2010). The implementation of AI in education poses ethical problems, data privacy issues, and the potential for algorithmic prejudice (Akter et al., 2021; Patel, 2024). Chaudhry et al. (2022) assert that educators must possess the awareness and comprehension required to operate in a world increasingly shaped by AI, emphasising the cultivation of competences for practical educational contexts. Artificial intelligence (AI) influences education, and its tools are permanent fixtures for students and educators. Educators ought to comprehend the nature of AI and its application in enhancing teaching and learning (Chiu, 2023, 2024; Falloon, 2020).

Teachers must possess the proficiency to utilise AI in a safe and effective manner within the realms of learning and instruction (Falloon, 2020). Artificial intelligence is regarded as a digital technology. The incorporation of this into education can be according to Mishra and Koehler's (2006) technological pedagogical content knowledge (TPACK) framework. TPACK is a prominent framework for teacher digital competency, incorporated in numerous pre-service teacher education programs and in-service professional development initiatives (Chiu, et al., 2024). Consequently, it is advisable for primary school educators to include artificial intelligence (AI)-based technology into their teaching practices to improve instructional efficacy (Gracia et al., 2023).

Teachers' self-efficacy views can significantly influence their desire to employ AI-based technologies for teaching (Wang et al., 2021) and the effective integration of such technologies into education (Bai et al., 2019; Barton & Dexter, 2020). Teachers' self-efficacy beliefs are characterised as "an individual's conviction in their ability to execute particular teaching tasks at a designated quality level in a specific context" (Dellinger et al., 2008, p. 754). Bandura (1997) posits that self-efficacy beliefs encompass individuals' assessments and confidence in their capabilities. According to Bandura's social cognitive theory (1997), enhancing teachers' self-efficacy beliefs can be facilitated by enactive mastery experiences (Haverback, 2020).

Enactive mastery experience denotes the successful experiences that educators have acquired previously (Bandura, 1997). By engaging in numerous successful experiences, educators can cultivate a sense of competence and self-confidence in their capabilities. Nevertheless, some documented barriers may hinder primary school teachers from attaining enactive mastery, thereby adversely affecting their self-efficacy beliefs. The obstacles encompass inadequate professional training in AI technology (Carlson & Gadio, 2002), adverse pedagogical issues regarding the selection of suitable learning materials and activities (Emre, 2019), and a deficiency of supportive AI technological resources (Ng et al., 2023). A professional development program that facilitates enactive mastering experiences for primary school teachers is essential in primary education.

Nagaland is a hilly state located in the northeastern region of India, sharing its international boundary with Myanmar (Burma) to the east and domestic boundaries with the Indian states of Arunachal Pradesh to the north, Assam to the west, and Manipur to the south. It spans an area of approximately 16,579 square kilometers, making it one of India's smaller states by land area.

The state is predominantly mountainous, with the Naga Hills forming a rugged landscape that defines much of its topography. The highest peak in Nagaland is Mount Saramati, which rises to an elevation of about 3,826 meters (12,552 feet) and is located in the Tuensang district, near the Indo-Myanmar border. The terrain is characterized by a series of steep hills, narrow valleys, and river systems such as the Doyang, Dhansiri, and Tizu, which drain much of the state (Nagaland Government, 2021; India Ministry of Home Affairs, 2021).

Due to its geographical isolation, limited transportation infrastructure, and mountainous landscape, many regions of Nagaland remain relatively remote and underdeveloped in terms of digital and educational infrastructure. This presents both challenges and opportunities when it comes to implementing modern educational technologies like AI, as explored in the study.

Nagaland has made significant strides in integrating Artificial Intelligence into its education system. In 2024, NagaEd launched *Livi AI*, the region's first AI-powered teaching assistant, accessible via WhatsApp, to support personalized and curriculum-aligned learning (NagaEd., 2024). The state government also partnered with Embibe, an AI-based learning platform, to enhance education in government schools by providing adaptive learning tools to over 7,500 teachers and 300,000 students (NTN Correspondent, 2023).

Further, initiatives like Lighthouse School Complexes (LSCs), the SMILE attendance app, and e-Classroom programs are promoting digital accountability, blended learning, and improved access to AI-driven content. These efforts align with NEP 2020 and reflect Nagaland's commitment to transforming its education system through technology, despite challenges posed by its remote geography (NECTAR, 2024; Department of Information & Public Relations, Nagaland, 2024).

Although significant progress and notable strides have been made in the field of education in Nagaland, research in this area remains limited and largely underexplored. Most existing studies have primarily focused on evaluating the impact of professional development programs on teachers' general self-efficacy beliefs (e.g., Jiang et al., 2022; Taimalu & Luik, 2019), or have concentrated on subject-specific contexts such as science education (e.g., Saputro et al., 2020). Additionally, while several studies have examined the broader implications of artificial intelligence in education (e.g., Dubey et al., 2022), no empirical research to date has specifically investigated the self-efficacy of primary school teachers in Nagaland with respect to their competence in AI. Addressing this gap, the present study seeks to assess Teacher Artificial Intelligence Competence Self-Efficacy (TAICS), thereby contributing to both instructional improvement and the enrichment of research in this emerging domain. The following research question was explored to fulfil the aim of the study.

Research Question 1. What is the status of teacher artificial intelligence (AI) competence self-efficacy (TAICS) of primary school teachers in Nagaland.

II. Methodology

a. Method

The investigator employed a descriptive survey method utilising a quantitative approach for the current investigation.

b. Population and Sample

Elementary School Teachers of Nagaland state has been considered as the population and from that 252 (89 female and 163 male) teachers has been selected randomly as the sample from the two districts of Nagaland which was also selected randomly from all the 17 districts of Nagaland state.

c. Research Tools Used

Teacher Artificial Intelligence (AI) Competence Self-efficacy (TAICS) scale developed by Chiu et al. in 2024 has been used in the study.

TAICS scale has six dimensions of AI knowledge (AIK), AI pedagogy (AIP), AI assessment (AIA), AI ethics (AIE), Human-centred education (HCE), and professional engagement (PEN) are able to measure teacher AI competence.

Detailed explanations of each dimension are presented in the following.

AI knowledge (AIK): Maximising efficiency and productivity require distinguishing AI-based solutions from traditional ones. Teachers who understand AI may provide engaging content and explain its fundamental concepts and applications. This knowledge helps teachers choose the finest AI tools for certain tasks and maximise resources.

AI pedagogy (AIP): The ability to choose AI tools improves teaching and student learning. Teachers can make lessons more engaging and participatory by carefully selecting AI applications that match the course content. This integration lets them create lessons that integrate their subject expertise, breakthrough AI tools, and different teaching methods to improve comprehension. Teachers should help their colleagues coordinate topic content, AI technology, and pedagogical practices to create a collaborative education that benefits both teachers and students.

AI assessment (AIA): Ability to use AI for learning assessment. Teachers may monitor and improve student learning by carefully constructing evaluation methods for AI-based settings like ChatGPT. This mastery includes measuring student performance in AI-enhanced settings to ensure learning objectives and academic advancement. Teachers can intentionally use AI tools that encourage self-assessment and metacognition to involve students in their learning path. Teachers use AI-driven assessment to build a dynamic, supportive learning environment that helps students succeed.

AI ethics (AIE): Ability to teach pupils about ethics and technological integrity and accountability. Teachers should approach this environment ethically. They should prioritise protecting sensitive data like examinations, grades, and personal data from AI risks and apply best practices. They also prioritise personal health and well-being while employing AI tools to demonstrate a balanced attitude to technology for their kids. Teachers empower students by teaching them how to use AI safely and responsibly, enabling them to make educated decisions and be digitally responsible. Teachers and students may create an AI-era learning environment that prioritises ethics, privacy, and well-being.

Human-centred education (HCE): Ability to objectively assess AI tool benefits and hazards in learning situations. Teachers can evaluate how these tools can improve learning, from personalisation to engagement, while also recognising their hazards, such as privacy problems and biases. Understanding that people cause AI bias helps teachers to discuss ethical AI use and the necessity of different perspectives in technology development. Teachers should also discuss how AI affects work, communication, and social dynamics. By incorporating these findings into teaching, teachers hope to create a generation of students who are proficient at using AI and critically aware of its ramifications, keeping education focused on human values and ethics.

professional engagement (PEN): dedication to professional development. Teachers should actively pursue AI integration training. They can use multiple websites and search tactics to find and evaluate a variety of AI technologies, keeping them at the forefront of education technology. Teachers attend workshops, conferences, and online courses to learn more about AI and its uses in education. Teachers gladly share their experiences and insights with colleagues inside and outside my school, creating a collaborative climate where best practices and creative ideas may be shared. Teachers love AI-driven education and help their peers create engaging and successful learning activities using this cutting-edge technology. Teachers help the educational community harness AI by learning, sharing, and supporting one other (Chiu et al., 2024).

d. Statistical technique used

Descriptive statistics such as mean, median, mode, kurtosis, skewness, SD (standard deviation) and frequency table based on z-score has been used in the present study to find out the results.

III. Analysis and Interpretation

Descriptive statistics of the sample:

Table1: Descriptive Statistics of the sample

		Gender	Age	Work Experience
N	Valid	252	252	252
	Missing	0	0	0
Mean		1.65	34.24	8.88
Std. Error of Mean		.030	.544	.485
Median		2.00	31.50	6.00
Mode		2	29[a]	2
Std. Deviation		.479	8.638	7.697
Variance		.229	74.622	59.245
Skewness		-.618	1.256	1.306
Std. Error of Skewness		.153	.153	.153
Kurtosis		-1.631	1.769	1.443
Std. Error of Kurtosis		.306	.306	.306
Range		1	53	37
Minimum		1	21	0
Maximum		2	74	37
Sum		415	8629	2238

a. Multiple modes exist. The smallest value is shown

According to table 1, the descriptive statistical analysis was conducted on three variables, Gender, Age, and Work Experience from a total of 252 participants.

The Gender variable, showed a mean value of 1.65, suggesting that a greater proportion of the respondents were female. The median value was 2.00, and the mode was also 2, further confirming that the most frequently occurring gender in the sample was female. The standard deviation for gender was 0.479, indicating very little variability, which is expected for a binary variable. The skewness value of -0.618

indicates a slight negative skew, meaning the distribution is mildly weighted towards the female category. Additionally, the kurtosis value of -1.631 suggests a platykurtic distribution, which is flatter than a normal curve. The range for gender was 1, with values ranging from 1 to 2, as expected. The sum of gender values was 415, which supports the conclusion that females constituted the majority of the sample.

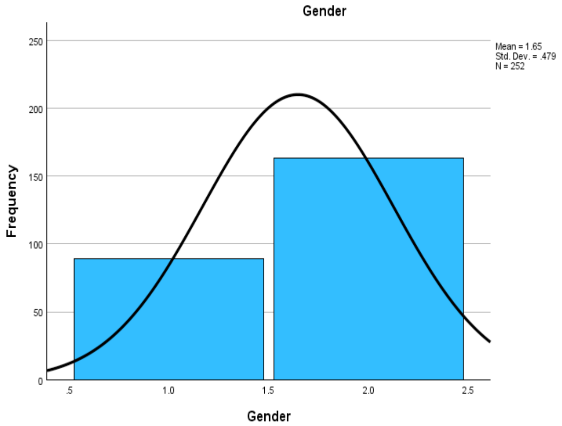

Fig1: Histogram for gender distribution

Regarding the Age of the participants, the mean age was found to be 34.24 years, indicating that the average respondent was in their mid-thirties. However, the median age was slightly lower at 31.5 years, and the mode was 29, with a note that multiple modes exist, and the smallest is reported. This suggests that a significant number of participants were in their late twenties to early thirties. The standard deviation was 8.638, pointing to a moderate to high level of variability in the ages of the respondents. The skewness value of 1.256 reveals a positively skewed distribution, indicating that while most participants were relatively young, there were a few older individuals whose ages pulled the average higher. The kurtosis of 1.769 indicates a leptokurtic distribution, characterized by a sharper peak and heavier tails than the normal distribution, implying some values were far from the mean. The age range spanned 53 years, from a minimum of 21 to a maximum of 74 years, demonstrating that participants represented a wide spectrum of age groups. The sum of all age values was 8,629.

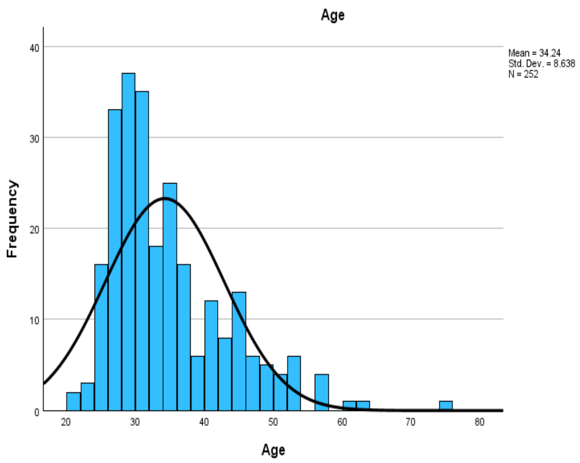

Fig 2: Histogram for the distribution of age group in the sample

In terms of Work Experience, the mean value was 8.88 years, suggesting that on average, the participants had just under nine years of professional experience. The median work experience was 6 years, indicating that half of the respondents had six years or less experience, while the mode, the most frequently occurring value, was 2 years. This reflects a relatively young or early-career group overall. The standard deviation was 7.697, denoting high variability in the number of years of experience among the participants. A skewness value of 1.306 again suggests a positively skewed distribution, meaning that while most participants had fewer years of experience, a small number had significantly more, raising the average. The kurtosis was 1.443, indicating a leptokurtic distribution, where the data is peaked with heavier tails, showing that some participants had extremely high or low experience levels compared to the mean. The range was 37 years, with work experience ranging from 0 to 37 years. The sum of all work experience reported was 2,238 years.

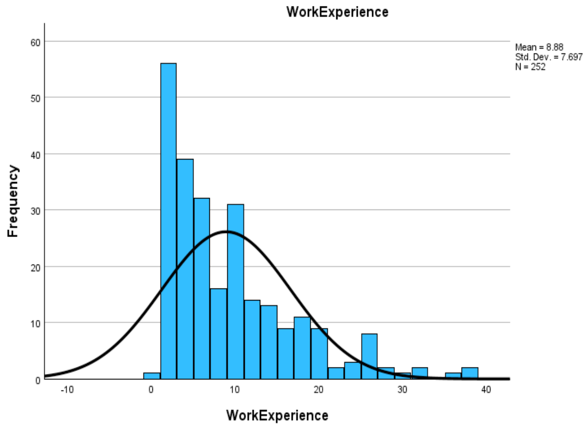

Fig 3: Histogram for the work experience

The sample consisted predominantly of female participants with an average age of around 34 years and average work experience of nearly 9 years. Both age and work experience showed positive skewness, indicating the presence of older and more experienced outliers. Additionally, the leptokurtic nature of both distributions for age and experience suggests that while most respondents clustered around the mean, there were notable deviations.

Research Question 1. What is the status of teacher artificial intelligence (AI) competence self-efficacy (TAICS) of primary school teachers in Nagaland.

According to fig 4, the analysis of Teacher Artificial Intelligence (AI) Competence Self-efficacy (TAICS) among primary school teachers in Nagaland reveals nuanced differences across its six dimensions: AI Knowledge (AIK), AI Pedagogy (AIP), AI Assessment (AIA), AI Ethics (AIE), Human-Centred Education (HCE), and Professional Engagement (PEN). The overall TAICS scores show that the majority of teachers, specifically 104 out of 252 (41.27%), fall into the average category, followed by 58 teachers (23.02%) in the above average category. Only 18 teachers (7.14%) are in the low range, and 14 (5.56%) in the extremely high or extremely low categories respectively, indicating that while most teachers feel moderately competent with AI, a small segment displays either high confidence or a clear lack of it.

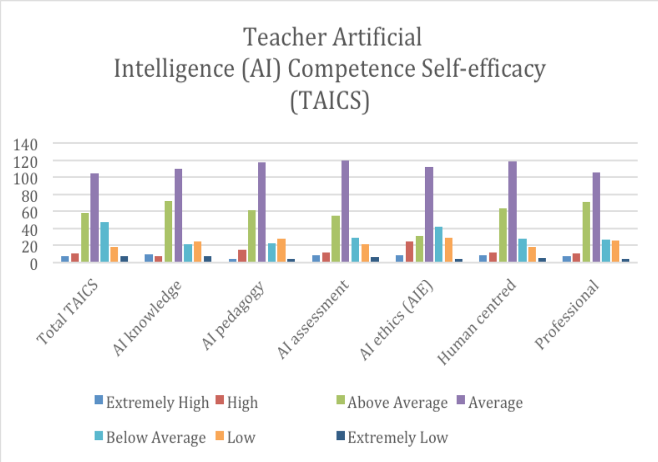

Fig 4: Multiple column bar chart showing the status of Teacher Artificial Intelligence (AI) Competence Self-efficacy (TAICS) at elementary level

In the domain of AI Knowledge (AIK), the largest proportion—110 teachers (43.65%)—rated themselves as average, while a notable 72 teachers (28.57%) fell into the above average category. This suggests a relatively strong foundational understanding of AI concepts. However, 25 teachers (9.92%) rated themselves as low, and 7 each (2.78%) placed themselves at the extremely low and extremely high levels, reflecting disparities in theoretical exposure or access to AI knowledge.

In terms of AI Pedagogy (AIP), 117 teachers (46.43%) reported an average level of competence, and 61 (24.21%) rated themselves above average, showing that nearly three-fourths of the respondents are moderately or well-prepared to integrate AI into their teaching practices. Still, a considerable number of teachers fall on the lower end, with 28 (11.11%) identifying as low, and 23 (9.12%) as below average, which suggests a need for professional development targeting pedagogical integration of AI. Interestingly, only 4 teachers each reported extremely high or extremely low competence, again highlighting a polarized spread at the extremes.

With regard to AI Assessment (AIA), which deals with using AI tools for evaluating student learning, the largest cluster—119 teachers (47.22%)—rated themselves as average, and 55 (21.83%) as above average. However, 29 teachers (11.51%) saw themselves as below average, and 22 (8.73%) as low, indicating that although the majority have moderate confidence in this area, a significant portion still lacks competence in using AI for assessment. A total of 9 teachers placed themselves in the extremely high category, while 6 rated themselves as extremely low, again showing the need for skill-specific training.

The dimension of AI Ethics (AIE), which refers to awareness and application of ethical principles in AI usage, shows that 112 teachers (44.44%) placed themselves at the average level, with 31 (12.30%) in the above average and 25 (9.92%) in the high categories. Notably, this is one of the dimensions with a larger group of teachers—42 (16.67%)—falling under the below average category, and 29 (11.51%) under low, indicating a strong need to enhance ethical awareness regarding AI use in classrooms. Only 9 and 4 teachers were at the extreme high and extreme low ends respectively.

In the area of Human-Centred Education (HCE), which emphasizes inclusive, learner-focused AI application, 118 teachers (46.83%) reported an average level of competence, and 63 (25%) were in the above average category. This is a relatively strong area, with only 18 (7.14%) and 5 (1.98%) teachers falling under the low and extremely low categories respectively. The number of teachers at the high (12) and extremely high (8) levels together (20) also reflects growing competence and confidence in maintaining a human-centric focus in AI-integrated education.

Lastly, in the domain of Professional Engagement (PEN), which includes teachers' willingness and involvement in professional activities related to AI, 106 teachers (42.06%) rated themselves as average, 71 (28.17%) as above average, and 11 (4.37%) as high, indicating relatively strong professional interest and engagement in AI. However, 27 teachers (10.71%) placed themselves in the below average, and 26 (10.32%) in the low category. Only 4 teachers considered themselves at the extremely low end, while 7 rated their engagement as extremely high.

IV Discussion

The findings of the present study offer critical insights into the current status of teacher artificial intelligence (AI) competence self-efficacy (TAICS) among primary school teachers in Nagaland, a state that presents a unique educational landscape marked by cultural diversity, geographical remoteness, and evolving digital infrastructure. The overall results indicate that the majority of teachers report average to above-average levels of AI competence self-efficacy across all dimensions, which is an encouraging sign of emerging digital readiness in the state's educational system.

However, the fact that nearly 30% of teachers fall into the below-average to extremely low categories in domains such as AI pedagogy, AI assessment, and AI ethics signals important developmental gaps. In Nagaland, where digital transformation in education is still in its nascent stage, such disparities highlight the urgent need for context-sensitive teacher training programs that can build not only foundational AI knowledge but also practical pedagogical strategies for integrating AI tools into classroom teaching and assessment.

The strength observed in the Human-Centred Education (HCE) and Professional Engagement (PEN) dimensions indicates that many teachers are philosophically aligned with learner-centric education and are open to professional development in AI. This aligns with the broader ethos of education in Nagaland, which emphasizes holistic development, inclusivity, and cultural relevance. The strong scores in these dimensions provide a solid base on which further AI capacity-building programs can be anchored.

Interestingly, the relatively high average scores in AI Knowledge (AIK) suggest that many teachers have a basic conceptual understanding of AI. However, the translation of this knowledge into classroom practices appears to be limited, as evidenced by lower scores in the application-oriented domains like pedagogy and assessment. This disconnect may be attributed to infrastructural challenges, limited access to AI-enabled educational tools, or a lack of exposure to model practices in AI-integrated instruction, which are common constraints in many rural and remote areas of Nagaland.

The low levels of self-efficacy in AI ethics are particularly concerning, as they indicate limited awareness about the implications of AI on issues such as student privacy, algorithmic bias, and responsible data usage. In a digitally evolving educational environment, such ethical considerations are essential to ensure that AI adoption remains safe, fair, and aligned with educational values.

Overall, the findings suggest that while a foundation of AI awareness exists among primary teachers in Nagaland, there is a need for structured, multi-tiered interventions to build their confidence and competence. Initiatives such as teacher mentoring, in-service digital training workshops, AI demonstration classes, and access to culturally relevant AI teaching materials can help bridge the identified gaps. Moreover, the State Council of Educational Research and Training (SCERT), the Department of School Education, and teacher education institutions in Nagaland must play a proactive role in policy formulation, capacity building, and digital infrastructure development to sustain and scale AI integration in primary education.

Given the state's demographic diversity and digital challenges, efforts should also focus on equitable access and localized digital pedagogy, ensuring that teachers from remote and tribal areas are not left behind in the AI transition. Emphasizing AI literacy as part of ongoing professional development—especially through blended learning models and multilingual support can empower Nagaland's educators to become confident facilitators of AI-supported learning environments.

CONCLUSION

The study explored the status of Teacher Artificial Intelligence (AI) Competence Self-Efficacy (TAICS) among primary school teachers in Nagaland and revealed a mixed yet insightful picture of AI readiness in the region's education system. The findings indicate that a majority of teachers perceive themselves to be at an average level of AI competence, particularly in areas like AI knowledge, pedagogy, assessment, ethics, human-centred education, and professional engagement. While a promising proportion of teachers rated themselves above average, a considerable number still remain in the below average to low self-efficacy categories, especially in the practical and ethical dimensions of AI integration.

These results highlight the presence of foundational awareness and a growing interest in AI tools among teachers, yet they also point to gaps in practical skills, pedagogical application, and ethical understanding, which are essential for meaningful and responsible integration of AI in classrooms. The comparatively better performance in human-centred education and professional engagement suggests that teachers in Nagaland are willing and motivated to engage with technology, provided they receive proper support and contextually relevant training.

Given Nagaland's unique socio-cultural and geographic context, the study underscores the need for region-specific, inclusive, and continuous professional development programs that address both the technical and pedagogical aspects of AI use in education. Strengthening teacher competencies in AI through localized training, digital infrastructure improvement, and capacity-building initiatives will be crucial to ensuring equitable and effective adoption of AI in the state's school system. Ultimately, equipping teachers with the confidence and competence to integrate AI meaningfully can contribute significantly to transforming education in Nagaland and aligning it with national priorities under the NEP 2020.

RECOMMENDATIONS

- **Organize Targeted AI Capacity-Building Programs for Teachers**
  Given the significant variation in AI competence across dimensions—particularly in pedagogy, assessment, and ethics—there is an urgent need to design and implement context-specific professional development programs that focus on the practical integration of AI into classroom teaching, not just theoretical knowledge. These programs should be hands-on, activity-based, and aligned with the local educational context of Nagaland.
- **Integrate AI Ethics and Responsible Use into Teacher Training Modules**
  Since the study reveals lower self-efficacy in AI ethics, teacher education and in-service training curricula must include structured modules on data privacy, algorithmic bias, ethical use of AI tools, and digital safety, especially when applied to young learners in primary education.
- **Expand Access to AI Tools and Infrastructure in Remote Schools**
  To reduce regional disparities in AI competence, the government and educational institutions should invest in digital infrastructure in rural and remote schools, including internet access, smart devices, and AI-enabled learning platforms. Initiatives like *Livi AI* and *Embibe* should be expanded equitably across all districts.
- **Encourage Peer-Learning and Professional Collaboration**
  Teacher self-efficacy can be enhanced through collaborative networks, peer mentoring, and knowledge-sharing platforms where educators who are more proficient with AI can support and train their peers, especially in areas like AI-driven assessment and human-centred applications.
- **Develop Monitoring and Evaluation Frameworks for AI Implementation**
  Institutions like the SCERT, DIETs, and the Department of School Education should establish systems to regularly monitor the impact of AI tools and training on teacher competence and classroom practice. This would help in making evidence-based adjustments to ongoing digital education initiatives.
- **Culturally and Linguistically Adapt AI Content for Local Relevance**
  AI-based educational tools and resources should be developed or adapted in local languages and cultural contexts to enhance accessibility and relevance, especially for tribal and rural schools. This will help bridge the digital divide and promote inclusivity in AI education.
- **Encourage Research and Documentation in AI Competence in NE India**
  As this study is among the first of its kind in Nagaland, it is essential to encourage more region-specific research on AI in education, including longitudinal

studies to assess how teacher competence evolves over time with continued exposure and training.

- **Policy Integration and Long-Term Planning** The state's education policy framework should include clear guidelines and long-term plans for AI integration at the primary education level, with specific focus on teacher readiness, student learning outcomes, and infrastructure development.

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