



EXAMINING AI READINESS AND DIGITAL PEDAGOGY SKILLS AMONG TEACHERS OF DHARANIDHAR UNIVERSITY, KEONJHAR

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RESEARCH ARTICLE



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Abstract

Artificial Intelligence (AI) readiness and digital pedagogy skills are vital proficiencies for teachers in the 21st century, as the quick development of AI and digital technologies has transformed educational practices. A Few studies have analysed university teachers' readiness, especially in the context of Dharanidhar University, Keonjhar, regardless the growing importance on technology integration in education. There is a research gap about the relationship between AI readiness and digital pedagogy skills among higher education teachers and the impact on demographic variables like gender and teaching experience because previous studies have mostly focus on school teachers, pre-service teachers, or general digital competence. The goal of the study was to evaluate the level of AI readiness and digital pedagogy skills among Dharanidhar University teachers and to investigate the relationship between these two variables, and compare them based on gender and teaching experience. A descriptive survey method was used, and data were collected from 40 teachers selected by simple random sampling. The researcher developed AI Readiness Scale and Digital Pedagogy Skills Scale were used for data collection. The data were analysed using percentage, mean, standard deviation, Pearson's correlation, and t-test. The results displayed that the most of teachers had moderate to high levels of both AI readiness and digital pedagogy skills; a strong positive and significant relationship was built between AI readiness and digital pedagogy skills ($r = 0.846$), indicate that teachers with stronger digital teaching competencies are better ready to combine AI into educational practices; there were no significant differences found based on gender; however, both AI readiness and digital pedagogy skills were significantly affected by teaching experience, with experienced teachers scoring higher than less experienced teachers. The study determines the value of increasing digital pedagogy and AI literacy through continuous professional development, ICT training, and institutional support.

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Introduction

In 21st century artificial Intelligence (AI) is an active branch of technology and generated media. The wide development and universal adoption of artificial intelligence (AI) have changed unequalled transformations in the field of education and professional life of individuals. AI is progressively unified into daily activities and up-grade the human interaction through the digital media with the help of AI. Broadly as computational systems and toolsets capable of rational thinking in some cases, human-like cognition which help human live and existence. In our daily life, AI is present and useful day to day life such as education, technology, agriculture etc. (Ayanwale, Adelani, Molefi, & Ishola, 2024). The training of educators for artificial intelligence (AI) is crucial for their insight of professional self-efficacy in educational settings. The constructions for AI cover both the knowledge and attitudes that future educators keep on the combination of AI technologies into their teaching practices (Kuralay Baimukhambetova, 2026). The term, "artificial intelligence (AI)," was produced by professor Jhon McCarthy from Stanford University in 1955, with a meaning to make machines intelligent. As an example of the fourth industrial revolution, AI often refers to intelligent systems able of present complicated functions and intellectual tasks, "including the aptitude to see, understand and translate spoken and written language, analyse data, make direction, and more" (Chenshuo Dong, 2026). AI in education (AIED) as a new research field was defined the new opportunities of combining AI technologies to refine teaching and learning practices in several educational scenarios (Wu, 2025). Digital technologies diffuse every aspect of our life education, communication, culture, government, banking, marketing, health, corporate organizations, logistics and transport, etc. Some of

these are taken for grant automatic tellers, smart phones, email, digital camera, social networking and GPS navigators for cars. Digital technologies and media have affected the education community, how we teach and how students predict to learn (Matthew N. O. Sadiku, 2019). As speedily expanding public university, Dharanidhar University, Keonjhar is working to build up teaching methods in response to national programs like Digital India and the National Education Policy (NEP) 2020. Artificial intelligence (AI) is changing speedily, global education system, affecting instruction procedures, curriculum development, evolution, and institutional governance. As educational establishments radical embrace AI-driven technologies, the idea of AI preparedness has become an analytical perspective to see how well teachers and businesses are ready to encompass these technologies.

Literature Review

An understanding of teachers' AI readiness and digital pedagogy abilities are present by the review of related literature. It describes how the blend of digital technologies and artificial intelligence has move teaching and learning procedures and rise the demand for technological proficiency, digital teaching skills, and preparedness to use AI-based teaching resources in modern education.

The best mark of teachers' AI literacy was intrinsic motivation and AI readiness. AI literacy, computational thinking, AI anxiety, and the digital divide were also found to be significantly correlated, advocate that teachers' motivation and attitudes are more important than technical or demographic factors (Mor Dehen, 2026). Teachers' technological proficiency, pedagogical expertise, and ethical consciousness discover how prepared they are for AI in the classroom. It indicates that educators who are more comfortable utilizing technology are better equipped to include AI into their lessons. The study also foregrounds the significance of continuous professional development and ethical responsibility for the successful application of AI in education (Chenshuo Dong, AI readiness in education: A review of conceptual foundations, pedagogical dimensions, and ethical considerations, 2026). Positive professional self-efficacy beliefs and top levels of artificial intelligence readiness were display by pre-service teachers. However, there was no observable correlation between the participants' professional self-efficacy and AI readiness (Kuralay Baimukhambetova, 2026). Teachers had a basic knowledge of AI and were rise to evaluate its application in the classroom in a critical and moral manner. However, due to an absence of real-world experience, inadequate funding, substandard digital infrastructure, and a lack of institutional support, their readiness to encompasses AI in education was constrained (Palle, 2025). Teachers' lacks understanding of AI, ethical concerns about its application, and different access to opportunities and technological resources all hamper the successful combination of AI in education (Daher, 2025). AI help for self-regulated and higher-order learning, AI literacy and readiness, and AI use in creative teaching techniques (Wu, 2025). Teachers had diverse degrees of AI familiarity and confidence, and they were only fairly prepared to use AI tools in the classroom. Gender and teaching experience did not remarkably correlate with AI familiarity, according to the study. Teachers saw advantages like few work and personalized instruction, but they also come across significantly difficulties when assimilating AI into their lessons (Idrisu, 2025). For AI and ICT-based learning to be successful, teacher readiness is essential. When teachers were competent and self-assured in their use of digital tools, students show greater interest and positive attitudes. Adoption of digital pedagogy was hampered by a lack of institutional support, inadequate infrastructure, and a lack of training (Khan, 2025). Through frameworks like Digital competence of Educators and TPACK, AI is becoming more and more combine into teacher education. Additionally, the study finds that teachers who have digital competence are better able to support creative teaching strategies and personalized learning opportunities (Harsh Shukla, 2025). Many educators understand the value of AI and digital tools in the classroom, not all of them are prepared to employ them. While some educators are self-assured, others need additional instruction, resources, and assistance. The most of training programs firstly concentrate on fundamental digital skills rather than AI teaching strategies or ethical considerations (Frank Nabi, 2025). Pre-service teachers display higher abilities in ethics, creativity, problem-solving, and AI use. Additionally, it shows how teachers' confidence in utilizing AI in the classroom was improve by their knowledge of the technology (Ayanwale, Adelani, Molefi, & Ishola, 2024). Teacher education programs persist to place inadequate emphasis on AI literacy. The majority of research concentrated only on AI technical expertise, paying less attention to teacher's professional judgment, practical skills, and general professional knowledge (Stenliden, 2024). Depending on their experience, subject area, and earlier AI knowledge, teachers' attitudes and readiness for AI education can diverse. Teachers who had more experience with AI felt more confident and passionate about using it in the classroom. Teachers' preparedness for AI education, appropriate training programs are needed (Ng, 2024). Cognition, aptitude, vision, and ethics were the base of AI in the classroom was display by educators with greater AI expertise, abilities, and positive attitudes. The use of AI led to an improvement in ethical consciousness (Lei, 2023). Teacher who was more familiar instructing AI in the classroom show a greater desire to do so. It also reveals insight that teacher's insight of the relevance and utility of AI for education had a significant effect on their readiness to teach it. In general, teachers were more prepared and excited to teach AI to students when they had helpful opinions about the technology (Ayanwale, Sanusi, Adelani, Aruleba, & Oyeleke, 2022).

Methodology

Research Design

The researcher's general strategy or framework for methodically gathering, evaluating, and interpreting data is known as their research design. It guarantees the results and aids the research in perform the study in a scientific manner. The Descriptive Survey Method is used in this study. Because the study's objective is to assess Dharanidhar University teachers' current level of AI

readiness and digital pedagogy skills without changing any variables, this design is considered appropriate. The descriptive survey approach aids in collect data concerning the present state of affairs, attitudes, abilities, and practices of educator's study digital pedagogy and artificial intelligence. Additionally, the study relates these variables according to demographic factors like gender and teaching experience in an exertion to determine the relationship between digital pedagogy skills and AI readiness. In order to gather quantitative data from teachers and analyze it using statistical methods like mean, percentage, standard deviation, correlation, and t-test, the descriptive survey design is suitable.

Sample and Sampling techniques

Teachers working at Dharanidhar University participated in this study. The people who take part in a research study and give the required data for data collection and analysis are known as participants. The motive of this study was to assess the participant's proficiency with digital pedagogy and AI readiness in the context of modern technology integrated education. 40 teachers are chosen as the part in the study. Male and female educators from diverse academic departments with a range of teaching framework were among the participants. In order to show a broad understanding of AI readiness and digital pedagogy practices within the university environment, teachers with a different of subject backgrounds were involve in the study. The basic random sampling method was used to select the participants. This approach was select because it decreases bias and check fairness in the selection process by giving every teacher in the population with a same chance to be select for the study. Additionally, random sampling increases the sample's representativeness and improves the validity of the results. By responding structured questionnaires generated by the researcher, the select participants collaborated significantly to the study. This survey collected data on their awareness, comprehension, confidence, and readiness to employ AI tools in the classroom as well as their capacity to successfully integrate digital technologies into instruction. The primary source of information for the study came from the participants' answer.

Tools Used

Teachers at Dharanidhar University present the data for this study using a quantitative method. Structured questionnaires were the main tool used by the researcher to collect data. The selected participants were given two tools: the AI readiness scale and the Digital Pedagogy Skill Questionnaires. Closed-ended statements on a five-point Likert scale from "Strongly Agree" to "Strongly Disagree" made up the questionnaires. The Cronbach Alpha Value of AI readiness scale was 0.83 and Digital Pedagogy Skill scale was 0.86, which showed the high reliability of the scales. The participants were given adequate time to carefully complete the questionnaires, and they were also given the instructions they require to ensure that their answers were accurate and clear. The researcher personally gathered the completed questionnaires. Throughout the process, ethical considerations like voluntary participation, confidentiality, and using data only for academic motive were appropriately conform. After being collect, the data was organized and ready for statistical analysis.

Ethical Considerations

Throughout the research process, ethical considerations were appropriately conformed to guarantee integrity, equity, and respect for the participants. Prior to collecting the data, the researcher acquired the informed consent of the Dharanidhar University teachers by clearly outlining the goals and purpose of the study. The study was wholly voluntary, and participants could leave at any time without facing any consequence. By having the participants' identities and personal information private, the researcher secured their privacy. All of the collected data from the questionnaires were simply utilized for academic and investigative purposes. The information was safely kept and fairly and objectively inspect. By accurately citing all sources and supporting academic integrity during the investigation, the researcher also avoided plagiarism. In order to prevent participants from feeling uncomfortable or judged based on their technological expertise, great care was taken in writing the questions in a respectful manner. In order to maintain the validity, reliability, and credibility of the research study, ethical guidelines were precisely observed.

Data analysis

The systematic and scientific process of organizing, summarizing, analyzing, and interpreting collected data in order to obtain significant findings and conclusions is known as data analysis. It is considered as one of the most essential steps of research since a study's validity and success are primarily dependent on how well the data are interpreted and analyzed.

To assess level of AI Readiness among teachers

To assess the level of AI readiness among teachers of Dharanidhar University, Keonjhar, the raw scores obtained from 40 teachers were analysed and classified into three levels: Low, Moderate, and High. The classification was done based on percentage norms of the total possible score of the AI Readiness scale.

Table – 1: Percentage-wise distribution of teachers based on their level of AI readiness

Level of AI Readiness	Score Range	No. of Teachers	Percentage
Low	Below 75	4	10%
Moderate	75 – 100	20	50%
High	Above 100	16	40%
Total		40	100%

The most of teachers have a moderate level of AI readiness, according to the table. Just 10% of the 40 teachers are unprepared, while 50% are moderately prepared and 40% are highly prepared. This demonstrated that while maximum teachers are ready to use AI in the classroom, some still need assistance and training to advance their AI abilities.

Level of Digital Pedagogy Skills among teachers

To assess the level of digital pedagogy skills among teachers of Dharanidhar University, Keonjhar, the raw scores acquired from 40 teachers on the Digital Pedagogy Skills scale were analysed. The scores were categorized into three levels: Low, Moderate, and High, based on percentage norms of the maximum possible score. The frequency and percentage of teachers in each level were calculated to regulate the overall distribution.

Table – 2: Percentage-wise distribution of teachers based on their level of Digital pedagogy skills

Level of Digital pedagogy skills	Score Range	No. of Teachers	Percentage
Low	Below 75	4	10%
Moderate	75 – 100	19	47.5%
High	Above 100	17	42.5%
Total		40	100%

The level of digital pedagogy skills among teachers at Dharanidhar University in Keonjhar is explained in the table. 10% of the 40 teachers had poor digital skills, 47.5% had moderate skills, and 42.5% had high skills. With an average score of 96.03 out of 125, the maximum of teachers has moderate-to-high competence in digital pedagogy. NEP-2020 states that some teachers still need pedagogy and ICT training to improve their teaching abilities.

Relationship between AI Readiness and Digital Pedagogy Skills among teachers

To examine the relationship between AI Readiness and Digital Pedagogy Skills among teachers of Dharanidhar University, Keonjhar, Pearson's Product Moment Correlation Coefficient was calculated. The raw scores of 40 teachers on both dimensions were used for analysis. The correlation was tested for significance at 0.05 and 0.01 levels.

Table – 3: Correlation between AI readiness and digital pedagogy skills among the teachers.

Category	N	R	Table Value	Remark
AI Readiness	40	0.846	0.312 (0.05)	Significant
Digital pedagogy skills			0.403 (0.01)	

Teachers' digital pedagogy skills and AI readiness are strongly positively correlated. Using the Pearson correlation method, 40 teachers participated in the study. Teachers who are more ready to use AI also have better digital teaching abilities, according to the correlation value ($r=0.846$). The relationship is statistically significant and not the result of chance since the calculated value is greater than the table values at both significance levels.

AI readiness and Digital Pedagogy skills of teachers based on demographic variables (gender and teaching experience)

The present analysis compares AI readiness and digital pedagogy skills of teachers based on gender. For this objective, an independent samples t-test was applied to compare the mean scores of male and female teachers. The null hypothesis states that there is no significant difference between male and female teachers in terms of AI readiness and digital pedagogy skills.

Table – 4: There is no significance difference between AI readiness and digital pedagogy skills of teachers based on gender.

Category	Gender	N	Mean	SD	DF	Calculated T-value	T-value (0.05)	Remarks
AI readiness	Male	17	65.4	6.2	38	0.83	2.02	Not significant
	Female	23	63.8	5.9				
Digital pedagogy skills	Male	17	68.2	7.1	38	0.77	2.02	Not significant
	Female	23	66.5	6.8				

It clarifies that male teachers performed slightly better than female teachers in terms of digital pedagogy skills and AI readiness. But there isn't much of a difference between male and female educators. The difference is not statistically significant because the calculated t-values are less than the table value at the 0.05 level of significance. The null hypothesis is thus accepted since gender has no significant impact on teachers' proficiency in digital pedagogy or AI readiness.

The present study compares AI readiness and digital pedagogy skills of teachers based on Teaching experience. Teachers were classified into two groups, namely experienced (Above 5 years) and non-experienced (Below 5 years). An independent samples t-test was applied to compare the mean scores of these two groups. The null hypothesis states that there is no significant difference in AI readiness and digital pedagogy skills between experienced and non-experienced teachers.

Table – 5: There is no significance difference between AI readiness and digital pedagogy skills of teachers based on teaching experience.

Variable	Group	N	Mean	SD	DF	Calculated T-value	T-value (0.05)	Remarks
AI readiness	Experienced	25	67.5	6.4	38	2.35	2.02	Significant
	Non-Experienced	15	63.2	5.8				
Digital pedagogy skills	Experienced	25	70.3	6.9	38	2.63	2.02	Significant
	Non-Experienced	15	65.1	6.3				

The table display the differences in digital pedagogy abilities and AI readiness between teachers with and without experience. In terms of digital pedagogy skills (Mean = 70.3) and AI readiness (Mean = 67.5), experienced teachers outperformed non-experienced teachers (63.2 and 65.1, respectively). At the 0.05 level of significance, the calculated t-values for digital pedagogy skills (2.63) and AI readiness (2.35) are greater than the table value (2.02). This shows that there is a statistically significant difference between the two groups. Therefore, the null hypothesis is rejected because teaching experience has a significant impact on teachers' digital pedagogy skills and AI readiness.

Discussion

The most of teachers at Dharanidhar University have moderate to high levels of AI readiness and digital pedagogy skills, according to the present study. This research recommends that teachers are increasingly adjusting to modern technological developments and are getting better equipped to integrate digital tools and artificial intelligence into the teaching learning process. The results are in line with research by (Mor Dehen, 2026), who found that motivation, self-assurance, and attitudes toward technology have a meaningful impact on teachers' AI literacy and preparedness. In a similar vein, (Chenshuo Dong, AI

readiness in education: A review of conceptual foundations, pedagogical dimensions, and ethical considerations, 2026) emphasized that educators who have higher pedagogical skills and technological competence are better equipped to integrate AI into their lessons. Some teachers in the present study had a moderate level of preparedness, which could be the result of insufficient institutional support, a lack of exposure to AI tools, and a lack of practical training. The most of teachers have moderate to high digital pedagogy skills, according to the findings, showing that educators are becoming more expert at using ICT tools, online platforms, multimedia resources, and digital teaching techniques in the classroom. These results support the findings of (Harsh Shukla, 2025) study, which indicate that teachers' digital competency promotes creative teaching methods and learning personalized opportunities. (Khan, 2025) also find that student's engagement and learning outcomes are positively influenced by teacher's readiness and confidence in using digital tools. Effective digital pedagogy skills are still affected by issues like insufficient infrastructure, a lack of training, and limited access to technology, as verified by the small percentage of teachers who lack digital skills. One of the study's main conclusions was that teachers' digital pedagogy abilities and AI readiness were strongly positively correlated. The strong correlation value ($r = 0.846$) show that educators with more skilled digital teaching skill are also better equipped to apply AI in classroom environments. This result is steady with (Wu, 2025) study, which found that digital pedagogy skills and AI literacy promote innovative teaching strategies and higher-order learning. Similarly, (Ayanwale, Sanusi, Adelani, Aruleba, & Oyeleke, 2022) found that educators who have a positive attitude towards AI and have greater technological skill are more equipped to use AI in the classroom. Therefore, expanding teachers' skills in digital pedagogy can directly enhance their readiness for AI and their capacity to successfully include cutting edge educational technologies. The study also found that there was no significant difference in the digital pedagogy and AI readiness of male and female teachers. This result recommends that teachers' technological skills, self-assurance, and preparedness to use AI in the classroom are not significantly influenced by their gender. It seems that opportunities for professional development and access to digital technologies are similar for male and female educators. This result is steady with the findings of (Idrisu, 2025), who found that teachers' familiarity and confidence with using AI tools in the classroom are not significantly correlated with their gender. However, there was a remarkable difference based on teaching experience, with more experienced educators showing better digital pedagogy and AI readiness than less experienced educators. This could be as a result of more classroom experience, participation in professional development programs, and opportunities to use digital teaching tools in practical settings over time. According to (Ng, 2024), teachers who have more experience and previous knowledge of AI feel more confident about integrating AI into the classroom, which supports the findings. Therefore, in order to increase their confidence and proficiency in using AI and digital pedagogy techniques, less experienced teachers could need more training, mentoring and technical assistance. Overall, the study highlights that in the 21st century educational system, teachers must have both digital pedagogy skills and AI readiness. To increase teachers' professional competencies and facilitate the effective combination of AI technologies in education, educational institutions should focus on offering frequent workshops, ICT training programs, AI literacy courses, and adequate digital infrastructure.

Educational implication

The present study's conclusions have a number of significant educational implications for educators, teacher educators, and educational institutions. First, the study highlights the necessity of improving higher education instructors' digital pedagogy and AI readiness. Universities should consistently host workshops, seminars, and training programs on artificial intelligence, digital teaching tools, and cutting-edge pedagogical techniques because the most of teachers showed moderate level of preparedness. Teachers will achieve more technological confidence and be able to use AI tools in the classroom with the support of these professional development programs. Second, increasing teachers' digital teaching competency can directly enhance their capacity to use AI in education, as proved by the strong positive correlation between AI readiness and digital pedagogy skills. As a result, the curricula of teacher education programs ought to integrate courses on digital pedagogy, TPACK based learning, ICT integration, and AI literacy. Future educators will be better trained to handle the problems given by technology driven classroom thanks to this. Third, the study suggest that educational institutions provide smart classrooms, internet access, sufficient digital infrastructure, and AI based teaching materials. Teachers may give it challenging to integrate AI into teaching learning procedures without the right technology support. Therefore, educational administrators should promise that every teacher has equal access to digital resources. Fourth, since more experienced educators showed greater digital pedagogy and AI readiness, less experienced educators should obtain special support and mentoring programs. Peer learning, collaborative teaching, and mentorship opportunities can help young educators achieve confidence in using digital technologies and AI. Lastly, the results are line up with the objectives of the National Educational; Policy 2020, which emphasizes innovative teaching methods, digital learning, and technological integration. In order to enhance teaching quality and student learning outcomes, policy makers and academic institutions should collaborate to support contentious professional development and the moral and responsible application of AI in education.

Conclusion

The present study, which included teachers at Dharanidhar University, Keonjhar comes to the conclusion that digital pedagogy and artificial intelligence readiness are becoming essential skills for teachers in today's classroom. The results displayed that most educators have moderate to high levels of digital pedagogy and AI readiness, indicate that educators are gradually adopt technology-based teaching and learning methods. The study also discovers a strong positive correlation between digital pedagogy skills and AI readiness, showing that teachers who are more proficient at using digital teaching techniques are also better

equipped to successfully integration of AI technologies into the classroom. Additionally, the study found crucial difference between male female teachers in terms of digital pedagogy skills and AI readiness, showing that gender has no significance on teachers' technological proficiency. Teaching experience, however had a meaningful impact on both variables. Teachers with more experience demonstrated better digital pedagogy skills and were more prepared than those with less experience. This highlights how essential real-world experience and continuous professional development are to enhancing teachers' technological proficiency. Overall, the study highlights the necessity of common workshops, training programs, ICT support, and AI literacy capability to enhance teachers' understanding, self- assurance, and useful skills in relation to AI and digital pedagogy. To adequately prepare teachers for the successful combination of AI in education, educational institutions should offer professional development opportunities and an adequate technological infrastructure. The study arrives to the conclusion that expanding teachers' proficiency with digital pedagogy and AI readiness will lead to more creative, efficient, and student-centered teaching methods in the future.

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