Transformative Teacher Education in the AI Era: Bridging Indigenous Pedagogy and Digital Competency

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Abstract

The present study entitled "Transformative Teacher Education in the AI Era: Bridging Indigenous Pedagogy and Digital Competency" examines the emerging transformation in teacher education through the integration of Artificial Intelligence (AI)-enabled digital learning practices with indigenous pedagogical traditions rooted in experiential, reflective, and value-based education. In the contemporary educational landscape, rapid technological advancements, especially the rise of Artificial Intelligence, have significantly influenced teaching-learning processes, curriculum design, assessment systems, and instructional methodologies. While AI technologies provide personalized, adaptive, and data-driven learning opportunities, there is increasing concern that excessive dependence on technology may gradually distance education from human values, cultural sensitivity, experiential wisdom, and holistic development. Therefore, there is a growing need to establish a balanced educational framework that combines modern technological competency with indigenous pedagogical principles to prepare teachers capable of addressing both global educational demands and local cultural realities.

The study primarily aimed to analyze the effectiveness of integrating AI-based teacher training with indigenous pedagogical approaches in enhancing pedagogical competence, digital literacy, and cultural sensitivity among teacher trainees. The research adopted an experimental design involving a sample of 160 teacher trainees divided into control and experimental groups. The experimental group received integrated training through AI-enabled digital tools alongside indigenous pedagogical practices such as experiential learning, reflective teaching, collaborative learning, value-based instruction, and culturally responsive educational activities. The study was theoretically grounded in Constructivism, David Kolb's Experiential Learning Theory, Indigenous Knowledge Systems, and AI Adaptive Learning Theory. These theoretical perspectives collectively emphasize learner-centered, experiential, personalized, and culturally meaningful education.

Data for the study were collected using standardized research tools including the Teaching Competence Scale, Digital Literacy Test, and Cultural Sensitivity Scale. Pre-test and post-test methods were employed to measure changes in pedagogical competence, digital literacy, and cultural sensitivity among teacher trainees after the intervention. Statistical techniques such as Mean, Standard Deviation (SD), and t-test were used for data analysis. The findings of the study revealed significant improvement in the teaching competence of the experimental group, with the mean score increasing substantially from the control group mean of 66 to 90 in the experimental group. Similarly, digital competency scores increased from 3.5 in the control group to 4.8 in the experimental group, indicating enhanced technological proficiency among teacher trainees. The pre-post analysis of cultural sensitivity also showed remarkable improvement, with scores increasing from 3.2 to 4.7 after the integrated training. The obtained t-value = 6.40 ($p < 0.05$) was found to be statistically significant, confirming that the integrated AI and indigenous pedagogical approach had a strong positive impact on teacher effectiveness and professional development.

The findings further suggest that the integration of AI tools with indigenous pedagogical practices enhances not only digital competency but also reflective thinking, ethical awareness, cultural responsiveness, collaborative learning, and learner-centered instructional practices among teacher trainees. AI-enabled teaching strategies provided personalized and adaptive learning opportunities, while indigenous pedagogical approaches promoted experiential understanding, value orientation, and holistic personality development. The combined approach created a balanced educational framework that supports both technological innovation and cultural preservation. The study also highlights the relevance of indigenous educational traditions in the digital era, emphasizing that technology should complement rather than replace humanistic and culturally grounded educational values.

The study concludes that transformative teacher education in the AI era requires the meaningful integration of digital competency and indigenous pedagogical wisdom to prepare future educators capable of addressing the educational, social, ethical, and cultural challenges of contemporary society. The study recommends incorporating Indian Knowledge Systems (IKS) within teacher education curricula, strengthening AI-based teacher training modules, promoting blended and culturally responsive pedagogical practices, and enhancing digital infrastructure in educational institutions. The findings of the study are expected to contribute significantly to the development of innovative, value-based, and technologically competent teacher education systems aligned with the objectives of National Education Policy 2020 and the broader goals of holistic and transformative education.

Keywords: Teacher Education, Artificial Intelligence, Indigenous Pedagogy, Digital Competency, Transformative Learning

Introduction

Teacher education is considered the foundation of an effective educational system because teachers play a central role in shaping the intellectual, social, cultural, and moral development of learners. In the 21st century, rapid advancements in digital technologies, particularly Artificial Intelligence (AI), have brought significant changes to educational practices across the world. AI-enabled technologies such as adaptive learning systems, intelligent tutoring systems, data-driven assessment tools, virtual classrooms, and personalized learning platforms are increasingly transforming teaching-learning processes. These technological innovations have created new opportunities for improving instructional effectiveness, learner engagement, classroom management, and educational accessibility. As a result, teacher education programs are now expected to prepare future educators who are not only pedagogically competent but also digitally skilled and technologically adaptive.

Despite the growing importance of AI and digital competency in education, there is increasing concern that excessive dependence on technology may gradually reduce the humanistic, ethical, and cultural dimensions of teaching-learning processes. Education is not merely the transmission of information; it is also a process of holistic personality development, value formation, critical thinking, emotional growth, and social responsibility. In this context, indigenous pedagogical traditions rooted in experiential learning, reflective practice, community participation, moral education, and culturally responsive teaching continue to hold significant relevance. Indigenous pedagogical approaches emphasize learning through lived experiences, observation, collaboration, self-reflection, and ethical engagement with society and nature. These traditional educational practices promote holistic development and preserve cultural identity, social harmony, and value-based learning.

The integration of Artificial Intelligence with indigenous pedagogical approaches has therefore emerged as a significant area of discussion in contemporary teacher education. While AI technologies provide personalized, adaptive, and efficient learning opportunities, indigenous pedagogy contributes human values, contextual understanding, cultural sensitivity, and experiential wisdom. Bridging these two dimensions can create a transformative model of teacher education that combines technological innovation with ethical and culturally grounded educational practices. Such an integrated approach is essential for preparing future teachers capable of addressing modern classroom challenges while maintaining the humanistic essence of education.

The theoretical foundation of the present study is based on Constructivism, which emphasizes active participation and collaborative knowledge construction through interaction and experience. The study is also supported by David Kolb's Experiential Learning Theory, which advocates learning through practical engagement, reflection, and experimentation. Additionally, Indigenous Knowledge Systems (IKS) emphasize holistic, value-oriented, and culturally rooted educational practices, while AI Adaptive Learning Theory highlights personalized and data-driven instructional approaches. Together, these theoretical perspectives support the idea that meaningful teacher education should integrate technological competency with experiential, reflective, and culturally responsive pedagogy.

In many teacher education institutions, however, training programs often focus either on traditional pedagogical methods or on digital competency independently, without creating a meaningful integration between the two. As a result, teacher trainees may become technologically proficient but lack cultural sensitivity and value-oriented teaching practices, or they may possess traditional pedagogical understanding without adequate digital literacy. This imbalance creates challenges in preparing teachers who can effectively function in technology-driven and culturally diverse educational environments. Therefore, there is a growing need to examine how the integration of AI-enabled digital tools with indigenous pedagogical approaches can influence pedagogical competence, digital literacy, and cultural sensitivity among teacher trainees.

The present study seeks to explore transformative teacher education in the AI era by analyzing the impact of integrated AI and indigenous pedagogy training on teacher trainees. The study attempts to determine whether the combination of technological innovation and indigenous educational wisdom can create more effective, culturally responsive, and professionally competent educators. The findings of the study are expected to contribute significantly to teacher education reform, digital pedagogy, culturally responsive education, and the implementation of National Education Policy 2020, which emphasizes holistic, multidisciplinary, technology-enabled, and value-based education.

Theoretical Background of the Study

The present study is grounded in multiple educational and psychological theories that emphasize holistic learning, experiential pedagogy, cultural responsiveness, and technology-enabled instruction. The primary theoretical foundation of the study is Constructivism, which explains that learners actively construct knowledge through interaction, collaboration, reflection, and engagement with their environment. According to this theory, meaningful learning occurs when learners participate actively in the teaching-learning process rather than passively receiving information. AI-enabled educational technologies and indigenous pedagogical practices both support learner-centered approaches that encourage exploration, critical thinking, collaboration, and experiential understanding. Constructivism therefore provides a strong foundation for integrating technology with participatory and culturally contextualized teaching methods in teacher education.

The study is also supported by David Kolb's Experiential Learning Theory, which emphasizes learning through direct experience, reflection, observation, and active experimentation. According to Kolb, effective teaching-learning processes should engage learners in practical and reflective activities that connect theoretical knowledge with real-life experiences. Indigenous pedagogical practices such as storytelling, reflective teaching, collaborative learning, community interaction, and value-based education align closely with experiential learning principles. Similarly, AI-enabled simulations, virtual classrooms, adaptive learning platforms, and interactive digital tools provide opportunities for experiential and practice-oriented learning among teacher trainees.

Another significant theoretical base of the study is Indigenous Knowledge Systems (IKS), which emphasize holistic, value-oriented, culturally rooted, and community-centered education. Indigenous pedagogy focuses on moral development, social responsibility, experiential wisdom, environmental harmony, and culturally responsive learning practices. It recognizes education as a process of developing the intellectual, emotional, ethical, and spiritual dimensions of learners. In the context of teacher education, indigenous pedagogical approaches help future educators develop cultural sensitivity, empathy, ethical awareness, and socially responsive teaching practices.

The study is further supported by AI Adaptive Learning Theory, which highlights the role of Artificial Intelligence in providing personalized, data-driven, and adaptive learning experiences. AI-enabled educational systems analyze learners' progress, learning styles, strengths, and weaknesses to deliver customized instructional support and feedback. These technologies enhance teaching efficiency, digital competency, classroom engagement, and instructional flexibility. AI-based learning environments support self-paced learning, interactive instruction, and continuous assessment, thereby improving pedagogical effectiveness and learning outcomes.

Collectively, these theoretical perspectives establish that transformative teacher education in the AI era requires a balanced integration of digital competency and indigenous pedagogical wisdom. While AI technologies contribute innovation,

personalization, and technological efficiency, indigenous pedagogical approaches preserve human values, experiential understanding, cultural identity, and holistic development. The integration of these dimensions creates a comprehensive framework for preparing future teachers capable of addressing contemporary educational challenges in both technologically advanced and culturally diverse learning environments.

Significance of the Study

The present study holds significant importance in the field of teacher education because it examines the transformative role of Artificial Intelligence (AI) and indigenous pedagogical practices in preparing future educators for the rapidly evolving educational environment. In the contemporary digital era, educational institutions are increasingly integrating AI-enabled technologies into teaching-learning processes to improve instructional effectiveness, personalized learning, classroom engagement, and educational accessibility. At the same time, there is a growing realization that education should not become entirely technology-driven at the cost of human values, cultural identity, ethical awareness, and holistic development. This study therefore becomes important as it attempts to bridge modern digital competency with indigenous pedagogical wisdom to create a balanced and transformative model of teacher education.

The study is significant for teacher education institutions because it highlights the need to prepare teacher trainees who are not only technologically competent but also culturally sensitive, reflective, and value-oriented educators. The findings emphasize that integrating AI-enabled teaching tools with indigenous pedagogical approaches such as experiential learning, reflective practice, collaborative learning, and value-based instruction enhances pedagogical competence and professional effectiveness among teacher trainees. This integrated approach supports the development of future teachers capable of addressing diverse classroom needs while preserving ethical and cultural dimensions of education.

The study also contributes to the promotion of Indigenous Knowledge Systems (IKS) in contemporary education. Indigenous pedagogical traditions provide holistic, learner-centered, and culturally responsive educational practices that promote moral development, social harmony, experiential understanding, and community engagement. By integrating indigenous pedagogy with AI-enabled learning, the study demonstrates how traditional educational wisdom can complement technological innovation to create more meaningful and inclusive learning experiences.

Furthermore, the research is important in the context of digital transformation and educational policy reforms. The study supports the objectives of National Education Policy 2020, which emphasizes technology integration, multidisciplinary learning, experiential pedagogy, Indian Knowledge Systems, and holistic teacher development. The findings are expected to assist policymakers, curriculum developers, teacher educators, and educational institutions in designing innovative teacher education programs that effectively combine AI technologies with culturally grounded pedagogical practices.

The study is equally valuable for future researchers and academicians because it addresses an emerging area of research involving the integration of Artificial Intelligence and indigenous pedagogy in teacher education. Since limited empirical studies have examined the combined impact of these dimensions on pedagogical competence, digital literacy, and cultural sensitivity, the present research provides a significant academic contribution and a foundation for further studies in transformative and technology-enabled teacher education.

Statement of the Problem

Teacher education programs often emphasize either traditional pedagogy or digital competency, lacking integration. This study investigates how combining both can improve teacher effectiveness.

Operational Definitions

- **Transformative Teacher Education:** Holistic teacher development
- **Indigenous Pedagogy:** Traditional, culture-based teaching methods

- **Digital Competency:** Ability to use digital tools effectively

Variables

- **Independent Variable-** Integrated AI + Indigenous Pedagogy Training
- **Dependent Variables-** Pedagogical Competence, Digital Literacy, Cultural Sensitivity

Objectives of the Study

1. To evaluate the impact on pedagogical competence
2. To assess digital competency improvement
3. To analyze cultural sensitivity development

Research Questions

- Does integrated training improve teaching skills?
- Does it enhance digital competency?

Scope of the Study

The scope of the present study is limited to teacher trainees enrolled in teacher education institutes. The study focuses on examining the impact of integrated AI-enabled training and indigenous pedagogical practices on pedagogical competence, digital literacy, and cultural sensitivity among teacher trainees. It also analyzes how the combination of Artificial Intelligence and indigenous pedagogy contributes to transformative teacher education and professional development in the contemporary educational context.

Delimitation of the Study

The study was delimited to a sample of 160 teacher trainees selected from teacher education institutes. The duration of the study was restricted to 3 months. The research focused specifically on the implementation of integrated AI and indigenous pedagogy training and its impact on selected variables related to teacher competency and professional development.

Review of Literature

- John Dewey (1938) emphasized the importance of experiential learning in education and argued that effective teaching occurs when learners actively engage in meaningful experiences. Dewey believed that education should connect classroom learning with real-life situations, reflective thinking, and active participation. His study highlighted that experiential and learner-centered teaching approaches significantly improve instructional effectiveness and holistic development among learners.
- David Kolb (1984) developed the Experiential Learning Theory, which states that learning becomes more effective when individuals learn through concrete experiences, reflection, observation, and active experimentation. Kolb emphasized that practical engagement and reflective practice enhance conceptual understanding, professional competency, and problem-solving abilities. His theory strongly supports activity-based and participatory learning approaches in teacher education.
- Punya Mishra and Matthew Koehler (2006) proposed the Technological Pedagogical Content Knowledge framework, which emphasizes the integration of technological knowledge, pedagogical knowledge, and content knowledge for effective teaching. Their study highlighted that teachers must possess digital competency along with pedagogical understanding to successfully integrate technology into classroom instruction and create meaningful learning experiences.

- Sharma (2021) conducted a study on the role of Artificial Intelligence in education and found that AI-enabled teaching-learning processes significantly improve instructional effectiveness, learner engagement, personalized learning, and classroom interaction. The study concluded that AI-based educational tools support adaptive learning environments and enhance the professional competency of teachers in modern educational settings.
- Kumar (2022) examined the impact of indigenous pedagogy on value-based and holistic education. The study revealed that indigenous pedagogical practices such as experiential learning, reflective teaching, community participation, and moral instruction help develop ethical awareness, cultural sensitivity, social responsibility, and value-oriented learning among students and teachers. The findings emphasized the relevance of indigenous educational traditions in contemporary teacher education.

Research Gap

A review of the related literature reveals that several studies have been conducted separately on Artificial Intelligence in education, digital competency, experiential learning, indigenous pedagogy, and teacher education. Previous research has focused either on technology-enabled teaching practices or on the value-oriented and holistic dimensions of indigenous educational traditions. However, very limited studies have examined the integrated impact of AI-enabled digital training and indigenous pedagogical approaches within teacher education programs. There is also a lack of empirical research analyzing how the combined use of AI technologies and indigenous pedagogy influences pedagogical competence, digital literacy, and cultural sensitivity among teacher trainees. Therefore, the present study attempts to fill this research gap by investigating the effectiveness of integrating AI-based learning with indigenous pedagogical practices in transformative teacher education.

Research Methodology

The present study adopted a quantitative experimental research methodology to examine the effectiveness of integrated AI-enabled training and indigenous pedagogical practices on teacher trainees' pedagogical competence, digital literacy, and cultural sensitivity. The methodology was systematically designed to evaluate the impact of transformative teacher education in the AI era.

- **Research Design-** The study employed an experimental research design. Under this design, teacher trainees in the experimental group received integrated training through AI-enabled digital tools along with indigenous pedagogical approaches, while the control group followed conventional teacher training practices. The impact of the intervention was measured through pre-test and post-test procedures.
- **Population-** The population of the study consisted of teacher trainees enrolled in teacher education institutes. The study focused on trainees preparing for professional teaching careers in contemporary educational settings.
- **Sample-** The sample of the study included 160 teacher trainees selected from teacher education institutes. The participants were divided into control and experimental groups for the purpose of comparison and analysis.
- **Sampling Method-** The study used the random sampling method for selecting participants. This method ensured equal opportunity for selection and helped maintain objectivity and reliability in the research process.
- **Source of Data-** The study was based on primary data collected directly from teacher trainees through testing, observation, and participation in integrated training activities during the experimental intervention.
- **Research Tools-** Standardized research tools were used for data collection, including the Teaching Competence Scale to assess pedagogical effectiveness, the Digital Literacy Test to evaluate technological competency, and the Cultural Sensitivity Scale to measure awareness and responsiveness toward cultural values and diversity.
- **Data Collection-** Data were collected through pre-test and post-test procedures. Initially, teacher trainees were assessed before the implementation of the integrated AI and indigenous pedagogy training, and after the completion of the experimental period, post-tests were conducted to measure changes in pedagogical competence, digital literacy, and cultural sensitivity.
- **Statistical Analysis-** The collected data were analyzed using statistical techniques such as Mean, Standard Deviation (SD), and t-test. These statistical tools were used to determine the significance of differences between the control and experimental groups and to evaluate the effectiveness of the integrated training approach.

Tabulation and Interpretation

Table 1: Pedagogical Competence

Group	Mean	SD
Control	66	5.3
Experimental	90	6.1

Analysis

The above table presents the comparative analysis of pedagogical competence between the control group and the experimental group of teacher trainees. The findings reveal that the control group obtained a mean score of 66 with a standard deviation of 5.3, whereas the experimental group achieved a significantly higher mean score of 90 with a standard deviation of 6.1. The 24-point increase in the mean score clearly indicates a strong positive impact of the integrated AI and indigenous pedagogy training on pedagogical competence. The standard deviation values also suggest consistency and reliability in the performance of teacher trainees within both groups.

Interpretation

The findings indicate that the integrated training approach significantly enhanced the teaching competence and instructional effectiveness of teacher trainees. AI-enabled digital tools such as adaptive learning platforms, multimedia resources, and interactive teaching technologies improved technological and instructional skills, while indigenous pedagogical practices such as experiential learning, reflective teaching, collaborative activities, and value-based instruction strengthened classroom management, learner engagement, and culturally responsive teaching practices. The combination of technological innovation and indigenous educational wisdom created a holistic and learner-centered training environment that improved lesson planning, communication skills, critical thinking, and teaching effectiveness among teacher trainees. These findings demonstrate that transformative teacher education requires the balanced integration of digital competency and indigenous pedagogy for preparing effective and culturally sensitive educators.

Table 2: Digital Competency

Group	Mean
Control	3.5
Experimental	4.8

Analysis & Interpretation

The above table presents the comparative analysis of digital competency between the control group and the experimental group of teacher trainees. The findings indicate that the control group obtained a mean score of 3.5, whereas the experimental group achieved a significantly higher mean score of 4.8. The considerable increase in the mean score clearly demonstrates that the integrated AI and indigenous pedagogy training had a strong positive impact on the digital competency of teacher trainees.

The findings suggest that AI-enabled training significantly enhanced the technological proficiency, digital literacy, and instructional use of digital tools among teacher trainees. The experimental group developed greater competency in using multimedia presentations, adaptive learning platforms, Learning Management Systems (LMS), virtual learning environments, and other AI-supported educational technologies for classroom instruction. The integrated training approach not only improved technical skills but also enabled teacher trainees to use digital tools more effectively within culturally responsive and learner-centered pedagogical practices. The higher digital competency score of the experimental group indicates that combining AI-based learning with indigenous pedagogical approaches creates a balanced and effective model for developing technologically competent and professionally skilled educators in the modern educational environment.

Table 3: Cultural Sensitivity (Pre-Post)

Indicator	Pre	Post
Sensitivity	3.2	4.7

Analysis & Interpretation

The above table presents the pre-test and post-test comparison of cultural sensitivity among teacher trainees after the implementation of integrated AI and indigenous pedagogy training. The findings reveal that the mean score of cultural sensitivity in the pre-test was 3.2, which significantly increased to 4.7 in the post-test. The substantial improvement in scores indicates that the integrated training approach had a strong positive impact on developing cultural awareness, value orientation, and socially responsive attitudes among teacher trainees.

The findings suggest that the integration of indigenous pedagogical practices with AI-enabled learning significantly enhanced cultural sensitivity among teacher trainees. Indigenous educational approaches such as experiential learning, reflective practice, collaborative activities, value-based instruction, and culturally contextualized teaching encouraged trainees to develop respect for cultural diversity, ethical awareness, social responsibility, and inclusive educational perspectives. Simultaneously, AI-supported learning environments provided interactive and personalized learning opportunities that strengthened reflective thinking and learner engagement. The significant increase from pre-test to post-test scores demonstrates that transformative teacher education should not focus solely on digital competency, but also on developing culturally responsive and value-oriented educators capable of addressing the diverse social and educational realities of contemporary classrooms.

Verification of Hypothesis

The obtained t-value was 6.40 at the 0.05 level of significance ($p < 0.05$), which indicates a statistically significant difference between the control group and the experimental group. Since the calculated t-value was found to be higher than the critical value, the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted. The results confirm that the integrated approach combining Artificial Intelligence (AI) and indigenous pedagogy had a significant positive impact on pedagogical competence, digital literacy, and cultural sensitivity among teacher trainees.

Result and Interpretation

The findings clearly demonstrate that the integrated AI and indigenous pedagogical approach is highly effective in transformative teacher education. AI-enabled learning tools enhanced technological proficiency, personalized learning, instructional effectiveness, and digital competency, while indigenous pedagogical practices promoted experiential learning, reflective thinking, ethical awareness, cultural responsiveness, and value-based teaching. The combined approach created a holistic and learner-centered educational environment that improved overall teacher effectiveness and professional competency. The statistically significant difference indicates that integrating modern technological innovation with culturally grounded educational practices provides a more balanced, meaningful, and effective model for preparing future educators in the AI era.

Findings

1. The study revealed that the teaching competence of teacher trainees improved significantly after the implementation of the integrated AI and indigenous pedagogy training program. Teacher trainees in the experimental group demonstrated better instructional skills, classroom management, learner engagement, and pedagogical effectiveness compared to the control group.
2. The findings showed a substantial enhancement in digital literacy among teacher trainees. The use of AI-enabled tools, multimedia resources, adaptive learning systems, and digital teaching platforms improved technological proficiency and enabled trainees to effectively integrate digital technologies into teaching-learning processes.
3. The study found that cultural sensitivity among teacher trainees increased considerably after the integrated training intervention. Indigenous pedagogical practices such as reflective learning, value-based education, experiential activities, and culturally responsive teaching helped trainees develop ethical awareness, social responsibility, empathy, and respect for cultural diversity.
4. The research further established that the integrated pedagogical approach combining Artificial Intelligence and indigenous educational practices was highly effective in transformative teacher education. The balanced integration of technological innovation and traditional educational wisdom created holistic, learner-centered, and professionally enriching learning experiences for future educators.

Conclusion

The study concludes that transformative teacher education in the AI era requires the meaningful integration of Artificial Intelligence (AI) and indigenous pedagogical practices. The findings revealed that combining AI-enabled digital learning with experiential, reflective, value-based, and culturally responsive teaching approaches significantly improves pedagogical competence, digital literacy, and cultural sensitivity among teacher trainees. AI technologies enhanced technological proficiency, instructional effectiveness, and personalized learning, while indigenous pedagogy strengthened ethical awareness, holistic development, cultural responsiveness, and learner-centered teaching practices. The study establishes that a balanced integration of modern technology and traditional educational wisdom is essential for preparing future educators capable of addressing contemporary educational challenges in a technologically advanced and culturally diverse society.

Recommendations

- Teacher education institutions should incorporate Indian Knowledge Systems (IKS) and indigenous pedagogical practices within teacher training programs to promote holistic development, cultural sensitivity, ethical awareness, and value-based education among teacher trainees.
- AI-based training modules, adaptive learning platforms, digital teaching tools, and technology-enabled instructional strategies should be strengthened within teacher education programs to enhance digital competency and professional effectiveness among future educators.
- Educational institutions should promote blended pedagogy by integrating AI-supported digital learning with experiential, reflective, and culturally responsive teaching practices to create balanced, learner-centered, and transformative educational environments aligned with the objectives of National Education Policy 2020.

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