SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 4 | April 2026 - Peer Reviewed Journal

EXPLORING INNOVATIVE PEDAGOGICAL AND LEARNING PRACTICES IN TEACHER EDUCATION INSTITUTIONS: A QUALITATIVE STUDY OF 21ST-CENTURY TEACHER PREPARATION

Mukesh Haldar
Research Scholar, Department of Education,University of Kalyani, Nadia, W.B.

Article DOI: https://doi.org/10.36713/epra26999
DOI No: 10.36713/epra26999

ABSTRACT

Teacher education institutions are increasingly expected to prepare future teachers well for the changing dynamics of contemporary classrooms that are influenced by technological advancement, globalization, and changing learner expectations. The present study focuses on how new pedagogical and learning approaches are being applied in teacher education institutions to support teaching and learning in the contemporary educational environment.

The research is based on a qualitative descriptive research methodology with secondary data analysis, and research literature is used to study journal articles, policy documents, and the literature on innovative pedagogy and teacher education.

This analysis brings out the fact that the most important teaching methods as core components of modern teacher education programs are student-centered learning, technology integration, collaborative learning, hands-on experience and real-world experiential learning. The new teaching methods, unlike lecture-based teaching, move away from traditional methods to an active, reflective and practice-based way of learning. These methods are a foundation of 21st century skills development (critical thinking, communication, collaboration, creativity and digital literacy among others). Constructivist, experiential and problem-based learning models are the popular methods that build learning based on inquiry, engagement and context-based approaches.Further, digital pedagogy and hybrid learning environments are also identified as emerging trends in this study, in addition to infrastructural issues, lack of professional training, and institutional resistance to change. Nevertheless, innovative pedagogical practices contribute significantly to professional readiness by connecting theoretical knowledge with classroom realities.

The research also highlights the need for continuous pedagogical innovation and institutional support for teacher education improvement as a whole. This synthesis of existing research creates conceptual clarity and practical results for teachers, curriculum designers, and policymakers in order to better prepare them for working and educating in 21st-century education.

KEYWORDS: *Innovative Pedagogy; Teacher Education; 21st-Century Skills; Learning Practices*

1. INTRODUCTION

Education in the twenty-first century is rapidly changing due to globalization, technology, and social expectations. In contemporary classrooms, teachers need to understand their subject knowledge and the students need to be able to think critically and be creative and use collaboration and digital skills. This is why in teacher education institutions we need to be preparing future teachers with the tools and expertise to be the best teachers in the field. The traditional teacher preparation system, which is based on lectures and theoretical orientations in this field, is no longer able to meet the challenges in the current educational space. Today, we are teaching through learner-focused methods, technology integration, hands-on learning, and collaboration to build knowledge. Therefore, innovative pedagogical and learning practices are essential in order to achieve effective teacher preparation programmes. This study investigates how teacher education institutions adopt contemporary pedagogical methods to prepare teachers for the 21st century through qualitative analysis of secondary data sources such as research articles, policy reports, and academic publications.

2. KEY POINTS ABOUT INNOVATIVE PEDAGOGICAL PRACTICES

2.1. Student-Centered Learning.

Innovative pedagogy is based on learners' needs, interests and learning styles. Rather than just listening, prospective teachers engage actively with discussion, reflection, and inquiry-based activities.

2.2. Technology Integration

Digital platforms, virtual classrooms, and multimedia resources enhance teaching effectiveness and promote digital competence of future educators.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 4 | April 2026 - Peer Reviewed Journal

2.3. Real-World Application
Learning activities involving real classroom situations allow student teachers to apply theoretical knowledge in practical situations, to enhance professional readiness.

2.4. Collaborative Learning
Group projects, peer teaching, and cooperative work all develop shared knowledge building and communication skills that are essential for students in today's classrooms.

3. REVIEW OF LITERATURE
Darling-Hammond et al. (2017) point out that current teacher education programmes must move beyond theoretical instruction and incorporate practice-based learning experiences to help prospective teachers connect pedagogical knowledge with real classroom situations. Experiential engagement is crucial to professional development for future educators.

Vygotsky (1978) developed an intuitive understanding of learning with constructivist learning theory, which states that knowledge is socially constructed by interaction and experience. This view has been foundational that student participation and active engagement remain fundamental in modern pedagogical practice. **Weimer (2013)** also noted that student-centered teaching fosters autonomy, reflective thinking, and engagement (all important factors for teachers in preparing students for a challenging and demanding learning environment).

Technology is also very much in the news in pedagogy. **Mishra and Koehler (2006)** developed the Technological Pedagogical Content Knowledge (TPACK) framework that considers effective teaching as an interaction between technological knowledge, pedagogical approaches, and subject content knowledge. This framework has had a great impact on teachers' education and it has encouraged them to implement digital tools into their teaching practices purposefully.

Collaborative learning methods are widely recognized as effective methods to enhance professional and social competence. **Johnson and Johnson (2014)** found that cooperative learning environments enhance problem-solving skills, interpersonal communication, and shared responsibility among learners. **Bell (2010)** also described the beneficial role of project-based learning in integrating academic concepts with real-world situations, which in turn led to an increase in knowledge and application in practice.

While there are many studies on innovative pedagogies in school education, less research has been done on teacher education institutions. This indicates that we still need to understand how innovative pedagogical ideas are conceptualized and implemented within teacher preparation programmes.

4. RESEARCH GAP
Although the literature is rich on innovative teaching approaches in school education, few studies look at how teacher education institutions incorporate them into teacher preparation programmes. Also, many studies focus on empirical classroom interventions and not on broader secondary research perspectives. There remains a need for qualitative descriptive analysis to better understand the emerging trends, challenges and pedagogical changes in teacher education.

5. SIGNIFICANCE OF STUDY
5.1. Provides a full picture of innovative pedagogical practices in teacher education.
The study synthesizes existing research to give a full picture of the new teaching and learning practices adopted in teacher education institutions. It provides a means for us to determine how contemporary pedagogical strategies affect educators in their preparation and professional readiness. For example, we can use studies on flipped classrooms to illustrate the impact that digital pre-class learning in the classroom can have on classroom interaction for trainee teachers.

5.2. Assists curriculum designers and policymakers in improving teacher preparation programmes.
The study provides evidence-based recommendations which can help curriculum developers and education policymakers redesign teacher education programs to meet the 21st-century learning needs. Such insights can help embed innovation systematically into institutional frameworks. For instance, policymakers may use technology-based teaching modules or digital pedagogy courses in their B.Ed. curricula based on best practices.

5.3. Contributes to academic discourse on 21st century education.
This research can contribute to the scholarly conversation by consolidating the information about innovative pedagogies at the teacher education level, a topic that is still largely unexplored. It adds conceptual clarity to teacher preparation and educational shift. For example, aggregating the results of multiple research studies will help researchers to better understand how collaborative learning fosters critical thinking and communication skills for prospective teachers.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 4 | April 2026 - Peer Reviewed Journal

5.4. Helps teachers to implement evidence-based innovative practices.
Based on the evidence on pedagogical innovations already in place, the study provides evidence-based guidance for teacher educators in effective teaching. This has an impact on reflective and informed teaching. For example, teacher educators might utilize project-based learning methods if they find it beneficial to students, and to them, it is best for them to do it.

5.5. Bridges theoretical discussion and practical implications through secondary data synthesis.
The study connects theoretical perspectives to practical applications by translating findings from different secondary sources into actionable educational practices. As such, the use of academic research in teaching is more likely to be effective. For example, theoretical discussions on constructivism are a reality when teacher trainees develop lesson plans that include inquiry work and collaborative problem-solving.

6. RESEARCH OBJECTIVES
6.1. To identify innovative teaching and learning practices in teacher education institutions using secondary data.
6.2. To examine pedagogical approaches that support 21st-century educator preparation.
6.3. To analyse the role of innovative practices in developing 21st-century skills among prospective teachers.
6.4. To explore emerging trends and challenges in implementing innovative practices in teacher education.

7. RESEARCH METHODOLOGY
The study uses **qualitative descriptive research** based on **secondary data** to investigate innovative pedagogical and learning practices in teacher education institutions. Relevant references were collected from peer-**reviewed research papers, books, policy documents, and scholarly reports** related to teacher education and 21st-century pedagogy. The source material was carefully reviewed for credibility and relevance to the research objectives. It was based on thematic analysis (systematic reading, coding, and categorization of data) to identify the key themes of student-centered learning, technology integration, collaborative practices, and real-world applications of innovative teaching and learning practices, which allowed us to get a holistic view of how innovative methods allow educators to prepare for the modern education environment.

8. ANALYSIS OF OBJECTIVES
8.1. Objective 1: Identification of Innovative Practices.
In secondary literature, we can see that teacher education institutions are more and more adopting innovative teaching practices like flipped classrooms, blended learning, reflective teaching, and experiential training. These practices move learning from passive knowledge transmission to active participation and professional involvement of prospective teachers. These are practices that promote deeper understanding and teaching readiness.
Example: Teacher trainees also participate in online lectures before class and in discussions during contact sessions.



Figure 1: Innovative Practices

8.1.1. Flipped Learning
Flip learning encourages students to study the material ahead of time, and to engage in interactive activities in class time. Teacher trainees will watch video lectures about lesson planning at home and then design in class how they will do their lesson plans together.

8.1.2. Digital Learning Tools
Digital learning tools enhance teaching–learning with multimedia resources, virtual platforms and online collaboration which increase technological competency of future teachers. And prospective teachers use Google Classroom or learning management systems to submit assignments and have online discussions with one another.

8.1.3. Reflective Practice
Reflective practice is useful to teacher trainees in analysing their teaching experience in order to help them to pinpoint their strengths and weaknesses and where they can improve professionally. For example, at the end of a micro-teaching session students write reflective journals which analyze the teaching methods of their teacher and how they interact in the classroom.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 4 | April 2026 - Peer Reviewed Journal

8.1.3. Experiential Training.

Experiential training connects theoretical knowledge with the classroom experience so that prospective teachers have the skills to practice in the classroom and develop practical teaching skills and confidence. For instance, student teachers are part of school internships where they teach actual lessons under mentor supervision.

8.2. Objective 2: Pedagogical Approaches

Thematic analysis shows that constructivist, experiential, and problem-based pedagogies are widely understood in teacher education programs and are central to what is being taught now. These approaches encourage active learning, reflection, and contextual understanding, which are necessary for effective educator preparation. From a pedagogical perspective, we are seeing a growing emphasis on learning by doing, not memorization.

Examples: Micro-teaching sessions enable trainees to practice instructional strategies and get peer feedback.

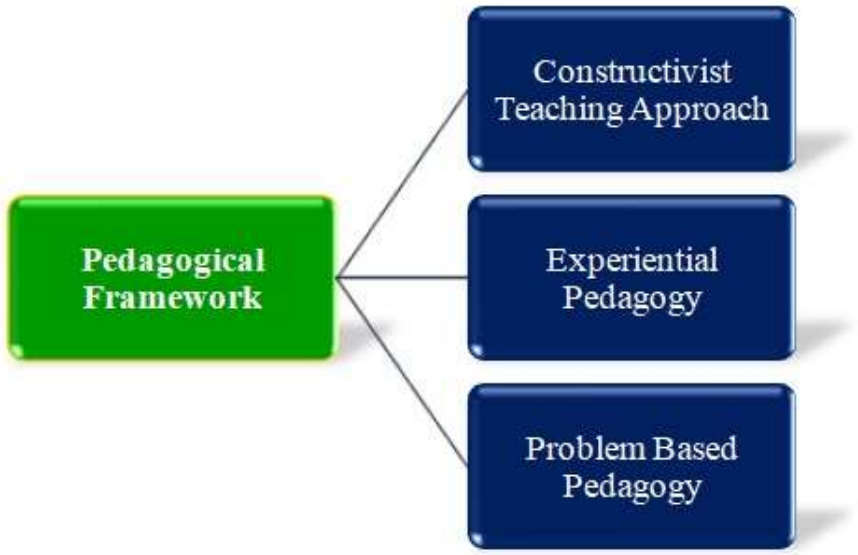


Figure 2: Pedagogical Framework

Pedagogical Approach	Major Characteristic	Explanation	Example
Constructivist Teaching Approach	Student-centered pedagogy	Students learn by participating and sharing ideas.	Trainees discuss teaching methods in groups.
	Experience-centered pedagogy	New knowledge connects with prior understanding.	Students relate theories to their school experiences.
	Collaborative pedagogy	Learning happens through collaboration.	Students prepare lesson plans together.
	Facilitative teaching approach	Teacher supports and facilitates learning.	Instructor asks guiding questions during discussion.

Table 1: Constructivist Teaching Approach

Pedagogical Approach	Major Characteristic	Explanation	Example
Experiential Pedagogy	Activity-based pedagogy	Practical activities improve understanding.	Micro-teaching practice sessions.
	Reflective pedagogy	Students evaluate their own performance.	Writing reflections after teaching practice.
	Applied pedagogy	Concepts applied in real situations.	Teaching during school internships.
	Skill-oriented pedagogy	Builds confidence and professional skills.	Managing classroom activities under supervision.

Table 2: Experiential Pedagogy

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 4 | April 2026 - Peer Reviewed Journal

Pedagogical Approach	Major Characteristic	Explanation	Example
Problem Based Pedagogy	Problem-centered pedagogy	Real-life problems guide learning.	Solving classroom discipline issues.
	Critical thinking skills	Encourages analysis and reasoning.	Comparing different teaching strategies.
	Collaborative pedagogy	Students collaborate to find solutions.	Group discussion on classroom challenges.
	Self-directed pedagogy	Students search information themselves.	Researching teaching ideas using online resources.

Table 3: Problem Based Pedagogy

8.3. Objective 3: Role of innovative practices in developing 21st-century skills among prospective teachers

Innovative pedagogical methods contribute to the development of 21st-century skills of teacher candidates by providing hands-on, interactive and technology-based learning environments. Thematic analysis of secondary data shows that, through collaboration, project-based learning, digital teaching tools and reflective practice, trainee teachers learn critical thinking, creativity, communication, collaboration and digital literacy skills which are necessary in their today's classroom.

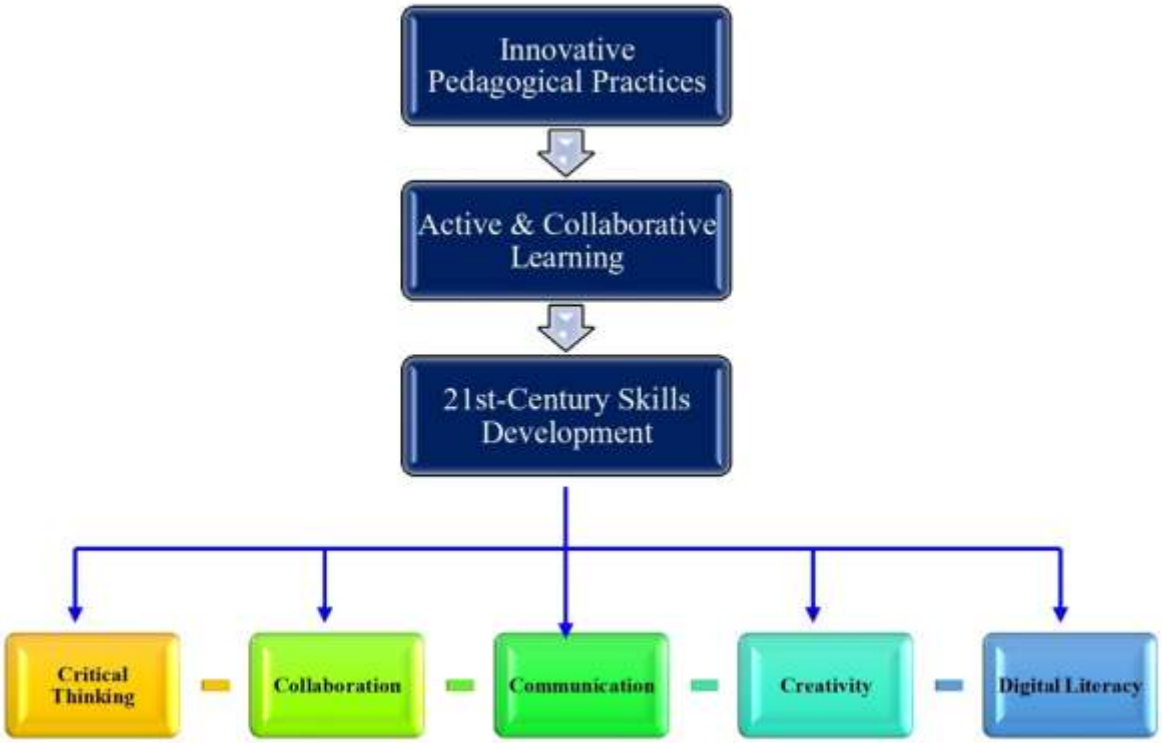


Figure 3: Role of Innovative Practices in Skill Development

8.3.1. Critical Thinking Skills Development and Skills in Critical Thinking.

Innovative pedagogical methods like inquiry-based learning and case study analysis help to guide prospective teachers to see problems and make informed instructional decisions. These methods lead learners from memorization to analytical understanding. Example: Teacher trainees investigate classroom situations in order to propose different teaching strategies to students with different backgrounds.



Figure 4: Critical Thinking Development.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 4 | April 2026 - Peer Reviewed Journal

8.3.2. Enhancement of Collaboration Skills.

Collaborative learning activities allow prospective teachers to work in groups, share ideas and co-construct knowledge. Such cooperation enhances teamwork abilities required for professional teaching environments.

Example: Student teachers learn how to improve their grades and how to do homework and learn more from a teacher.



Figure 5: Collaborative Learning Process

8.3.3. Communication Skills Improvement

Teaching practices that are innovative allow for presentations, peer-to-peer discussion and reflective conversations to be used to develop verbal and written communication skills. Good communication will allow future teachers to be able to address classroom interactions in a confident way.

Example: Micro-teaching presentations give trainees an opportunity to practice explaining skills and get peer feedback.

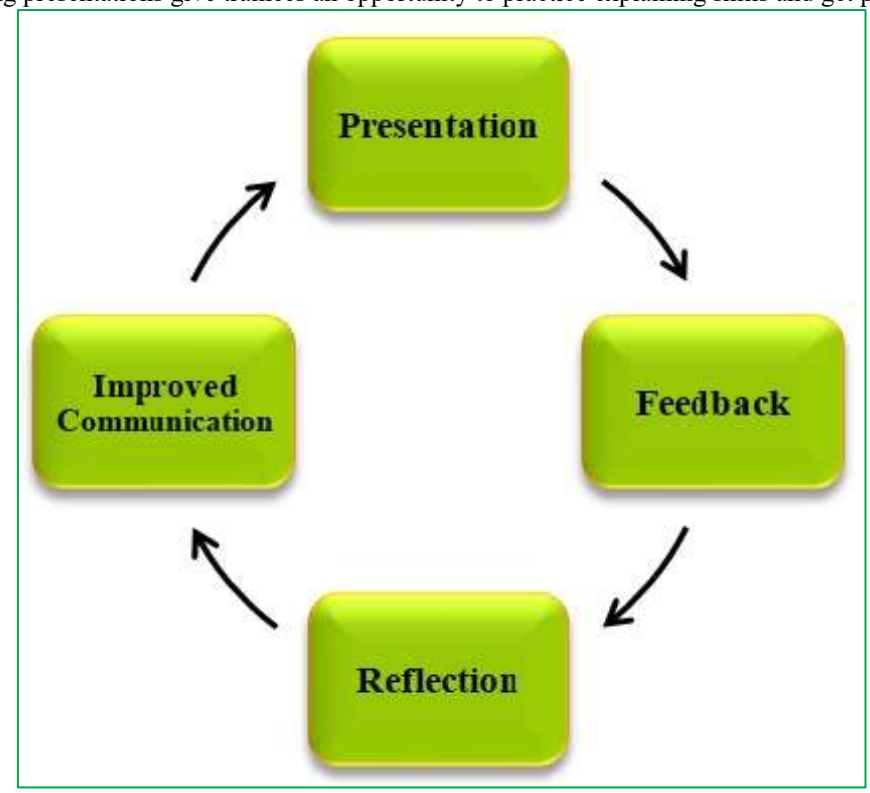


Figure 6: Communication Skill Cycle.

8.3.4. Promotion of Creativity and Innovation.

Project-based and experiential learning enable potential teachers to develop creative instructional strategies and learning materials. Flexibility in learning tasks enables students to think and solve problems in a creative manner.

Example: Teacher trainees create multimedia teaching aids to explain complex concepts creatively.



Figure 7: Creativity Development Model.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 4 | April 2026 - Peer Reviewed Journal

8.3.5. Development of Digital Literacy Skills.

Technology-enabled pedagogy allows prospective teachers to develop skills in digital platforms, online resources and educational technologies. Digital literacy is essential for managing hybrid and technology-rich classrooms.

Example: Using learning management systems, trainees can upload assignments, have online discussions and track learner progress.

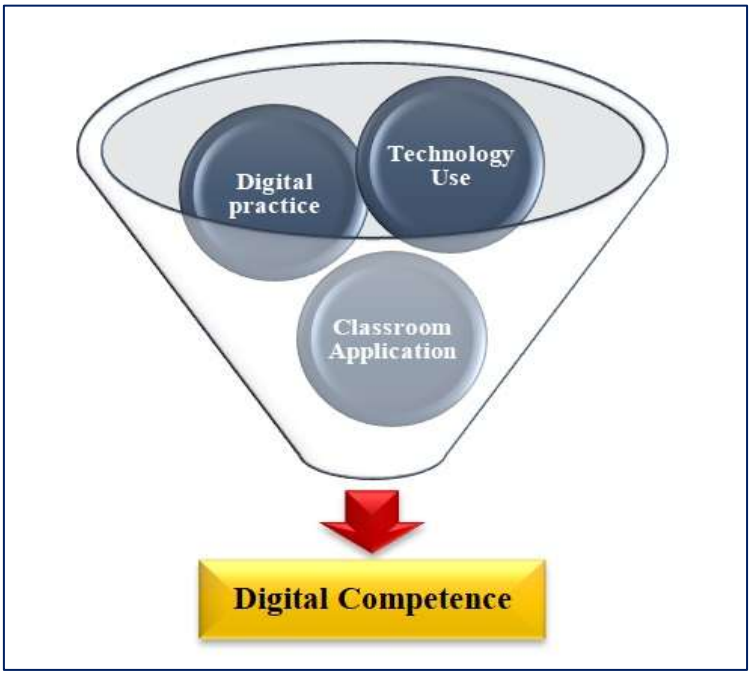


Figure 8: Digital Literacy Framework

We found that innovative pedagogical practices are a gateway to the development of 21st-century learning skills in prospective teachers. Teacher education institutions, through active engagement, collaboration, creativity, and technology integration, prepare future teachers for a wide range of scenarios.

8.4. Objective 4: Trends vs Challenges in Innovative Pedagogical Practices.

The findings indicate that hybrid learning models, digital pedagogy, and reflective professional development are growing in teacher education institutions. However, implementation challenges (infrastructure, resistance to change, and lack of professional training) remain a major barrier. Adoption is only possible with both institutional support and continuous capacity building.

Examples: Institutions that use online teaching platforms often need to train faculty to be able to integrate it.
Furthermore, the effective implementation of innovative pedagogical practices is also dependent on the alignment of institutional policies with teacher preparedness. Teacher education institutions with a focus on professional development, mentoring, and resource sharing have a better chance of adopting innovative teaching strategies. If institutions provide structure and support for experimentation, new teachers have confidence in adopting new pedagogical approaches in real classroom conditions. But not having any kind of administrative planning or technical support may not keep innovation in mind.

An institution that has regular workshops on digital pedagogy and mentoring support can help teacher trainees to effectively integrate online assessment tools and interactive learning applications into their teaching practice.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 4 | April 2026 - Peer Reviewed Journal



Figure 9: Trends vs Challenges in Innovative Pedagogical Practices

The figure shows the relationship between emerging pedagogical trends and the corresponding challenges that influence their successful implementation in teacher education institutions.

Analysis of Dimensions

Emerging Trend	Associated Challenge	Analysis	Example
Digital Learning	**Resource Limitations**	Digital learning is improving teacher education with flexibility, accessibility and technology-based teaching. But insufficient infrastructure and unstable internet connectivity are barriers to effective implementation.	Teacher trainees cannot fully participate in online simulations when computer labs or internet access are inadequate.
Collaborative Learning	**Training Needs**	Collaborative pedagogical practices foster, communication, and shared learning between potential teachers. Teachers who are trained in working with groups of teachers can help to facilitate group learning.	Group projects become less effective when faculty lack strategies for guiding cooperative learning.
Innovation Culture	**Institutional Constraints**	Innovative and reflective teaching practices are encouraged in an institutional culture driven by an innovation culture. Rigorous curriculum forms and administrative requirements often slow adoption of innovative methods.	Teacher educators may avoid project-based learning because of the fixed syllabus schedules and examination pressures.

Table 4: Analysis of Trends and Corresponding Challenges in Innovative Pedagogical Practices

Row-wise analysis highlights the progressive transformation occurring in teacher education through emerging pedagogical trends, while column-wise analysis reveals systemic and structural barriers influencing implementation. The interaction between rows and columns demonstrates that innovation and challenges coexist, and effective teacher preparation depends on balancing pedagogical advancement with institutional readiness and support mechanisms.

9. MAJOR FINDINGS

9.1. Learner-centered and technology-enabled pedagogies.

Teacher education institutions are moving towards learner-centered education with digital technologies, and thus potential teachers are also more involved and receive a learning experience as a result.

9.2. Professional competencies and 21st-century skills.

Innovative pedagogical practices contribute strongly to the development of critical thinking, communication, collaboration, creativity, and digital literacy skills needed in today's teaching environments.

SJIF Impact Factor (2026): 8.863| ISI I.F. Value: 1.241| Journal DOI: 10.36713/epra2016 ISSN: 2455-7838(Online)
EPRA International Journal of Research and Development (IJRD)
Volume: 11 | Issue: 4 | April 2026 - Peer Reviewed Journal

9.3. Collaborative and experiential learning is important.
Experiential learning helps prospective teachers connect theoretical knowledge and real classroom practice so as to prepare for a job and gain confidence.

9.4. Implementation challenges in innovation.
Although the positive results of the research have been achieved, institutions are confronted with challenges in terms of lack of technological infrastructure, lack of training, and institutional resistance to implementing innovative practices.

9.5. Global shift towards transformative teacher education.
Secondary data analysis shows a worldwide trend toward transformative and practice-based teacher education models that emphasize learning and development.

9.6. Relevance of reflective practice in teacher preparation.
Innovative pedagogical methods invite prospective teachers to engage in self-evaluation, teaching journals, and peer feedback, which are based on reflection to increase professional knowledge and improve practice.

9.7. More emphasis on interdisciplinary and problem-based learning.
Teacher education institutions are using interdisciplinary and problem-based learning models that will allow future educators to create lessons with multiple subjects and solve real-world problems.

9.8. Adaptive and lifelong learning attitudes.
Innovative learning environments give prospective teachers flexibility, adaptability, and lifelong learning dispositions that are needed for responding to rapidly changing educational and technological environments in the 21st century.

10. CONCLUSION

The research shows that new pedagogical and learning practices are important for preparing teachers to meet the 21st-century educational challenge. A lot of teachers in education are moving away from traditional teaching methods to teach with students, in collaboration and technology-based learning environments. These are activities that are crucial to critical thinking, professional competence, and classroom readiness for future teachers. Reflective learning and the practice of teacher learning and real-world practice enhance teaching effectiveness and flexibility. There is only a need for ongoing institutional support and pedagogical development to ensure quality teacher preparation in the present day of education.

11. REFERENCES

1. *Bell, S. (2010). Project-based learning for the 21st century: Skills for the future.* The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 83*(2), 39–43. https://doi.org/10.1080/00098650903505415*
2. *Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017).* Effective teacher professional development. *Learning Policy Institute. https://doi.org/10.54300/122.311*
3. *Fullan, M. (2013).* Stratosphere: Integrating technology, pedagogy, and change knowledge. *Pearson.*
4. *Hattie, J. (2009).* Visible learning: A synthesis of over 800 meta-analyses relating to achievement. *Routledge. https://doi.org/10.4324/9780203887332*
5. *Johnson, D. W., & Johnson, R. T. (2014). Cooperative learning in 21st-century education.* Anales de Psicología, 30*(3), 841–851. https://doi.org/10.6018/analesps.30.3.201241*
6. *Kolb, D. A. (1984).* Experiential learning: Experience as the source of learning and development. *Prentice Hall.*
7. *Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge.* Teachers College Record, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x*
8. *OECD. (2019).* Future of education and skills 2030: OECD learning compass 2030. *Organisation for Economic Co-operation and Development. https://doi.org/10.1787/b25efab8-en*
9. *Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform.* Harvard Educational Review, 57*(1), 1–22. https://doi.org/10.17763/haer.57.1.j463w79r56455411*
10. *Vygotsky, L. S. (1978).* Mind in society: The development of higher psychological processes. *Harvard University Press.*
11. *Weimer, M. (2013).* Learner-centered teaching: Five key changes to practice *(2nd ed.). Jossey-Bass.*
12. *Zhao, Y. (2012).* World class learners: Educating creative and entrepreneurial students. *Corwin Press. https://doi.org/10.4135/9781452217932*