

Digital Pedagogy and Quality Reform: Perceptual Differences between Hindi and English Medium Stakeholders in Senior Secondary Education

¹Durgesh Sharma, ²Prof. (Dr.) Anita Arora

¹Research Scholar P.G. Department of Teacher Education V.M.L.G. College, Ghaziabad CCS University, Meerut

²Associate Professor P.G. Department of Teacher Education V.M.L.G. College, Ghaziabad CCS University, Meerut

Abstract

Digital pedagogy has emerged as a central pillar of educational reform, particularly after the rapid expansion of online and blended learning environments. Quality reform in school education increasingly depends on effective digital teaching practices, teacher readiness, learner engagement, and equitable access. However, perception toward digital pedagogy varies across linguistic and institutional contexts. This paper examines perceptual differences between stakeholders — teachers and students — in Hindi and English medium senior secondary education regarding digital pedagogy and quality outcomes. Anchored in contemporary reform frameworks and NEP 2020's emphasis on technology integration, multilingualism, and equity, the paper develops a comparative conceptual model explaining how language medium, digital readiness, and pedagogical adaptation influence perceived quality. The study proposes a Digital Pedagogy Quality Reform Framework to reduce perception gaps and strengthen inclusive digital teaching practices. The paper argues that quality reform through digital pedagogy must be linguistically inclusive, equity-driven, and teacher-supported to be effective.

Keywords: Digital Pedagogy, Quality Reform, Perception Study, Hindi Medium, English Medium, Senior Secondary Education, Educational Equity

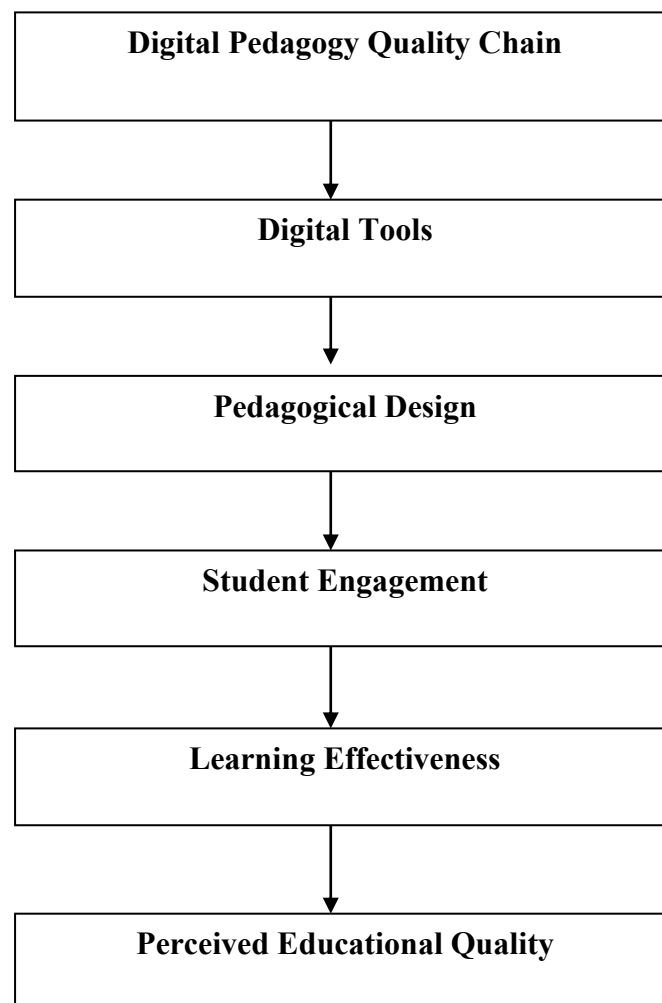
1. Introduction

Digital pedagogy — the integration of technology into teaching and learning processes (Naik et al., 2024; Suar, 2024; Upadhyaya, 2024; Kundu & Bej, 2021)— has reshaped instructional practices in senior secondary education (Bhatia, 2025; Chakraborty, 2025; Krishnamurthy, 2025; Pradhan & Gupta, 2025; Gautam, n.d.; Kaushik et al., 2024; Khan & Ahmad, 2024; Naik et al., 2024; Suar, 2024; Upadhyaya, 2024; Kundu & Bej, 2021; Arbind, 2020; Fan, 2019; Mukherjee & Thakur, n.d.; Khan & Pandey, n.d.). Virtual classrooms, learning management systems, recorded lectures, interactive tools, and blended learning models have become increasingly common. Educational reform discourse now links digital pedagogy with quality improvement (Bhatia, 2025; Chakraborty, 2025; Krishnamurthy, 2025; Pradhan & Gupta, 2025). However, the effectiveness and acceptance of digital pedagogy are not uniform. Stakeholder perception — especially that of teachers and students — varies based on language medium, digital access, training, and institutional support (Bhatia, 2025; Chakraborty, 2025; Krishnamurthy, 2025; Pradhan & Gupta, 2025; Kaushik et al., 2024; Khan & Ahmad, 2024; Naik et al., 2024; Suar, 2024; Upadhyaya, 2024). Hindi medium and English medium institutions often differ in technological exposure, digital resources, and language compatibility of platforms. Understanding these perceptual differences is essential for meaningful quality reform (Bhatia, 2025; Kaushik et al., 2024; Naik et al., 2024; Upadhyaya, 2024; Kundu & Bej, 2021; Arbind, 2020).

2. Conceptual Foundation: Digital Pedagogy and Educational Quality

Digital pedagogy extends far beyond the simple use of digital tools in classrooms; it represents a deliberate and strategic integration of technology into instructional design to enhance learning outcomes (Bhatia, 2025; Kaushik et al., 2024; Naik et al., 2024; Upadhyaya, 2024; Kundu & Bej, 2021; Arbind, 2020). It involves rethinking how content is created, delivered, and assessed in ways that leverage digital platforms to improve comprehension, participation, and knowledge retention. In digital contexts, educational quality depends first on content clarity, ensuring that learning materials are well-structured, logically sequenced, multimedia-supported, and easily understandable across diverse learner groups (Bhatia, 2025; Kaushik et al., 2024; Kundu & Bej, 2021; Arbind, 2020; Fan, 2019). Equally important is interaction quality, which includes meaningful communication between teachers and students as well as peer-to-peer collaboration through discussion forums, live sessions, and collaborative projects. Accessibility is another critical dimension, requiring that digital content be inclusive, device-compatible, language-sensitive, and supportive of learners with disabilities. Assessment fairness ensures that evaluation methods are transparent, unbiased, and aligned with learning objectives, especially when automated or AI-based grading tools are used (Krishnamurthy, 2025; Pradhan & Gupta, 2025; Gautam, n.d.; Kaushik et al., 2024; Khan & Ahmad, 2024).

Figure 1: Digital Pedagogy Quality Chain



Perception forms at the last stage but is influenced by all earlier stages.

3. Policy Context: Digital Reform and Quality Goals

Contemporary education reform frameworks increasingly (Pradhan & Gupta, 2025; Gautam, n.d.; Kaushik et al., 2024; Khan & Ahmad, 2024; Naik et al., 2024) recognize that improving quality is no longer limited to revising curricula or updating textbooks; it now requires systematic digital transformation (Chakraborty, 2025; Krishnamurthy, 2025; Pradhan & Gupta, 2025; Gautam, n.d.; Kaushik et al., 2024; Khan & Ahmad, 2024; Naik et al., 2024; Suar, 2024). Central to these reforms is technology integration, where digital tools are embedded thoughtfully into teaching strategies rather than used as supplementary add-ons. This integration supports data-driven instruction, personalized learning pathways, and improved monitoring of student progress (Khan & Ahmad, 2024; Naik et al., 2024; Suar, 2024; Upadhyaya, 2024; Kundu & Bej, 2021; Arbind, 2020; Fan, 2019; Mukherjee & Thakur, n.d.; Khan & Pandey, n.d.).

Another important reform component is blended learning, which combines face-to-face instruction with online platforms to create flexible and adaptive learning environments ((Bhatia, 2025; Kaushik et al., 2024; Naik et al., 2024; Kundu & Bej, 2021; Arbind, 2020)). Blended models allow learners to engage with content at their own pace while still benefiting from classroom interaction and mentorship. To make such systems effective, teacher digital training becomes essential. Educators must develop competencies in digital content creation, online assessment design, virtual classroom management, and ethical technology use to ensure meaningful learning experiences.

Reform frameworks also emphasize the importance of multilingual digital resources, particularly in diverse countries where language can become a barrier to equitable access. Providing content in regional languages enhances comprehension and inclusivity. Alongside this, inclusive access focuses on bridging digital divides by improving connectivity, device availability, and accessibility features for learners with disabilities. Without equitable infrastructure, digital reforms risk deepening inequality.

Furthermore, quality assurance mechanisms are being redesigned to incorporate digital benchmarks. Institutions now evaluate not only curriculum standards but also digital teaching standards, including platform reliability, assessment integrity, data security, and learner engagement metrics. This shift reflects a broader understanding that educational quality must adapt to technological realities.

In this context, digital pedagogy is increasingly viewed as a **quality multiplier**, enhancing instructional effectiveness through interactive and adaptive tools. It is also an **access enabler**, expanding educational reach beyond geographical and socio-economic constraints, and a **flexibility provider**, offering learning opportunities across time and space. However, these benefits materialize only when digital implementation is equitable, inclusive, and supported by robust governance frameworks ((Krishnamurthy, 2025; Pradhan & Gupta, 2025; Suar, 2024; Khan & Ahmad, 2024)).

4. Stakeholders in Digital Pedagogy

Two primary stakeholder groups shape perception:

Teachers

Teachers play a central role in shaping the effectiveness and perception of digital pedagogy. Their experience largely depends on platform usability, as complex or poorly designed systems can create resistance and reduce instructional efficiency. Teaching comfort is equally important, since educators must feel confident in managing

virtual classrooms, using digital tools, and handling technical challenges. Training adequacy significantly influences their readiness; without proper professional development, teachers may struggle to integrate technology meaningfully into lesson design. Assessment control also affects their perception, particularly when digital or AI-based evaluation tools are used—teachers prefer systems that allow transparency, flexibility, and academic oversight. Additionally, language adaptability is crucial in multilingual contexts, ensuring that digital platforms support regional languages and culturally relevant content to enhance instructional effectiveness.

Students

Students' perception of digital pedagogy is shaped by their direct learning experience. Their understanding level depends on how clearly content is presented and whether digital materials simplify or complicate learning. Interface comfort plays a major role, as user-friendly navigation, readable layouts, and mobile compatibility improve engagement and reduce frustration. Interaction opportunity—through live discussions, collaborative projects, and real-time feedback—enhances participation and prevents isolation in virtual environments. Motivation is another critical factor, influenced by interactive features, gamification elements, and supportive communication from instructors. Finally, technical access, including reliable internet connectivity and availability of suitable devices, determines whether students can consistently and equitably participate in digital learning environments.

5. Language Medium as a Determining Factor

Language medium plays a significant role in shaping how digital pedagogy is perceived and experienced by learners. The alignment—or misalignment—between instructional language and platform language can directly influence comprehension, confidence, engagement, and overall learning effectiveness. Differences between Hindi medium and English medium contexts highlight important structural and psychological dimensions of digital education.

Hindi Medium Context

In the **Hindi medium context**, students often experience higher conceptual comfort when instruction is delivered in their native or familiar language. This linguistic familiarity enhances understanding and reduces cognitive strain during learning. However, many digital platforms and educational technologies are primarily designed in English, resulting in lower platform-language compatibility for Hindi medium learners. The limited availability of high-quality Hindi digital content further restricts access to diverse learning materials. As a result, students may become dependent on translation tools or teacher-mediated explanations, which can slow learning and reduce digital confidence.

English Medium Context

In contrast, the **English medium context** typically benefits from strong alignment between platform language and instructional language. Most digital platforms, software interfaces, and educational resources are developed in English, allowing seamless integration into learning processes. English medium students often have wider access to global digital resources, online courses, and interactive tools. Additionally, greater exposure to English-language digital environments increases interface familiarity and technological comfort. This alignment enhances independent learning capacity and strengthens adaptability in technology-driven academic settings.

Thus, language medium significantly shapes digital pedagogy perception by influencing accessibility, confidence, and resource availability in digital learning environments.

6. Proposed Digital Pedagogy Quality Reform Framework

The **Inclusive Digital Quality Framework** proposes that sustainable digital reform in education must be built on five interrelated pillars that collectively lead to *Equitable Quality Reform*. Each component addresses a specific structural gap in digital pedagogy while ensuring inclusiveness and academic rigor.

1. Multilingual Platforms

Digital platforms must support multiple languages to accommodate diverse linguistic backgrounds. Multilingual interfaces, subtitles, localized content, and region-specific examples enhance comprehension and reduce cognitive barriers. This is particularly important in contexts where learners and teachers operate in Hindi or regional mediums.

2. Teacher Digital Training

Teacher readiness determines the effectiveness of digital transformation. Structured professional development programs should focus on tool handling, digital assessment strategies, instructional design, and multilingual content creation. Continuous upskilling ensures that technology enhances pedagogy rather than complicating it.

3. Student Access Support

Access equity requires device availability, affordable internet connectivity, and low-bandwidth learning tools. Institutional support mechanisms—such as device lending programs, community digital centers, and recorded lessons—help bridge socio-economic divides.

4. Interactive Pedagogy

Quality reform must shift from passive content delivery to interactive engagement. Discussion forums, live polls, breakout rooms, collaborative assignments, and project-based learning increase participation and improve learning outcomes.

5. Continuous Feedback

Real-time feedback systems, learning analytics, and structured student surveys allow institutions to monitor performance and adapt teaching strategies. Continuous feedback strengthens accountability and supports evidence-based improvement.

This framework emphasizes that digital reform is not technology-driven alone; it is equity-driven, pedagogy-centered, and sustainability-oriented. When all five pillars function cohesively, digital education becomes inclusive, effective, and socially transformative.

7. Conclusion

Digital pedagogy has emerged as a powerful driver of quality reform in senior secondary education, particularly in contexts where curriculum demands, competitive examinations, and skill development expectations are rapidly evolving. By integrating technology into teaching-learning processes, institutions can enhance content delivery, enable interactive engagement, and promote data-driven academic monitoring.

However, stakeholder perceptions—especially among students and teachers—vary significantly between Hindi and English medium contexts. These differences largely stem from three structural factors: **language compatibility**, **digital readiness**, and **resource availability**. In many Hindi medium settings, digital platforms and content are predominantly English-oriented, increasing cognitive load and reducing confidence levels.

Conversely, English medium institutions often experience smoother digital adoption due to better linguistic alignment with available tools and resources.

Quality reform, therefore, cannot be technology-centric alone. Merely introducing smart boards, learning management systems, or digital platforms does not automatically translate into improved learning outcomes. Reform must be **inclusive, multilingual, and teacher-supported**. Teachers require structured digital training, contextualized content development support, and continuous professional development to effectively integrate technology into pedagogy.

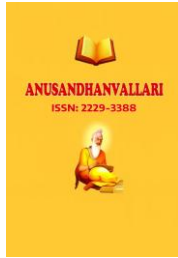
Bridging perception gaps demands systemic reform in three critical domains:

- **Training** – Strengthening digital competencies across mediums.
- **Platform Design** – Ensuring bilingual interfaces, localized content, and culturally relevant examples.
- **Access Support** – Providing devices, low-bandwidth solutions, and flexible assessment mechanisms.

A linguistically inclusive digital pedagogy model ensures that technological advancement does not widen educational inequality. Instead, it promotes equitable participation, enhances learner confidence, and sustains long-term academic improvement. When digital reform aligns with inclusivity and contextual sensitivity, quality enhancement becomes both equitable and sustainable for all learners.

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