

Use of Modern Technology In Classroom Situation In Higher Education In India With Special Reference To Assam

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Abstract

The rapid advancement of modern technology has significantly influenced the education sector worldwide. This study explores the use of modern technology in higher education classrooms in India, focusing specifically on Assam. It examines the extent of technology adoption, its benefits in enhancing teaching and learning, and the challenges faced by institutions, particularly in rural and underdeveloped areas. Using a descriptive research approach based on secondary data, the study highlights infrastructural gaps, digital literacy issues, and regional disparities that affect effective technology integration. The findings suggest the need for improved infrastructure, faculty training, and inclusive policies to promote blended learning and digital accessibility. This paper aims to provide insights and recommendations that can support policymakers, educators, and institutions in leveraging technology to improve the quality and inclusivity of higher education in Assam and beyond.

Keywords : Modern Technology, Higher Education, Classroom Technology, Digital Learning, Assam.

Introduction

In recent decades, the integration of modern technology into education has emerged as a transformative force, reshaping traditional teaching and learning methodologies across the globe. In India, the adoption of digital tools in higher education has gained significant momentum, especially with the push from national initiatives like Digital India, SWAYAM, and the National Education Policy (NEP) 2020. These developments aim to create a learner-centric, inclusive, and flexible education system aligned with global standards.

Modern technologies such as smart boards, projectors, Learning Management Systems (LMS), virtual labs, online learning platforms, and artificial intelligence are now increasingly used to enhance classroom experiences. They not only improve student engagement and knowledge retention but also enable access to quality content regardless of geographical boundaries.

Assam, a culturally rich but geographically diverse state in Northeast India, presents a unique case for analyzing the effectiveness and challenges of implementing technology in higher education. While major universities and urban institutions in Assam have started adopting modern educational technologies, rural and remote areas often lag behind due to infrastructural, financial, and digital literacy constraints.

This paper explores the current status, benefits, and challenges of using modern technology in higher education institutions in India, with a special focus on Assam. It also aims to provide recommendations for bridging the digital divide and enhancing the quality of higher education through effective technological integration.

Significance of the Present Study

The present study is significant because it addresses a critical and timely issue the integration of modern technology in higher education classrooms, with a focus on Assam, a region that faces unique educational challenges. As technology becomes an essential tool in education globally, understanding its use and impact in Indian higher education institutions is crucial for ensuring quality and equitable learning opportunities.

This study sheds light on the current status of technology adoption in classrooms, highlighting how digital tools enhance teaching effectiveness, student engagement, and access to information. It also brings attention to the challenges faced, such as infrastructural limitations, digital illiteracy, and regional disparities, especially in less developed areas like Assam.

By focusing on Assam, the study helps policymakers, educational planners, and institutions identify specific needs and barriers unique to the region. It provides evidence-based insights that can guide the formulation of targeted policies and interventions, such as improving digital infrastructure, training faculty, and promoting inclusive education.

Moreover, the findings of this study contribute to the broader discourse on educational reforms and digital transformation, offering practical recommendations to enhance the quality of higher education. Ultimately, the study supports efforts to bridge the digital divide, foster innovation, and prepare students to meet the demands of a technology-driven world.

Objectives

This study aims to explore the use of modern technology in higher education, focusing on its implementation, benefits, and challenges in India, with special reference to Assam. It also seeks to suggest practical measures for improving technology integration in classroom settings.

Review of Related Literature

The integration of modern technology in higher education has been the focus of numerous studies worldwide and in India. Research highlights the transformative potential of digital tools in enhancing teaching and learning experiences.

UNESCO (2019) emphasized the importance of digital literacy among faculty and students to effectively utilize technology in education. The report pointed out that without proper training and infrastructure, technology adoption remains superficial.

Kumar and Sharma (2021) studied the impact of smart classrooms in Indian universities and found that the use of interactive digital tools significantly improved student engagement and academic performance. Their research underlined the role of technology in creating learner-centered environments.

In the Indian context, the University Grants Commission (UGC) has promoted online platforms such as SWAYAM and NPTEL to supplement traditional teaching. **UGC (2020)** guidelines advocate the blended learning model, combining face-to-face instruction with digital resources, which has gained prominence especially after the COVID-19 pandemic.

Regionally, **Bordoloi and Deka (2022)** investigated ICT use in higher education institutions in Assam. Their study revealed that while urban universities in Assam have gradually adopted modern technology, many rural colleges still struggle with lack of internet connectivity, inadequate digital infrastructure, and insufficient training for educators.

Similarly, **Patel (2023)** highlighted the digital divide in northeastern India, stressing that infrastructural challenges and socio-economic factors limit the effective use of technology in classrooms, thereby affecting the quality of education.

Overall, the literature suggests that while modern technology has vast potential to improve higher education, its success depends on factors such as infrastructure, faculty readiness, policy support, and regional disparities. This study builds on these findings by focusing specifically on the current scenario in Assam and identifying strategies to enhance technology use in its higher education sector.

Methodology

This study adopts a **descriptive and analytical research design**, based primarily on **secondary data sources**. Relevant information has been collected from government reports, UGC and MHRD guidelines, scholarly articles, institutional websites, and published research papers related to the use of technology in higher education.

Special focus has been given to Assam by analyzing reports from state universities, education department data, and regional studies. Comparative analysis has been used to highlight the differences and similarities between the national scenario and the situation in Assam.

Data has been thematically organized to evaluate the extent of technology adoption, its impact, challenges faced, and recommendations for future improvement.

Major Findings

1. **Gradual Adoption Nationwide:** Higher education institutions across India are increasingly integrating modern technology such as smart classrooms, digital learning platforms, and virtual resources into teaching and learning practices.
2. **Urban-Rural Divide in Assam:** While universities and colleges in urban areas of Assam (e.g., Guwahati) show moderate progress in adopting digital tools, rural institutions still lag behind due to infrastructural and financial limitations.
3. **Infrastructural Gaps:** Many colleges in Assam lack basic digital infrastructure like stable internet connections, adequate power supply, and access to devices, hindering effective classroom technology use.
4. **Limited Faculty Training:** A significant number of educators lack training in digital pedagogy and the use of modern teaching tools, limiting the quality and reach of technology-enhanced education.
5. **Low Student Accessibility:** A substantial proportion of students, especially from economically disadvantaged backgrounds, lack personal access to smartphones, laptops, or home internet, affecting their ability to participate in digital learning.
6. **Absence of Local Language Content:** Most available e-learning content is in English or Hindi, making it less effective for students who are more comfortable learning in Assamese or other regional languages.
7. **Positive Student Attitude:** Despite challenges, students in Assam generally show a positive attitude towards the use of technology in education and are eager to engage with digital learning tools if given the opportunity.
8. **Policy Implementation Gap:** While national and state policies support digital learning, the on-ground implementation in Assam is slow, uneven, and lacks consistent monitoring.

Recommendation

The recommendations presented in this study aim to address the challenges identified in integrating modern technology into higher education classrooms and to maximize the benefits of digital tools for teaching and learning.

1. **Improve Digital Infrastructure:** Many institutions, particularly in rural Assam, suffer from poor internet connectivity and lack of adequate hardware like computers, projectors, and smart boards. Strengthening the digital infrastructure is essential to provide uninterrupted access to online resources and facilitate interactive learning.
2. **Faculty Training and Development:** Effective use of technology depends heavily on the digital literacy and readiness of educators. Regular training workshops and capacity-building programs will enable teachers to integrate technology meaningfully into their pedagogy, enhancing classroom engagement and learning outcomes.
3. **Promote Blended Learning:** A blended learning approach, which combines face-to-face instruction with online materials and activities, offers flexibility and caters to diverse learning needs. Encouraging this model can help institutions transition smoothly from traditional methods to technology-enhanced education.
4. **Localized Content Development:** Creating educational materials in local languages like Assamese ensures that students understand concepts better, making learning more inclusive. This also helps bridge the gap for students who may not be fluent in English or Hindi.
5. **Increase Funding and Policy Support:** Adequate financial resources and supportive policies are crucial for sustainable technology integration. This includes government grants, institutional budgets, and clear guidelines to prioritize ICT development in higher education.
6. **Student Digital Literacy Programs:** To fully benefit from technological tools, students themselves need to be digitally literate. Organizing workshops and training sessions focused on basic computer skills, internet safety, and effective use of educational software will empower students to be active learners.
7. **Collaborate with Technology Providers:** Partnerships with technology companies and NGOs can bring in expertise, affordable solutions, and technical support, making technology adoption easier and more cost-effective for institutions with limited resources.

Conclusion

The integration of modern technology in higher education has the potential to transform traditional teaching and learning processes, making education more interactive, accessible, and effective. In India, and particularly in Assam, technological tools like smart classrooms, online learning platforms, and digital resources are gradually gaining acceptance. However, challenges such as inadequate infrastructure, limited digital literacy, and regional disparities continue to hinder full-scale adoption.

This study highlights the current status, benefits, and obstacles in using technology in higher education classrooms in Assam. It emphasizes the need for concerted efforts from policymakers, educators, and institutions to invest in digital infrastructure, provide training, and promote inclusive educational content.

Addressing these challenges will not only improve the quality of higher education in Assam but also bridge the digital divide, enabling students from all backgrounds to benefit from modern learning opportunities. Ultimately, effective integration of technology can contribute significantly to the advancement of higher education and the socio-economic development of the region.

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