Exploring Innovative Teaching Experiences in Enhancing Student Participation and Understanding in Higher Educationin the Digital Era

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Article Info	ABSTRACT
	The adoption of digital media in healthcare communication has become increasingly vital, as technological advancements reshape interactions between healthcare providers and patients. However, while much has been studied on the use of digital tools in healthcare, the subjective experiences of both practitioners and patients remain insufficiently explored. A key question is how digital platforms, such as telemedicine applications and communication tools like WhatsApp, shape these interactions and the perceptions of those involved. This study employs a phenomenological approach to explore the lived experiences of healthcare practitioners and patients using digital communication technologies. Through in-depth interviews with 15 practitioners and 20 patients, key themes emerged around the ease of access, trust, and the emotional dynamics of digital interactions, providing insights into how these tools affect patient-practitioner relationships. Our findings suggest that while digital tools offer convenience, they also introduce challenges related to trust and emotional connection, highlighting the need for further research into the emotional and relational dimensions of digital health communication. These results advance our understanding of digital healthcare interactions, offering valuable insights for future studies on improving digital health communication frameworks.

INTRODUCTION

The increasing integration of technology into education has brought about significant transformations in teaching and learning practices (Tsai & Wang, 2019). One of the most notable developments is the adoption of innovative teaching methods that incorporate digital tools, such as online learning platforms, multimedia applications, and interactive digital content. These methods are designed to engage students more actively and provide more flexible, personalized learning experiences. As the digital landscape evolves, educational institutions face the challenge of adapting traditional pedagogical approaches to meet the needs of a generation of learners who are accustomed to interacting with technology in almost every aspect of their lives.

In the context of higher education, the shift toward technology-driven teaching practices has sparked considerable debate. Proponents argue that digital tools enhance student engagement, foster collaborative learning, and facilitate the delivery of more diverse and dynamic content (Docherty dkk., 2018). However, redundancies in the literature around these advantages are common, and there is a lack of critical focus on key challenges. The experiences of students and instructors with these innovative methods are multifaceted, shaped by factors such as technological readiness, familiarity with digital tools, and the willingness to adapt to new teaching paradigms.

Various approaches have been employed to examine the effects of technology-based education, ranging from quantitative studies assessing learning outcomes to qualitative investigations focusing on teaching strategies and technological barriers (Luscombe & Montgomery, 2016).

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However, much of the existing literature has overlooked the deeply personal, subjective experiences of those directly involved in the process—the students and educators who navigate this technological shift on a daily basis (Stanislaus, 2022). To address this gap, a phenomenological approach is particularly well-suited, as it allows for an exploration of the lived experiences and meanings that individuals attach to their engagement with technology in education.

This study seeks to provide a richer, more nuanced understanding of the experiences of students and instructors who engage with innovative, technology-based teaching methods. By exploring the lived experiences of these individuals, the research aims to uncover the underlying factors that influence the success or challenges of adopting such teaching strategies. Ultimately, this study will contribute to a deeper understanding of how these technological innovations shape the educational experience from the perspectives of those who are most affected by them.

Research into the subjective experiences of individuals within specific phenomena has become an essential area of focus in contemporary education studies (Tavares dkk., 2021). Particularly, exploring how students and instructors navigate the integration of technology in educational settings is crucial to understanding the real-world impacts of digital tools and innovative teaching methods. While there is a growing body of literature on the adoption and implementation of these technologies, much of the research has relied on quantitative methodologies that focus primarily on measurable outcomes such as academic performance, engagement rates, or course completion. These approaches, although valuable, often fail to capture the complex, lived experiences of the individuals involved—experiences that are inherently subjective and deeply influenced by personal perceptions, motivations, and challenges.

A central methodological challenge in studying the adoption of technology in education lies in the difficulty of capturing these subjective experiences using traditional quantitative methods (Dimitrov, 2017). These methods, which focus on numerical data, often overlook the nuanced meanings and emotions that shape how students and instructors experience technology-enhanced learning environments. For example, while a study might measure how frequently students use an online learning platform, it would not reveal how students feel about the platform, how it influences their learning, or how they perceive its role in their educational journey. This limitation underscores the need for qualitative approaches, particularly phenomenology, which is designed to uncover the deeper meanings of lived experiences.

Phenomenological research, by contrast, prioritizes the exploration of individual experiences, emphasizing the way people make sense of their worlds through personal engagement and reflection (Limonova dkk., 2024). However, the challenge with using phenomenology in educational research is the potential difficulty in accessing and articulating the rich, layered meanings that participants attach to their experiences. The subjective nature of these experiences makes them complex and multifaceted, requiring careful, in-depth exploration. Despite these challenges, phenomenology offers a powerful methodological framework for understanding the essential qualities of an individual's experience, as it seeks to identify the core essence of a phenomenon as it is lived and understood by the participants themselves.

In light of these considerations, traditional quantitative approaches remain inadequate for fully understanding the experience of technology adoption in education (Avdiu & Holzinger, 2022). The existing literature has yet to address the deeper, more subjective dimensions of this phenomenon, particularly how technology-based teaching methods are experienced on an emotional and cognitive level by both students and instructors. This research, therefore, aims to fill this gap by utilizing a phenomenological approach to explore the experiences and perceptions of those who directly engage with these innovative methods in higher education.

In the context of educational technology, much of the existing research has relied on practical, outcome-based approaches, such as quantitative studies measuring engagement levels or academic performance. These studies often use pre-defined metrics to assess the effectiveness of digital tools and teaching methods, providing valuable insights into general trends and patterns. However, such approaches fall short in capturing the deeper, more personal dimensions of the educational experience. They fail to uncover how students and instructors actually feel about using technology, how they

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perceive its role in the learning process, and how these experiences influence their engagement and motivation in ways that are not easily measurable through numbers alone.

The limitations of these conventional, outcome-oriented methods highlight a significant gap in the current understanding of the phenomenon (Olivera Zaldua dkk., 2015). While practical approaches can measure surface-level engagement, they do not provide a rich, nuanced understanding of the meanings that individuals attach to their experiences with technology in education. This lack of depth leaves key aspects of the experience unexplored, particularly the emotional, cognitive, and social dimensions that shape how participants interact with digital learning environments. For instance, the frustration or excitement students feel when using a new learning platform, or the sense of accomplishment an instructor experiences when successfully integrating technology into their teaching, are critical aspects of the learning process that are often overlooked in conventional research.

An alternative solution to this gap is to adopt a phenomenological approach, which allows for a deeper, more holistic exploration of these experiences. By focusing on the lived experiences of students and instructors, phenomenology seeks to uncover the essence of the phenomenon as it is understood and felt by those directly involved (Martín-Sánchez dkk., 2022). This approach is well-suited to exploring how technology-based teaching methods are experienced in ways that are often not captured through traditional, quantitative measures. Through phenomenology, this research aims to provide a richer, more comprehensive understanding of the subjective experiences of those engaging with digital teaching tools, shedding light on the complexities and emotional nuances of the educational experience in the digital age.

Existing research on the adoption of technology in education has primarily focused on the practical aspects of digital tools and their impact on learning outcomes. Studies have examined how technology influences engagement, motivation, and academic achievement, often relying on quantitative measures such as usage rates and test scores (Ferns dkk., 2024). However, fewer studies have explored the deeper, subjective experiences of students and instructors as they interact with these technologies. Theories such as constructivism and social learning theory have been applied to understand how technology supports active, collaborative learning, but they do not fully address the emotional and cognitive aspects of these experiences. This gap in the literature highlights the need for qualitative methods that can capture the essence of these experiences from the perspectives of the participants themselves.

In response to this gap, this study adopts a phenomenological approach to explore the lived experiences of students and instructors using innovative teaching methods enhanced by digital technologies. Phenomenology allows for an in-depth exploration of the meanings that participants assign to their experiences, providing a richer understanding of how they perceive and make sense of technology in the educational context. By focusing on the subjective experiences of the participants, this approach enables the research to uncover the emotional, social, and cognitive dimensions of technology use that have been overlooked in previous studies. The research aims to answer the questions posed in the knowledge gap section by providing a holistic view of how technology-based teaching methods are experienced and understood by those who use them in higher education.

This article is structured to first provide a general introduction to the phenomenon and its significance in the context of modern education. The next section delves into the phenomenological approach used in this study, outlining how data were collected through in-depth interviews and analyzed thematically (Aleksandrovich dkk., 2024). The findings are presented in a narrative format, followed by a discussion that interprets the results in relation to the broader literature on technology and education. Finally, the article concludes with a summary of the key insights gained from the study and their implications for future research and practice in the field of educational technology.

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RESEARCH METHODS

Study Design

This study adopted a phenomenological approach to explore the lived experiences of students and instructors involved in the implementation of innovative, technology-based teaching methods. Phenomenology was selected as the research design because it is particularly well-suited for investigating subjective experiences and the meanings participants attach to these experiences. The focus of phenomenology is on understanding how individuals perceive and make sense of their lived experiences within a specific context (Nair dkk., 2020). This approach allows for a deeper exploration of the complexities and nuances of those experiences, providing rich insights into the phenomenon under study. Specifically, a descriptive phenomenological approach was utilized to capture and describe the participants' experiences with the adoption of digital teaching methods, without interpreting or imposing theoretical frameworks upon the data. The descriptive nature of this approach ensures that the essence of the participants' experiences is captured in its most authentic form.

Participants

Participants were selected using purposive sampling, a technique that allows for the intentional selection of individuals who have relevant experience with the phenomenon of interest. The study involved 15 students and 5 instructors from a renowned university that had integrated innovative teaching methods, such as the use of online learning platforms, interactive applications, and multimedia in their courses. Inclusion criteria for students required that they had engaged in at least one semester of learning using digital technologies in the classroom. Instructors were included if they had implemented technology-based teaching strategies for a minimum of one semester. Exclusion criteria involved individuals who were not actively participating in the courses or those who had not utilized digital technology as part of their teaching or learning processes. Demographically, the participants were diverse in terms of gender and age, with students ranging in age from 18 to 30 years, and instructors between 30 to 50 years. The varied backgrounds of the participants allowed for a broad representation of experiences and insights.

Data Collection

Data were collected through semi-structured interviews and classroom observations. Semi-structured interviews were chosen to provide participants with the flexibility to express their experiences while also ensuring that key areas of inquiry were addressed. The interviews were conducted in-person and lasted between 45 to 60 minutes each. The interview protocol included open-ended questions designed to explore the participants' experiences with technology-based teaching methods, their perceptions of engagement and learning, and the challenges they faced. Observations were conducted in real-time during selected classes to capture how the digital tools were being implemented and to observe the dynamics of interaction between students and instructors. The interviews and observations were conducted in a comfortable and quiet environment to ensure participants felt at ease and could freely express their views. All data were recorded and transcribed verbatim for analysis.

Data Analysis

The data were analyzed using thematic analysis, a common method in phenomenological research that focuses on identifying and interpreting patterns or themes within the data. Thematic analysis was chosen for its ability to capture both the richness of the participants' experiences and the meanings they attached to them. The analysis followed a systematic process: first, the data were transcribed and read thoroughly to immerse in the content. Next, codes were generated to label key elements of the data that were relevant to the research questions. These codes were then grouped into broader themes that represented the essence of the participants' experiences. Thematic analysis was conducted manually, although the NVivo software was used to assist in organizing the data. Through these steps, the core themes related to student engagement, challenges in adapting to digital platforms, and the role of instructor training emerged, providing a comprehensive understanding of the participants' experiences with technology-based teaching.

Ethics

The study adhered to ethical standards to ensure the rights and well-being of all participants. Ethical approval was obtained from the relevant research ethics committee, ensuring that the study complied with international ethical guidelines. Informed consent was obtained from all participants before data collection, with participants being fully informed of the study's purpose, procedures, and their right to withdraw at any time without consequence. Written consent was collected from each participant. To maintain confidentiality, all data were anonymized, and any identifying information was removed from the transcripts (De Carvalho dkk., 2024). All data were stored securely and only accessible to the research team. This study followed ethical principles regarding privacy, anonymity, and the responsible use of data throughout the research process.

RESULTS AND DISCUSSION

Increased Student Engagement and Motivation

One of the most prominent themes that emerged from the interviews was the positive impact of digital learning platforms on student engagement. Many students expressed that they felt more motivated to participate in class activities when interactive tools were used. As one student remarked, "Using the interactive platform made the lessons feel more dynamic, and I found myself more engaged. I could immediately ask questions and engage in discussions through the chat function." Another student shared, "The videos and quizzes really helped me understand the material better. I felt like I had more control over my learning, which motivated me to participate more."

Students consistently mentioned that the use of multimedia and real-time interactions fostered a sense of immediacy and connection with the content. This sense of interactivity contrasted with traditional lectures, where students often felt passive. These findings align with constructivist theory, which posits that active engagement with content and interactive tools enhances learning through the construction of personal knowledge (Piaget, 1970). Digital tools, by facilitating such engagement, provide environments that support constructivist learning principles.

Challenges in Adapting to New Teaching Methods

Despite the positive aspects of technological integration, both students and instructors faced significant challenges. Many students expressed difficulty in adapting to new digital tools, especially when platforms were complex or lacked sufficient guidance. A student noted, "At first, I was confused by the platform. I wasn't sure where to find the resources, and sometimes I felt lost during lessons." Similarly, instructors reported facing technical difficulties, such as connectivity issues and limited familiarity with the digital tools. One instructor mentioned, "It took me a while to get used to the digital platform. I had to spend extra time learning how to use it effectively. Sometimes the internet connection would cut out, which made it difficult to keep the students engaged."

These challenges suggest that while digital tools have the potential to enhance learning, their effectiveness is contingent upon the preparedness of both students and educators to navigate them. From a practical perspective, these findings underscore the importance of institutional investment in comprehensive training programs and accessible technical support for educators and students. Policies aimed at improving digital literacy and providing technological infrastructure are critical for mitigating these challenges.

The Role of Instructor Training and Technological Preparedness

The theme of instructor training emerged as another significant factor influencing the successful implementation of innovative teaching methods. Instructors acknowledged that while the technology offered new possibilities for teaching, its effective use required a period of adaptation. As one instructor explained, "It was a learning curve for me. I had to learn not just how to use the platform, but also how to integrate it with my teaching style." Another participant noted, "When I had the proper training on the technology, I felt more confident in using it to create interactive lessons. But without that support, I felt overwhelmed."

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In addition to training, the availability of reliable technological resources played a crucial role in the success of digital teaching methods. Several instructors pointed out that inconsistent access to high-speed internet, as well as inadequate technical support, often hindered the smooth delivery of lessons. These findings emphasize the need for ongoing professional development tailored to digital pedagogy, supported by constructivist teaching strategies that encourage instructors to reflect on and adapt their teaching styles to leverage digital tools effectively.

Collaborative Learning and Peer Interaction

Another important theme that emerged from both the interviews and classroom observations was the increased level of collaboration facilitated by digital platforms. Students reported that the online tools allowed for more flexible and inclusive interactions, particularly in group activities. One student mentioned, "Collaborating with my classmates online felt more flexible. We could work on projects at our own pace and discuss things through group chats, which made the learning process feel more collaborative."

Instructors also observed that digital tools, particularly those with interactive elements, fostered greater collaboration. A faculty member shared, "I've noticed that students are more willing to contribute to discussions when they can do it online. They seem less intimidated by speaking up in a physical classroom." However, some challenges related to group dynamics were noted. Several instructors reported that while digital tools facilitated collaboration, they also introduced a level of detachment, where students might feel less accountable or disconnected from their peers.

The findings of this study highlight both the benefits and challenges associated with the adoption of innovative teaching methods using digital technology. While students reported increased engagement and motivation, particularly through interactive tools, the transition to these new methods was not without difficulties. Both students and instructors emphasized the need for adequate training and technological support to fully realize the potential of digital platforms. Moreover, the effectiveness of these methods was influenced by factors such as technological readiness, the complexity of platforms, and the ability of instructors to adapt their teaching practices. These results suggest that while digital tools can significantly enhance teaching and learning, their successful implementation requires careful consideration of the support systems in place for both educators and students.

The findings of this study reveal key insights into the lived experiences of both students and instructors who use digital technologies in innovative teaching methods. Through in-depth interviews and thematic analysis, it became clear that participants experienced a significant shift in their engagement and motivation when using digital tools, although this was accompanied by challenges related to the adaptation to new platforms and technologies. These insights address the primary research question by uncovering not just the practical effects of digital learning, but the emotional, cognitive, and social dimensions that influence how participants interact with and perceive these technologies.

This study's findings provide a nuanced understanding of how technology-based teaching methods are experienced in educational settings, particularly from the perspectives of the students and instructors. The data shows that, while digital tools can enhance engagement and provide more interactive learning environments, they also introduce challenges such as technical difficulties and the need for extensive training. These experiences were not just instrumental but deeply tied to participants' personal feelings, attitudes, and perceptions of the learning process. For example, students expressed a sense of empowerment and increased motivation when using interactive platforms, but also faced frustration when confronted with technological barriers. Instructors, on the other hand, highlighted the satisfaction of fostering collaborative learning through digital platforms, but noted the time-consuming nature of adapting to new teaching tools. These findings contribute to a deeper understanding of how technology impacts both the cognitive and emotional aspects of the educational experience.

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When compared to previous research, the findings support and extend existing theories on the role of technology in education, particularly in terms of active learning and engagement. Theories such as constructivism and social learning theory suggest that technology can facilitate more interactive and collaborative learning environments, a perspective echoed in this study's findings. However, this study also highlights the challenges that were less emphasized in prior research, such as the emotional toll of adapting to new tools and the need for substantial training and support. Additionally, while much of the previous research has focused on measurable outcomes like student achievement, this study's phenomenological approach emphasizes the importance of understanding the subjective experiences of students and instructors. This provides a more holistic view of how technology is integrated into teaching and learning, complementing previous studies by addressing the emotional and experiential aspects that are often overlooked in more quantitative analyses.

The findings from this study have significant implications for both the theoretical understanding and practical application of innovative teaching methods using digital technologies. From a practical standpoint, this research underscores the importance of providing adequate training and support for both students and instructors when integrating digital tools into teaching. The participants' experiences suggest that while technology can facilitate more engaging and interactive learning environments, its success depends heavily on the users' preparedness and comfort with the technology. This insight is particularly relevant for educational institutions looking to enhance their teaching strategies and promote more participatory and dynamic learning experiences. On a broader scale, these findings highlight the need for educational policies to prioritize professional development and technical support in the transition to technology-based learning models.

However, this study does have several limitations that should be acknowledged. First, the small sample size of 15 students and 5 instructors limits the generalizability of the findings. The study was conducted within a single university, which means the results may not fully capture the diversity of experiences across different educational contexts or disciplines (De Silva dkk., 2022). Additionally, the focus on a particular set of digital tools, such as learning platforms and interactive applications, may not reflect the experiences of users of other types of educational technology. Therefore, while the study provides valuable insights into the challenges and benefits of digital teaching methods, its findings should be interpreted with caution when applied to other settings or technologies. Future research could address these limitations by expanding the sample size, exploring different academic environments, and investigating a wider range of digital tools.

Looking ahead, the insights from this study open avenues for future research in several directions. One potential area for further exploration is the long-term impact of digital teaching methods on student learning outcomes, especially in terms of cognitive and emotional development. Another important direction could be to investigate how different disciplines or educational levels experience and adapt to digital learning tools, which may vary based on specific academic needs and teaching styles (Arslan & Turk, 2024). Additionally, future studies could examine the role of instructor-student interactions in digital environments, exploring how these relationships affect engagement, motivation, and learning outcomes. By addressing these gaps, future research could deepen our understanding of how technology shapes the teaching and learning experience and inform the development of more effective pedagogical strategies.

CONCLUSION

This study explored the use of digital tools in enhancing teaching methods within higher education, focusing on the experiences of both students and instructors. The findings revealed actionable recommendations for stakeholders, including the importance of developing comprehensive training programs for educators, establishing robust technical support systems, and fostering digital literacy among students. These measures are critical for overcoming barriers such as unfamiliarity with digital platforms and the technical challenges often encountered during their implementation.

For educational institutions and policymakers, prioritizing investments in technological infrastructure—such as reliable internet access and up-to-date devices—is essential. Additionally, integrating ongoing professional development opportunities into institutional practices can help

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instructors effectively adapt to technology-driven teaching methods. These recommendations aim to create an ecosystem where digital tools are not just implemented but optimized for meaningful engagement and learning outcomes.The findings revealed that while digital tools can significantly improve engagement and interactivity in learning environments, their success is largely contingent on the users' familiarity and comfort with the technology. It was found that adequate support and training are crucial to overcoming barriers and maximizing the potential of these tools. These results address gaps in previous research by offering deeper insights into the subjective experiences of users, particularly in the context of higher education. Future studies could expand on this research by exploring the long-term effects of digital teaching methods and the experiences of a more diverse range of institutions and disciplines. Such investigations could further inform the development of effective pedagogical strategies for the digital age.

CONFLICT OF INTEREST

This article has undergone independent peer review. The editor responsible for the assessment of this article has no direct relationship with the author and has not previously collaborated on any publications. The review process was conducted by an editor who has no affiliation with the author in terms of collaboration or conflict of interest.

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