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Exploring the Impact of Innovative Teaching Methods on Student Engagement and Learning Outcomes: A Phenomenological Case Study in Higher Education Institutions

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ABSTRACT

Health communication, particularly in the context of digital media, has become an essential area of study, especially as technology continues to shape interactions between medical practitioners and patients. While significant research has been conducted on the adoption of digital health tools, less attention has been given to understanding the subjective experiences and meanings these interactions hold for both practitioners and patients. This study addresses this gap by exploring how medical professionals and patients interpret their digital communication experiences. Using a phenomenological approach, we aim to provide deeper insights into the lived experiences of both groups, revealing the essence of their interactions through digital media. Data were collected through in-depth interviews with healthcare professionals and patients, followed by thematic analysis to identify key themes. The findings highlight key themes, including the enhancement of trust through transparent communication, the fostering of empathy via personalized digital interactions, and the challenges of maintaining clarity in asynchronous communication formats. For instance, practitioners reported that video consultations allowed for better emotional connections compared to text-based communication. Meanwhile, patients emphasized the convenience of accessing medical advice but expressed concerns about potential misinterpretation of messagesThese results contribute to a more nuanced understanding of digital health communication and have implications for improving patient-practitioner interactions in the future. Specifically, the study suggests the need for targeted training programs to enhance digital communication skills among practitioners and the development of user-friendly digital tools that prioritize clarity and empathy in interactions.

INTRODUCTION

The increasing complexity and diversity of student needs in higher education have prompted a shift in teaching methodologies, with innovative approaches gaining significant attention. Traditional lecture-based teaching often fails to engage students effectively, making the exploration of alternative methods essential for fostering deeper learning and critical thinking (Musio dkk., 2022). In response, educational institutions have begun implementing more interactive methods such as flipped classrooms, project-based learning, and collaborative approaches. These methods aim to actively involve students in the learning process, encouraging them to take responsibility for their learning and to engage with course material in a more meaningful way. However, despite the growing adoption of these innovative teaching strategies, the subjective experiences of students—how they perceive and make sense of their engagement with these methods—remain underexplored.

Flipped classrooms, for example, invert the traditional model by having students learn content independently, typically through videos or readings, before engaging in collaborative activities during

class time (Musio dkk., 2022). This shift aims to create a more student-centered learning environment, fostering active participation and higher-order thinking. Similarly, project-based learning encourages students to apply their knowledge to real-world problems, often through collaborative group work, thus preparing them for the complexities of professional life. These approaches represent a significant departure from traditional pedagogies, which have been the dominant mode of instruction in higher education for decades.

Despite the promising benefits of innovative teaching methods, understanding how students experience these approaches is essential for optimizing their implementation. Previous studies have employed various tools to measure the effectiveness of these methods, such as surveys and academic performance metrics(Schönwetter dkk., 2016). However, these instruments often fail to capture the nuanced, lived experiences of students—their emotional responses, perceptions of self-efficacy, and the personal challenges they encounter when adapting to these new learning environments. Given the importance of these subjective experiences, a phenomenological approach is particularly relevant. It allows for an in-depth exploration of the meanings students attach to their learning experiences, providing insights into the factors that influence their engagement and learning outcomes.

By focusing on the lived experiences of students, this research aims to provide educators with actionable insights into enhancing student engagement and learning outcomes. This study contributes to the growing body of literature on pedagogical innovation by emphasizing the subjective dimensions of student engagement, providing a more comprehensive understanding of the impacts of innovative teaching practices.

Research into students' subjective experiences with innovative teaching methods has become an increasingly important area of inquiry, particularly in the context of higher education. Understanding how students engage with novel pedagogies such as flipped classrooms and project-based learning requires more than just measuring academic outcomes or participation rates. It necessitates an exploration of the deeper, personal meanings that students attach to their learning experiences (Ovtšarenko dkk., 2024). The phenomenological approach is uniquely suited for this task, as it focuses on the lived experiences of individuals and seeks to uncover the essence of these experiences through in-depth qualitative analysis. By examining students' personal perceptions, emotions, and reflections, this research aims to offer a more comprehensive understanding of how these teaching methods influence their engagement and learning outcomes.

However, exploring the deeper meanings of students' experiences is not without its challenges. One significant methodological difficulty is the inherent subjectivity of personal experience. Traditional quantitative methods, which often rely on surveys or performance metrics, are limited in their ability to capture the complexity of students' lived experiences (Wang, 2023). These methods typically reduce the richness of personal accounts to numerical data, overlooking the nuanced, emotional, and cognitive aspects that contribute to students' understanding of their learning environment. While quantitative studies have provided valuable insights into the effectiveness of innovative teaching methods, they fall short in revealing how these methods are perceived by students on a personal level—how they feel about the learning process, what challenges they face, and what factors influence their engagement. Thus, existing research often fails to fully capture the essence of the phenomenon, leaving important dimensions unexplored.

The limitations of these approaches make it clear that more qualitative, phenomenological studies are needed to explore the full range of student experiences with innovative teaching methods (Bhuttah dkk., 2024). This research seeks to fill that gap by offering a rich, narrative exploration of students' perspectives, providing a deeper understanding of how they experience and make sense of these pedagogical innovations. Through this lens, the study aims to provide insights that quantitative measures cannot, shedding light on the emotional and cognitive processes that underpin student engagement and learning.

While existing research on innovative teaching methods often relies on practical, widely-used approaches such as quantitative surveys and performance metrics, these solutions are limited in capturing the deep, subjective experiences of students (Tang & Tang, 2024). Surveys, for example, can provide valuable data on student engagement or academic performance but fall short in revealing

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the personal meanings and emotions students associate with their learning experiences. Similarly, quantitative measures often reduce the complexity of students' interactions with teaching methods to simple, measurable outcomes, which fail to address the nuanced aspects of their experiences. As a result, the current body of research does not fully capture the richness of students' perceptions, leaving critical gaps in our understanding of how and why these teaching methods influence student engagement and learning outcomes.

This gap in understanding calls for a more holistic and nuanced approach to studying the phenomenon. A phenomenological methodology offers a valuable alternative by focusing on the lived experiences of individuals. Unlike traditional approaches, phenomenology delves into the essence of students' experiences, exploring not just what happens during learning but how students interpret and make sense of their engagement with innovative teaching methods. By adopting this approach, this study seeks to uncover the meanings and interpretations that students attach to their experiences, providing a richer, more comprehensive understanding of how flipped classrooms and project-based learning impact their learning journey. Phenomenology enables a deeper exploration of the emotional, cognitive, and social dimensions of student engagement, offering insights that cannot be captured through quantitative methods alone.

Thus, the need for a more nuanced, experience-centered approach to understanding the impact of innovative teaching methods is clear. This study aims to fill that gap by employing phenomenology to explore the subjective, lived experiences of students, shedding light on aspects of engagement and learning that are often overlooked in traditional research approaches.

Previous studies have explored various facets of innovative teaching methods, such as flipped classrooms and project-based learning, with a focus on their impact on academic performance and engagement (Matsuda dkk., 2024). However, these studies have largely relied on quantitative measures, which fail to capture the depth of students' subjective experiences. Research on student engagement often overlooks the personal meanings that students attach to their learning, making it difficult to fully understand the impact of these methods on their overall educational experience. Theories such as constructivism and experiential learning emphasize the importance of active participation and reflection in learning, yet they often fail to account for the emotional and cognitive dimensions of student engagement. This study builds on these theoretical frameworks but takes a more phenomenological approach to investigate the lived experiences of students.

To address the limitations of previous research, this study employs a phenomenological approach to explore the essence of students' experiences with innovative teaching methods. Phenomenology, with its focus on understanding the lived experiences of individuals, is particularly well-suited to uncover the meanings that students attach to their learning in flipped classrooms and project-based settings. By engaging deeply with students' personal accounts, this research aims to explore not just what students do but how they experience and interpret these teaching methods. This approach will provide a more nuanced understanding of the impact of innovative pedagogies on student engagement and learning outcomes, offering insights that go beyond traditional performance metrics.

The structure of this article follows a logical progression, starting with an introduction that outlines the broader context of the study and the research gap (Novak dkk., 2021). The next sections will detail the phenomenological methodology, including data collection through interviews and observations, and the process of data analysis using thematic analysis. Following the methodology, the results section will present the key themes identified from the students' experiences. The article concludes with a discussion of the findings, reflecting on the implications of the research for teaching practice and suggesting avenues for future exploration.

RESEARCH METHODS

Study Design

A phenomenological approach was employed to explore the subjective experiences of students engaging with innovative teaching methods, specifically flipped classrooms and project-

based learning. This approach was selected due to its focus on understanding individuals' lived experiences and the meanings they attach to those experiences (Vega dkk., 2023). Phenomenology is particularly suited to answer the research questions, as it allows for a deep exploration of how students perceive and make sense of their learning experiences in innovative teaching contexts. By focusing on the personal and lived experiences of participants, phenomenology enables the researcher to uncover the essence of these phenomena and the ways in which students interpret their engagement with such methods. This study utilized a descriptive phenomenological approach, which emphasizes providing a detailed and accurate account of participants' experiences without attempting to interpret or theorize beyond the data.

Participants

Participants were selected using purposive sampling, ensuring they had relevant experience with the innovative teaching methods being studied .(Chen dkk., 2024) Recruitment was conducted through course coordinators, who identified eligible participants based on their involvement in courses utilizing flipped classrooms and project-based learning. Potential participants received detailed study information and were invited to voluntarily participate.The sample consisted of 15-20 students from various faculties at a prominent university, all of whom had participated in at least one semester of courses that utilized flipped classroom and project-based learning approaches. Inclusion criteria required participants to have actively engaged in these methods during the course, while exclusion criteria were applied to those who had not participated regularly in class activities or had limited exposure to the teaching methods. The demographic characteristics of the participants varied, with an equal gender distribution and an average age of 21-23 years. These participants were considered ideal for exploring the subjective impact of innovative teaching strategies on student engagement and learning outcomes.

Data Collection

Data were collected through in-depth semi-structured interviews, which allowed for a flexible exploration of participants' personal experiences. Each interview lasted between 30 and 60 minutes and was conducted in a quiet, private space to ensure a comfortable and confidential setting for the participants (S. Wang dkk., 2024). The interview guide included questions designed to elicit detailed narratives about students' engagement, perceptions, and challenges. Examples of guiding questions included: "How did you feel about your learning experience in the flipped classroom?" and "What challenges did you encounter while participating in project-based learning activities?" The guide was developed based on a review of prior literature and was refined through pilot testing with two students who were not part of the main study.The interview guide was designed to probe key aspects of student engagement, challenges faced in adapting to new teaching methods, and the perceived impact on learning outcomes. The interviews were audio-recorded with participants' consent and transcribed verbatim for analysis. In addition to the interviews, classroom observations were conducted during flipped classroom sessions and project-based learning activities to capture real-time interactions and provide context to the participants' reports. These observations helped validate the students' perceptions by offering insight into their engagement and the dynamics of the learning environment.

Data Analysis

Data were analyzed using thematic analysis, a common technique in phenomenological research that seeks to identify and interpret patterns or themes within the data (Chen dkk., 2024). The analysis followed a systematic process of transcribing the interviews, coding the data, and identifying key themes that emerged from the students' experiences. Thematic saturation was determined when no new themes emerged after coding the final three interviews, indicating that the data sufficiently captured the range of participant experiences. This ensured the robustness of the findings. Thematic analysis was conducted inductively, allowing themes to emerge from the data without preconceived categories or theories. This approach ensured that the findings were grounded in the participants' lived experiences. The analysis was carried out manually, though NVivo software was used to assist with organizing and coding the data (Rahmah dkk., 2024). The key themes were then reviewed, refined, and interpreted to uncover the core meanings and essences of the phenomena under study.

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Ethics

Ethical approval for the study was obtained from the relevant research ethics committee at the institution. Participants were provided with detailed information about the study's aims, procedures, and potential risks before being asked to provide written informed consent . The study adhered to ethical guidelines regarding participant confidentiality, with all data anonymized and stored securely. Pseudonyms were used in reporting findings to protect the identities of the participants. Participation in the study was voluntary, and participants were informed that they could withdraw at any time without consequence. The study complied with international ethical standards for research involving human subjects, ensuring the protection of participants' rights and well-being throughout the process.

RESULTS AND DISCUSSION

Enhanced Student Engagement through Innovative Teaching Methods

The implementation of innovative teaching methods, particularly flipped classroom and project-based learning, significantly influenced student engagement. Of the 15 participants, 12 explicitly mentioned feeling more engaged during class sessions, with 8 of them attributing this to the interactive nature of discussions. One participant expressed: "In the flipped classroom, I feel more engaged because I am not just passively listening to the lecture; I actively solve problems and discuss concepts with my peers." (P1)This sentiment was echoed by several other students, who reported that the shift from traditional lecture-based teaching to more interactive and collaborative formats helped them stay focused and interested in the subject matter. The sense of autonomy in learning, where students are required to engage with the material before class and use class time for discussions and problem-solving, was seen as a key factor in increasing engagement. However, some students indicated that this shift required an initial adjustment period: "At first, I felt lost because I was used to the traditional style where everything was taught in class. But once I got the hang of it, I realized it was better for me."

This highlights the transitional challenge that students faced in adapting to more active and independent learning strategies, which, in the long run, were found to foster deeper engagement.

Perceived Challenges in Adapting to New Teaching Approaches

Despite the positive impact on engagement, students reported several challenges in adapting to the innovative teaching methods. Six participants noted confusion about their roles in flipped classrooms during the initial weeks of implementation. One recurring theme was the initial discomfort and confusion about the roles of students and instructors in a flipped classroom environment. Several participants noted feeling uncertain about their responsibilities outside the classroom, particularly in relation to preparing for discussions and understanding expectations: "At first, I didn't know exactly what was expected of me outside of class, and that made me anxious. It was a different way of learning that I wasn’t used to."

This theme of uncertainty was particularly evident in students who were more accustomed to passive learning environments, where information was provided in a structured and predictable manner. The more flexible, student-centered approach required them to take greater ownership of their learning, which, while beneficial in the long term, was initially challenging. Furthermore, a small group of students reported feeling overwhelmed by the workload, especially when engaging in project-based learning: "The project assignments required a lot of extra time and effort, and sometimes I felt it was too much. But in the end, I appreciated the skills I gained from them." This points to the tension between the advantages of active learning and the challenges associated with the additional demands it places on students.

Development of Practical Skills and Relevance to Future Careers

Another prominent theme emerging from the data was the perceived development of practical skills All 15 participants agreed that project-based learning helped them develop teamwork, problem-

solving, and time management skills. One participant stated: "The project-based approach really helped me improve my teamwork and problem-solving skills, which are exactly what I'll need in my career." (P4)

Another student emphasized the collaborative nature of these learning strategies, noting that working with peers on projects prepared them for professional environments where teamwork is essential: "The group projects taught me how to collaborate with others, share ideas, and solve problems together. This is exactly what we'll do in the workplace." (P3)

Such feedback underscores the alignment between innovative teaching methods and the development of competencies that are highly valued in the job market. However, the challenge for instructors is to balance the theoretical and practical aspects of these methods to ensure that students are equipped with both knowledge and skills.

Teacher-Student Interaction and Support in Active Learning Environments

The role of the instructor in facilitating innovative teaching methods emerged as a critical factor influencing students' experiences. Participants reported that increased interaction with instructors during flipped classroom sessions contributed to a deeper understanding of the subject matter. One student explained: "The professor was always there to guide us during the discussions, which made me feel more confident in applying the concepts we learned." (P6)

In contrast, some students expressed the need for more structured support, especially in the initial stages of transitioning to these new methods: "I think the professor could have explained the flipped classroom model more clearly at the start. It would have made the transition smoother." (P9)

This suggests that while active engagement and support from instructors are vital in fostering successful learning outcomes, clarity in explaining new pedagogical approaches is essential for students to feel comfortable and confident.

The results of this study suggest that innovative teaching methods, such as flipped classrooms and project-based learning, significantly enhance student engagement and contribute to the development of practical skills. However, these methods also present challenges in terms of student adaptation, workload, and the clarity of instructional support. The overall impact on student learning outcomes is positive, particularly when students feel supported in their transition to more active and collaborative learning environments.

The key findings of this study reveal that innovative teaching methods, particularly flipped classrooms and project-based learning, significantly impact student engagement and learning outcomes (Al Shloul dkk., 2024). The data highlights that students experience a deepened sense of involvement when actively participating in these pedagogical approaches. Furthermore, the study uncovers the complex, multifaceted nature of engagement, where emotional, cognitive, and social factors intertwine to shape students' learning experiences. These findings directly respond to the research question by providing insights into how students perceive and interpret the use of innovative teaching methods in higher education settings.

The research contributes to the understanding of how and why innovative teaching methods influence student engagement by emphasizing the subjective and lived experiences of students. In contrast to previous studies that often rely on quantitative measures of engagement or performance, this study highlights the personal meanings that students attach to their learning. It was found that students perceive flipped classrooms as more engaging, fostering a sense of ownership over their learning process, and encouraging deeper collaboration with peers. Project-based learning, similarly, provided students with opportunities to apply theoretical knowledge in real-world contexts, thus enhancing the relevance of their education. The findings suggest that these methods support a more active, participatory role for students, which in turn leads to higher levels of motivation and

engagement. These insights provide a richer understanding of the nuances involved in the adoption of these innovative pedagogies, answering the research question by unveiling the emotional and cognitive dimensions of student engagement that previous studies have overlooked.

When compared with existing literature, the findings align with the theoretical frameworks of constructivism and experiential learning, which stress the importance of active engagement and meaningful learning experiences (Vlachopoulos & Makri, 2017). Similar to Kolb's Experiential Learning Theory, which posits that knowledge is best gained through experience, this study shows that students engage more deeply with learning when they have opportunities to reflect, collaborate, and apply knowledge in real-world settings. However, the findings also challenge some aspects of traditional pedagogical models that emphasize passive learning. Previous research has suggested that while flipped classrooms and project-based learning can lead to positive academic outcomes, the subjective experiences of students have been underexplored (e.g., Freeman et al., 2014). This study fills that gap by providing a more nuanced view of how students perceive these methods, showing that their engagement is not only a cognitive process but also deeply intertwined with emotions and social interactions. Therefore, this research complements and extends existing theories by offering a more holistic view of student engagement in innovative learning environments.

The findings of this study have significant implications for both academic practice and theoretical understanding (Bohari dkk., 2024). From a practical perspective, the results suggest that higher education institutions should consider integrating more innovative teaching methods, such as flipped classrooms and project-based learning, to foster deeper student engagement and enhance learning outcomes. These pedagogies appear to create a more dynamic and participatory learning environment, which resonates with the social constructivist view that knowledge is co-constructed through interaction and reflection. On a broader social and cultural level, the study underscores the importance of recognizing students as active participants in their own learning process, highlighting the need for educational practices that not only transfer knowledge but also cultivate critical thinking, collaboration, and problem-solving skills. In terms of professional implications, the findings may inform educators and curriculum designers about the potential benefits of shifting from traditional to more interactive and student-centered teaching strategies, particularly in a rapidly changing educational landscape.

Despite its valuable insights, this study has several limitations that must be acknowledged. First, the sample size was relatively small, consisting of only 15-20 students from a single higher education institution. While this allows for in-depth exploration of individual experiences, the findings may not be fully generalizable to larger or more diverse populations. Additionally, the study relied on qualitative methods, which, while providing rich, detailed accounts of student experiences, do not allow for the statistical generalization of results (Fisher dkk., 2015). The contextual factors of the university and the specific courses observed may also limit the applicability of the findings to different educational settings or disciplines. Moreover, the study focused primarily on students' perspectives, and future research could benefit from including the viewpoints of instructors or institutional stakeholders to provide a more comprehensive understanding of the impact of innovative teaching methods.

Building on the findings of this study, future research could expand the scope to explore how different demographic groups (e.g., students from various socio-economic backgrounds, cultural contexts, or disciplines) experience innovative teaching methods (Maini dkk., 2021). Comparative studies across multiple institutions could offer a broader understanding of how these pedagogies are perceived and implemented in diverse educational environments. Moreover, future studies could examine the long-term effects of these teaching methods on students' learning trajectories and career outcomes. Another promising direction would be to explore the perspectives of instructors, who play a key role in shaping the learning experience, to gain insights into the challenges and opportunities they face in adopting these innovative approaches. Finally, a more nuanced exploration of the emotional and psychological dimensions of student engagement, such as student well-being,

motivation, and resilience, could contribute to a deeper understanding of how innovative teaching practices influence students' holistic development.

CONCLUSION

This study explored the experiences and perceptions of students regarding the impact of innovative teaching methods on their learning engagement and outcomes. The findings revealed that pedagogies such as flipped classrooms and project-based learning significantly enhance student participation, critical thinking, and problem-solving skills, addressing the limitations of traditional teaching approaches. By capturing the deep, subjective experiences of students, the research contributes to a richer understanding of how these methods foster an interactive and student-centered learning environment. Furthermore, this study addresses gaps in the literature by providing empirical evidence of the benefits of such pedagogies in a higher education context.

However, several limitations of this study should be acknowledged. First, the small sample size (15 participants) and its focus on a single institution limit the generalizability of the findings to broader populations. Second, the reliance on self-reported data introduces the potential for bias, such as social desirability or recall inaccuracies. Third, this study primarily focused on students' perspectives, without considering the experiences of instructors or institutional stakeholders, which are crucial for a comprehensive understanding of the implementation of these methods.

To address these limitations, future research could adopt a mixed-methods approach that combines qualitative insights with quantitative data, such as academic performance metrics, to triangulate findings and enhance validity. Expanding the sample size and including participants from multiple institutions or disciplines would also provide a more representative understanding of the impact of innovative teaching methods. Moreover, incorporating the perspectives of instructors and policy makers would yield valuable insights into the challenges and strategies for implementing such pedagogies effectively. Finally, longitudinal studies could investigate the long-term effects of these teaching methods on students' learning trajectories and career outcomes.

In terms of educational policy, institutions could develop training programs for instructors to enhance their ability to implement innovative teaching strategies effectively. Policies that promote interdisciplinary collaboration and resource sharing among educators could also facilitate the adoption of these methods. Furthermore, allocating funding for pilot programs and research on innovative pedagogies would support evidence-based decision-making in education reform.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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