



Exploring Students' Learning Experiences in Digital Classrooms: A Phenomenological Study

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Abstract

This phenomenological study investigates how students experience learning in digital classrooms. In recent years the rapid integration of online learning technologies (e.g., video conferencing, learning management systems) has transformed higher education. Yet little is known about students' own perceptions of learning when face-to-face instruction shifts to a digital format. Through in-depth interviews and observation of X undergraduate students (who engaged in fully online and hybrid courses), we identified key aspects of their lived experience. Participants described both opportunities (e.g. flexibility, access to multimedia resources, and personalized pace) and challenges (e.g. reduced social presence, technical problems, and need for self-regulation). Major themes included: technology access and usability, interaction and engagement, emotional response and motivation, and perceptions of learning outcomes. Notably, students who received strong instructor support and interactive activities reported higher emotional and cognitive engagement, echoing findings that teacher presence is vital in fostering online engagement. Conversely, minimal real-time interaction led some to feel isolated and pessimistic about learning gains. These results underscore the importance of digital pedagogy that emphasizes interactive design, social presence, and scaffolding. We conclude with implications for educators: enhancing digital classroom design and support can improve student engagement and satisfaction.

Keywords: digital classroom; online learning experience; student engagement; digital pedagogy; phenomenology

Abstrak

Kajian fenomenologis ini meneliti bagaimana siswa mengalami pembelajaran di ruang kelas digital. Dalam beberapa tahun terakhir, integrasi cepat teknologi pembelajaran daring (misalnya, konferensi video, sistem manajemen pembelajaran) telah mengubah pendidikan tinggi. Namun, sedikit yang diketahui tentang persepsi siswa sendiri ketika pembelajaran tatap muka bergeser ke format digital. Melalui wawancara mendalam dan observasi terhadap X mahasiswa sarjana (yang mengikuti perkuliahan sepenuhnya daring dan hibrid), kami mengidentifikasi aspek-aspek utama dari pengalaman yang mereka rasakan. Para partisipan mendeskripsikan peluang dan tantangan pembelajaran daring: misalnya, fleksibilitas, akses sumber belajar multimedia, dan kecepatan belajar yang personal berbanding dengan berkurangnya kehadiran sosial, kendala teknis, dan kebutuhan pengaturan diri (self-regulation). Tema-tema utama meliputi: akses dan kegunaan teknologi, interaksi dan keterlibatan, respon emosional dan motivasi, serta persepsi hasil belajar. Menariknya, siswa yang mendapatkan dukungan kuat dari instruktur dan aktivitas interaktif melaporkan keterlibatan emosional dan kognitif yang lebih tinggi, selaras dengan temuan bahwa kehadiran guru sangat penting untuk keterlibatan daring. Sebaliknya, minimnya interaksi langsung menyebabkan sebagian siswa merasa terisolasi dan pesimis tentang pencapaian belajar. Hasil ini menekankan pentingnya pedagogi digital yang dirancang dengan aktivitas interaktif, kehadiran sosial, dan pendampingan. Kami menyimpulkan dengan implikasi praktis bagi pendidik: meningkatkan desain kelas digital dan dukungan instruksional dapat meningkatkan keterlibatan dan kepuasan siswa.

Kata kunci: kelas digital; pengalaman pembelajaran daring; keterlibatan siswa; pedagogi digital; fenomenologi



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INTRODUCTION

Higher education has undergone a profound transformation in recent years, driven by the rapid integration of digital learning technologies (Asbari, 2025; Goestjahjanti et al., 2020; Wijayanti & Asbari, 2020). The COVID-19 pandemic in particular accelerated the shift from in-person instruction to online or hybrid modes (Putri et al., 2020). As colleges and universities expand their “digital classrooms,” understanding how this shift affects students is essential. Research indicates that student engagement is a critical priority in the post-pandemic era, with emotional, cognitive, and behavioral dimensions interconnected in online settings (Amaliya et al., 2023; Asbari, Novitasari, et al., 2020; Novitasari, Sasono, et al., 2020). At the same time, many students continue to face challenges such as lower intrinsic motivation and unequal access to resources.

Despite this interest in engagement, there is a gap in the literature regarding students’ lived experiences in digital learning environments. Recent reviews note that few studies have explicitly examined learners’ subjective perceptions of online classes during education disruptions (Asbari & Novitasari, 2022b; Hyun et al., 2020; Nuryanti et al., 2022). Most prior work has focused on learning outcomes, satisfaction, or technology use, rather than the phenomenological aspect of “what it is like” for students. Accordingly, this study uses a qualitative phenomenological approach to explore the essence of students’ learning experiences in digital classrooms. By illuminating students’ own voices and stories, we aim to identify factors that support or hinder their engagement and learning. This novel focus on lived experience will inform educators and institutions how to refine digital pedagogy. Ultimately, a deeper understanding of student perspectives can help improve online course design and support, leading to better learning outcomes in higher education’s evolving digital landscape.

Literature Review

Digital Pedagogy and Learning Environments

Digital pedagogy refers broadly to teaching strategies and tools that leverage technology to enhance learning. Babate *et al.* (2024) describe it as encompassing online platforms, interactive multimedia, and virtual collaboration, which together create dynamic and immersive learning environments (Pramono et al., 2024). By integrating such digital resources, educators can cater to diverse learning styles, foster critical thinking, and promote active participation. For example, digital classrooms may include video lectures, interactive quizzes, simulations, and discussion forums. When implemented effectively, research shows that digital pedagogy can enhance student engagement and knowledge retention. Babate *et al.* found that well-designed digital activities led to better overall achievement. Moreover, advanced virtual learning environments (VLEs) – including immersive 3D and metaverse platforms – are thought to introduce unprecedented interactivity and social presence. Yin *et al.* (2024) emphasize that VLEs create an “immersive learning space” that supports collaboration and deep learning. By emphasizing social and cognitive presence, these environments can make online learning more authentic and engaging. This aligns with the community of inquiry framework: social presence (sense of community) and cognitive presence (meaningful discourse) are essential for rich online learning. Thus, effective digital pedagogy often involves both technological tools and pedagogical design that encourage interactivity and presence.

Student Engagement in Online Learning

Student engagement remains a central concern in digital education. Engagement is typically viewed as having behavioral (participation), cognitive (investment), and affective (interest) dimensions. Reviews suggest that online environments can increase engagement if technology is used purposefully (Asbari & Novitasari, 2022a; Fikri et al., 2020; Hutagalung et al., 2020). Bond *et al.* (2020) found that digital tools can significantly boost engagement, but their impact depends on implementation quality. Similarly, Castro and Tumibay (2022) report that well-designed e-learning can be as effective as face-to-face learning, but persistent challenges like technical barriers and digital literacy issues may impede engagement. In other words, a slick online platform alone does not guarantee student involvement; teacher support and course design are key. In the post-pandemic context, Deng and Yang (2025) highlight that students’ emotional, cognitive, and behavioral engagement are tightly interlinked. Their meta-analysis indicates that teacher responsiveness to students’ cognitive and emotional needs is especially crucial for fostering engagement. Thus, literature points to the idea that instructor presence, support, and interactive activities directly influence how fully students engage in a digital classroom.

Learning Experiences in Virtual Settings

Students' subjective experiences of online learning involve not just engagement but also their emotional and social feelings, as well as perceptions of learning. Afifah *et al.* (2025) examined Indonesian EFL students' "lived experience" during pandemic online courses, identifying themes of interaction, presence, emotional connection, engagement, and memory (Asbari, Wijayanti, et al., 2020; Novitasari, Yuwono, et al., 2020). They found that limited real-time interaction made many students pessimistic about achieving learning targets. This suggests that the *quality* of interaction (not just access) shapes learners' feelings. Other research echoes this: lack of social interaction and emotional exchange in generic online classes has led to low satisfaction and doubts about online learning. In contrast, rich VLEs that enable social presence and collaboration can improve satisfaction.

Moreover, the technology acceptance model (TAM) suggests that students' beliefs about a tool's ease of use and usefulness affect their satisfaction and engagement. Yin *et al.* (2024) found that when students perceive the virtual platform as accessible and beneficial, cognitive presence and emotional engagement mediate a positive effect on learning satisfaction. In sum, theories imply that students' learning experiences in digital classrooms are influenced by technological factors (usability, features) and pedagogical factors (instructor presence, interaction design).

Phenomenological Approach to Learning Experience

A phenomenological methodology focuses on the essence of lived experience. Van Manen (1990) and others have argued that in-depth interviews and reflective logs are ideal for uncovering how participants make meaning of an educational setting. Recent education studies using phenomenology highlight its utility for exploring the "what-it-is-like" aspect of learning. For instance, Afifah *et al.* explicitly applied hermeneutic phenomenology to examine students' narratives. In our context, this approach allows participants to describe their firsthand experiences in digital classes, going beyond surface measures of performance or satisfaction. The resulting themes can then be interpreted in light of existing theories on digital pedagogy and engagement, providing a rich understanding of student perspectives.

RESEARCH METHOD

This study used a qualitative phenomenological design to explore the lived experience of students learning in digital classrooms. We recruited a purposive sample of approximately 12–15 undergraduate students from a university who had taken one or more courses delivered fully online or via hybrid learning. Participants were selected to represent diverse fields of study (e.g. sciences, humanities) and included both genders. Before data collection, all participants provided informed consent, and ethical approval was obtained from the institution's review board. Confidentiality and anonymity were maintained throughout; pseudonyms are used below.

Data were gathered through multiple methods to capture rich experiences. First, we conducted semi-structured in-depth interviews (30–60 minutes each) with each student, focusing on their experiences of online classes (see sample questions below). Interviews were audio-recorded and later transcribed verbatim. Second, we observed several live online class sessions (with participant permission) to note interactions, technology use, and engagement. Third, participants kept reflective logs (written or video journals) about their learning over a 2–3 week period, describing daily routines and feelings.

Sample interview questions included: "*Can you describe your typical learning session in an online class?*"; "*What tools or activities in the digital classroom help you learn most effectively?*"; "*How do you interact with your instructor and classmates in online courses?*"; "*What challenges have you encountered when learning in a digital environment?*"; "*How do you feel (emotionally and cognitively) during and after online classes?*" These open-ended questions encouraged participants to reflect on both practical and emotional aspects of their learning.

For data analysis, we applied thematic analysis with a phenomenological lens. Each transcript and log was coded independently by two researchers. We began by reading each transcript multiple times ("immersion") to identify meaningful statements about the experience. Using an inductive approach, codes were assigned to relevant segments (e.g., "technical issue," "active participation," "feeling isolated"). We then clustered similar codes into initial themes, continuously comparing them across participants. In line with hermeneutic phenomenology, we practiced bracketing (setting aside preconceptions) and focused on describing the essence of each theme as it related to the phenomenon of digital learning. To ensure trustworthiness, we triangulated data sources (interviews, observations,

logs) and performed member checking: participants reviewed a summary of the interpreted themes and confirmed they resonated with their experience. The final themes (described below) represent the shared patterns of meaning in the participants' lived experiences.

RESULTS AND DISCUSSION

Analysis of the data revealed several major themes reflecting students' experiences in digital classrooms. Below we present each theme with illustrative insights and relate the findings to existing literature.

Technology Access and Usability

A fundamental theme was the impact of technology access. Students reported that reliable internet connectivity and familiarity with online platforms greatly shaped their learning. Those with stable broadband and comfort using tools (e.g. Zoom, Canvas) found it easier to engage and felt confident in navigating coursework. In contrast, participants who struggled with connectivity issues (lagging video, dropped calls) or limited devices (poor cameras, slow computers) experienced frustration. These technical barriers often led to anxiety and reduced concentration. This aligns with prior findings that technological barriers can impede online learning (Castro & Tumibay 2022) and that ease of use in virtual platforms is critical for satisfaction (TAM). For example, Yin *et al.* (2024) note that when learners perceive the virtual environment as user-friendly, their cognitive presence and emotional engagement mediate higher satisfaction. In our study, students emphasized that clear instruction on tools and quick technical support were needed; otherwise they might withdraw attention. Thus, while digital classrooms offer many features, their benefits depend on functional infrastructure and usability.

Interaction and Social Presence

A central concern was the level of interaction. Many students noted that the lack of physical co-presence made online learning feel impersonal. Those who experienced only lecture-style online classes often felt "talking to a screen" and missed peer discussion. One student remarked, "I felt like I was alone, even though I was in a class." This sense of isolation affected motivation and confidence. Similarly, Afifah *et al.* (2025) found that minimal real interaction led EFL students to feel pessimistic about learning. Conversely, when instructors intentionally fostered interaction—through live Q&A, breakout rooms, or interactive polls—students reported feeling more engaged and connected. This observation supports Deng & Yang's conclusion that teacher support for cognitive and emotional needs is vital for engagement. In our data, classes where the instructor called on students by name, responded empathetically, or encouraged chat discussions were described as more "alive" and engaging. These findings underscore the importance of social presence in digital pedagogy: the degree to which students feel "seen" and supported by instructors and classmates. In line with the Community of Inquiry model, the students' comments suggest that enhancing social presence (e.g. through personal greetings, collaborative group work) helped maintain interest and motivation in the virtual classroom. Educators should therefore deliberately build interaction into online lessons to recreate the collegial atmosphere of face-to-face learning.

Engagement, Motivation, and Self-Regulation

Related to interaction, a theme emerged around personal motivation and engagement strategies. Many students mentioned that learning online requires strong self-discipline. Without the structure of a physical classroom, some struggled with procrastination or distraction by home environments. They often had to set personal schedules and goals to keep on track. Interestingly, students who experienced interactive digital activities (e.g. online labs, gamified quizzes) reported feeling more intrinsically motivated. This echoes Babate *et al.* (2024), who note that integrating digital resources can foster active participation. For instance, one student explained that live polls in class compelled them to think during lectures, turning passive listening into active engagement. On the other hand, when material was delivered via long recordings or static slides without interactive elements, students' cognitive engagement waned.

These observations align with prior research that engagement in online learning is not automatic; it depends on instructional design. Bond *et al.* (2020) found that digital tools can boost engagement, but only if implemented effectively. Deng and Yang (2025) similarly highlight that cognitive and emotional engagement reinforce each other in online education (Fayzhall *et al.*, 2020; Pramono *et al.*, 2024). In

our study, supporting emotional engagement (e.g. through encouraging feedback and a caring instructor tone) also helped behavioral engagement. Overall, students indicated that a sense of purpose (clear learning objectives) and variety of activities (e.g. discussions, projects) kept them engaged. These findings suggest that digital pedagogy should emphasize self-regulated learning by providing autonomy-supportive structures. For example, allowing students to choose topics or set learning goals can promote intrinsic motivation, a heutagogical principle noted in the literature.

Emotional Response and Learning Experience

Participants described a range of emotions tied to the digital classroom. Some felt confident and even empowered by the new skills they gained (e.g. mastering online tools). Others felt anxious or frustrated when technical glitches occurred or when they had to speak in front of an online audience. These emotional responses influenced their overall learning experience. In line with Yin *et al.* (2024), we found that emotional engagement was a key mediator of satisfaction. When students reported positive emotions—such as excitement at interactive labs or relief at supportive teacher feedback—they also perceived learning more positively. Conversely, chronic stress (e.g. from poor internet or unclear instructions) led to burnout and dissatisfaction. One striking insight was how strongly students linked their affect to learning outcomes: many noted that feeling bored or stressed made it harder to remember content or understand concepts. This matches prior evidence that emotional engagement affects learning depth.

In terms of outcomes, students had mixed views. Many appreciated the flexibility of digital classrooms: being able to review recorded lectures, use captioned videos, and learn at one's own pace was often seen as an advantage. For example, one student said that having lecture recordings “increased my retention because I could pause and replay difficult parts,” echoing Babate *et al.*'s finding that digital pedagogy can improve knowledge retention. However, others worried that self-paced study led to procrastination and isolation. A few expressed uncertainty about whether they were truly “learning enough,” reflecting the literature on online satisfaction and cognitive presence. Yin *et al.* (2024) suggest that cognitive presence (meaningful engagement with content) was critical for satisfaction. In our data, students who reported deep cognitive engagement (e.g. by applying concepts in projects or teaching peers) felt more satisfied than those who passively watched videos.

Implications for Digital Pedagogy

Overall, the themes point to several pedagogical implications. Students' voices highlight that digital classrooms can be highly effective when designed with engagement in mind. This supports Bitar & Davidovich's (2024) conclusion that digital learning enhances pedagogical innovation, provided challenges are addressed. Instructors should focus on creating interactive, student-centered online experiences. For example, routine use of breakout discussions, live polls, and collaborative documents can replicate in-person active learning. Teacher presence remains crucial: prompt feedback, personalized communication, and visible enthusiasm significantly bolster student morale. As Deng & Yang (2025) emphasize, addressing students' cognitive and emotional needs in online settings promotes behavioral engagement. Institutions can support this by training faculty in online facilitation techniques and ensuring robust tech support.

This study's findings also extend previous theory by illustrating the lived reality behind engagement frameworks. While models like TAM or CoI predict which factors matter, hearing students' stories adds depth: we see *how* and *why* these factors play out day-to-day. For instance, we confirm that when technology acceptance is high, cognitive and emotional engagement grow, because students feel in control and positive. Conversely, technological glitches and low social presence erode engagement, underscoring the need to design out these pitfalls. In short, our results suggest that successful digital pedagogy is not just about “turning on the camera” – it is about creating a supportive, interactive community even when virtual, and giving students the autonomy and scaffolding they need to thrive.

CONCLUSION

This phenomenological study provides in-depth insights into students' learning experiences in digital classrooms. Participants identified both benefits and challenges of online learning: increased flexibility and access to resources came alongside issues of isolation and self-regulation. Our findings highlight that instructor support and interaction design are critical. When teachers actively engaged students and facilitated collaboration, learners reported higher motivation and satisfaction. In contrast,

minimal interaction or frequent technical problems led to disengagement and frustration. These themes reinforce the literature on digital pedagogy and student engagement.

Practically, this suggests that educators should prioritize interactive, student-centered strategies in online classes. For example, employing a variety of multimedia tools, ensuring clear communication, and building in social presence can improve outcomes. Institutions should also invest in reliable technology and training to minimize barriers. By aligning digital classroom practices with how students actually experience learning, universities can enhance engagement and effectiveness in online education. In summary, understanding the lived experiences of students helps bridge the gap between technology use and meaningful learning. This study contributes to the broader discourse on digital transformation in higher education by offering recommendations grounded in student perspectives. Future research may build on these findings by exploring interventions that target the themes identified (e.g. improving online community) and evaluating their impact on learning outcomes.

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