



Learning from Emergency Remote Teaching: Student Insights on LMS for Sustainable and Inclusive Digital Education

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Abstract

The COVID-19 pandemic compelled universities worldwide to adopt Learning Management Systems (LMS) as the primary medium for emergency remote teaching. While these platforms ensured continuity of instruction, many students encountered significant technological, pedagogical, and equity-related challenges that limited their learning experiences. This study draws on qualitative data from 249 Iranian university students' reflections during the pandemic to explore both barriers and opportunities in LMS use. Thematic analysis revealed recurring issues such as unstable internet connectivity, difficulties with uploading assignments, limited digital literacy, insufficient instructor support, and inequitable access to digital resources. Students also reported increased workloads, lack of feedback, and emotional fatigue. However, some identified benefits, including improved digital skills, flexibility in learning, and opportunities for self-paced study. Beyond documenting these emergency-period challenges, the study highlights how student voices can provide valuable guidance for the post-pandemic development of digital education. The findings underscore the importance of institutional policies, digital equity strategies, and culturally responsive pedagogy in shaping sustainable and inclusive higher education. By foregrounding student experiences, this research contributes to ongoing discussions on how hybrid and blended learning models can strengthen resilience and ensure meaningful engagement in future digital learning environments.

Keywords: Learning Management Systems; student feedback; online education; digital equity; sustainable higher education

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1. Introduction

The COVID-19 pandemic radically disrupted global education systems, triggering a swift transition to online learning across all levels of education. This shift was not a planned digital transformation but rather a crisis-driven necessity that exposed existing vulnerabilities in educational infrastructure, digital literacy, and pedagogical preparedness. In the absence of face-to-face classes, Learning Management Systems (LMS) emerged as essential tools for continuing instruction.

Learning Management Systems (LMS) refer to software platforms designed to facilitate the administration, documentation, tracking, reporting, and delivery of educational courses or training programs. These platforms, originally designed for blended or fully online programs, suddenly became the primary mode of delivery for courses in institutions that had little prior experience with them.

Globally, the adoption of LMS platforms during the pandemic surged. According to UNESCO (2020), over 1.6 billion learners in more than 190 countries were affected by school closures at the height of the crisis. Reports from EdTech Hub and World Bank (2021) indicate that more than 90% of higher education institutions in OECD countries adopted some form of LMS or virtual learning environment (VLE). This rapid shift strained both technical infrastructure and human capacity, particularly in lower-income regions.

This abrupt change created a phenomenon termed 'emergency remote teaching' by Hodges et al. (2020), emphasizing that this model differed from conventional, carefully designed online education. Instead, educators and students were thrust into digital environments with minimal training, resources, or support. According to Adedoyin and Soykan (2020) and Mukhtar et al. (2020), while LMS platforms such as Moodle and Blackboard were deployed rapidly, their implementation often lacked strategic planning, technical readiness, and pedagogical adaptation.

In developing countries like Iran, the challenges associated with this transition were even more acute. Limited broadband infrastructure, high data costs, and unequal access to digital devices exacerbated the existing educational disparities. Students from lower socioeconomic backgrounds, rural regions, or traditional households experienced pronounced barriers to participation. Female

students in conservative communities often faced additional constraints, such as restrictions on camera use or shared device access.

Despite these structural challenges, LMS platforms remained central to emergency education. Their functions—content delivery, assignment submission, discussion forums, and asynchronous lectures—offered a semblance of continuity during a chaotic time. However, whether these tools facilitated meaningful learning experiences for students remains an open question.

Recent studies (e.g., Huang et al., 2022; Bond et al., 2023) emphasize that the post-pandemic period requires moving beyond emergency remote teaching to more sustainable, inclusive, and effective models of digital education. These studies suggest that hybrid and blended learning models, when supported by institutional policies and digital equity strategies, can strengthen higher education resilience in the face of future crises.

Despite the growing body of research, gaps remain regarding how students and instructors experience digital learning environments in different contexts, and how institutions can ensure equitable and high-quality online education. Particularly in developing countries, challenges of infrastructure, pedagogical readiness, and digital literacy continue to affect the effectiveness of online learning (Zalat et al., 2021; Almahasees & Jacomard, 2022).

This study seeks to address these gaps by exploring the lived experiences of 249 students with online learning during and after Covid-19. Using thematic analysis, the research identifies key challenges, opportunities, and strategies for enhancing digital education. The findings contribute to discussions on digital equity, educational policy, and the sustainable integration of technology in higher education.

2. Literature Review

The rise of Learning Management Systems (LMS) as a central tool in digital education has been well-documented in the literature on e-learning. Studies prior to COVID-19 emphasized LMS benefits such as flexibility, resource centralization, and asynchronous learning opportunities (Al-Fraihat et al., 2020; Wang et al., 2019). These platforms offered support for personalized learning, allowed instructors to deliver varied instructional materials, and facilitated communication beyond the classroom. However, most of these systems were designed for blended learning environments

or fully online courses that were strategically planned, rather than emergency implementations. During the COVID-19 pandemic, institutions were forced into rapid digitalization without adequate preparation. The term "emergency remote teaching" (ERT), introduced by Hodges et al. (2020), refers to the temporary shift of instructional delivery due to crisis circumstances, distinguishing it from fully designed online learning experiences. Unlike traditional online education, ERT was a reactive measure undertaken without adequate preparation, training, or infrastructure. This distinction is crucial, as it shapes the challenges experienced by both educators and learners. In many cases, LMS platforms that were previously peripheral became the primary—and often only—mode of content delivery and student interaction.

While many studies examined LMS challenges in developed contexts, a number of developing countries faced distinct barriers. In India, for example, over 50% of students lacked access to reliable internet or digital devices during the pandemic, and many relied on mobile phones with limited data for learning (Jena, 2020). Similarly, in South Africa, students in rural provinces faced infrastructure problems, electricity outages, and high connectivity costs (Maringe et al., 2021). Multiple international studies have highlighted the difficulties learners faced during this transition. These include poor internet connectivity, lack of digital literacy, difficulty engaging with online platforms, and increased emotional stress (Dhawan, 2020; Adedoyin & Soykan, 2020). For example, in Brazil, Araujo et al. (2021) noted that university students, especially from lower-income communities, experienced limited internet connectivity and inadequate home environments for study, resulting in reduced engagement and academic performance. In Southeast Asia, Nguyen and Le (2022) observed that many students relied on free, low-data platforms like Facebook Messenger and YouTube, due to the inaccessibility of institutional LMS platforms. These workarounds, while innovative, lacked the structure and features of formal LMS systems, highlighting gaps between platform availability and actual usability. Such findings reinforce the need to distinguish between nominal LMS deployment and effective LMS integration within specific sociocultural contexts. As it was already mentioned, challenges were often compounded in developing countries where access to high-speed internet, devices, and technical support was already uneven (Bozkurt et al., 2020; Shirazizadeh et al., 2023; Askarpoor et al., 2022). Trust and Whalen (2020) further noted that the success of LMS implementation depended on the degree to which institutional culture, faculty training, and student support systems were aligned with online education. Bozkurt et al. (2020)

emphasize that the move to remote learning without robust infrastructure or digital preparedness magnified existing inequalities.

Among the primary challenges reported in the literature are low digital literacy, insufficient instructor training, limited access to stable internet, and the failure to redesign pedagogy for digital delivery (Dhawan, 2020; Trust & Whalen, 2020). During this transition, students were expected to adapt swiftly to self-directed learning models, while educators often lacked the competence to use LMS features effectively. The rapid, top-down implementation frequently ignored students' voices and unique local contexts.

Beyond technical challenges, the psychological and emotional toll of emergency remote learning has been widely documented. Students across countries reported heightened stress, feelings of isolation, and increased screen fatigue (Adedoyin & Soykan, 2020; Bozkurt et al., 2020). Without physical interaction, many learners experienced reduced motivation and a sense of detachment from their studies. According to Sahu and Mehta (2021), students' mental well-being deteriorated during prolonged online semesters, especially when platforms lacked elements of social presence, such as interactive discussions or real-time feedback. This phenomenon is particularly relevant in collectivist cultures, where peer interaction is central to learning motivation.

In Iran, these effects were compounded by family pressures, lack of personal learning space, and cultural barriers, especially for female students. These psychological stressors affected students' engagement and performance, indicating that emotional well-being is a critical component of digital education readiness. Recent studies stress that emotional disconnection and screen fatigue are not merely side effects of online learning but key predictors of disengagement.

In the context of Iran, these global patterns were reflected and often intensified due to socio-political and infrastructural constraints. Iran's higher education system relies heavily on national LMS platforms such as NAVID and NIMA, which were not initially equipped for mass remote instruction. According to Ghaffari et al. (2021), these platforms faced technical failures, server overloads, and minimal mobile compatibility during peak usage, frustrating both faculty and students. Additionally, the limited bandwidth infrastructure in parts of Iran, especially rural and underserved urban areas, made it difficult for students to participate regularly. According to Karami and Zarei (2020), Persian-language interfaces and accessibility issues in domestic LMS platforms further hindered student engagement.

A study by Fathi and Hashemi (2021) analyzing 15 Iranian universities during the early COVID-19 outbreak found that nearly 40% of students lacked continuous access to digital devices. Rural students, in particular, reported reliance on shared mobile phones or limited data packages. This digital divide hindered equitable participation and deepened learning disparities.

Instructor preparedness was another key issue. Ghasemi and Saadatmand (2021) note that many Iranian faculty members had minimal training in e-learning pedagogy. Their adaptation to digital platforms was reactive, with most using platforms for one-way content delivery rather than leveraging interactive tools like forums or quizzes. Additionally, LMS interfaces did not accommodate Persian script or right-to-left formatting effectively, creating usability issues (Karami & Zarei, 2020).

Cultural and familial dynamics also influenced LMS engagement. Ebrahimi and Bagheri (2022) highlight how gender norms in conservative households affected female students' ability to participate in online classes. These students often faced restrictions on extended internet use or camera access, limiting their engagement and visibility in digital classrooms.

Gender disparities also surfaced prominently in Iranian LMS use during the pandemic. Ebrahimi and Bagheri (2022) found that female students, particularly those in conservative households, faced restrictions on camera usage, access to shared devices, and digital autonomy. These findings align with global patterns of gendered digital access, which have been amplified during the pandemic. Despite these challenges, some research suggests that students gained valuable digital skills during the crisis. Azizi (2022) notes that many learners developed technological competencies that would have otherwise taken years to cultivate. Similarly, Tavakoli and Mohammadi (2021) documented a modest increase in students' familiarity with asynchronous learning and self-paced study.

Another emerging theme in the literature is student agency—how students in constrained settings adapt and respond to LMS challenges. While many narratives focus on failure or disengagement, some students demonstrate resilience and creativity in navigating digital barriers. For instance, in Indonesia, Setiawan et al. (2021) documented students forming WhatsApp-based peer study groups and using voice memos to simulate oral exams. These informal practices, while outside the LMS ecosystem, reflect learners' ability to construct meaning and maintain collaboration even in fragmented digital environments. In Iran, Tehran University's virtual campus adopted hybrid models using WhatsApp and Telegram for micro-interactions, increasing response

rates and student feedback. The Islamic Azad University launched localized LMS training sessions, which significantly improved instructors' confidence in managing digital classrooms (Azizi, 2022). As another issue, assessment through LMS platforms presented additional concerns. Technical issues during timed exams, lack of academic integrity measures, and ambiguity in instructions led to widespread student dissatisfaction. Rahimi and Parsa (2022) suggest that Iranian universities need adaptive LMS platforms with real-time monitoring, flexible re-entry options, and multilingual support to mitigate these problems.

Furthermore, studies underscore the importance of community-building within LMS. Bozkurt et al. (2020) argue that fostering learner presence, cognitive presence, and teaching presence is essential for meaningful digital education. In Iran, initiatives like virtual "student lounges" or discussion cafes were rarely institutionalized, leaving many learners feeling disconnected. Student testimonies gathered in this study echo these sentiments, calling for more interactive and emotionally engaging online experiences.

Next issue related to LMS in Iran was policy gaps which surfaced as a major barrier. Azizi (2021) analyzed digital learning policies of 20 Iranian universities and found that fewer than 10 had structured LMS contingency plans. Most lacked clear evaluation standards, content accessibility guidelines, or student support mechanisms. UNESCO's framework for digital learning readiness was only partially aligned with national standards.

There is also a need to focus on localized content creation and instructional design. Many LMS courses used foreign-produced videos or texts without cultural relevance. Tabrizi and Mohammadi (2021) argue that context-aware curriculum design improves comprehension and motivation, particularly for first-year university students adapting to higher education. In fact, LMS platforms that rely on imported course materials or inflexible teaching styles often fail to resonate with students. Cultural dissonance can erode trust and reduce participation. In Latin American contexts, for instance, Gutiérrez and Rojas (2021) argue that hybrid pedagogies that combine LMS tools with local storytelling methods or culturally relevant assignments lead to better engagement and comprehension.

Ultimately, the Iranian experience reinforces the idea that successful LMS implementation is not solely a technical issue—it is pedagogical, cultural, and structural. As universities move toward post-pandemic hybrid models, a renewed focus on student-centered design, equitable access, and culturally responsive pedagogy is vital.

While there is emerging literature on the institutional and faculty perspectives during this crisis, few studies have focused on Iranian students' lived experiences with LMS platforms. This study contributes to the literature by thematically analyzing student feedback from several university courses, providing a nuanced understanding of the emotional, technical, and pedagogical barriers encountered. By centering student voices, the study adds a bottom-up perspective to the growing scholarship on digital education in emergency settings by answering the following questions:

1. What are the major barriers students faced when using LMS platforms during emergency remote learning?
2. How did students perceive the role of instructors and institutional support in facilitating LMS-based education?
3. What positive outcomes, if any, emerged from students' use of LMS platforms under pandemic conditions?

3. Methodology

This study adopted a qualitative research design, using thematic analysis to explore Iranian university students' experiences with Learning Management Systems (LMS) during the emergency remote learning period triggered by the COVID-19 pandemic. Given the unprecedented nature of this shift and the centrality of student voices in assessing LMS effectiveness, a qualitative approach enabled the researchers to capture rich, context-specific narratives that reflect both systemic challenges and emergent opportunities (Braun & Clarke, 2006; 2021).

3.1. Participants

Participants in this study were undergraduate students who enrolled at the Higher Education Complex of Bam in Kerman Province. They were experiencing their second semester of the academic year that coincided with the outbreak of COVID-19 and had to continue the rest of their academic year through LMS. Participation was voluntary, and informed consent was obtained from all individuals. Table 1 displays demographic information of these students.

Table 1. Overview of Participant Demographics by Course Type

Class Title	Number of Students	Gender (M/F)	Field of Study
General English A	45	40 / 5	Mechanical Engineering
General English B	50	20 / 30	Computer Engineering
General English C	50	14 / 36	Industrial Engineering
Methodology (Translation Studies)	30	5 / 25	Translation Studies
Advanced Writing (Translation Studies)	34	2 / 32	Translation Studies
Testing (Translation Studies)	40	6 / 34	Translation Studies
Total	249	87 / 162	—

Table 1 presents a summary of participant demographics across the six courses included in the study. The classes were categorized into two main types: General English, which served students from various non-English academic disciplines, and English-Specific courses that were part of the Translation Studies curriculum. The gender distribution shows a higher proportion of female students, reflecting broader enrollment patterns in most of the programs in Iran. General English students came from diverse fields of study, including Mechanical engineering, Industrial engineering, and computer engineering. In contrast, all students in the English-Specific courses were English majors. This variety allowed for a rich comparison between students who used LMS platforms in different academic and instructional contexts.

3.2. Data Collection

The dataset comprises over 500 comments. These comments were collected during the Spring 2020 semester from three distinct sources: (1) written reflections from courses during the semester, (2) responses to instructor-initiated surveys, and (3) transcripts from LMS-based discussion forums within several taught courses. Students were invited to share their thoughts either through open-ended questions or reflective prompts. Participation was voluntary, and all identifying details were anonymized to preserve confidentiality.

Most comments were originally written in Persian. To ensure accuracy and cultural fidelity, the research team translated them into English, using a double-checking process involving two bilingual academics. Translations preserved the tone, nuance, and context of the original statements. Comments that were unclear or off-topic were excluded from the final dataset.

Participants represented a range of academic disciplines but were predominantly undergraduate students. While no formal demographic data were collected, the diversity of faculties and genders evident in the reflections provided a varied and representative set of perspectives.

3.3. Data Analysis

Thematic analysis, as outlined by Braun and Clarke (2006), was used to analyze the data. Figure 1 clearly demonstrate the steps of this analysis.

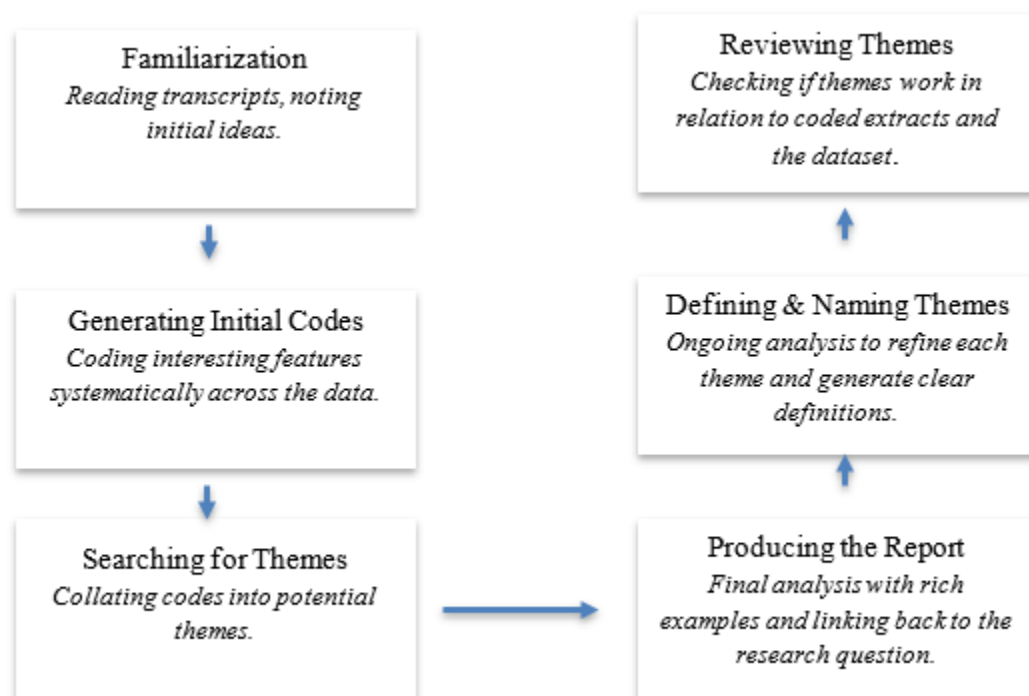


Figure 1. Braun and Clarke's Six Phases of Thematic Analysis

According to Figure 1, six systematic steps are: (1) familiarization with the data through repeated reading, (2) generating initial codes, (3) searching for themes, (4) reviewing and refining themes, (5) defining and naming each theme, and (6) compiling the findings into a comprehensive report. The analysis was inductive, allowing themes to emerge organically from the data rather than being imposed a priori.

Coding was performed manually by two independent researchers. Disagreements were resolved through discussion until consensus was reached. This triangulated approach increased the

credibility and dependability of the thematic framework. To ensure depth and coverage in the analysis, thematic saturation was used as a guiding principle. The researchers considered saturation achieved when no new themes emerged after reviewing approximately 80% of the student responses. Recurring patterns were identified across different classes and course types, and additional data only reinforced existing themes rather than revealing novel categories. This process allowed for a comprehensive and stable thematic framework.

3.4. Ethical Considerations

Since the data were gathered during routine educational activities and anonymized before analysis, formal ethical approval was deemed unnecessary. However, student consent for educational use of their comments was obtained. The research adhered to principles of confidentiality, voluntary participation, and respect for student voices.

This methodology facilitated the capture of genuine, context-bound student experiences and provided valuable insights into the sociotechnical and emotional dimensions of LMS use during a period of profound educational disruption.

3.5. Trustworthiness of the Study

To ensure rigor, the following strategies were applied:

Credibility: Findings were validated through member checking, peer debriefing, and prolonged engagement with the data.

Transferability: A thick description of the research context and participants was provided to allow readers to judge the applicability of findings to other settings.

Dependability: An audit trail documented all analytic decisions, including coding iterations and theme development.

Confirmability: Reflexivity was maintained by the researcher, who kept a reflective journal to minimize bias and ensure findings emerged from the data rather than personal assumptions.

4. Results and discussions

The analysis of student feedback brought to light five interrelated themes: Connectivity & Stability, Upload/Assignment Friction, Pedagogy & Workload, Equity & Access, and Hidden Bright Spots. These themes collectively reflect the multifaceted nature of LMS use during the emergency remote learning

period in Iran. Student experiences highlight both technological and emotional challenges, consistent with the broader literature on emergency digital education (Adedoyin & Soykan, 2020; Dhawan, 2020). Table 2 demonstrates the extracted themes along with related subthemes and students' statements.

Table 2. A breakdown of students' remarks across themes, subthemes and related remarks

Theme	Subtheme	Representative remarks
Connectivity & Stability	Internet issues, LMS crashes, mobile compatibility	I had to wait till midnight to watch the lecture videos because my internet was too slow during the day
	System failures during exams or sessions	The LMS crashed during our quiz, and no one answered our emails for hours
Upload / Assignment Friction	File upload problems, format restrictions	I kept trying to upload my assignment, but it wouldn't accept the file type I had saved.
	No confirmation of submission	I wasn't sure if my professor received my file, so I had to email it again
Pedagogy & Workload	assignments, no feedback	They just gave us too many assignments with no explanation or guidance
	One-way instruction, low engagement	Our professor only uploaded PowerPoint slides without any explanation
Equity & Access	Lack of devices or reliable access	I had to borrow my cousin's phone just to attend the online class
	Hidden costs of free platforms	They said the LMS was free, but I used all my data and had to buy more
Hidden Bright Spots	Replayability and learning flexibility	I liked being able to watch the lesson again when I didn't understand it the first time
	Improved digital skills and confidence	I never thought I would be able to upload voice assignments, but now I can.

As Table 2 shows, students frequently cited poor internet access and unstable LMS platforms as their most pressing concerns. Many students faced interruptions in their learning due to unreliable internet access, especially in rural or economically disadvantaged areas. These difficulties were compounded by server failures and the incompatibility of adopted LMS platform like Moodle especially with mobile devices. One student noted, “I couldn’t even open the LMS on my phone; it just kept crashing every time I tried.” Another commented, “During quizzes, the internet would disconnect and I would miss the deadline.” These challenges echo the findings of Ghaffari et al. (2021) and Dhawan (2020), who observed that infrastructure shortfalls critically undermined the potential of remote learning. Accordingly, student experiences highlight both technological and emotional challenges, consistent with the broader literature on emergency digital education (Adedoyin & Soykan, 2020; Dhawan, 2020).

Another prominent barrier was the friction students experienced in uploading assignments and managing coursework through LMS platforms. Several participants expressed confusion over task submissions, a lack of timely feedback, and no clear confirmation mechanisms. A student stated, “I submitted my homework, but the system didn’t show it was received. Later, the instructor said I hadn’t submitted anything.” Another student shared, “Sometimes it took forever to upload a small file, and it would fail in the end.” These issues contributed to a sense of uncertainty and helplessness, mirroring Adedoyin and Soykan’s (2020) arguments about the limitations of LMS designs under stress conditions.

The LMS’s assignment submission interface was another source of distress. Students described difficulties such as ‘It didn’t show my submission, so I was marked absent’ and ‘It wouldn’t let me upload a Word file from my phone.’ These technical hurdles created confusion and anxiety, particularly when instructors were unaware or inflexible. According to Trust and Whalen (2020), clear LMS design and user training are essential for maintaining student confidence. The lack of such support contributed to stress and mistrust in the platform.

Pedagogical concerns also featured prominently. Students often perceived online learning as a one-way, task-heavy process that lacked meaningful interaction. One remarked, “The instructors just uploaded slides and gave assignments. There were no explanations, no engagement.” They reported increased workloads without corresponding support, suggesting that many instructors had simply transferred their in-person expectations into the virtual format without modification. Another student wrote, “Every teacher thinks they are the only one assigning work, but no one answers our questions.” These reflections resonate with Trust and Whalen (2020), who pointed to the need for pedagogical

adaptation during emergency remote teaching. In other words, students felt that instructors simply transferred face-to-face workloads into the online environment without adapting teaching methods. 'We were overwhelmed with assignments every week' and 'There were no real classes, just endless tasks' were common complaints. This aligns with the literature noting that pedagogical adaptation is critical for online success (Hodges et al., 2020; Dhawan, 2020). The lack of interaction and passive content delivery led to disengagement and fatigue, as noted by Ebrahimi and Bagheri (2002).

Equity issues emerged not only in terms of digital access but also in gendered experiences of LMS use. Students from low-income households, particularly women in conservative environments, reported limited access to devices, privacy concerns, and social restrictions around camera use. One female student shared, "I couldn't turn on my camera during class because I wasn't allowed to use it at home, and I was afraid I'd be penalized." Another student said, "We had one device at home, and I had to wait for my brother to finish before I could join my class." These observations align with studies by Fathi and Hashemi (2021) and Ebrahimi and Bagheri (2022), emphasizing the multidimensional nature of the digital divide. Karami & Zarei (2020) also highlighted digital equity which argue for culturally sensitive, inclusive digital policy reforms.

As it was said, this gender-related dynamics surfaced particularly in the reflections of female students from specifically conservative households. As an indication of further proof, one participant stated, "The instructions said the quiz would be open for one hour, but the LMS closed it in 30 minutes. I lost all my answers." Another complained, "Our professor uploaded a PDF with exam questions but didn't say where or how to submit them." These technical and procedural gaps reduced trust in the fairness of online assessments.

Despite these challenges, a subset of students highlighted some positive outcomes. These included the development of digital literacy, appreciation for the ability to rewatch lectures, and the flexibility of asynchronous learning. One student wrote, "I liked that I could replay the lessons at my own pace, especially for hard subjects." Another mentioned, "Now I feel more comfortable using technology than before." Such benefits reflect findings by Azizi (2022), who noted that forced digital adaptation occasionally led to unexpected educational gains. Some of them also pointed out the emergence of peer learning and new communication modes as silver linings within emergency digital education. For instance, one noted, "It was the first time I actually asked my classmates questions, even

if just through chat. I felt more confident than in real class.” Another shared, “I got used to making audio recordings for my homework. It helped me practice speaking without pressure.”

Taken together, these results underscore the complexity of LMS implementation during the pandemic, where technical, pedagogical, and socio-cultural dimensions intersected in shaping student experiences.

5. Conclusion

This study provides a contextualized understanding of student experiences with LMS platforms during the COVID-19 pandemic in Iran. While these platforms were instrumental in maintaining instructional continuity, they also exposed deep-rooted issues in infrastructure, pedagogy, and access. Students’ voices revealed that the effectiveness of LMS use was often compromised by unstable internet connections, unresponsive teaching practices, and a lack of inclusive design.

However, the study was not without limitations. The dataset was drawn from a single university, which limits the generalizability of findings. The comments were voluntarily provided, which may introduce a response bias. Additionally, the absence of detailed demographic data restricts the ability to perform subgroup analyses based on gender, socioeconomic status, or geographical location.

Looking ahead, future research should explore comparative experiences between students in urban and rural areas, investigate long-term changes in digital literacy, and examine how gender norms influence participation in online education. Longitudinal studies could offer valuable insights into the sustained impacts of LMS use and inform policy on post-pandemic hybrid education. The findings also hold practical implications. Universities should prioritize training for both faculty and students, design LMS platforms that are mobile-compatible and culturally responsive, and ensure that emotional and social dimensions of learning are not sidelined. A student-centered, equity-oriented approach will be essential for the success of future digital education strategies.

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