Online Learning Experiences during the Post-Earthquake: A Qualitative Research on Dicle University

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Abstract

The research aims to examine how students of Dicle University Faculty of Education experienced online learning after the major earthquakes in Türkiye in 2023. Accordingly, it is aimed to understand the effects of online learning on students' general willingness, to discuss how student participation can be increased, and to evaluate the difficulties encountered in this process. This study makes contributions to the literature in the context of e-learning, ICT in education and increasing student participation, how online education systems can be made more efficient, how information technologies can be used more effectively, and developing sustainable learning models in crisis situations. The study was conducted with phenomenological research, a qualitative model, to explore participants' personal experiences with online learning. Data collected through a structured questionnaire on Google Forms. The items contain demographics, willingness to learn online, experiences to the post-earthquake period, perceived benefits and drawbacks of online learning, interest in continuing online education under normal conditions, and suggestions for improving future experiences. The total number of volunteer participants is 130. The data were analyzed using content analysis to identify recurring themes and shared experiences among participants. The findings provide insights for improving online education for unstable future conditions and offer practical recommendations for more effective use of ICT in crisis-driven educational settings. The results showed that online education as a critical tool for ensuring the continuity and sustainability of education during crisis offers several advantages, including flexibility, accessibility, safety, and self-directed learning. Moreover, it contributes to educational equity by providing access to learners from diverse socioeconomic and geographic backgrounds. Despite these advantages, online education is fraught with numerous pedagogical, psychological, and technical challenges, like inadequate technical infrastructure, limited digital literacy among educators, lack of interaction and communication, diminished learning experiences, reduced effectiveness in practice-based courses, barriers to professional development in applied fields, insufficient psychosocial support, and increased social isolation. These multifaceted issues significantly undermine the effectiveness and equity of online learning environments. A hybrid education model—combining the strengths of both online and face-to-face learning—is proposed as a more effective and sustainable approach for future educational policies.

Keywords: Disaster, emergency distance education, ICT in crisis-driven educational settings, online learning, SDG4 quality education, sustainability

1. Introduction

Online education is a kind of distance education, that includes the participation of teachers and learners in the lesson separately from each other in terms of time and space. The detail that enables this type of distance education to be characterized as online is that education is based on the network and internet system [1]. Online learning and teaching, often referred to as e-learning or web-based education, involves the delivery of instruction via the Internet, and its accessibility has contributed to its emergence as one of the most prevalent forms of education [2].

In addition to the reasons for the need for distance education outlined by [3], the role of distance education in ensuring the continuity of education during times of crisis can also be a reason. COVID-19, which has a global impact, has revealed the importance of online education in terms of sustainability in education [4]. Apart from pandemics, major disasters such as earthquakes can significantly affect educational processes in the context of sustainability, and online learning has great potential to prevent interruption of education in extraordinary situations such as natural disasters [5,6]. For example, the major earthquakes that shook parts of Türkiye in 2023 had a serious impact on the education system in the affected regions [7]. In this process, online learning has come to the fore again in order to prevent disruptions in education at universities in the context of sustainable

education. The online education process, which started with sudden transitions in higher education institutions, has directly affected both the individual and academic lives of students.
While online education provides an effective solution to ensure continuity of education in times of crisis; elements such as student participation, interaction, technical competence and pedagogical adaptation directly determine the success of this system [8]. The Theory of Transactional Distance by Moore (1993), emphasized that the physical separation in the nature of distance education affects both teaching and learning by creating a psychological and communication gap between instructors and learners a gap that is experienced differently by each student [9]. Therefore, traditional regulation methods for learning are ineffective in this environment [10], and online learning has emerged a pedagogical shift from traditional, lecture-based instruction toward a more collaborative and interactive model, in which instructors and students jointly shape the learning process [11].
This study is important with its original contributions to the literature in the context of online learning, ICT in education and increasing student participation under abnormal conditions. Some of the objectives of the study are to provide important information on how online education systems can be made more efficient in future disasters, to explain how information technologies can be used more effectively in education, and to provide important data for developing sustainable learning models in crisis situations. Therefore, this research aims to examine how students of Dicle University Faculty of Education in Diyarbakır experienced online learning processes after the major earthquakes in Türkiye in 2023. In this context, it is aimed to understand the effects of online learning on students' general willingness, to discuss how student participation can be increased, and to evaluate the difficulties encountered in this process. Research questions are as follows:
How do students generally approach online learning and what are the key factors that influence their willingness for this form of learning?
How were the online learning experiences of learners in the post-earthquake period?
What are the perceived benefits of online learning conducted during post-earthquake?
What are the perceived drawbacks of online learning conducted during post-earthquake?
How is students interest to continue learning online under normal conditions after earthquake-related issues are resolved?
What suggestions do students make for improving future online learning experiences?

2. Method

This section presents the details for scientific research process, and the ethical permissions required to conduct this research have been obtained from the Dicle University Social and Human Sciences Ethics Committee with the decision numbered 05/05/2025-286.

2.1 Research Design

This study was conducted using the phenomenological approach, one of the qualitative research designs. Phenomenology refers to a person's experiences of the world [12]. This model aims to reveal the participants' experiences and meanings regarding a specific phenomenon [13]. Therefore, this research design has been chosen in order to understand the personal experiences of the participants regarding the online learning process and to reveal the common themes of these experiences during the recovery process after the earthquake.

2.2 Participants

The total participants of the study consisted of 130 students who participated in undergraduate or pedagogical formation education at Dicle University Ziya Gökalp Faculty of Education and who voluntarily supported the research. All participants attended online training at Dicle University during the earthquake period. The ages of the participants ranged from 21 to 44, with an average of around 28. 70% (91) of the participants were female and 30% (39) were male. The distribution of participants by departments is approximately as follows; Fine Arts Education Department 16% (21), Mathematics and Science Education Department 17% (22), Basic Education Department 16% (21), Turkish and Social Sciences Education Department 35% (45), Foreign Language Education Department 16% (21).

2.3 Data Tool and Data Collection

Data were collected through a semi-structured online survey prepared by the researcher. The survey included both Likert-type and open-ended questions. The questions included willingness to learn online, satisfaction level, experiences during the crisis, and suggestions.
The survey was administered online via Google Forms. The link of the survey was shared with students via e-mail and social media like WhatsApp. The link was also shared with faculty members so they could send it to their students. The data collection process lasted one month.

2.4 Data Analysis

Open-ended responses were analyzed using content analysis and the depth of meaning of the themes was increased by directly quoting sample student statements. Descriptive statistics (percentage, frequency) were presented in Likert-type questions. The researcher coded individually twice. In addition, a third coding was done with artificial intelligence and the codes and themes were finalized by comparing the data analyzes.

3. Findings

The findings related to the research questions are as follows:

3.1 Unwillingness and Willingness to Learn Online in General

Approximately 42% (55) of 130 participants stated that they do not support online learning and they are unwilling to learn online. On the other hand, approximately 28% (36) of the participants stated that they support online learning and they are willing to learn online. The rate of participants who are undecided on this issue is 30% (39). Table 1 presents the reasons for unwillingness to learn online.

Table 1. Reasons for Unwillingness to Learn Online

Theme	Category	A Sample Statement
Inadequacy in Practical Courses	Inability to conduct practical courses	"We can't do our drama class, ..."
	Decreased quality of teacher training	"A painting teacher can't be trained through a screen."
Lack of Interaction and Communication	Lack of eye contact, gestures, facial expressions	"Gestures and facial expressions make learning more effective."
	Limited student-teacher interaction	"Without interaction, the lesson doesn't become permanent."
	Absence of classroom atmosphere	"I can't get the classroom-like atmosphere in online "
	Inability to meet socialization needs	"There's a disconnection. It's socially ineffective too."
	Lack of instant feedback	"Problem with focusing and no immediate response..."
Inefficiency and Focus Issues	Ineffective class experience	"It's not efficient."
	Distraction and difficulty focusing	"I can't concentrate at home."
	Retention and learning problems	"Having a conversational teaching style with our instructors makes it more permanent."
Technical and Infrastructure Problems	Internet interruptions	"The connection drops, the sound cuts off."
	Inadequate devices/hardware	"My phone can't open videos or upload assignments."
	Lack of technological tools	"Some students can't even open the virtual class."
	General infrastructure problems	"There's no proper infrastructure for online education."
	Inequality of opportunity (internet, device, access)	"The government should provide this opportunity."
Unsuitable Learning Environment	Inconvenient home environment	"The home environment isn't suitable, there are kids..."
	Conflict with family roles	"As a mother, this environment is not suitable for

		me."
	Negative impact on student psychology	"I don't feel like a student anymore."
Lack of Participation / Motivation	Low participation in non-mandatory classes	"No one joins the classes when it's not mandatory."
	Low motivation for assignments/classes	"Even with assignments I have problems."
	Laziness, lack of motivation	"I attend class lying in bed, my mind isn't clear."
Superiority of Face-to-Face Education	Retention and clarity in face-to-face learning	"I learn more effectively in face-to-face education."
	Motivational effect of physical classroom	"The classroom environment keeps me more focused."
	Quality of knowledge exchange	"Conversational learning makes it more permanent."
Direct Criticism of Online Education	Feeling of insincerity	"I don't find it sincere."
	Detachment from the spirit of education/academia	"Without the classroom, the academic spirit is also missing."
	Teacher-centered approach	"It's all teacher-centered, and we're deprived..."

According to the Table 1, online education was inadequate, particularly for practice-based disciplines like fine arts. Participants concerned about insufficient development of practical skills and professional competence. Weak student-teacher interaction and the absence of non-verbal communication elements like gestures and facial expressions negatively impacted the learning environment. Many felt that online education failed to replicate the dynamics of a physical classroom. Most participants found online courses distracting, low in retention, and generally ineffective. Common issues included poor internet access, inadequate infrastructure, and hardware limitations, all of which disrupted learning and hindered class participation. Additional challenges included unsuitable home study environments, family obligations, and social pressures such as motherhood. The lack of obligation in online education reduced motivation and engagement, and participation. Concerns were also raised about fairness, as not all students had equal access to devices and the internet, leading to inequality of opportunity. Participants frequently emphasized that face-to-face education is more effective, motivating, and lasting, offering essential social and cognitive benefits. Some described online education as insincere, mechanical and cumbersome.

The 28% of participants who are willing to continue learning online cited the following reasons: 1) accessibility and flexibility, 2) safety during disasters, 3) learning efficiency and support, 4) financial and logistical benefits, 5) preferences for system stability. Participants appreciated the freedom to learn anytime and anywhere. They liked being able to attend class without being late, re-watch lessons, and balance online education with work. Those living outside the province also mentioned avoiding travel difficulties. Many supported online learning due to safety concerns, especially those living in earthquake-prone areas. For example, one participant said, "There were many aftershocks, our buildings are moderately damaged; online education is safer". Online learning was seen as more effective because it allows students to ask questions during or after live sessions, think more deeply in asynchronous settings, and participate at their own pace. Students found online education to be more affordable. They highlighted savings on housing and transportation, noting that face-to-face education increases their expenses. Some participants preferred continuity in the education system. They felt that if online learning began the term, it should continue that way. Others suggested transitioning to a blended (online and in-person) model.

The factors that caused the 30% of participants who were undecided to hesitate are as follows: 1) doubts about the effectiveness and efficiency, 2) uncertainty about the future role of online education, 3) technical issues and infrastructure limitations, 4) applicability of online learning to certain courses, 5) personal and environmental factors. While many appreciated the flexibility of online learning, these concerns made them hesitant. Most of these participants preferred a hybrid model, combining online instruction with face-to-face sessions for more interactive or practical subjects. These insights highlight the need to enhance online learning infrastructure and adapt teaching methods—especially for courses that require real-time interaction or hands-on learning.

3.2 Experiences to the Post-Earthquake Period

Real-life experiences have shown that while online learning can help keep education going during crises like earthquakes, it also creates several challenges especially pedagogical, psychological and technical problems. Participants feedbacks are grouped into seven main categories:
1) Learning Process Experiences: The most common experience reported by participants was that they felt they didn't learn anything during online classes. This was followed by complaints about ineffective teaching methods, difficulty focusing, the instructor's teaching skills, lack of practical learning, and easier exams. Many participants felt that online learning was shallow and mostly limited to theory, lacking depth and real engagement. They believed the absence of interaction made learning less effective. They also noted that the quality of online lessons depended heavily on the instructor's teaching style and the student's level of interest. Some typical comments included: "I didn't gain any experience because everything stays theoretical. We learn through doing", "Some instructors are inadequate", "If the teacher explains well and the student is motivated, it works just like a real class".
2) Technology Access and Infrastructure: The second most common issue reported was infrastructure problems, including poor internet connections, system overloads, lack of devices, and difficulties caused by relocation. Despite these challenges, some participants said they improved their tech skills and adapted better to using digital tools. Examples of participant comments: "Slow connections and system overload made it hard to follow lessons", "I've gotten better at using the ALMS system".
3) Time Management and Self-Discipline: Participants had mixed experiences. Some improved their time management and appreciated the flexibility and ability to re-watch lessons. However, many noted a lack of self-discipline due to the non-compulsory nature of online classes, which negatively impacted learning. Examples of participant comments: "I saved time and used it more efficiently", "Without obligations, there's no discipline, and it damages the learning process", "If I fall behind, I watch the class two or three times to catch up".
4) Psychological and Social Impacts: Online learning was significantly affected by the emotional impact of the earthquake. Participants struggled with feeling safety, anxiety, social isolation, loneliness, and a lack of motivation, making it hard to engage in classes. Some participants' comments: "We used to have a social life, now I feel lonely", "We've lost loved ones and are still afraid at home, classes are the last thing on our minds".
5) Attitudes Toward Online Education: Students had mixed feelings about online learning. Some found it necessary and effective, especially for theory-based courses or in ensuring safety during crises. Others believed it lowered the quality of education. A commonly shared view was that online classes are not a long-term substitute for face-to-face class. A sample statement: "I have experienced that online courses should not be held no matter what and that this type of education will not be beneficial".
6) Learning Outcomes and Personal Growth: Some participants reported positive skill development, including the use of Web 2.0 tools, presentation techniques, note-taking, and improvements in self-discipline, focus, and academic responsibility as a result of online learning.
7) Inequality and Lack of Empathy: Students affected by the earthquake expressed feeling unsupported during online education and noted a lack of empathy from instructors and peers outside the disaster zone. This led to a deeper sense of inequality between regions. Examples of participant comments: "Most faculty members seemed indifferent as if there wasn't a disaster", "There was no empathy from people in areas unaffected by the earthquake".

3.3 Perceived Benefits of Online Learning Conducted during Post-Earthquake

Benefits based on experiences in the online learning process are grouped into four main categories:
1) Flexibility and Time Management: Online learning offers significant flexibility, allowing students to attend classes anytime and anywhere. Participants highlighted benefits such as avoiding travel time, easily making up for missed lessons, and revisiting content as needed. This adaptability supports better time management and continuity in learning, even during unexpected disruptions. A sample of participants views: "Although classes missed due to illness or accidents cannot be made up in face-to-face education, they can be easily made up in online learning."
2) Learning Support and Academic Development: The ability to rewatch lessons, learn at one's own pace, and take notes enhances understanding and supports individual learning. These features encourage independent study, boost academic performance, and provide a more personalized learning experience. Students appreciated the ability to review material to reinforce concepts and improve retention. Some sample expressions: "It allows each student to study at their own learning pace", "I can also watch the lesson later and remember the information I forgot and take notes".
3) Technological and Pedagogical Support: Digital tools and the teaching approach play a key role in the effectiveness of online education. Participants valued learning new web tools, the supportive

attitude of instructors, and the ease of asking questions during sessions, which enhanced interactivity and engagement. Some sample expressions: “I learned about Web 2.0 tools”, “I can answer questions from the keyboard”.
4) Economic and Physical Comfort: Online education was seen as more cost-effective and time-efficient. Participants also noted the comfort of learning in a calm and familiar environment, which contributed to better concentration and an overall more pleasant learning experience. Some sample expressions: “Less time, cost...”, “Having a calmer environment, I listen to my lessons more comfortably”.

3.4 Perceived Drawbacks of Online Learning Conducted during Post-Earthquake

Drawbacks based on experiences in the online learning process are grouped into six main categories:
1) Technical Issues and Limited Access: Common problems included poor internet connectivity, lack of necessary devices, and system failures. These technical barriers often hindered participation and engagement. Sample expression: "Internet problems and lack of equipment made it hard to attend".
2) Inefficiency Learning and Academic Difficulties: Online learning often led to reduced focus, memorization-based lessons, and limited hands-on practice. The problems with the quality of the learning process were frequently highlighted. Many students felt their academic performance suffered due to unengaging lessons and decreased productivity. Sample expression: "I struggle to focus in front of the screen, and my performance has dropped".
3) Lack of Communication and Interaction: A major concern was the minimal interaction with teachers and peers, limited feedback, and one-way communication. This created feelings of disconnection and hindered learning. Sample expression: "It's hard to ask questions or get immediate responses. There’s no real classroom interaction".
4) Distractions in the Home Environment: Many students found it hard to concentrate due to noise, household responsibilities, and inadequate study spaces. Sample expression: "The noise and lack of a quiet space make it difficult to follow the lesson".
5) Social Isolation and Psychological Impact: The absence of a social environment contributed to feelings of loneliness, hopelessness, lack of motivation, burnout, and emotional exhaustion especially for students already dealing with external stressors like natural disasters. Sample expression: "I miss my friends and feel demotivated. I’m more emotionally drained".
6) Time Management and Self-Discipline Challenges: Students struggled with maintaining a routine, procrastination due to recorded lessons, and poorly scheduled classes, making time management difficult. Sample expression: "I keep delaying classes because they’re recorded, so I have no schedule".

3.5 Interest in Continuing to Learn Online Under Normal Conditions

Approximately 52% of participants (67) stated they do not wish to continue online learning once life returns to normal and issues such as earthquake issues and building safety are resolved. In contrast, 29% of participants (38) expressed a wish to continue with online education, while the others remained undecided. Table 2 presents the reasons of participants to discontinue online learning.

Table 2. Reasons for Cutting to Learn Online Under Normal Life Condition

Theme	Category	A Sample Statement
Issues of Efficiency and Effectiveness	Lack of learning/inefficiency	"Online learning is not effective"
	Not effective or permanent	"I think online education is not as lasting as face-to-face"
	Low motivation	"I don't think this method is more beneficial"
Insufficiency in Practical Courses	Lack of practical courses	"Practical lessons are better conducted face-to-face"
	Lack of development of professional competencies	"We want to learn our profession through practice, not by memorization"
Communication and Teaching Quality Problems	Lack of direct interaction with the instructor	"Being together with instructors is more efficient for us"
	Technical problems (audio, connection, etc.)	"The sound cuts off, it's not as efficient as a live class"
	Communication only through messaging	"We can't benefit from it; we can only contact the instructors via messages"

Theme	Category	A Sample Statement
Psychological and Social Insufficiencies	Social isolation / loneliness	"People need each other; we feel stronger when we're together"
	Psychological difficulties / lack of motivation	"We are in a bad psychological state during this process"
	Lack of campus culture and social environment	"Faculties are our living spaces", "I miss my school and friends"
	Lack of courses, events, and social activities	"We are missing out on courses and student clubs"
Unsuitability of Home Environment	Physical environment problems	"I don't have enough resources, I can't study at home"
	Distractions and interruptions at home	"The children's noise, doorbells, etc. cause distractions"

According to Table 2, the primary reason participants prefer to discontinue online learning is the perceived inefficiency of online education and the belief that face-to-face learning is more effective. Many reported that online education does not ensure knowledge retention, reduces engagement, and lowers the overall quality of learning. For teacher candidates, a significant obstacle was the inability to develop professional skills, as practical, hands-on courses cannot be effectively conducted online. Other common issues included: limited communication with instructors and peers, technical problems and disruptions during lessons, feelings of social isolation and psychological strain, difficulty adapting due to distractions at home and lack of a proper study environment. Participants also emphasized that face-to-face education supports social interaction, enables participation in campus life, and fosters academic culture all of which are largely absent in online learning.

The 29% of participants stated the following reasons why they would like to continue learning online:

1) Flexibility of Time and Space: The most frequently cited benefit of online education was its flexibility, allowing students to attend classes at their convenience, access materials later, and save time by eliminating transportation problems. Sample expression: "I am a civil servant… I can attend courses later when it suits me".

2) Adaptability to Individual Circumstances: Students with family responsibilities, those affected by disasters, or individuals balancing work and multiple issues found online education easier to manage within their personal situations. Sample expression: "I'm an earthquake victim. I have no way to attend classes in person".

3) Support for Hybrid Learning Models: Rather than choosing between fully online or face-to-face instruction, many participants supported maintaining a hybrid approach, blending both methods to suit different needs. Sample expression: "Half-online, half-in-person learning might be better".

4) Academic and Exam-Oriented Benefits: Online learning was seen as particularly helpful for students preparing for competitive or high-stakes exams, such as such as public personnel selection exam (In Turkish: KPSS), offering them more time and flexibility to focus on studies. Sample expression: "It allows me to study for KPSS more effectively".

5) Crisis Preparedness and Continuity: Some participants emphasized the importance of maintaining online education infrastructure to ensure the continuity of learning during future emergencies or crises. Sample expression: "We don't know what the future holds... being prepared is essential".

6) Established Routines and Learning Habits: A number of participants expressed that they had adapted to online learning, developed new routines, and now preferred the consistency it offers, and sudden changes could negatively affect their motivation to learn. For example, one participant stated, "A regular system has been established and I do not want it to be disrupted."

About 19% of participants indecision is shaped by the following concerns:

1) Doubts About Educational Quality: Many participants questioned how effective online education really is, expressing concerns that courses often feel superficial or less in-depth. Sample expression: "Most courses taught online remain superficial".

2) Emotional and Psychological Struggles: Some are still recovering from the emotional impact of disasters like the COVID-19 pandemic and recent earthquakes, making it hard for them to make long-term decisions. Sample expression: "I'm not sure when we'll recover psychologically".

3) Uncertainty About the Future: Ongoing risks like the potential for future earthquakes or crises leave students feeling unsure about what learning format will be best in the long run. Sample expression: "Earthquake risks remain; things could change anytime".

4) Missing Social and Practical Aspects of Learning: Students miss face-to-face interactions, hands-on learning, and social experiences that online education can't fully replace. Sample expression: "It is important to communicate face to face with teachers and friends".
5) Technical and Infrastructure Issues: Poor internet connectivity and technical problems make online learning unreliable for some students. Sample expression: "I often have trouble connecting to....".
6) Economic and Social Pressures: While online learning is more flexible, face-to-face learning comes with costs for housing, transportation, and daily living, which some students find hard to afford. Sample expression: "Face-to-face education is a financial and emotional burden".
7) Drawbacks in Both Systems: Some participants feel that neither online nor face-to-face education is perfect, and this uncertainty makes it difficult for them to fully support one over the other. Sample expression: "Both systems have problems, so I can't choose".

3.6 Suggestions for Improving Future Online Learning Experiences

The suggestions obtained from participants' feedback are as follows:
1) Infrastructure, Technical Support, and Equal Access: Students emphasized the need for stronger internet infrastructure, reliable learning platforms, and access to necessary devices. Technical issues were seen as major barriers, and many called for universities to provide hardware and free internet access. Sample expression: "The teacher should present the lesson in an environment where connection problems are almost non-existent".
2) System Improvements: Feedback included calls to upgrade existing learning management systems (like ALMS), address login issues, and consider alternative platforms such as Zoom. Students also suggested universities invest in ongoing system development and R&D. Sample expression: "It would have been more beneficial to enter the lesson from the Zoom rather than the ALMS".
3) Improved Educational Content and Presentation: Students asked for more dynamic and varied course materials beyond simple lecture videos, such as interactive slides, digital resources, and enhanced presentation tools. They also emphasized the need to train instructors in using digital tools effectively. Sample expression: "In addition to the course records, different interactive elements should be included to lessons".
4) Enhanced Teaching Methods and Interaction: A lack of interactivity was seen as demotivating. Students recommended more engaging teaching methods that allow for participation through voice or chat, with teachers encouraging student involvement. Sample expression: "Students should be able to speak during class and participate actively".
5) Psychosocial Support and Compassionate Teaching: Participants stressed the importance of understanding the emotional toll of crises (like natural disasters) and requested less pressure from instructors. Suggestions included providing psychological support and reducing workload expectations. Sample expression: "Students in disaster areas need to receive psychological support".
6) Better Time Management and Scheduling: Students requested more flexible and realistic class schedules that consider their home situations. Suggestions included avoiding lessons in succession and offering classes at more convenient times. Sample expression: "It would be great if the lessons were after 9pm".
7) Transition Toward Face-to-Face or Hybrid Learning: Many students believe online education cannot fully replace in-person learning. While some advocated for a full return to campus, others suggested hybrid models as a balanced alternative. Sample expression: "Half-online, half-in-person learning might be better".

4. Conclusion and Discussion

The results of this study, which qualitatively examined the online learning experiences of Dicle University Education Faculty students in Türkiye after the earthquake in 2023, revealed that online education in its current form is inadequate to fully meet learners' needs, and therefore comprehensive improvements are required across technical, pedagogical and psychosocial domains to enhance the quality of online education and sustainability of education.
Online education has been used as a critical tool for ensuring the continuity and sustainability of education, and according to results it offers several advantages, including flexibility, accessibility, safety, and opportunities for self-directed learning. Moreover, it contributes to educational equity by providing access to learners from diverse socioeconomic and geographic backgrounds. There are studies in the literature with similar results in different countries [4,14] and supporting these results.

Despite these advantages, the results have been showed that online education is fraught with numerous pedagogical, psychological, and technical challenges. These include inadequate technical infrastructure, limited digital literacy among educators, lack of interaction and communication, diminished learning experiences, reduced effectiveness in practice-based courses, barriers to professional development in applied fields, insufficient psychosocial support, and increased social isolation. These multifaceted issues significantly undermine the effectiveness and equity of online learning environments. In the literature, there are some studies [2,7,14,15,16] that support and emphasize the similar results.

Furthermore, factors such as unstable living conditions, psychological distress, concerns about the quality of online education, and economic hardships have contributed to the reluctance of some learners to continue with online education once normal conditions resume. Kumar and Pande's (2021) research [2] support these result. While a small group of participants supports the continuation of online education post-crisis, there is a general consensus that substantial enhancements are necessary. In this context, a hybrid education model combining the strengths of both online and face-to-face learning is proposed by participants as a more effective and sustainable approach for future educational policies.

5. Recommendations

Based on the results of the research, the recommendations provide a strategic framework for improving online education in higher education during the crisis such as earthquakes are as follows:

1) Strengthen Technical Infrastructure and Ensure Equal Access: Invest in reliable internet access and provide digital devices, especially for students in disadvantaged areas, to reduce inequality and support uninterrupted learning.

2) Develop Crisis-Ready Digital Learning Strategies: Create flexible, scalable, and sustainable digital learning plans specifically tailored for emergencies, ensuring the continuity of education during disruptions like natural disasters.

3) Integrate Hybrid Learning into Long-Term Planning: Adopt blended learning models that combine online and face-to-face instruction as part of regular educational planning to increase flexibility and resilience.

4) Ensure Flexible Scheduling and Personalized Learning Paths: Design learning systems that adapt to individual needs, allowing students to manage their time and studies based on personal and academic circumstances.

5) Train Faculty in Online and Crisis Pedagogy: Provide professional development for instructors on digital teaching tools, online course design, and strategies for teaching during emergencies, emphasizing adaptability and student-centered approaches.

6) Enhance Student Support Services: Establish comprehensive support systems that assist with technical issues, psychological obstacles, academic guidance, and time management to improve student persistence and success.

7) Include Psychosocial Support in Online Learning: Incorporate emotional and mental health support within digital platforms to help students maintain motivation, resilience, and well-being during stressful times.

8) Enhance Engagement with Interactive Learning Tools: Use interactive features such as live sessions, polls, and group work to keep students actively involved, improve communication with instructors, and reduce transactional distance.

9) Enrich Course Content and Foster Interaction: Diversify and enhance course materials, encouraging more interaction between students and faculty to create a more engaging and collaborative learning environment.

10) Develop Digital Alternatives for Practical Courses: For subjects that require hands-on learning, create digital tools like simulations, instructional videos, and virtual labs to ensure practical skills can still be developed remotely.

11) Ensure Content is Archived and Replayable: Platforms should offer content archiving and playback features to allow students to review lessons at their own pace, supporting deeper understanding and independent study.

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