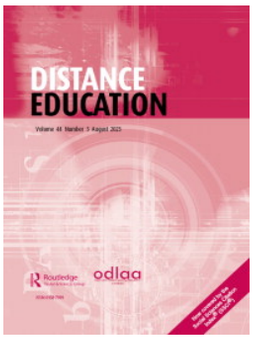

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ARTICLE

Investigating students' experience of online/distance education with photovoice during COVID-19

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ABSTRACT

This study used online photovoice to study students' perceptions of online/distance education during the COVID-19 pandemic. It aimed to (a) find the factors that facilitated and impeded online/distance education during the pandemic and (b) determine to which level of ecological systems theory participants attributed facilitators and barriers. We utilized community-based participatory research as the theoretical framework, based on the ecological systems theory. The participants consisted of 119 university students. We used online interpretative phenomenological analysis to analyze the data and found 12 facilitating themes in favor of online education (e.g., technology, 31%; home study comfort, 23%; with family, 17%). In terms of barriers to online education, 14 main themes emerged (e.g., lack of finance, 28%; Internet problems, 22%). Participants attributed facilitators and barriers respectively to the following levels of ecological systems theory: individual/intrapsychic (50%, 51%), microsystem (56%, 58%), exosystem (38%, 43%), and macrosystem (25%, 45%).

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online photovoice (OPV); university students; COVID-19; online distance education; ecological systems theory; online interpretative phenomenological analysis (OIPA)

On December 26 2021, the World Health Organization reported over 278 million cases and just under 5.4 million deaths globally. COVID-19 has affected every aspect of our lives including on-campus conventional educational systems (Armiya'u et al., 2022; Naidu, 2021; Tanhan et al., 2023). As schools, colleges, and universities across the world closed, distance education became the most appropriate pedagogical strategy for teachers to reach out to their students (Tanhan et al., 2023; Trust & Whalen, 2020; Xiao, 2021). The long-term impacts of school closures and how they will affect educational outcomes, future earnings, the health of young people, and future national productivity are unknown (Tanhan et al., 2023; Viner et al., 2020).

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Turkey began to implement measures to tackle the rapidly spreading COVID-19 outbreak in March 2020. One of the measures taken was to temporarily suspend face-to-face education in all universities across the country and adopt online distance education as an alternative. According to an evaluation report completed by the Council of Higher Education (Yükseköğretim Kurulu, 2020), by May 2020, 187 out of 189 universities in Turkey had moved to online/distance learning. In this paper, we make a distinction between *emergency remote teaching* and established *online and/or distance education*. We chose to use the term *online/distance education* to ensure consistent language across the participants and their universities.

COVID-19's effect on university students

A number of researchers have investigated the experiences of university students in relation to online/distance education during the pandemic (Gudiño Paredes et al., 2021; Lee et al., 2021; Mac Domhnaill et al., 2021; Mishra et al., 2021; Tanhan et al., 2023; Xie et al., 2021). They found that students across higher education have been dramatically—and negatively—impacted by the spread of COVID-19, due to travel restrictions, the implementation of social distancing, and campus closures.

Studies have pointed to negative impacts on students' biopsychosocial and spiritual well-being (Aristovnik et al., 2020; Tanhan et al., 2021). Research has indicated that the pandemic and online/distance education had negatively affected the psychological resilience of university students by increasing their anxiety about the future and their feelings of loneliness (Tanhan et al., 2023). Some researchers have stressed the need for comprehensive and theoretically grounded research to advance our understanding of learning spaces during the lockdown period. This was particularly the case for schools and universities which had started hybrid education (e.g., Cahapay, 2020; Peters et al., 2022; Tanhan, 2020).

Facilitators and barriers to online/distance education in Turkey

Higher education in Turkey was profoundly affected by the pandemic. Students from more disadvantaged backgrounds in particular experienced serious issues (Doyumğaç et al., 2021; Tümkaya et al., 2021). Tümkaya et al. (2021) found that their college participants in Turkey reported the following factors as the most important facilitators of their online/distance education experience during the pandemic: access to online/distance education platforms and lessons (37%), own technological tools (30%), own private space (10%), and saving time through online/distance education (7%). The students in Tümkaya et al.'s study reported the following as the most important barriers in their education: technological difficulties (32%), online education not being effective (15%), financial issues at the family level (12%), lack of internship and practices (10%), presence of unwanted feelings (e.g., boredom, loneliness, isolation, lack of motivation) of depression or other mental health issues (10%).

Similarly, Doyumğaç et al. (2021) found that university students in Turkey reported the following factors as the most important for the effectiveness of their online/distance education experience: access to effective technology (35%), fast and stable Internet access (32%), effective communication with friends and faculty members

(20%), experiencing enjoyable emotions (19%), a stable and good income at the family level (18%), and being able to spend time in nature (11%). On the other hand, they also reported elements that made online/distance education difficult, such as technological (47%) and Internet problems (46%), lack of equal opportunities to attend courses and complete assignments (36%), being used to or being more at ease with face-to-face education (20%), lack of interpersonal interaction and communication (16%), insufficient experience (13%), and unclear plans and programs for the rest of the current and also the following semester (12%). Therefore, parallels can be drawn across these studies suggesting some common factors which might facilitate more effective online/distance education (such as technology, time, space, and finances) as well as common barriers (such as interactions, space, technology, and lack of opportunities).

Gaps in the literature

The majority of pre-pandemic studies focused on online/distance education infrastructure, software, systems used, availability, and workability (e.g., Kirmizi, 2014; Senyuva, 2011; Zawacki-Richter et al., 2015). While other researchers have focused on online/distance education during the pandemic (e.g., Aker & Mıdık, 2020; Akin Kösterelioğlu & Kaya Durna, 2021; Kaya Durna & Akin Kösterelioğlu, 2021), most of these studies used quantitative scales and/or traditional surveys with closed-ended questions. Tanhan et al. (2023) have identified a lack of studies to understand online/distance education through university students' lived experiences. A few have explored participants' feelings, bodily sensations, and thoughts, as well as the meaning of their own unique experiences through texts and images (e.g., Armiya'u et al., 2022; Tanhan et al., 2021; Tümkaya et al., 2021).

Online photovoice (OPV) is powerful approach that combines participant photography with dialogue and can be adopted not only in a therapeutic context but also when doing work that involves team building, supervision, and social action research, and when undertaking experiential activities in the health sector.

The purpose of the study

The purpose of this study was to (a) explore the factors that acted as facilitators and barriers to online/distance education for students in social studies teaching departments during the pandemic; (b) discover methods that increase facilitation and eliminate barriers; and (c) determine to which level of ecological systems theory (EST) participants attributed the facilitation and barriers.

Theoretical framework

Contextual and chronological factors affect all aspects of life; therefore, using contextually sensitive theoretical frameworks is necessary to advance well-being and manage related issues (Tanhan et al., 2023). However, there are very few in-depth and theoretically well-grounded studies conducted specifically with teacher training candidates in

both the international and Turkey-specific literature (Flores & Gago 2020; Quezada et al., 2020; Spoel et al., 2020), especially with regard to the difficulties and opportunities they face in this process (Escobar & Morrison, 2020; Hadar et al., 2020; Tanhan et al., 2023).

Based on our analysis of all these studies, the theoretical framework of the current study consists of EST, OPV, community-based participatory research (CBPR), and active social advocacy. Tanhan (2020) explained in detail how these parts come together to form a well-grounded theoretical framework. The OPV approach can be much more effective when it is used within the context of EST, CBPR, and active social advocacy.

Method

In what was primarily a qualitative phenomenological explorative study, we adopted a mixed methods approach and some quantitative contextual questions to gather our data. We conducted the study by following the approach in the framework outlined above.

Participants

Our participants consisted of 390 university students in social studies departments in different universities across Turkey. Of the original 390 participants, only 119 completed the study: 92 females, 25 males, and two who did not want to report their gender. All ethical procedures were followed, including issues of informed consent. Researchers have emphasized that informed consent should be discussed at the beginning of a study with a temporary, voluntary question, and then at the end for a final and required consent question when the studies are long, complex, new, or tied to course credits (Tanhan, 2020; Tanhan et al., 2023). Therefore, we asked for consent at the beginning (a temporary, voluntary question) of the study and at the end, which was the final and required consent question. Only seven participants did not consent at both the first and last consent questions.

We followed a convenience and snowballing method to recruit participants for the study. The students were enrolled in four universities: two in the east and two in the west of Turkey. Participants were from 20 cities. Two students reported being immigrants or refugees. Six students were married, and 113 were single. In terms of socioeconomic status, 22 students reported as low, 93 as middle, and four as high status. Two students were in their 1st year, two in their 2nd year, 58 in their 3rd year, and 44 in in their 4th year of education. A total of 16 students reported having tested positive for COVID-19.

The students had the option to leave blank a question asking for their specific religion or spiritual tradition. Of the total number ($N = 119$), only 59 answered the question, categorized as follows: about 86% (51 students) Islam; about 5% (three students) Deist; about 3% (two students) none; one student for each of the shaman traditions, just spiritual, and "do not know yet." All participants responded to a question asking them to rate their inclination toward being spiritual and/or religious, and whether

they found spirituality/religiosity crucial in their life (see Table 1). When we asked about the kind of property they stayed in during the COVID-19 pandemic, 51% ($n = 61$) reported living in a home with a garden, 43% ($n = 51$) living in a home without a garden, and the remaining 6% ($n = 7$) chose the "other" option.

Procedure

We conducted an extensive literature review of studies in English and Turkish on online/distance education, OPV, and university students and other education stakeholders (teachers and academics) during COVID-19. The literature suggests that university students and other stakeholders (e.g., universities, mental health clinics, and associations) have faced many problems as a result of the pandemic (Doyumğaç et al., 2021; Tanhan, 2020). We applied for, and received, ethics committee permission from the universities where the study was undertaken. Six students (three females, and three males) from social studies teaching departments demonstrated interest in the research and wanted to be partners in the study. Our CBPR group comprised all of us (nine authors) and the six students. However, our analysis team comprised only the two first authors and the six students. The team consulted the third author for advice on how to proceed with the analysis; we explain this in more detail in the following sections.

Measures

We developed an online form for the study, which included a consent form and demographic questions. We developed a video, an audio file in M4A format, and written documents for each section. The documents provided information to the participants about how to participate in the study. The documents in the online form contained the version of the OPV technique adapted to Turkish by Tanhan (2020). The purpose of presenting information in three different formats was to maximize the accessibility of the tools to encourage the inclusion of all participants regardless of any available resources, disability, or preferred communication style (Hoskin et al., 2015).

OPV procedures

The participants in the study followed five steps for identifying the facilitating factors of online/distance education in the first stage. Then they followed the same steps for identifying the barriers in online/distance learning in the second stage. The five steps are as follows:

- Step 1: We asked participants to write at least one, and at most 10, important facilitating and complicating factors associated with online/distance education during the COVID-19 pandemic. Then, we asked them to consider which of these factors were most important while moving forward.
- Step 2: Once the participants had decided on the most important factor, we asked them to take a photo that would best represent this factor and upload it to the system.

- Step 3: After uploading the photo, we asked the participants to write a story that would best describe the scene represented in the photo. We recommended that they frame their story within the six questions constructed in Turkish by Tanhan (2020). Wang and Burris (1997) developed the acronym SHOWeD as a procedure to follow for traditional face-to-face photovoice (described below). Tanhan and Strack (2020) adapted face-to-face photovoice and the SHOWeD procedure to develop OPV to make it more effective and comprehensive. They tailored face-to-face photovoice and SHOWeD and developed OPV and the SHOWeD acronym in a way that now OPV and SHOWeD are a lot more comprehensive. Tanhan (2020) acted from a contextually (e.g., culturally, linguistically) perspective and adapted OPV and SHOWeD to the Turkish language. Tanhan translated SHOWeD into Turkish, which then had the acronym GÖZSAN, from the six questions. We used the OPV approach described by Tanhan (2020), including his acronym in Turkish. In the original English version, the abbreviation stands for the following:
    - **S**: In the picture or photo you have taken for online or distance education during the pandemic, what do you **see** that represents a *facilitator* for you as a social studies student or your community (e.g., university friends, classmates, other friends as students) during the COVID-19 outbreak [this question was for the first stage]? What do you **see** in the picture that represents a *barrier* for you as a social studies student or your community online or distance education during the COVID-19 pandemic [this question was for the second stage]?
    - **H**: Could you briefly describe what is **happening** in your photograph/picture?
    - **O**: How does the photo or picture relate to (y)**our** life as a student in social studies or your community (e.g., university friends, other friends as students, or family members at university)?
    - **W**: **What** is it that makes this the most important *facilitator* [this question was for the first stage]? What is it that makes this the most important *barrier* [this question was for the second stage]?
    - **E**: Could you share your **experiences** (feelings, bodily sensations, thoughts, behaviors) while taking the photo or picture, writing your narrative, and submitting all these?
    - **D**: Could you share what can we (as educators, researchers, students, mental health providers, authorities, administrators, etc.) **do** about this?
- Step 4: We asked the students as the participants to write at least one, and at most three, words and/or themes to summarize the photo taken and the story they wrote.
- Step 5: We asked participants to attribute the most important factor to EST levels.

Online interpretative phenomenological analysis

We used online interpretative phenomenological analysis (OIPA) to analyze the data. OIPA consists of five stages. Tanhan (2020) and Tanhan and Strack (2020) explained the stages in detail:

- The first stage examines photographs, stories, and themes to identify missing data and participant consent.

- The second stage examines photographs, stories, and themes to identify the inclusion of personal information.
- The third stage groups facilitating themes based on similarities so that the main themes emerge gradually.
- The fourth stage groups challenging themes (or barriers) under similar themes and lets these main themes build.
- Finally, the fifth stage examines to which of the EST systems the facilitators and challenges are attributed.

Our OIPA team, formed of the six university students and the first two authors, helped with the analyses. Therefore, eight people classified themes together and rarely consulted the third author, who is one of the developers of OPV. Based on the themes the participants provided in Step 4 of OPV to summarize their photo and the story, we, as the team, placed the participants' themes under similar main themes. Therefore, the analysis process was quite straightforward and clear while protecting the participants' voice. When we did not know how to move forward with a participant's provided summary words and/or themes, we reread the story and tried to clarify the summary words. If it was still unclear, we examined the photos. In cases where this was still not sufficient, we consulted the third author. However, the analysis team did not face any complex issues owing to OIPA providing reliable and straightforward steps. We let the main themes emerge gradually each time we read and classified a theme. As suggested by Tanhan (2020), we checked which main themes were attributed to under 3% of the 119 participants and combined these with the closest main theme over the 3% threshold. The third author checked all the analyses a second time, two weeks after the initial analyses, and did not find any significant changes.

Results

We had 119 students, and based on their captions, 12 facilitator and 14 barrier themes to online/distance education emerged. We provide the results under four main sections:

- Students' responses to COVID-19 contextual questions
- Main themes making online/distance education easier in the COVID-19 pandemic
- Main themes making online/distance education difficult in the COVID-19 pandemic
- Facilitators and barriers according to EST.

In Table 1, we provide the students' responses to COVID-19 contextual questions. Understanding contextual conditions is critical to make sense of and compare with other qualitative and quantitative results. Therefore, as suggested by Tanhan and et al. (2023), we included some meaningful and contextual items (e.g., following social distance, spirituality, religiosity, preferring online or face-to-face education, access to technological tools and resources).

Table 1. Students' responses to COVID-19 contextual questions ($N = 119$).

During COVID-19, to what level did you … (0 = *not at all* and 100 = *completely*)	Mean	SD	Kurtosis	Skewness
Follow social distancing	80	20	1,84	−1,44
Identify yourself as a spiritual person	74	24	2,45	−1,56
Identify yourself as a religious person	61	27	0,05	−0,88
Find spirituality/religiosity plays a crucial role in your life	74	27	0,84	−1,24
Prefer online/distance education to face-to-face education	36	33	−0,85	0,64
Have access to the Internet	72	28	−0,05	−1,00
Have a personal computer or tablet	73	37	−0,49	−1,06
Use a computer for online/distance education	70	35	−0,75	−0,86
Have a personal smartphone	91	19	6,82	−2,61
Use your smartphone for online/distance education	80	26	0,86	−1,34
Are satisfied with online/distance education	43	30	−1,04	0,29
Face economic difficulties	50	30	−1,03	−0,01

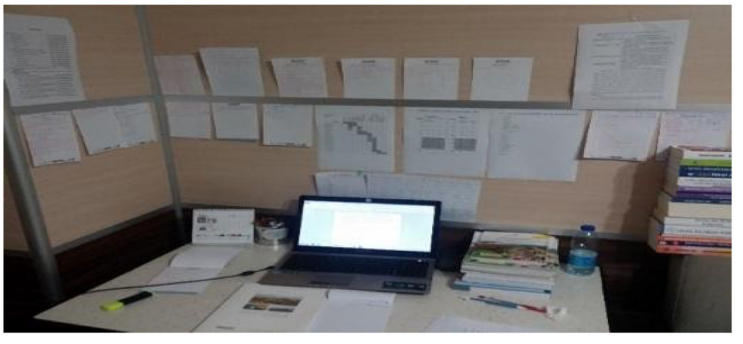
Note. We used these questions based on Tanhan et al.'s (2023) study.

Table 2. Main themes related to factors which make distance education easier for students in social studies teaching departments during the COVID-19 pandemic ($N = 119$).

Main themes	%	Total participants
1. Technology	37	44
2. The comfort that home provides	22	26
3. Togetherness with family	16	19
4. Opportunity to study	16	19
5. Using time as desired	15	18
6. Nature and tranquility	8	9
7. Books; mentors	4	5
9. Making life easier; ease of cheating	3	4
10. Solidarity	3	3
11. Taking responsibility; learning to learn	3	3
12. Protecting one's health	3	3

Main themes making online/distance education easier during the pandemic

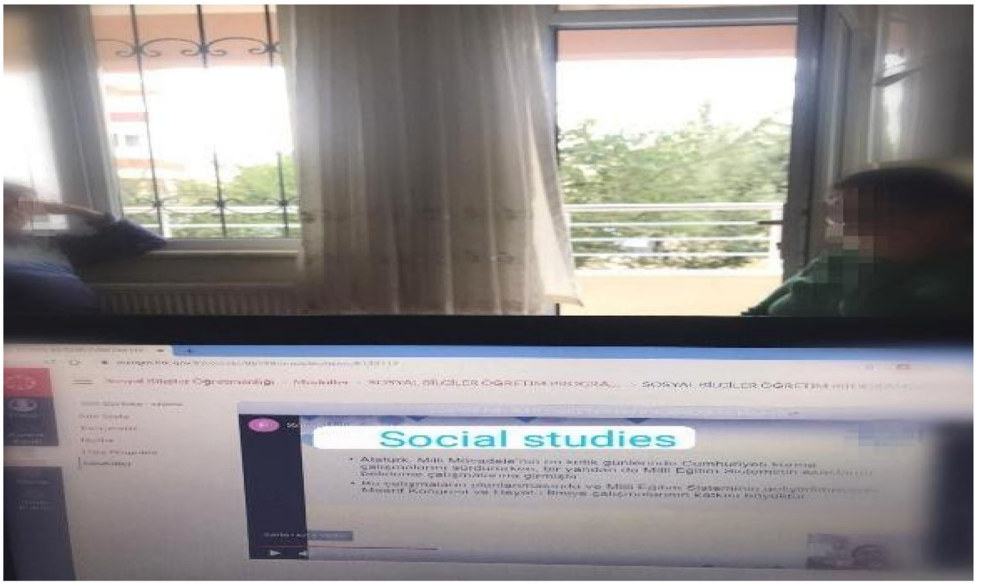
Below are photographs, stories, and themes of three students, which best represent their situation. We chose these with the CBPR team and especially with the six students because the students who submitted these photos, captions, and themes seemed to follow OPV thoroughly, and their submissions were representative of the main themes. Participants reflected within the scope of OPV and shared what facilitated their online/distance education during the pandemic.



Photograph 1. Example of facilitating factor for online/distance education submitted by Participant 101

The photo I took allowed me to spare more time for myself as a benefit of distance education and showed that I had to handle many things myself during this pandemic process. In the photo, I follow the university courses, in the gaps that occur during this time, I read books where I can improve myself in the field of social studies in my department. I use my time more efficiently. In relation to photography, I am happy that I take more time for myself and do something willingly. While doing all this, being with my family and spending time with them makes me happy in a different way. I can say that the first factor that provides convenience in photography is the conditions brought by the pandemic period and the second factor is my own will and belief. Both while taking this photo and writing these words now, I am happy to think that I have a lot of free time right now, and I am making plans to make new investments in myself.

Themes: technology, opportunity to study, togetherness with family (P101)



Photograph 2. Example of facilitating factor for online/distance education submitted by Participant 13

In the photograph, there is a frame from my computer in the house where I live with my family, which makes distance education easier for me. In this frame, I see a showcase that reflects the life outside my room at a time in which humanity flees from humanity, with the comfort of being at home and with myself attacked by so many different thoughts. As I look at this showcase, I get excited and worried at the same time. I am excited because this showcase reflects the invisible in the visible. I am trying to fit my hopes, which are gradually fading and becoming blurred, on a small screen, in the same time period but in different places, with thousands of people from different cultures and languages. On the other hand, I'm worried, knowing that there are thousands of people who can't create their own showcase because they don't have a computer and whose future and hopes are locked makes me uneasy. Then I try to complete my incomplete "self" with my family by doing whatever we have been putting off all the time, and I am able to purify myself from these worries a little bit. In fact, for these worries that I have inside me "we" can do a lot. While everything is spreading very quickly in the globalizing world, why can't we create a more equal society instead of creating a community of people moving away from each other unequally at the same speed?

Themes: technology, togetherness with family, the comfort that home provides (P13)

Photograph 3. Example of facilitating factor for online/distance education submitted by Participant 9

> If I were to explain the facilitating side from the photo frames I took; this gave the opportunity to spend time with my family, to help each other, to participate in the family environment, and to participate in our tradition and culture. I was able to attend my class at home and understand the importance of my family and many values. The photo depicts a social environment in terms of the field I study. It has many features both for me as a Social Studies teacher candidate and for the students to whom we will teach the Social Studies course. My photo is a concrete example of the field I study. The photograph is one that was taken during the production of foods such as fruit pulp, molasses and sausage, which are made in the same season and in the same months of each year in our village, which I have personally witnessed for years. Here, the whole family, together, creates a social environment in unity and togetherness, displaying our food culture from the past. A great communication environment. Everyone rushes to help each other, it is a job accompanied by smiles and songs, and it is actually a cultural environment. We can't get together like this much nowadays, but the closure of schools during the pandemic and the return of students to their villages and family homes created this environment. Believe me, I'm living that moment when I'm telling all this. It is a joyful and peaceful circumstance. Authorities can encourage people to think positively, to adapt to their environment, to learn from the conditions they are in, and to support them mentally and physically so that other individuals can have such positive experiences as well.

Themes: togetherness with family, the comfort that home provides (P9)

Table 3. Main themes making distance education difficult for students in social studies teaching departments during the COVID-19 pandemic ($N = 119$).

Main themes	%	Total participants
1. Insufficient financial opportunities	26	31
2. Internet infrastructure problems	21	25
3. Being restricted from social environment and real life	16	19
4. The inefficiency of online/distance education	13	16
5. Inequality of opportunity in online education	12	14
6. Not being able to use applications	11	13
7. Psychological factors	9	11
8. Addiction to technological tools	4	5
9. Miscommunication, not being understood	3	4
10. No lesson time	3	4
11. Inability to focus on the lesson	3	3
12. Lack of effective communication between teacher and student	3	3
13. Family structure	3	3
14. Inadequacy of teachers; insincerity; disruption of services	3	3

Main themes making online/distance education difficult during the pandemic

Below are the photographs, stories, and themes of three students, which represent their situation in the best way. Participants reflected within the scope of OPV and shared what complicated their online/distance education during the pandemic (in other words, the barriers they faced).

Photograph 4. Example that makes online/distance education difficult submitted by Participant 95

> If I tell you the complicating side of online education from the photo frame I took; Here is the situation of a student who had to attend classes on the roof of his house due to the lack of Internet infrastructure. The photograph reveals a situation caused by the lack of necessary Internet infrastructure and technological conditions, inadequacy of financial opportunities and inequality of opportunity in education. In addition, I do not want to prevent myself from voicing the inefficiency of distance education. We certainly do not have conditions we would have in the schools. It is truly a heartbreaking situation to be a prisoner of technology at home, between four walls, at a desk, instead of studying at universities that are home to science and communication and interaction. When I think of

Teaching Social Studies, which is my field of study, I have to say that there is no social environment and relationships are damaged. My personal opinion is that we cannot improve our skills, we cannot add something to ourselves, and we achieve success below our potential. Eliminating the factors that cause this situation will perhaps set our minds at rest. The simplest example of this is that proper opportunities should be offered to students living in villages. Students will not have such a hard time if they are helped in this and similar issues.

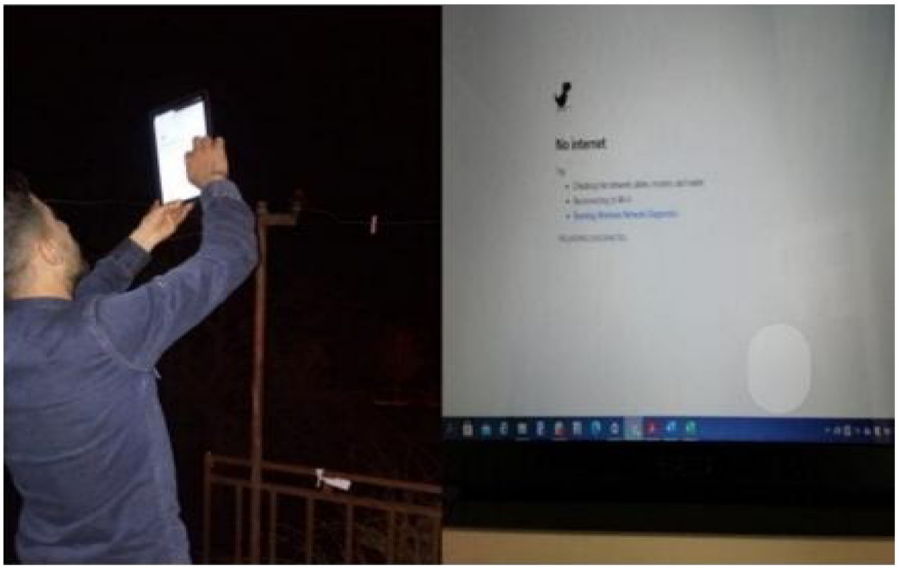
Themes: lack of financial opportunities, Internet infrastructure problems, inequality of opportunity in online education (P95)

Photograph 5. Example that makes online/distance education difficult submitted by Participant 57

In the photo, I present the inefficiency of online education, which makes distance education difficult for me during the COVID-19 process. When I consider the field of Teaching Social Studies, which is my field of study, I must say that it is very difficult to examine people, nature and society online. Socializing takes place only in virtual environments. In the photo frame, you see me, who has classes between 9 am and 5 pm. It's around 16:30. Now my eyes are tired of looking at the computer. Being inactive for hours also made me ache all over my body and made me weak. I started to sleep. In addition, I do not want to go without saying that our psychology has reached a bad level in line with all these events. I think that the education we received as if we had lived in a prison is not very healthy. Likewise, we had to practice in some of our lessons, but we couldn't. Although these are due to the COVID-19 process, other barriers also arise synchronously. For example, some of our student friends could not attend the trainings due to internet infrastructure problems or fell back on strenuous ways to attend the training; some students did not have the necessary technology or had to work in a job due to the lack of financial means. My friends who don't have a computer wrote their homework on papers and took a

picture and sent it. All these also present the inequality of opportunity in online education. I am sad to write this down.

Themes: The inefficiency of distance education, being restricted from the social environment and real life, not being able to practice (P57)



Photograph 6. Example factor 3 that makes online/distance education difficult submitted by Participant 36

The photo shows the problems and outages I had while connecting to distance education from the village I live in. Due to these difficulties, I have trouble understanding the lecturers, and this causes the lectures to be inefficient. The complicating factor of this photo is the lack of infrastructure and inefficiency. I'm a little worried while taking the photo and writing these words down. I am aware that we will not be able to get out of this process in a short time, and when I think that these problems cannot be solved before long, I get a little nervous.

Themes: lack of financial means, Internet infrastructure problems, inefficiency of online/distance education (P36)

Facilitators and barriers according to EST

We investigated how the students attribute the facilitators and barriers to EST levels (Table 4). Understanding the students' attribution can help, first and foremost, with connecting with them and at a larger scale from a systemic level. From the table, we can see that the facilitators and barriers were mostly at the microsystem and individual/intrapsychic levels. Researchers could use the results to initiate productive and novel discussions with students, university faculty and staff, administrators, and interested ones and compare the facilitators and barriers with those in the other three

Table 4. Facilitators and barriers according to EST ($N = 119$).

EST levels Factors	Individual/intrapsychic	Microsystem	Exosystem	Macrosystem	All together
Facilitator	50% ($n = 57$)	56% ($n = 63$)	38% ($n = 43$)	25% ($n = 30$)	45% ($n = 51$)
Barrier	51% ($n = 58$)	58% ($n = 65$)	43% ($n = 49$)	45% ($n = 51$)	55% ($n = 62$)

Note. In this study, the participants were able to attribute facilitators and barriers to more than one system.

tables. In this way, they can contextualize the results more effectively so as to address the barriers and enhance the facilitators.

Discussion

The recent rapid and exponential spread of the pandemic led to dramatic changes in people's daily life, including their learning process. We discuss our findings under three main sections.

Discussion of contextual factors

During the first stage of data collection, several contextual questions were asked to determine students' life experiences, where they lived, economic status and some other similar questions regarding the pandemic, which they could score from zero to 100. The findings showed that the teacher candidates' level of practicing physical (social) distancing, having access to the Internet, having a personal computer or tablet to follow online/distance education, using a computer in online/distance education, having a smartphone, using a smartphone during the education period, ranged from 70% to 92%. These results mirror those of Tümkaya et al.'s (2021) and Tanhan et al.'s (2023) studies.

We observed that teacher candidates try to carry out their online/distance education through their smartphones, which was related to participants facing economic difficulties (50%). Additionally, we observed that during the pandemic, preferring distance or online education to in-person education (36%), and satisfaction with online/distance education (43%) were relatively lower. From a contextual perspective, these make sense because the students were from different universities in Turkey. However, the majority of the students were from two state universities, where the first and the second authors were working. These two state universities do not have good financial support and infrastructure for online/distance education. Only a few state universities in Turkey have a good financial balance and good Internet infrastructure for their students on campus (Tanhan, 2020). Therefore, it is very likely that many students in Turkey did not experience online/distance education at all before the pandemic, which was the case for the two state universities where most of the participants of this study were recruited from. Based on this, and considering the unexpected and negative biopsychosocial, spiritual and economic effects of the pandemic, lack of good financial resources, and especially the lack of experience with online/distance education led to many concerns and high levels of dissatisfaction. In the present study, the tendency of teacher candidates to engage spiritually was also investigated due to its being one of the most important contextual factors in the context of Turkey and it being discussed very often in academic and social life (Genc et al., 2022; Tümkaya

et al., 2021). The findings suggested that, although the teacher candidates' tendency to believe that religion/spirituality is important in their lives (77%) and that they defined themselves as a spiritual person (76%), their tendency to define themselves as a religious person was relatively low (57%). This finding is consistent with those of Tümkaya et al., (2021) and Tanhan et al. (2023).

Discussion of main facilitator themes

Twelve main themes (see Table 2) that facilitated online/distance education for the students during the pandemic emerged, including technology (37%, $n = 44$), the comfort that home provides (22%, $n = 26$), being together (16%, $n = 19$), opportunity to study (16%, $n = 19$), using time as one wishes (15%, $n = 18$) to name a few.

The most important facilitating theme was technology (37%, $n = 44$). When the data set is examined further, factors such as (1) being able to follow the lessons regularly thanks to technology, (2) accessing the resources they want with technological tools, and (3) accessing and sharing the documents related to their lessons whenever they want thanks to technological tools and applications are seen as important facilitators as reported by the students. It could be argued that these, which stand out in this dimension of our study, align with similar studies within the literature (e.g., Doyumğaç et al., 2021; Tanhan et al., 2023).

El Refae et al. (2021) found that their participants (students = 445, faculty members = 139) had high satisfaction with the institutional readiness for distance learning and believed in its opportunities and advantages. The participants expressed high satisfaction with security and safety issues, provision of distance learning tools and equipment, the continuity of lectures, implementation of a new way of communication and provision of supports and guidance needed for distance learning. Similarly, Tümkaya et al. (2021) found having technology and related resources to be one of the most effective factors in facilitating quality online/distance education. They revealed that these concepts are technology-based opportunities offered by online/distance education during the pandemic period.

The main factor affecting the efficiency of online/distance education for students in this study was accessibility to strong and sufficient technology and Internet infrastructure. Koseoglu and Bozkurt (2018) indicated that there is a need to focus on the interaction among resources, pedagogy, learning architectures, culture, and available support mechanisms to improve the learning experience in online/distance education. Another issue to be considered is the existence of a qualified feedback system. Feedback is an essential tool to scaffold learning and forge relationships between online/distance educators and their students (Uribe & Vaughan, 2017). On the other hand, technology integration in education is not only a subject of online/distance education. It is also an important phenomenon for face-to-face or hybrid education (Uribe & Vaughan, 2017). When combining this with our findings (which conflict with previous literature) that there was the need for individuals or students to adapt quickly to online/distance education as a result of the COVID-19, we argue that accessibility to strong and sufficient technology and Internet infrastructure should be considered alongside the personal or family socioeconomic levels of the individuals and the

technological infrastructure of the country they live in. Individual and country-based differences, limitations, and convenience or difficulties may come into question in the adaptation process that takes place at micro and macro levels.

Our study showed that most of the students had a smartphone (91%), a personal tablet or computer, (73%), and the Internet (72%). Therefore, during the pandemic and online/distance education, technology seems to have facilitated this difficult process for them, which reflects what other researchers have reported (e.g., Tanhan et al., 2023; Tümkaya et al., 2021). The current study also highlighted the importance of the comfort that home provides (22%, $n = 26$) and togetherness with the family (16%, $n = 19$) as facilitators to online education. Since both themes point to similar contexts in terms of the findings obtained from the data set, they are considered together in this category. Within these themes, the following factors were viewed as important: (1) family support for basic needs, (2) finding more time to study and prepare for exams owing to being with one's family, (3) the comfort provided by the sufficient technological infrastructure of the house, (4) the opportunity to be alone with family members, and (5) psychological peace brought by being together with family members. Similarly, Tanhan et al. (2023) found being with family and having resources at home helped to facilitate the difficult online/distance pandemic process.

Factors such as quality of online/distance education, flexibility, sensitivity, communication, and technical support have a positive impact on students' ideas regarding online/distance education (Doyumğaç et al., 2021; Tanhan et al., 2023). The convenience created by the fact that university students had the opportunity to follow their lessons from home with their families during the pandemic is also expressed under categories such as satisfaction, advantages, and opportunities in the literature. For example, Baczek et al. (2021) stated that the most frequently mentioned advantage of students engaging in online/distance education during the pandemic period was the opportunity to follow the lessons from home (ability to stay at home, 69%) and to access online materials easily in the home environment (continuous access to online materials, 69%). Similarly, this study found that the comfort of having access to sufficient Internet and technological equipment at home during the pandemic and the financial and moral support of the family are important facilitators of online/distance education.

Another facilitating factor that arose from our research was the opportunity to study (16%, $n = 19$). From the data set, facilitating factors included (1) they can access the resources and course records related to their courses whenever they want, (2) they have the opportunity to spend more time studying, (3) they can organize their lessons and homework more systematically, (4) they are comfortable, flexible, and functional. Other researchers found similar results (Pellegrini et al., 2020; Tanhan et al., 2023).

Baczek et al. (2021) stated that the ease of access to educational materials and the flexibility to choose time and place for study were reported as the most significant advantages of online/distance training during the pandemic process. According to Doyumğaç et al. (2021), online/distance education has also positively affected socially introverted students' participation in the course, allowing them to learn according to their own interests and needs, and at their own pace. According to the research

findings, educational technological advances are facilitating online/distance education owing to open communication channels and flexible educational programs.

Discussion of major barriers

Fourteen main themes (see Table 3) emerged as barriers to online/distance education. Some of the main themes were as follows: inadequacy of financial means (26%, $n = 31$), Internet infrastructure problems (21%, $n = 25$), being restricted from social environment and real life (16%, $n = 19$), inefficiency of distance education (13%, $n = 16$), inequality of opportunity in online education (12%, $n = 14$), not being able to practice (11%, $n = 13$), and psychological factors (9%, $n = 11$). These results align with recent studies (Tanhan et al., 2023; Tümkaya et al., 2021).

It is common to experience these issues during normal face-to-face education as well. However, some are more related to COVID-19 and the context of Turkey. For example, Internet infrastructure problems for rural areas and the cost of being online is a crucial problem for online/distance education when it is the only way to attend the education. This leads to inequality of opportunity in distance education for many people in Turkey (Doyumğaç et al., 2021; Tanhan et al., 2023). Other issues are more specific to the pandemic context, including having limited access to a social environment, being restricted from real life, not being able to do course practices and internships, feeling almost forced to develop addiction to technology due to too many courses and assignments, and not having a scheduled program to always follow when compared to in-person education.

The most important barrier highlighted by participants was a lack of financial means (26%, $n = 31$). The following factors were reported as being significant barriers to online/distance education: (1) lack of or limited study opportunities at home, (2) not being able to afford technological tools, computers etc., and (3) lack of opportunities to access basic resources, books, etc. Studies in the literature also reflect these findings and note that university students face barriers such as not being able to fully follow and understand the lesson due to socioeconomic factors and not being able to fulfill homework and exams due to insufficient resources (Doyumğaç et al., 2021; Pellegrini et al., 2020). Pellegrini et al. stated that there has been a sharp increase in the financial needs of students due to the impact of COVID-19 and the ensuing recession, and that such financial barriers can negatively impact on online/distance education.

Doyumğaç et al. (2021) conducted research with teachers, faculty members, and college students during the COVID-19 pandemic and reported that inequality of opportunity is one of the most significant barriers to effective online/distance education during the pandemic. They discussed the theme of inequality of opportunity, which reflects the lack of financial means of some students, such as not having computers, smartphones, or the inability to connect or access the Internet without any problems. Gonzalez-Ramirez et al. (2021) suggested that the top barriers students encountered during online/distance learning were Wi-Fi quality, limited access to quiet spaces, and lack of finances. Based on the literature, it can be argued that financial problems are considered the most significant obstacle or barrier to online/distance

education during the pandemic in terms of accessing computer and communication technologies, and thus having a healthy studying environment.

According to the results of our study, the second most important barrier for participants was Internet infrastructure problems" (21%, $n = 25$). Factors reported by participants included (1) not being able to connect to the Internet in the place where they live and the interruptions in the connection, (2) being unable to access the courses and other materials they need due to these problems. There are studies in the literature that draw attention to the fact that online learning impacts negatively on the quality of education and that the infrastructure of an institution or organization plays a key role on the effectiveness of online education (Escobar & Morrison, 2020; Flores & Gago, 2020; Tanhan et al., 2023). Online/distance carried out with systems that have not developed sufficient technological infrastructure negatively impact the quality and efficiency of the education provided.

The first two main barriers appear to be interconnected and related to the financial issues of Turkey, which is classed as a developing country (Tanhan, 2020). Therefore, some students did not have access to Internet (28%), a private or family-owned computer or tablet (27%), or a smartphone (9%). It could be suggested that financial difficulties and the related lack of technological resources, seem to make the pandemic online/distance education process more difficult. Other researchers have reported close findings (e.g., Tanhan et al., 2023; Tümkaya et al., 2021). In Turkey, if a person has enough financial resources, they can get almost any technological tools and related services. Technology and related services are available; therefore, the more important issue is affordability. Having a low income, or living in poverty, has been an important issue for some people in Turkey, and this is reflected globally with other countries facing similar issues (Armiya'u et al., 2022; Tanhan, 2020).

The third theme of social environment and limitations from real life" (16%, $n = 19$) was also a significant barrier reported by participants in this study. The students stated that (1) being away from the school environment and the environments they have outside of school and (2) being restricted from reality and sociality as important barriers during the pandemic. Similar findings have been reported in the literature (e.g., Adnan & Anwar, 2020; Assareh & Bidokht, 2011; Escobar & Morrison, 2020; Flores & Gago, 2020; Hadar et al, 2020; Spoel at al., 2020).

For instance, Adnan and Anwar (2020) found that factors such as the lack of face-to-face interaction with the instructor and the lack of traditional classroom socialization were significant negative factors for university students during the pandemic. Similarly, Assareh and Bidokht (2011) classified e-learning barriers into four areas: students, teachers, curriculum, and schools. In this research, other factors were reported as barriers, such as financial problems, love and social space, motivation, insufficient learning skills and experience, assessment, and isolation from peers. Escobar and Morrison (2020) reported that teacher candidates did not see the online/distance education they received during the pandemic as a "real" learning experience.

Another important factor highlighted by the participants in our research was the lack of practical experience on the social studies course and their belief that online learning was insufficient to fulfill the requirements of this course. Participants

undertaking courses that require practice highlighted the significant disadvantages they felt in terms of the efficiency of the course and their own professional competencies.

Consequences of facilitators and barriers according to EST

In this section of the paper, we discuss how the participants aligned facilitators and barriers with EST. Since the system levels are evaluated as a whole, in the formation of facilitators or barriers, participants had the chance to choose more than one factor, as suggested by Tanhan, 2020. According to the research findings, factors that facilitate and impede online/distance education during the pandemic, in relation to EST, included respectively: individual/intrapsychic ($n = 57$, 50%; $n = 58$, 51%); microsystem ($n = 63$, 56%; $n = 65$, 58%); exosystem ($n = 43$, 38%; $n = 49$, 43%); macrosystem ($n = 30$, 25%; $n = 51$, 45%), and all the systems together ($n = 51$, 45%; $n = 62$, 55%).

When the distribution and rates of attributing the facilitating factors of online/distance education to EST levels are examined, the participants through OPV mostly expressed factors at individual levels and yet they also talked about factors that are related to larger systems (e.g., macrosystems). These mean both facilitators and barriers experienced are multidimensional and related to multiple sources that cannot be simplified. More comprehensive and dynamic perspectives are needed to understand the process and improve effective strategies. Collaboration at each level of EST is needed to advance facilitators and address concerns. And, very sadly, this is not the case in Turkey, at least for the universities we have experienced. Most of the time, all parties try to do their best by themselves without first understanding other parties' perspectives.

On the other hand, the participants related the facilitator factors more to individual factors and barrier themes more to macrosystems. This can be explained from a psychological perspective that people are more likely to attribute effective things to themselves and ineffective things to others, as an individual in general wants to feel more enjoyable feelings if they have not developed some specific psychopathologies (Tanhan, 2020; Tanhan et al., 2023). From a cultural perspective, people in Turkey have a mixed of collectivistic and individualistic culture, and yet we can say the effect of collectivistic culture is more prominent (Tanhan, 2020). In this collectivistic culture, it is more common to attribute both effective and ineffective things or processes to larger systems (Tanhan, 2020). And furthermore, it is more likely in the diverse cultures of people living in Turkey to attribute ineffective things—including barriers—to other larger systems. Tanhan and others (2023) found similar results. From this perspective, it makes sense that the students attributed barriers more to larger systems. Additionally, as the authors, we were somewhat surprised to see the students attributing facilitators and barriers to larger systems, because the younger generation of learners have gradually become more focused on individuality and do not deal with larger systems (Tanhan et al., 2023; Tümkaya et al., 2021). As with the researchers, we have also witnessed that university students in Turkey seem to avoid social and political discussions more in recent years compared to past years. Therefore, seeing students reporting larger systems can be a good sign of how all parts in a society need

to collaborate to understand the process and the students. Other researchers in Turkey who have used OPV also found that the participants attributed facilitators more to an individual level and barriers to larger systems (Doyumğaç et al., 2021; Tanhan, 2020; Tümkaya et al., 2021). Therefore, our results carry some value in that they need to be considered from multiple and comprehensive perspectives, as the participants' responses and feedback indicate this.

Another significant contribution is that our participants, through different ways (e.g., online survey, emails, personal communication), reported the study to be very meaningful, entertaining, therapeutic, comprehensive, and empowering. Other OPV researchers also found similar results (Armiya'u et al., 2022; Genc et al., 2022; Tanhan et al., 2023; Tanhan & Strack, 2020). As the authors and researchers, we also found collaborating and going through the study steps to be very meaningful compared to some of our other traditional research.

Limitations

There are a few limitations in this study. Active advocacy, which was an important aim of the study, could only be attempted online; we would have preferred to advocate face-to-face as well, as developers of OPV (Tanhan, 2020; Tanhan & Strack, 2020) suggested, but this was not possible due to the pandemic. Further, participants were only from four universities and only from social studies teaching majors. Therefore, we were unable to explore the experiences of a wider selection of students.

It is also important to state that the final number of participants (119) equates to a small number compared to traditional quantitative studies. It is important to note that in other qualitative studies, and specifically traditional face-to-face photovoice studies, participant numbers usually range from eight to 13 people and very rarely reach 100, which makes OPV studies more powerful in terms of reaching out to more participants (Tanhan, 2020; Tanhan & Strack, 2020). More participants may have been recruited, but consideration must be given to the novelty of OPV, the participants' unfamiliarity with OPV, and the difficulty of participating during the pandemic.

Implications

We provide implications for educators, researchers, academic institutions, and policymakers.

For educators

Faculty members can use alternative ways to ensure effective communication with their students during online/distance education. While encouraging students to participate in the lesson synchronously, the faculty members could encourage flexibility in following the lesson presentations and fulfilling their homework and responsibilities asynchronously when necessary. In order to make their online courses more functional and attractive, faculty members could improve their skills in use digital education platforms effectively and guide their students in this regard.

For researchers

Future researchers could use OPV to shed further light on the results that emerged in this study so that each result can be understood in more depth. Researchers could investigate the impact on students' online/distance learning using the OPV approach in different contexts and countries. Finally, future researchers could use OPV in studies exploring other topics, majors, and global subjects. Based on the picture that emerged in this study, we suggest future researchers studying COVID-19 analyze submitted photos as well as the verbal or written content they elicit, as Ozkan and Tanhan (2023) analyzed photos in their OPV studies to understand sexuality.

For academic institutions and policymakers

The future of higher education needs to be rethought in many aspects as the main themes indicate this. International and multilateral cooperation with policymakers, communities, and other stakeholders within the higher education sector will need to be enhanced and strengthened. Authorized institutions, organizations, central government in Turkey, and world organizations could reflect on the facilitators and barriers and develop specific strategies to advance education.

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No potential conflict of interest was declared by the author(s).

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Data availability statement

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

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