Student Teachers and Online Microteaching: Overcoming Challenges in the Age of the Pandemic

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Abstract: Recent changes due to the COVID-19 pandemic have forced higher education institutions worldwide to transition to online courses. The challenges that the pandemic poses for microteaching are very significant, as it is highly application-based and complicates online implementation. The current study aims to examine prospective teachers' experiences with online microteaching. The participants (N = 21) were Greek university undergraduate students. Specifically, their experiences with online microteaching were examined through reflective texts and follow-up interviews. Data were analyzed based on a mixed-methods approach (quantitative and qualitative) by two independent reviewers. The findings showed that the main advantage of the specific process is the collaboration with fellow students, while the main challenges concern technical difficulties and anxiety. Qualitative analysis revealed that anxiety overlapped with collaboration, while more detailed aspects of the process (e.g., video rehearsals and retakes) provided a unique framework.

Keywords: *Higher education, microteaching, online teaching, teacher education.*

Introduction

The teaching profession is widely considered fairly complex (Darling-Hammond, 2006), requiring rigorous classroom experiences for prospective teachers during their initial education. However, it is not a given that all student teachers will be able to handle the hands-on experiences in the classroom. Therefore, microteaching has been proposed as an "antechamber" in teacher education before student teachers have real experiences in the classroom. Microteaching is used in most teacher education programs worldwide (Bell, 2007).

Literature Review

Microteaching in Teacher Education

Microteaching is scaled-down instruction (approximately 5-15 minutes) in a small group of peers in a classroom (Johnson & Golombek, 2020). Microteaching involves practicing specific teaching skills such as initiating or ending a lesson, adjusting the tone of voice, asking questions, using the whiteboard, getting students interested, using humor, etc. In short, micro-teaching is actually a simulation that has been shown to increase student teachers' self-efficacy (Arsal, 2014) and in which domain-specific knowledge can be used in combination with pedagogy (Özcan & Gerçek, 2019; van der Westhuizen & Golightly, 2015). Over time, micro-teaching has been used for prospective teachers to engage in "piloting" teaching methods they have learned in theory and receive feedback from mentors and colleagues. This entire process helps bridge the gap between theory and practice of teaching (So, 2009).

The positive effects of microteaching on teacher education have been thoroughly studied. According to relevant research, microteaching positively impacts establishing an actual connection between theory and classroom practice (Bell, 2007; Kpanja, 2002). This connection allows student teachers to practice what they have learned in theory and equips them with essential teaching skills. These skills may include:

- Time and lesson planning (Bell, 2007),

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- Classroom management, responding to students' diverse needs, and differentiating among students' points of view (Busher et al., 2014),

- Asking questions using differentiated content and physical appearance (dress, nonverbal behavior, etc.) (Saban & Çoklar, 2013),

- Decision making (Lewis et al., 2006), and

- Communication and public presentation (Özcan & Gerçek, 2019).

In addition, microteaching has been found to contribute effectively to student teachers' reflective practices (Amobi, 2005; Kpanja, 2002). Overall, microteaching appears to have a significant impact on student teachers' achievement (Akalin, 2005) as well as their self-confidence (Ralph, 2014) and self-efficacy beliefs (Arsal, 2014).

On the other hand, microteaching has been criticized for being an inauthentic practicum that creates an unnatural classroom environment (He & Yan, 2011) while also being a competency-based process that often lacks a realistic context (Bell, 2007).

Peer Assessment, Reflection and Feedback

Peer assessment, an alternative/authentic assessment method, can be defined as a process in which individuals assess their peers. It is an instructional strategy in which learners "can consider and specify the level, value, or quality of a product or performance of other peer learners" (Topping, 2009, p. 20). This process can include peer feedback and peer learning (McCarthy, 2017).

The impact of peer assessment on various aspects of students' profiles has been thoroughly studied in the work of pioneering scholars since the 1980s and 1990s. For example, students' participation in peer assessments significantly improves their critical appraisal skills (Jaques, 1991), helps them find different solutions to problems (Gibbs, 1981), develops their reflective thinking skills (Schön, 1983, 1987), and enhances metacognition (Boud, 1991).

In addition to elementary and secondary students, several studies have shown that peer assessment is also important for university students, who have overall positive attitudes toward peer assessment (e.g., Wen & Tsai, 2006). Al-Barakat and Al-Hassan (2009) examined the impact peer assessment can have on teacher education. They found that peer assessment significantly affected student teachers' understanding of their strengths, weaknesses, and areas for improvement. In addition, it helped them develop their teaching skills and assessment abilities. Teacher education also emphasizes how student teachers reflect on theory and "translate" it into teaching practice (Larrivee, 2008). In addition, Lim and Chan (2007) emphasize that the main benefit of microteaching for teacher education is that by critically reflecting on the strengths and limitations of each teaching approach, student teachers have the opportunity to connect with new teaching practices through an ongoing process of transforming existing beliefs. In addition to teacher education, considerable attention has been given to the role of reflection in teacher professional development (Larrivee, 2008).

Video-Supported Microteaching

The video appears to play an important role in teacher education and microteaching because it best captures the complexity of instruction and the classroom climate. Specifically, studies have found that video-based microteaching positively impacts student teachers' analysis and observation skills by facilitating observation of their actions and the actions of their classmates, as well as the overall classroom climate (So, 2009). This video-based microteaching is a particularly important element because it allows student teachers to distance themselves from classroom events and examine classroom performance as objectively as possible. In addition, video in microteaching positively impacts student teachers' reflective practices, and feedback has been thoroughly studied (Brunvand, 2010; Fernandez, 2010). Student teachers can identify areas where they can improve their professional development by viewing microteaching videos, evidence-based discussions, and reflective practices (Albrecht & Carnes, 2006; Fernandez, 2010; Masats & Dooly, 2011). In addition, collaborative discussion processes can be facilitated through video-based observation and reflection of microteaching attempts. By the end of their training, student teachers have demonstrated that they have grown as teachers (Oner & Adadan, 2011). Finally, video-based microteaching has reduced student teachers' anxiety (Buyukkarci, 2014).

Online Microteaching

Due to the health problems caused by the COVID-19 pandemic, most higher education institutions have moved to synchronous and asynchronous online teaching, which includes microteaching modules. However, difficulties usually arise due to students' work commitments and poor internet connection.

Ersin et al. (2020) showed that participants in their study found the online teaching experience positive despite their initial anxiety. After completing the module, they indicated their competence in effective teaching practices increased. They referred to classroom management and infrastructure problems that occurred during online microteaching.

However, the feedback they received from their peers and mentor helped them find solutions to these problems. Ersin et al. (2020) reached the above conclusions using a "synchronous" method, ignoring that not all students have unlimited Internet access. Furthermore, their paper does not provide a concise and systematic overview of the advantages and disadvantages of online microteaching itself. Bodis et al. (2020) found that online microteaching increased the "feedback literacy" and ICT skills of the participants in their study, developed their autonomy as learners and teachers, as well as their sense of community, and ultimately promoted their engagement.

Other studies (e.g., Kirby & Hulan, 2016) have shown that online microteaching- particularly a platform called VoiceThread- enhances participant engagement more than the traditional text-based discussion forum, enhances learning, and facilitates deeper understanding. These studies provide important data on online microteaching. However, they employed a specific tool (VoiceThread) and did not leave sufficient room for broader concepts and theoretical considerations.

Rationale

Several studies (e.g., Bryan et al., 2008) have underscored the growing need to examine the potential role of technology in promoting reflection in teacher education. The studies mentioned above have not addressed the possible effects and appropriateness of using video in teacher education and reflection practices. The study by So et al. (2009) that discusses this is somewhat older and was not conducted during a public health emergency, making using videos imperative. The recent pandemic created an entirely new framework for the teaching-learning process in higher education, as videos became a compositional element of microteaching courses in distance education. This situation is unprecedented in higher education and has led to new challenges and a new approach to teacher education modules. This study aims to investigate a circumstance in the video that is not only complementary to microteaching but also an integral part of it (especially at the asynchronous level), without which the module of microteaching would not have been feasible.

Specifically, the research questions on which the study was based were:

1. What are the benefits to the participating student teachers before and after implementing online microteaching?

2. What do the participating student teachers believe are the challenges that online microteaching presents to student teachers?

Methodology

The current study aims to explore student teachers' experiences from the compulsory video recording of their microteaching during health measures of lockdown in the COVID-19 pandemic. The study participants were undergraduate students (N = 21) of a Primary Education Department of a Greek University (University of Thessaly in Central Greece). According to the Department's syllabus, students during the fourth semester of a four-year bachelor's program can choose to attend the lesson "Teaching Skills Through Microteaching", where they are expected to plan and implement a microteaching on a school subject's unit for approximately 15 minutes in a group of peers (usually 4-5) utilizing a specific teaching skill (questioning techniques, lesson starting and ending, non-verbal communication, humour, etc.) each time. Their microteaching is video recorded, and then a group discussion in class takes place based on reflection on the specific microteaching and reviewing parts of the video when necessary. Self-reflection also occurs as the teaching student reflects upon their microteaching and the specific skill they utilized based on a particular observation scale. This whole process is coordinated by a university mentor (faculty member). If needed, the student repeats the microteaching, taking the feedback provided by their peers and mentor. After the module's end, students submit a portfolio including their lesson plan, materials used, and a written reflection on the difficulties and the positive learning outcomes of their microteaching experience.

Recently, educational institutions went fully online due to the COVID-19 pandemic. This situation created a whole new framework for the teaching-learning process, especially for courses like microteaching, which presuppose a high level of interaction, observation, feedback, and reflection. Therefore, a solution had to be found for distance learning to be realized. Therefore, group Skype sessions were scheduled among the group students assigned to each teaching skill, and then each student presented their microteaching for 15 minutes. The students recorded the whole session and presented it in segments corresponding to each student in the whole-class session. The entire educational process of the module was happening through MS-Teams, so each presenting student shared their screen with the rest of the participants (peers and mentor). Then, a group reflection based on a specific observation scale happened as if it were in a real classroom setting. At the end of the module, students turned in an e-portfolio including their microteaching video, lesson plan, materials used, and a written reflection on the difficulties and the positive learning outcomes of their microteaching experience.

The written reflection texts from the e-portfolio were used as an instrument for the study's data collection. They included questions concerning difficulties with online microteaching and possible advantages deriving from it. Specifically, the questions were: "Which advantages of online microteaching could contribute to your professional learning as future educators?" and "Which were the disadvantages of online microteaching?"

For more meaningful and thorough analyses, interviews with selected participants were conducted. The interview participants were chosen based on the depth of their reflection turned in to the researcher because, theoretically, an interviewee with a critical and interesting reflection had more chances to offer an intuitive perspective on online microteaching. Ultimately, three participants were selected, and an online interview was organized via Skype. Preliminary contact was made for the appointment and for the participants to be informed of the study's goal. The Skype session was recorded, and the participants were assured of the data's anonymity. It was decided that a semi-structured interview was the optimal method because it allows follow-up questions to be made by the interviewer. An interview guide containing general questions about the study and more specific questions about certain aspects of each participant's reflection that needed to be more thoroughly investigated was designed. Transcripts were made based on the participants' answers, and the analysis method was decided.

The data were analyzed on a mixed-methods basis. Data from reflective texts and the interview transcripts were analyzed following Bryman's four stages of qualitative analysis. Specifically, these stages are Stage 1: Looking for ideas within your data, Stage 2: Identify codes and create a schema, Stage 3: Coding, and Stage 4: Relation to existing theories and ideas (Bryman, 2001). During the first stage, raw data were inserted in NVivo 10 software as separate files, were read by the raters, and a rough search for ideas took place. Then, a preliminary coding system/schema was created based on the reflection and elaboration of the first stage. Before the analysis, the author of the current study gave the raters some guidelines. Afterward, the two raters performed the final coding of the participants' answers independently to decrease bias as much as possible. High inter-rater agreement was found in the final coding process (Cohen's Kappa < .05). The final coding system/schema's main findings are presented in the current study's results section. It was considered appropriate that a crosstabs analysis should take place for a more intuitive depiction of the data to be made. Therefore, attributes (independent variables) were assigned to coding in NVivo, and the results of this crosstabs analysis are summarized in Table 3.

Additionally, a correlation matrix among nodes was created and shown in Table 2. Eventually, the final coding system/schema was related to existing ideas deriving from the existing theory presented in the study's theoretical background. This relationship is shown in the discussion section of the current study.

Results

Regarding the first research question (what are the advantages of online microteaching before and after its implementation), the most prevalent feature is the collaboration with fellow students, since all participants (21) referred to it. Regarding the second research question, the main challenges that arose were technical difficulties (14), followed by the anxiety caused by the online process (12). Finally, nearly half of the participants think that online microteaching cannot be compared to an in-person process (11), mainly because of the lack of interaction (6) that happens in a real classroom setting (see Table 1).

Table 1. Online Microteaching's Advantages and Challenges/Difficulties

	f
Advantages	
collaborating with fellow students	21
Challenges/difficulties	
technical difficulties	14
anxiety	12
not sufficient compared to in person	11
interaction	6

N = 21

After the initial quantitative data screening and to acquire a better sense of the data, a further exploration (second analysis level) of the nodes' co-occurrences followed to find if any meaningful patterns would emerge. As can be seen in Table 2, the collaboration with fellow students seems to overlap mainly with the participants' anxiety (19), technical difficulties during the online microteaching (14), and the comparison to the in-person process (12). Moreover, the technical difficulties seem to have also caused anxiety in the participants (13) and the interaction (11).

Table 2. Internode Frequency Matrix

	1	2	3	4	5
1. collaborating with fellow students	-				
2. interaction	8	-			
3. not sufficient compared to in person	12	10	-		
4. technical difficulties	14	6	6	-	
5. anxiety	19	11	6	13	-

N = 21

Then, the categories/nodes with the highest frequency were cross-tabulated with the five teaching skills, which the participants practiced in the module framework (Table 3). It seems that the code correlating numerically the most with teaching skills is "collaborating with fellow students" with "lesson ending and starting" and "students' concentration". This finding makes perfect sense since the participants focus on collaboration in the framework of this specific teaching skill. It is rather surprising that the same is not true for the code of "interaction" or "humor", which presuppose high engagement with fellow students. The data distribution suggests no other numerically significant relationships.

Table 3. Node Coding Matrix by Teaching Skill Attribute

	Questioning	Nonverbal communication	Lesson starting and ending	Students' concentration	Humor
1. collaborating with fellow students	0	4	10	8	4
2. interaction	2	2	1	4	2
3. not sufficient compared to in person	2	3	3	3	3
4. technical difficulties	1	2	4	5	2
5. anxiety	2	3	3	4	4

N = 21

Additionally, it is of particular interest to further explore the actual experiences of the participants, since there are few studies reporting an online microteaching framework (for an overall coding system/schema see figure 3).

Advantages of Online Microteaching

"Feelings"

Regarding the first research question (advantages of online microteaching before and after its implementation), the participants first felt joy about participating in the microteaching module.

"Throughout the process, I felt very excited about what I was doing and especially when planning my teaching." (Victoria)

Their feelings, however, were also somewhat mixed.

"I had mixed emotions, anxiety, curiosity, but also joy for my first microteaching." (Evelyn)

"Collaboration"

As mentioned before, online microteaching involved a rather strong collaboration among the participating student teachers, creating an unprecedented "forced" collaboration situation. The initial hesitation seemed to finally have given its place to a quite fruitful "encounter" and resulted in the effective implementation of microteaching activities.

"I can say that I panicked, as I had to work with people who were completely unknown to me and work remotely and in ways that I would work for the first time. Before I even started to work, I was anxious and scared only at the idea of how and if I would be able to meet the challenges and complete my teaching. However, the colleagues with whom I was placed in the same team were remarkable and cooperative. When we managed to have our first communication and came up with the way and the application in which we would work, I started to get courage." (Lily)

"The online microteaching process helped us recognize the importance of interdependence at work. It contributed to the strengthening of communication skills as well as to the enhancement of creativity, cooperation, and productivity." (Margaret)

"Video repetition"

Another aspect suggested by the data is that the online process allowed the participants to rehearse and record the session multiple times.

"Apart from planning one's teaching individually, this process brought us close with people we did not know, something that could not have happened in an in-person micro-teaching presentation." (Eliza)

"Although we worked with everyone for the first time, the atmosphere was very positive. My fellow students were very supportive and helpful. We exchanged tips on presenting the lesson, and they had absolutely no objection when I asked them to shoot the video again. We could easily allocate the necessary time for everyone's videos." (Angelina)

"The online video helped me a lot as I had the opportunity to rehearse before recording." (Valentina)

"Teaching skills"

The participants also referred to the skills that they acquired through the process of online microteaching. Firstly, they valued the adaptability that this whole process offered them.

"The distance learning process of microteaching, as difficult as it seemed at first, made us flexible teachers, ready to adapt to the new circumstances." (Emilia)

"With distance learning, we became more and more accustomed to the idea of adapting to every circumstance that is likely to happen." (Eliza)

"Technology learning"

Additionally, they have learned not only to use new technological applications through online microteaching.

"I learned to work under difficult and unprecedented conditions and to handle various technological applications that I was not previously familiar with." (Lily)

They also familiarized themselves with the distance learning methodology.

"We gained positive elements such as how to work remotely, as well as the various ways we can make the lesson in distance education interesting in case we need to use it in the future." (Angelina)

Difficulties of online microteaching

"Feelings"

Regarding the second research question (what are the challenges that online microteaching poses to student teachers), the participants mostly mentioned the anxiety caused by multiple sources.

"My feelings were initially mixed. It was quite stressful, as I had never done anything like it before." (Stella)

"There was definitely stressful, but I think I managed it properly, and I did not take it out to my students. I did though several walks due to the stress, something I have to manage a little better." (Valentina)

"Initially, before my teaching, I was quite anxious as I thought I could not do my lesson as I wanted due to technical problems (which were later solved). After doing some rehearsals on how I wanted to do my lesson, my mood and self-confidence were boosted." (Athena)

"I also had stressful thoughts about teamwork with people I didn't know since I did not know any of my colleagues with whom I had to cooperate." (Rebecca)

"Anxiety was created about any internet flaws at the moment as well as my own mistakes in the micro-teaching process." (Angelina)

The online process created, in many cases, an awkward situation.

"We did not know each other, and the first eye contact was made via Skype. We were experiencing unprecedented situations during the lockdown, but because we had a common goal, the awkward climate became very cooperative and pleasant. In general, the cooperation was perfect despite the distance. There were mixed feelings because we did not know each other at all, and within a few minutes, we had to know each other and do the teaching as well. At this point, I want to say that the video of the micro-teaching was shot with a single attempt, something in which the positive atmosphere and the very good organization (excellent topics and teaching material) contributed." (Thomas)

"The first communication with the girls via Skype was something quite embarrassing for me. I was generally tense in our conversation and waited for the girls to talk first, give ideas, or arrange anything. I kept asking myself, 'what do I do here with three unknown students, and what impression will they have on me?'. I thought they would prefer to be with another girl instead of me, etc. Also, when we did the test presentations, it was difficult for me to say everything I thought could be improved to avoid offending them. I think the girls thought the same for me and everyone." (George)

"Technical difficulties"

The technical difficulties were also quite stressful and caused procedural problems and difficulties in teaching-learning.

"The greatest difficulty I had in achieving my microteaching was the technical problems I had." (Victoria)

"Perhaps the only difficulty we encountered was the poor internet connection and consequently the fact that we had to stop recording many times and get the video back from the beginning." (Lily)

"The main difficulty we faced was with the internet connection and that we had to get it back from the beginning, but my classmates were very positive and cooperative, and we helped each other enough to get the best result we could." (Emilia)

"There were many difficulties during the micro-teaching video recording, on the one hand with the sound and on the other hand with some special features of the platform, e.g., when someone shared his/her screen, such as the lack of simultaneous eye contact with all participants in the call." (Ellie)

"The poor quality of the connection was a big problem, and my colleagues had a hard time listening to me, but we managed to work together despite the difficulties I was facing." (Valentina)

"I wasn't able to see when and who raises their hand." (Stella)

"The difficulties I faced in this form of microteaching were how to use the materials online so that they can be seen in the video and both myself and my students to be visible simultaneously. Another thing that made it difficult for me was that when I was sharing the presentation on my screen, I could not see the students and their facial expressions and directly contact them. I had to find a way of alternating between the 'windows' and that this alternation was not visible in the video because it would be distracting". (Emilia)

"Comparison to in-person microteaching"

Moreover, the participating student teachers think that the online microteaching process cannot be compared to the in-person process.

"I cannot say that distance online microteaching covered 100% the in person, but everything was done in the best possible way." (Evelyn)

"The absence of interaction and immediacy is not intertwined with human nature." (Penelope)

"Clearly, if all this were done in person, there would have been better organization and preparation on my behalf, and the interaction with the students would be more intense." (Athena)

Finally, according to the participants, the online microteaching process caused significant time loss.

"Time was not used well enough, meaning that we wasted time on all sorts of technical difficulties where we could do other, more constructive things." (Penelope)

Both advantages and disadvantages

It is worth mentioning that some of the participants' reflections also contained elements that could not be categorized so clearly under advantages or challenges/difficulties but had a rather mixed character.

"Interaction"

Regarding the element of interaction, some of them have written that:

"I also believe that the dialogue and discussion during the lesson was not lost, even though it was online." (Margaret)

"I would say that it was different from actually being in a room, but it was implemented successfully. We certainly lacked the great interaction one will encounter in the same space with other people, but it ended up nicely after all." (Rebecca)

"Session recording and screen share"

Also, the participants had an ambivalent view concerning the more technical aspects of the online microteaching process (such as session recording and screen sharing)

"The fact that we had never used these media and did not know how to share the screen or how we could record the video was difficult at first, but we adapted easily." (Emilia)

"But in the end, it was successful because everyone had the opportunity to review some elements that s/he did not like and re-record their teaching, something that would not have been possible in an in-person microteaching." (Anastasia)

"There were many difficulties that I encountered during the online micro-teaching, especially when someone shared his/her screen, because of the lack of simultaneous eye contact with all participants in the call." (Ellie)

"Time management"

Although time management is believed to have a negative effect on the online microteaching process, it is not exclusively negative but has a positive aspect.

"Time was an important factor that worried me because I was afraid that I might not be able to do what I wanted, something that, from what I understood, will always exist throughout our educational career. In other words, I did not expect it would be so difficult to deal with the 'available time'." (Ellie)

"I think that a great advantage of online microteaching is its flexibility since it offers the opportunity to both the instructors and the trainees to organize their own personal program and consequently to be able to attend the course. " (Margaret)

As can be understood by the experiences mentioned above of the participants, of particular interest regarding the online microteaching process are the elements of "student visibility", "adaptability," and "video review" mentioned by Ellie, Stella, and Emilia. To further explore some prompts given by these participants' references, semi-structured interviews were realized with these three participants so that more information could be derived.

Interviews

"Student visibility"

Regarding the element of "student visibility," Ellie mentioned the following:

Q: How did screen sharing exactly prevent eye contact?

A: "When I asked a question, we had not prepared in advance who would answer the question. It was supposed that the children would actually raise their hands to answer. But I couldn't see and therefore did not know who raises their hand each time."

Q: Did you predict this could have happened, or did you realize it during the microteaching video recording?

A: "No, I did not understand it at that time. Because even the first time we recorded the session and were out of time, I was late because I could not see who raised their hand, so I waited for the icon to appear to see who raised their hand. And then, when we realized that we were wasting a lot of time and, somehow, we had to fix it, we said that whoever appeared in my icon at that moment should raise his hand, because the girls also saw who appeared in my desktop."

Q: Did you close the session, speak out of the record and arrange to do so?

A: "Yes, exactly."

Q: So, in essence, you defined who will speak ...

A: "Yes, something totally wrong from an educational point of view, but I didn't have the immediateness of seeing who raises their hand. Therefore, I asked one of the girls, and they weren't able to answer, and they said, "But... we haven't raised our hand". That's how we understood this problem exists because it wasn't clear from the beginning that we had such an issue."

Stella also added an interesting element regarding the online sharing of presentations.

Q: Did the video prevent you from having a good picture of student participation? If so, in what way?

A: "It was pretty distressing because I was sharing a PowerPoint presentation, and the only thing I could see was one student in the lower right corner. No one else was visible."

Q: What problem did this create for you?

A: "I could not see when they raised their hand. I sometimes had to ask specific students, which was not right in the end. That is, it might have been better if I had shown the material on the screen from a distance. I just did not know what it would look like. If I stuck a piece of paper in the closet, I could not be sure what I was writing would appear. I wanted the girls to see and understand exactly what we do. I would make the shapes in mathematics, but it would be a bit meaningless. I would have nowhere to give them, to make some observation, nothing. I think it would not work out well."

Emilia progressed this whole rationale a step further.

Q: How did the online use of the material hinder your "visibility"?

A: "When I was sharing my screen, I could not see the students. When I teach, I want to have direct contact with children because even from their stares, I can understand what is wrong if they did not understand something and I have to say it again. That is, the fact that I could not see that everything was okay made it difficult for me to interact with them. I didn't know if I might need to stop or if there was something they wanted to ask me. I could not see them. While sharing my presentation, I just had to talk, and those behind just listened passively. I don't like this."

Q: So, it prevented eye contact and facial expressions. Did you try to manage this at all?

A: "I was trying to find a way to switch between the windows so that it doesn't appear in the video. Every time we switched, except that I had to go very close to the screen to see them, then go back to the table and back and forth again, and the change was also visible in the video. I kept saying to myself, 'there must be something that does not show this,' and finally, I found it. You can share only the ppt. file and not the entire screen. So, I shared only the ppt., which showed on the screen only this and nothing else I did on the computer, so I could switch between the windows without being visible. In this way, I could see all the girls simultaneously. I just had to switch between two windows, one of the ppts and one of the Skype call that contained all the girls. This situation made it eventually very easy for me because I showed what was needed on the ppt. Then I went to the other window on my computer that contained all the girls to see who raised their hand and wanted to answer without me having to indicate a specific person."

"Adaptability"

Regarding the theme of "adaptability", Ellie stressed the element of adapting lesson planning in the available time.

Q: On the subject of time, how do you think our lesson helped you?

A: "In general, with time, I have an issue (laughs). I realized that I had put things in my plan that could not fit in fifteen minutes of microteaching. Then, I realized that the same would happen in a full teaching hour, so I had to cut out some

things. I cut some other things I wanted to do and finally did what I did. All this made me see in practice that you should always sacrifice something because it is not possible to fit everything in one teaching hour; you have to be more selective."

On the other hand, Emilia underlined flexibility towards various challenges.

Q: Did distance learning enhance your adaptability? If so, in what way?

A: "It allowed us to deal with some new things. We teachers must be flexible; in new challenges, we must be ready to face whatever comes our way."

"Video review"

Finally, concerning the theme of "video review", Emilia made the following remarks:

Q: What do you mean 'we had to do it all over again?' Did this have a positive or negative effect?"

A: "We had the chance to record the Skype sessions more than once to appear as good as possible. On the one hand, that was positive, but on the other hand, the authentic is definitely the best. I mean, on the one hand, it was good that you could improve some things hypothetically, but I think the first shot with all its difficulties came out better than the rest, while in the others it was much more 'industrialized', more automated, a bit like a robot."
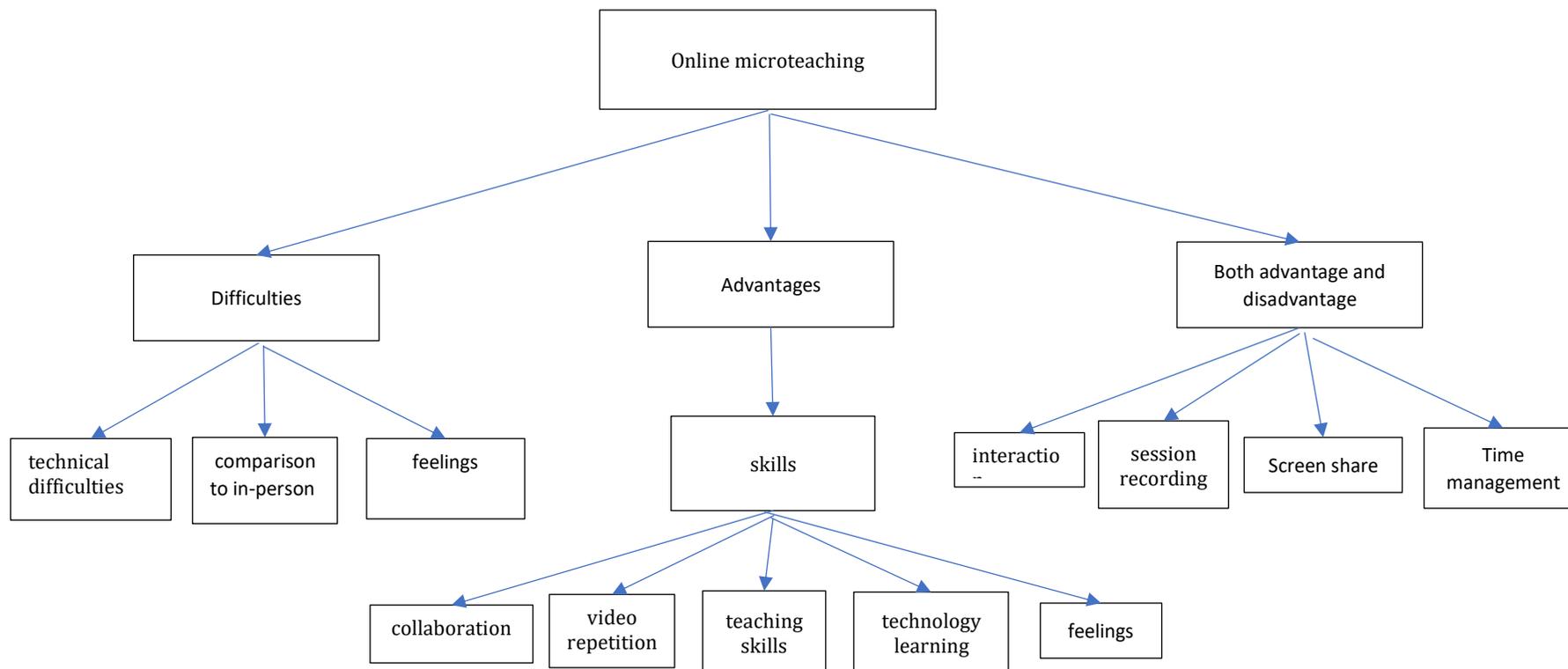
Figure 1. Final Coding System/Schema

Discussion

The goal of the current study was to investigate student teachers' experiences from the compulsory video-recording of their microteaching during health measures of lockdown during the Covid-19 pandemic. This unprecedented health crisis created multiple challenges for all educational settings, particularly for teacher education.

Regarding the first research question (advantages of online microteaching before and after its implementation), it should be mentioned that the finding of enhanced "technology learning" through online microteaching has been found in Bodis et al.'s (2020) study. This finding is somewhat expected since students were "forced" to come to terms with the use of online means. Also, the results of acquiring various teaching skills have been found in other studies (e.g., Bell, 2007; Saban & Çoklar, 2013). Moreover, the participants think that online microteaching contributed to the collaboration with their fellow students, an element that is not present in regular/conventional microteaching classes. This finding has not been found in other studies, constituting an original contribution of the current research to the relevant literature. This finding could be attributed to the fact that, because of the online implementation of microteaching, they had to get in touch for their group work. This implementation is not compulsory for in-person microteaching, which can be viewed positively as a teacher must have high collaboration skills. Also, as the current study's findings reveal, the elements of rehearsing their microteaching collaboratively and re-recording it multiple times (if needed) are unique to the online microteaching framework.

Regarding the second research question (challenges that online microteaching poses to student teachers), the participants mentioned mainly the anxiety caused by multiple sources. The main element that caused such anxiety was the technical difficulties (e.g., poor internet connection, lack of a personal computer, etc.). This finding is somewhat unexpected for students of that age, and it reveals the necessity of the widespread use of fast internet and new computers for all students. The anxiety caused by such problems was evident in the participants' responses. This finding can be compared to those of Ersin et al. (2020), who have also underlined the element of initial anxiety caused by this whole process.

On the other hand, it contradicts the findings of Buyukkarci (2014), who found that video-based microteaching reduced student teachers' anxiety. As the second analysis revealed, the anxiety was caused not only by the technical difficulties but also by the collaboration with fellow students and the comparison to the in-person microteaching process. Suppose this finding is combined with those from the first research question -regarding collaboration as the main online process's advantage-. In that case, it reveals the participants' rather contradictory and ambivalent attitude towards collaborating with their fellow students. The findings mentioned above are strengthened if combined with the participants' quotations regarding their initial anxiety and "forced collaboration", which gave way to a fruitful "encounter". For the further exploration of this suggestion, a third-level analysis was performed correlating codes to the five teaching skills the participants practiced in the framework of the module. It seems odd that "collaboration with fellow students" was numerically associated mostly with "lesson starting and ending" and "students' concentration" and not with "interaction" or "humor," both of which also presuppose high levels of collaboration. A possible explanation may be that the latter was towards the end of the module, suggesting that the partnership has been made somewhat natural to the participants and their sense of community was progressively stronger. Based on all the findings mentioned above, it can be inferred that the initial anxiety the participants had seems to have decreased through the online process. Finally, the sense of community was boosted, which appears to be in line with the findings of Bodis et al. (2020).

Of particular interest are the elements of "student visibility", "adaptability," and "video review" that were reported by some of the participating student teachers. Interviews with them revealed a detailed view of the students by the teacher and how the lessons' presentations were shared online. Limitations of online applications prevented constant eye contact and facial expression, necessary elements of in-class interaction. Also, the teacher could not be visible during the online material presentation, an element that was rather unpleasant for the students. However, the participants were able, after all, to collaborate and find ways through which they could be visible and interact with their students as much as possible. These findings don't seem to corroborate those of other studies indicating a high degree of originality.

Conclusion

The fact that participants engaged in reflective practices and managed to think about their adaptability and teaching practices are original findings of the current study. At the same time, they confirm that adaptability and flexibility are key skills for future educators. Another original contribution of the present study is that participants found solutions (e.g., the one with windows on Skype) and became more flexible and adaptable, gaining professional knowledge. They were involved in spontaneous solution processes that improved their ingenuity and flexibility. As Ersin et al. (2020) mentioned, "They created a community of practice to develop common meaning, strong ties and enhance professional skills in a participatory and collaborative way." The added value of the current study is that it made it clear that the module could not be implemented without video-based online microteaching. The video was not only something that contributed to the critical reflection of future teachers and was supportive, but it became an integral part of the teaching itself.

Finally, it should be mentioned that the methodology implemented in the current study engaged participants in practice and provided them with guidance to connect theory to classroom practice (Hammerness & Klette, 2015). In addition, this is one of the few studies in which student teachers reflect on their online microteaching courses. In addition, not many studies explore a basic microteaching framework based on online video because, to date, video in microteaching has only been used as a tool for reflection.

Recommendations

As highlighted in the current study, stakeholders in higher education must take the critical role of linking a specific theory with a comprehensive and reflective practice very seriously. Therefore, it would be desirable to plan a professional development pathway or redesign the teacher education curriculum to foster this skill in student teachers (van Geel et al., 2019). Interviews with stakeholders can be conducted for a more holistic approach. Finally, the data from the current study and interviews could be used as the basis for a future mixed-methods approach.

Limitations

The current study, however, comes with certain limitations related mainly to the limited sample and the specific character of the microteaching in the university department that hosted the research. For this reason, maybe teacher education guidelines regarding video-based online microteaching must be agreed upon and instituted by university departments before any other action as the COVID-19 pandemic seems to continue.

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