International Journal of Progressive Education, Volume 17 Number 3, 2021

Views of Pre-Service Mathematics Teachers and Mentor Teachers about School Practicum: A Model for Web 2.0 based Supervision

Ümit Kul [i]
Artvin Coruh University

Selcen Çalık Uzun [ii]
Trabzon University

Sedef Çelik [iii]
Artvin Coruh University

Salih Birişçi [iv]
Bursa Uludag University

Zeki Aksu [v]
Artvin Coruh University

Abstract

The current research was conducted to evaluate the views of mentor and pre-service teachers participating school-based practicum about the effectiveness of Web 2.0 based supervision. The implementation process with a pilot study in the research lasted two years. In the pilot study, the evaluation of school-based practicum was made within the meetings among the lecturer and preservice teacher at the faculty. It was found that there should be an environment independent of time and place to give feedback to preservice teachers during the practicum. In this context, four of the groups of pre-service teachers were randomly selected. A responsible lecturer and mentor teacher were assigned to each group. Google Classroom environment was created to offer pre-service teachers an opportunity to receive feedback from different stakeholders such as a lecturer-mentor-preservice teacher. During the school based practicum, preservice teachers recorded their teaching practice in class and shared their teaching videos in online environment. The data obtained from tools such as video recording of classroom practice, online discussion and interviews were evaluated in the qualitative analysis program. As a result, it was determined that school based practicum in the online environment has its weaknesses and strengths. It was discovered that preservice teachers and teachers have differing views as well as overlapping views. In light of all these views, suggestions regarding school based practicum were made for a model for Web 2.0 based supervision.

Keywords: School Practicum, Web 2.0 Environment, Mathematics Teaching, Feedback, Pre-service Teachers

DOI: 10.29329/ijpe.2021.346.7

---

[i] **Ümit Kul,** Assoc. Prof. Dr., Mathematics and Science Education, Artvin Coruh University, ORCID: 0000-0002-3651-4519

Correspondence: umitkul@artvin.edu.tr

[ii] **Selcen Çalık Uzun,** Assist. Prof. Dr., Mathematics and Science Education, Artvin Çoruh University, ORCID: 0000-0002-2178-6642

[iii] **Sedef Çelik,** Assist. Prof. Dr., Mathematics and Science Education, Artvin Coruh University, ORCID: 0000-0002-9242-8009

[iv] **Salih Birişçi,** Assist. Prof. Dr., Computer and Instructional Technologies Education, Bursa Uludag University, ORCID: 0000-0001-7131-5112

[v] **Zeki Aksu,** Assoc. Prof. Dr., Mathematics and Science Education, Artvin Coruh University, ORCID: 0000-0001-6839-6847

INTRODUCTION

Education holds various essential functions such as socializing, gaining personality, having the knowledge and skills required in life, and acquiring a profession. Besides, individuals mostly benefit from their teachers to achieve these functions throughout their education life. However, sometimes we may encounter situations where teachers' help is insufficient. The statement "I had to learn to teach after I actually started teach" is the most striking indicator that there is a conflict between the theoretical knowledge taught in teacher education programs and the application and that the advisors in the university and the mentor teachers in the schools cannot meet the requirements of preservice teachers. The way to resolve this incompatibility is by establishing links among the theoretical knowledge taught and classroom practices at schools (Bulunuz & Bulunuz, 2016).

Preservice teachers gaining professional skills is a team job. The theoretical knowledge they learn at university or their applications is inadequate. Consequently, by providing professional competence development of teachers in the Faculty-School cooperation (CoHE, 1998) within the framework of preservice education process implemented in Turkey, it is aimed to gain the ability to apply theoretical knowledge they have obtained in a real classroom environment and to adopt a positive attitude towards the teaching profession (Akgün et al., 2015). The organization of the communication and information sharing process among stakeholders is essential in ensuring this model's functionality. Yet, preservice teachers may face several problems during the applied training process. Throughout the teaching practice process, preservice teachers not getting feedback concerning their practices and lesson plans, insufficient practice, communication problems with the application instructor and mentor teacher, inability to establish a connection between the theoretical knowledge learned and school practices (Boz & Boz, 2006; Arkün, 2011; Unver, 2016) can be listed among these problems (Cepni & Aydın, 2015; Demir & Camlı, 2011; Simsek, Alkan, & Erdem, 2013; Taşdere, 2014; Yeşilyurt & Semerci, 2011). It was also discovered that preservice teachers were not adequately counselled by coordinator faculty members (Aydın & Akgün, 2014). In this context, it is perceived that not providing sufficient feedback to preservice teachers is related to all in education faculty. In another research examining the opinions of preservice teachers on teaching practice, it was concluded that they did not gain sufficient practice opportunities and that sufficient feedback could not be obtained concerning the practices (Eraslan, 2009). As a result of the research, the feedback-correction process, which will be carried out in regulating the limitations in question by ensuring cooperation between stakeholders in field experiences, should be considering the stage that needs attention.

The feedback-correction process on preservice teachers' performances concerning their field experiences plays an essential role in their professional development (Hurioğlu, 2016; Shantz & Ward, 2000; McFadzien, 2015). An online model that brings together the trio of instructors, mentor teachers and preservice teachers was introduced during the school implementation process to reduce the experienced problems in the faculty-school cooperation process (Arkün, 2011; Arkün-Kocadere & Aşkar, 2013; Gökmen, 2015; Ozan & Odabası, 2016). Using social media platforms, which are of great importance nowadays, can help overcome the current problems in the applied lessons (Akgün et al., 2015). Particularly, Web 2.0 applications, which have become one of the rapidly advancing internet-based technologies in recent years, will make a significant contribution to ensuring cooperation among stakeholders by facilitating the change of ideas and information (Durusoy, 2011; O'Reilly, 2007). Google Classroom is one of the online environment. The classes created with Google Classroom, having a web 2.0-based working principle, maintain the communication among the teacher and the student with the homework, content sharing, and the feedback process it provides. Based on the importance of students, instructors, and mentor teachers' collaboration to carry out the teaching practice process efficiently, a Web 2.0-based online teaching application was implemented in this study.

It is believed that Web 2.0 based supervision applied within this research scope will bring an alternative dimension to the teaching application process regarding its importance, mainly in the preservice education process. In this study, it was aimed to reveal the opinions of preservice teachers

and teachers who participated in the practice, for determining the effectiveness of getting feedback in a Web 2.0-based online environment, which is implemented to increase the effectiveness and function of the teaching practice course. Therefore, an answer to the following research question was sought:

- What are the opinions of preservice teachers and mentor teachers about Web 2.0-based supervision? How do these views differ?

Theoretical Framework

Teaching is a respectable profession that undertakes essential duties in transmitting social values to future generations, such as bringing existing knowledge to individuals who require it. The teacher is the most crucial power that allows students to develop their talents and grow up with knowledge, skills, and values that are beneficial to themselves, the nation, and humanity (Demirel, 2012). Acknowledging that a nation can gain strength and value through the effective use of knowledge, it is impossible not to recognize how education and teachers' concepts are important for a nation. Consequently, to increase the value of a society, it is essential to enhance teachers' qualifications first. Since teachers are the most critical element of the education system, the obstacle of raising qualified teachers is always up to date. Studies on determining teacher competencies in Turkey officially started in 1998. As a result of long-lasting studies, they were presented in a comprehensive report in 2017 (General Directorate of Teacher Training and Development, 2017).

In this report, the areas where the general competencies of the teaching profession will be applied in teacher training and development processes are defined as preservice teacher training, teacher employment, preservice teacher training process, self-evaluation, performance evaluation, career development and rewarding, and continuous professional development (Figure-1).

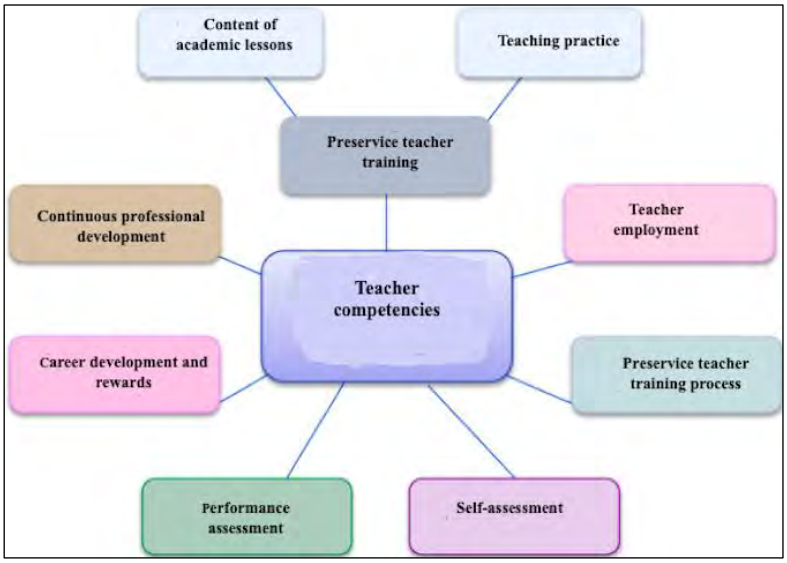

Figure1.Usage areas of teacher competencies (General Directorate of Teacher Training and Development, 2017)

The report notes that it is crucial to improve the competencies of preservice and in-service teachers. The preservice teacher training process, which is among these indicators, is defined as a training area, and the theoretical and practical training is emphasized (Unver, 2016). For preservice teachers to provide professional competencies and be trained expertly, the academic courses conducted in a theoretical context should be well evaluated. In this sense, following theoretical courses as Special Teaching Methods-I-II, Assessment and Evaluation, Instructional Technologies and Material Development and Classroom Management that preservice teachers have taken in their undergraduate education, School Experience, also Teaching Practice courses are offered, which allow them to reflect

the knowledge in this context practically (COHE, 1998). For training qualified teachers, it is thought that the contents of the courses in question should be updated, new practices should be carried out, and the results should be evaluated.

Unquestionably, teachers treasure the lessons they practiced the most, primarily from the lessons they received before the service (Büyüksahin & Sahin, 2017). Among the branch, pedagogical and practical courses, the teaching practice course, a preliminary study in the profession, is the crucial one where unforgettable experiences are undergone (Paker, 2008). Yet, the question remains. Is the teaching practice lesson adequately conducted? Does it achieve its purpose? Many studies in the literature aim to find answers to these questions through teacher candidates' opinions on teaching practice lessons. When these studies were considered, it was determined that the candidates were aware of the importance of the course but thought that the course was not efficient due to several reasons (Batman & Saka, 2019; Karasu Avcı & Ibret, 2016; Eraslan, 2009). Collectively, these reasons cause the teaching practice lesson to become insignificant. Kazu and Yenen (2014) identified the faculty-school cooperation program's problems that generated the teaching practice course to be considered insignificant. One of these problems was asserted as the application lecturers' inability to provide the required feedback and corrections to the candidates on time. Ayvacı, Ozbek, and Bülbül (2019) emphasized the feedback process provided by the responsible mentor and instructor throughout school applications and point out the significance of preservice teachers' gaining professional experience. Likewise, Paker (2008), in a study conducted to determine the problems encountered by preservice teachers with the guidance of mentor teachers and in-service lecturers, preservice teachers declared that the course they were observed was not well planned and that they could not provide enough feedback for their lectures. It is thought that preservice teachers require feedback from teaching staff, and this problem will be reduced via planning the teaching practice lesson by centering the feedback process.

The literature is in a consensus on the implementation of the Teaching Practice course under its purpose and practice in terms of the measures that can be taken to improve the teaching profession's quality. When the studies are considered, various models are suggested and/or applied for the functioning of the lesson (Bulunuz & Bulunuz, 2016; Baki & Arslan; 2015; Arkün-Kocadere & Aşkar, 2013; Tunc-Pekkan, Karagöz Akar & Akcan, 2019). Besides, it can be understood from the literature that the pre-service teachers did not receive any feedback concerning their teaching, or the feedback they received was not effective. In this sense, beneficial feedback by observing the teaching practice of pre-service teachers is required. Thus, it is aimed to ensure the functionality of the feedback mechanism within the activities by conducting the teaching practice process, which is held within the scope of the research in the Web 2.0 based supervision among the participation of all stakeholders.

METHOD

Research Design

In this study, which was carried out to examine middle school preservice mathematics teachers' teaching practice processes and mentor teachers in an online environment, a case study, one of the qualitative research methods, was conducted. Based on the experiences of preservice teachers and mentor teachers in this process, the factors concerning the online environment's teaching practice process were discovered. Case study, factors related to a situation (environments, individuals, events, processes, etc.) are examined in a holistic approach (Merriam, 1998) and focuses on how they affect the relevant situation and how they are affected by the relevant situation (Yildirim & Simsek, 2011).

Participants

This research consists of two stages as the pilot study and the main application. In the pilot study of the research, a state university's mathematics teaching department in the Black Sea region in

the spring semester of 2017-2018 academic year covers the 4th-grade preservice teachers. In the main study, the participants consisted of the mentor teachers in the assigned schools and the preservice teachers studying in the 4th grade of mathematics teaching department in the 2018-2019 academic year. During the research process, four application schools were defined, and it was planned to assign four students to each school. Thus, the participants of the study consist of 16 preservice teachers and four mentor teachers. Still, since participation in the study should be voluntary, two mentor teachers took part in the online teaching practice process but did not comment on evaluating the process.

Implementation

In this study, in which the implementation period was two years, teaching practice activities were carried out in two stages as a pilot and main study. Per the pilot study's scope, the teaching practice activities were carried out in a face-to-face classroom environment, and the main study in an online virtual environment. The researchers took an active part in both stages, and their roles in this process differ. The roles of bringing preservice teachers together in the faculty for pilot study have evolved to bringing preservice teachers and teachers participating in the practice online in the main study. In both studies, the researchers, who were the lecturers of the course, gave feedback to the candidates of their activities in teaching practice concerning their mathematics lectures. The feedback process includes classroom management throughout the candidates' lectures, the teaching of the subject and the conceptual errors in this process, the evaluation of the course, etc. While the researchers gave feedback, they created a discussion environment in both studies and provided peer evaluations. During the pilot study, feedbacks were provided in the meetings held at the faculty members' offices by determining the appropriate hours for the preservice teachers and faculty members. Since the appropriate time and place cannot be created, it was not performed in the practice school. The meetings were held with approximately 40-50 minutes of video recording. Thus, the opportunity to be watched later was created. In the main study, a new plane was created due to the pilot study results. A flexible feedback process has been ensured by designing an online environment where other preservice teachers, in-service teachers, and lecturers in the group are involved. In this sense, a group of four preservice teachers was randomly assigned to the lecturers who will attend the course within the teaching practice course scope. The main study was carried out with four separate groups. Together with these preservice teachers, the mentor teachers also participated in the online environment, intending to have various stakeholders in the same environment. Since the pilot study data laid the groundwork for providing feedback online, this situation became more evident when the preservice teachers expressed the obstacles and suggestions concerning the application and the contribution of the application. As a result of the practices within the pilot study's scope, the general view about the opinions of the preservice teachers in the feedback process they had together with their peers and teaching staff is depicted. Accordingly, it was reported that the candidates saw their shortcomings, had the opportunity to do self-criticism, but could not realize them. They owned various perspectives by hearing from their peers, and the application lecturer about the deficiencies and mistakes that might have been neglected. Thus, they put right their mistakes and made up their deficiencies. Following the pilot study, the second phase of the research, namely, the main study process, was carried out to include different stakeholders. The candidates, who accepted the application to continue, thought that the process would be improved and be more beneficial with suggestions such as the involvement of mentor teachers in the process, and discussion of feedback in an environment independent of time and place. In this context, firstly, an online feedback-correction environment was provided by creating a setting in which each instructor had preservice teachers belonging to his/her group in the Google Classroom. After the preservice teachers uploaded the video regarding the lectures, they evaluated themselves by self-criticism, and then the other candidates evaluated their peers who performed presentations. In the online environment, the instructor took on the role of the moderator while the preservice teachers were evaluating each other. In other words, the instructor was in the position of moderator directing these discussions. Another role of the lecturer is to create the required discussion environment for the preservice teachers to recognize the conceptual mistakes done during the lecture. The preservice teachers were encouraged to recognize each other's mistakes and make suggestions or constructive criticisms on how mathematics teaching could be.

Thus, an interactive environment was created for preservice teachers to assess each other in the online environment.

After the preservice teachers' lecture process at the school was video recorded, it was shared online. Besides, the preservice teachers shared the plans, worksheets, and activities of the lessons they taught online. Consultancy (feedback-correction) was provided in an online environment within the 14-week teaching practice course scope. The classroom lecture-performances of each candidate were monitored weekly and evaluated in the Google Classroom environment by the advisor, instructor, and other group members.

Data Collection Tools

The semi-structured interview technique was applied in the process of collecting data on research participant views. One-on-one interviews were conducted with 16 preservice teachers and two mentor teachers. These interviews lasted about 30-40 minutes. The interviews documented by taking audio recordings under the participants' permission were later converted into written transcripts and taken as the research data.

Data Analysis

The analysis of research data initially started from student opinions. Themes were created with the data obtained from student views. The researchers first evaluated the written data individually and created codes for the data. Then, the researchers combined the codes and formed themes. For example, technical difficulties, anxiety, procedural problems, etc. experienced in video shooting to upload it online have been classified as the theme "shortcomings" of making an online evaluation. Therefore, four different themes have emerged concerning the evaluation of the online environment. These themes have been recognized as the strengths and weaknesses of giving feedback online, the preference for receiving feedback online, and suggestions on how to get better feedback online. After the analysis of student opinions, teachers' opinions were evaluated. Teacher views were analyzed by these four themes obtained from student views. Still, according to these four themes, while some sub-themes are the same, others may differ. For example, it was determined that while there was a code named "evaluation of stakeholders" in preservice teachers' opinions about the strengths of the online environment, there were codes such as "giving students time to see their mistakes" in the online environment. In determining the codes in teacher and student opinions, researchers discussed the incomprehensible codes. The flow reflecting the formation of themes from codes is given in Figure 3.

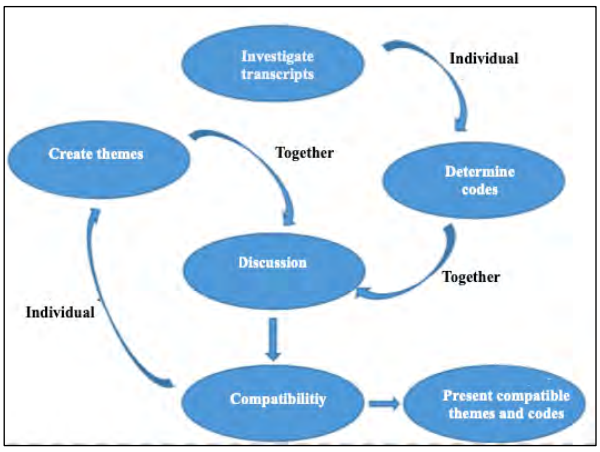

Figure2. Data Analysis Process

Obviously, the data analysis process was performed in a loop. Consequently, the researchers agreed to clarify the codes, sub-themes, and themes. Findings were confirmed by quoting the opinions of teachers and preservice teachers who participated in the application. In performing the findings, the

teachers participating in the application were coded as "T1, T2", and the teacher candidates as "P1, P2". The data set obtained analyzed in the MAXQDA Analytics Pro 2018 qualitative analysis program.

FINDINGS

Findings reflecting the opinions of middle school mathematics preservice teachers and mentor teachers concerning the evaluation of the process of conducting the teaching practice course online are shown below. The findings related to the process were evaluated with the help of hierarchical maps reflecting the views of preservice teachers and mentor teachers. The themes and sub-themes included in the maps were detailed by supporting one-to-one quotations from the candidates' and teachers' opinions.

The themes and sub-themes included in the maps were detailed by supporting one-to-one quotations from the candidates' and teachers' opinions.

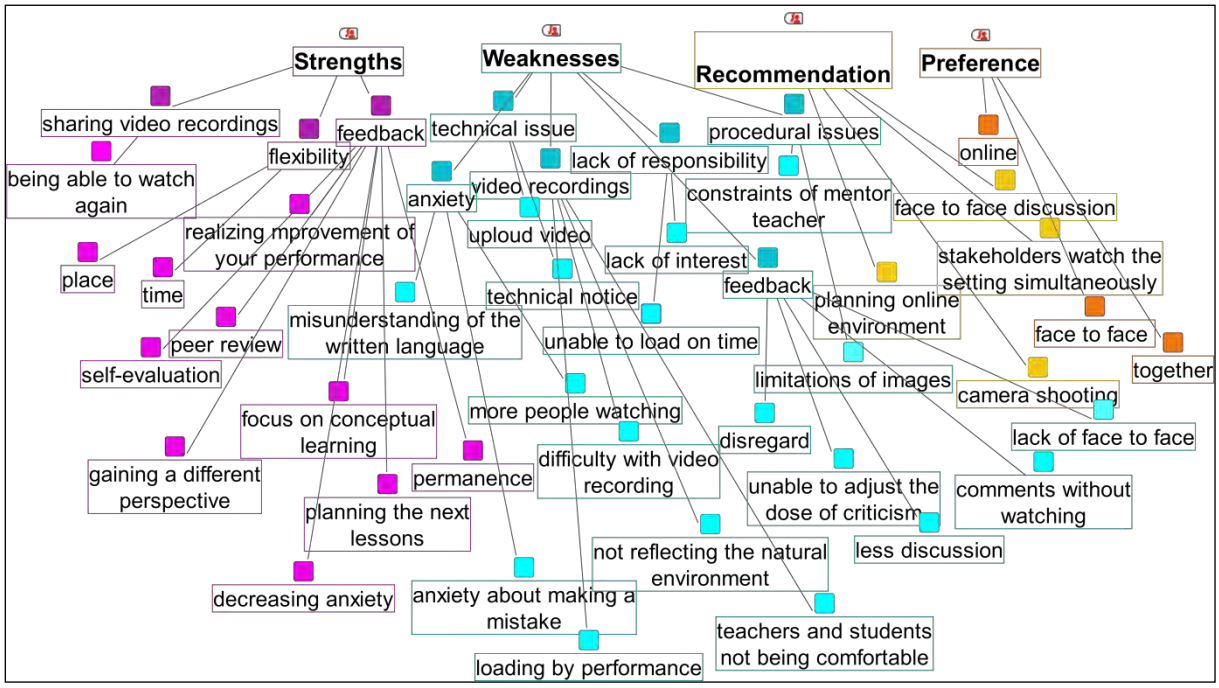

Figure3. Map reflecting the views of preservice teachers in the pilot study

When studying Figure 3, the preservice teachers' views regarding the application carried out in the online environment are gathered under four themes: *the weaknesses of the application,*, *its strengths,* the recommendations *for the application,* and *the preference* for the application. While the candidates mostly make explanations about the strengths and weaknesses of the application, it can be said that they have fewer suggestions concerning their preference to receive feedback-correction in the online environment and how this environment can be.

Figure 4 shows the map formed by the mentor teachers' views on the process. Teachers' views were gathered under the same themes as preservice teachers. Still, the suggestions of the teachers who participated in the application for better management and more efficient passage of the process stood out. In other words, it can be assumed that teachers have more striking opinions about the suggestions for the elimination of these aspects by expressing the deficiencies of the application carried out online.

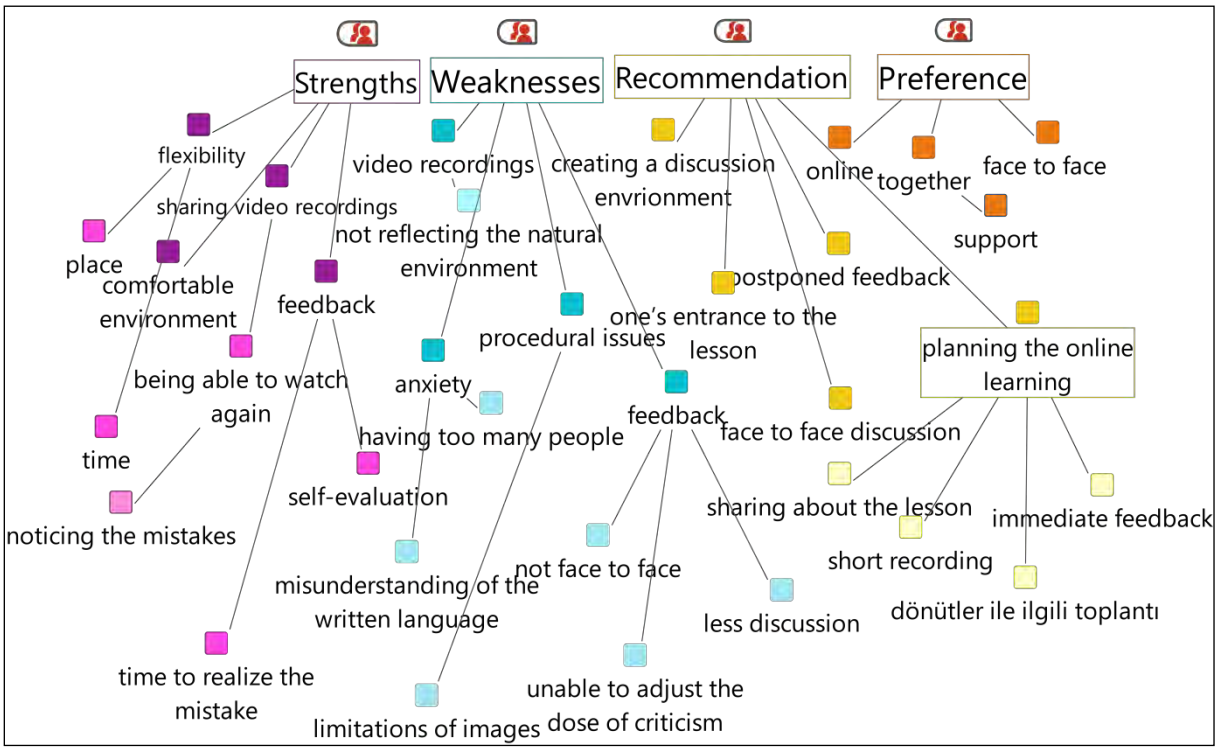

Figure 4.Map reflecting the views of mentor teachers about the process

Although the views of the preservice teachers and teachers overlap as themes, they vary in sub-themes. In the following section, teachers 'and preservice teachers' similar and different views on the process are covered according to these four themes (strong, incomplete, preference and suggestion).

Strengths of the Application

It was discovered that preservice teachers and teachers had diverse opinions and similar views concerning the application carried out online. It was observed that the preservice teachers emphasized the online environment's strengths more than the teachers who participated in the practice. The opinions of preservice mathematics teachers tagged *with the theme of strengths of the application consist of sub*-themes *of sharing* video recordings, flexibility, and feedback. The preservice teachers found it beneficial to share the video recordings online for noticing their performance improvements and watching them again. Likewise, the teachers who participated in the practice found it useful to share the video recordings to watch them again. They stated that sharing and watching video recordings online will contribute to the preservice teachers' deficiencies. T1 coded teacher saying, "*It is something different for the preservice teacher to watch oneself. If we record and watch ourselves, we can recognize many aspects of us that we cannot notice"* supports this situation. Teachers stated that sharing videos online would contribute to preservice teachers' self-evaluation, but also stated that it did not contribute much to their performance improvement. Unlike teachers, most of the preservice teachers declared that getting feedback online contributed to their awareness of their performance improvements. The preservice teachers stated that they focused on the problems related to classroom management at the onset of the application process, then with their feedback, focused on teaching mathematical concepts. For them, the mathematics teaching process specific to the acquisition varied, so the preservice teachers focused on concept teaching. They also emphasized that the feedback given by various stakeholders assisted them to focus on conceptual learning. According to them, field experts (faculty members who teach the course) have more influence on their focus on conceptual learning. As a result of the application, P14 coded preservice teachers saying, " *With the training I received, I realized how important even a small subject is. I also understood that knowing mathematics is not enough to explain it. I saw that everything has a conceptual cause, proof of*

everything is based on somewhere, and the student needs to find it" reveals that he has developed an awareness of the importance of conceptual learning. Besides, preservice teachers who received feedback in the online environment stated that the process of planning their following lessons by focusing on conceptual learning has also improved. Because the comments made online are permanent, and they can reread the comments to correct their mistakes. Thus, they have made the following lesson plans by looking at the previous comments written in Google Classroom. They emphasized that if a face-to-face feedback environment was formed, the feedback given by various stakeholders would not be permanent and would not directly contribute to the next course preparation process. Consequently, it is understood that feedback from various stakeholders in an online environment provides the preservice teacher a distinct perspective. The preservice teachers also stated that if they and their peers, together with different stakeholders, receive multiple comments online, they can better realize their mistakes. For example, the statement of the P5 coded preservice teacher as *"I watched it over and over and saw my mistakes, this is the first positive aspect. The second aspect is that it is online. For example, if you had come to the practice school, only one person would come. I would only see the errors you noticed. Yet, when the evaluation is made online, at least 4-5 people can comment. In this way, we can get multiple comments; a thing missed by someone can be noticed by someone else …*" confirms this situation.

Preservice teachers and teachers found it beneficial to share video recordings online since it provides flexibility in space and time. For example, the P8 coded preservice teacher's statement as "*You could evaluate us every week. So, we had feedback corrections every week. We saved space and time; yes, it is advantageous in this regard…"* statement supports this situation. Besides, the P4 coded preservice teacher's statement as, *" There are certainly many positive aspects. We don't have a lot of lessons at school anyway, we come once or twice a week. This application really saves a lot of time. We already have a transportation problem. See, P1 stays in Seyitler, his transportation is a problem and so on...I think there is a better environment ing time…"* supports this situation. Likewise, the T2 coded teacher expressed the online feedback process's flexibility in terms of time and space by saying, " *"He can watch videos wherever he wants. He can watch in his house, or on the road... He can watch while traveling, shortly one can always watch it, anyway. It is something that can be watched as long as there is internet access…"*. Also, the teachers emphasized the online environment's strengths by expressing that a more comfortable environment is created online, unlike the preservice teachers.

Shortcomings

According to the interviews for the evaluation of the online environment, the preservice teachers, and the teachers who participated in the application had similar views about the shortcomings of the online environment. These standard views cross the idea that videos do not reflect the natural math classroom environment. The preservice teachers and the teachers emphasized that the preservice teachers and the students were not comfortable while shooting the videos. The preservice teachers stated that they faced many difficulties while shooting the videos, which were uploaded to Google Classroom to get online feedback. Unlike the teachers, the preservice teachers discussed these problems in terms of different variables, such as the difficulties in video shooting and uploading the videos due to the performance. For example, the P7 coded pre-service teachers' " *I am trying to forget the T3 coded teacher while lecturing; it was not just about the camera. So I cannot say, well, our anxiety is increasing, and this is not its bad aspect. Because I don't think it changes anything. So even if you but not the camera is there, we will be nervous likewise. Maybe we will even be more nervous. In that respect, I think the only negative aspect is that we get exhausted while shooting the video. We keep it like this for 40 minutes, the video is being interrupted or so. We have delays in the delivery of videos. We are disturbing you, so I think it might have been more likely to be implemented if there was a more straightforward method…."*

discourse is one of the problems faced by preservice teachers. Besides, since there is no fixed camera in the classroom, the preservice teachers stated that they gave each other the camera, but the shooting was exhausting. Besides, some of the preservice teachers who teach two different lessons

each week choosing the record they performed better and uploading it on the online environment were stated as missing aspects of the application. The preservice teachers believe that the anxiety of making mistakes during the lectures affects their performance, and the teachers support their view. The mentor teachers who expressed similar views stated that too many people shooting or watching the video may create anxiety in the preservice teachers. The preservice teachers' other source of their anxiety was the candidates watching them during the video shooting and the videos being watched by more than one person. For example, preservice teachers with code P2 discourse as, "*Most importantly, we are videotaped, and 3-4 preservice teachers and a teacher observe us from the backside. We are also being videotaped. Well, there is anxiety like 'if I make a mistake, it will be recorded'. Stress increases while trying not to make mistakes and we tend to make more mistakes…"* supports this situation. It confirms that teachers also voice this situation, and too many people being in video shooting or watching from Google Classroom may cause anxiety in the preservice teacher. For example, the T2 coded teacher's "*If there is excitement, a person cannot teach as efficiently as he/she wants. I would be excited too if someone would come and watch me. For example, while I was completing my internship, the inspector came and joined the lesson. Usually, I am a very comfortable lecturer, I do not have any trouble. When the inspector came, I got confused, I forgot what to tell The children are 7th grade; I was telling about the 6th grade... Moreover, as the students did not understand, I started saying, 'Why don't you understand, friends, what is happening to you?'...."* discourse supports this situation. Likewise, it was stated by both teachers and preservice teachers that the comments written to Google Classroom could be misunderstood, and the written language and the verbal language may differ. For example, the P10 coded preservice teacher's expression as, *"I think this is the biggest problem of online teaching practice. It is not expressed correctly or it is very susceptible to misunderstanding. You know, I actually said that…"…"* was similar to the discourse that was also voiced by the teachers. Besides, preservice teachers stated that, unlike teachers, they had technical problems while uploading videos online to give feedback by various stakeholders. According to them, there was no technical notification regarding the feedback given online, such as when uploading a video online. The dialogue between the P3 coded preservice teacher and the researcher, which can be an example of this situation, is given below.

[…]

Researcher: Don't you receive any notification?

P3: No, we have to enter, and do it ourselves; we have to look.

Researcher: For example, isn't there a notification saying 'The teacher coded T2 commented'?

P3: If you just mention it. For example, let's say you mentioned me at one stage, I got a notification that you talked about me there. Otherwise, it does not come; you have to enter and look.

Preference

In the interviews concerning the online environment's evaluation, according to the statements of the teachers and preservice teachers, the online environment is preferred to the face-to-face environment, the face-to-face environment is preferred or that both environments will support each other. It was observed that one of the teachers who participated in the application was more willing to give feedback in a face-to-face environment but stated that they could be supported when the two were together. The other teacher said that he could prefer teaching practice online. Thus, the number of preservice teachers who prefer to use both media together is relatively high. For example, the P3 coded pre-service teacher said, "*We can post comments late online on our part, so I don't see any benefit. I think it would be more useful if we could be a little more instant as a group. That's why teaching online is nice. But I think it may also be beneficial to meet in some weeks, for example. I think it should be both online and face to face*. "Still, it is observed that some preservice teachers

unquestionably prefer to receive feedback in a face-to-face environment. For instance, according to the expression of the P6 coded preservice teacher as, " *I would love to get it to face to face. Because you came to watch it in the first week, between the first lesson. Maybe you don't always make mistakes, but you did. Then P5 corrected himself in the second hour. For example, it is a bit hard to teach because the students in the classroom display such a profile. Therefore, this problem is not caused by us...You can see the class, but you cannot see the class in the video; thus, you cannot say anything. For example, there are worse classes that we teach than that class. So it would be better if it was face to face instead of online"* the preservice teacher preferred to give feedback in a face-to-face environment.

Recommendation

Due to the interviews conducted on evaluating the online environment, it was determined that the teachers brought more suggestions than the preservice teachers. Besides, it was noted that the suggestions of teachers and preservice teachers on getting better feedback in the online environment vary from each other. Preservice teachers indicate the lack of immediate feedback in Google Classroom as a deficiency. For example, the P16 coded preservice teacher's, " *I think it should be immediate face-to-face feedback. Because I think it would be more accurate to discuss and correct something there and then. In the Classroom, this process takes a little bit of time, it doesn't happen instantly. The person does not remember that exact moment in the lesson he taught. For example, you have something on your mind at that moment and you can forget it, so I'm in favor of giving immediate feedback. In the Classroom, this process takes a bit longer…*" expression supports this situation. Unlike preservice teachers, teachers, on the other hand, present deferred feedback as a suggestion. Since to notice their mistakes, the preservice teachers should have time to think on their own. For example, in T2 coded teacher's discourse as, *"For example, the problem changes a lot when we do not mention the side lengths in the angle-edge relations integers. You know decimal numbers are required. The solution also changes. He did not write in 2-3 questions, he wrote a whole number in the last question. 'Sir,' he said when we went out to recess. 'I was supposed to write an integer here, too.' I noticed, I said. You can write it in the next lesson, I said, it wouldn't be a problem…"* states that the preservice teacher has already noticed the error by him/herself. Therefore, the teacher believes that the time until they give feedback in Google Classroom will provide the preservice teachers to consider their mistakes. Besides, teachers stated that if an effective discussion environment is created in Google Classroom, it would be like a face-to-face feedback process. They stated that the others would watch the video from Google Classroom and write comments with a preservice teacher to create an effective discussion environment. According to them, a preservice teacher attending the lesson would reduce his/her anxiety, and arouse curiosity on something which the preservice teacher had never followed in Google Classroom. They would participate in the discussion environment effectively. Also, it was discovered that teachers brought forward more than one proposal for planning the online environment. For example, they recommended that shooting videos for a shorter period facilitated monitoring and giving feedback. Before giving feedback in the online environment, they suggested holding face-to-face meetings with the stakeholders and teacher candidates and giving comprehensive information about the process. They also stated that there should be posts concerning the lesson from Google Classroom. The preservice teachers offered recommendations for the online environment's planning, expressing that the lesson plans should be shared from Google Classroom. For example, the P9 coded preservice teacher's expression as, "I'm a student now, if you ask me, I would not want to do it online. But if I were a teacher, I would. Well, we were keeping the report for the lesson we're about to teach. I would probably like every student to bring a report, even a rough sketch. I would like this in the following way: If we had shared reports in Classroom since the beginning of the period, well, I could download them and use them in the following years." supports this situation. Besides, preservice teachers offered suggestions to discuss the shortcomings face to face, the stakeholders to watch the real environment simultaneously, to make the camera shooting more functional and on the shortcomings of the application. The preservice teachers recommended that there should be a fixed camera in the classroom due to the difficulty in shooting videos. Thus, they would get used to the camera's existence after a while, and the natural environment could be

recorded. Another suggestion of the preservice teachers is regarding the simultaneous feedback of the stakeholders. When a simultaneous feedback environment was created in Google Classroom, it was seen that they believed they would get more efficiency from the process. For instance, " *I don't know, but I think time should be given. Like 'Comments to be entered until this time'. Everyone should actively gather in Classroom at that moment .. "* discourse supports this situation.

DISCUSSION AND CONCLUSION

In this section, the findings obtained from preservice teachers and teachers' opinions about Web 2.0-based online teaching practices are discussed by the guidance of relational maps. The results obtained from the research are presented. Also, suggestions for results are included. Since the themes gathered are common, these themes are presented respectively by including quotations from preservice teachers and teachers' opinions. Although these themes are the same, as mentioned before, the sub-themes and the emphasized ideas differ. Thus, it is approved to classify the results obtained from the findings in this section as the results obtained from the preservice teachers' opinions, the opinions of the teachers, and the opinions of both.

1-Discussion and results regarding the opinions of the teacher candidates

Based on the study findings, it can be assumed that the preservice teachers found the application carried out within the course efficient and beneficial and that the process contributed to them. It has been observed that the practice of teaching online has many strengths, as it is different from conventional teaching practices. As shown on the map in Figure 4, preservice teachers stated that the application has many strengths. Since indicated by the strong relationship between the theme of strengths of the practice and the sub-theme of feedback, the "feedback" sub-theme is outstanding. The fact that the feedback the preservice teachers experienced in the online environment within the application's scope was permanent, it shed light on them in planning their next lessons and allowed them to make self-evaluation. They could notice the increase in their performance thanks to the feedback's diversity as the process progressed, revealing the strengths of the online teaching practice on giving feedback.

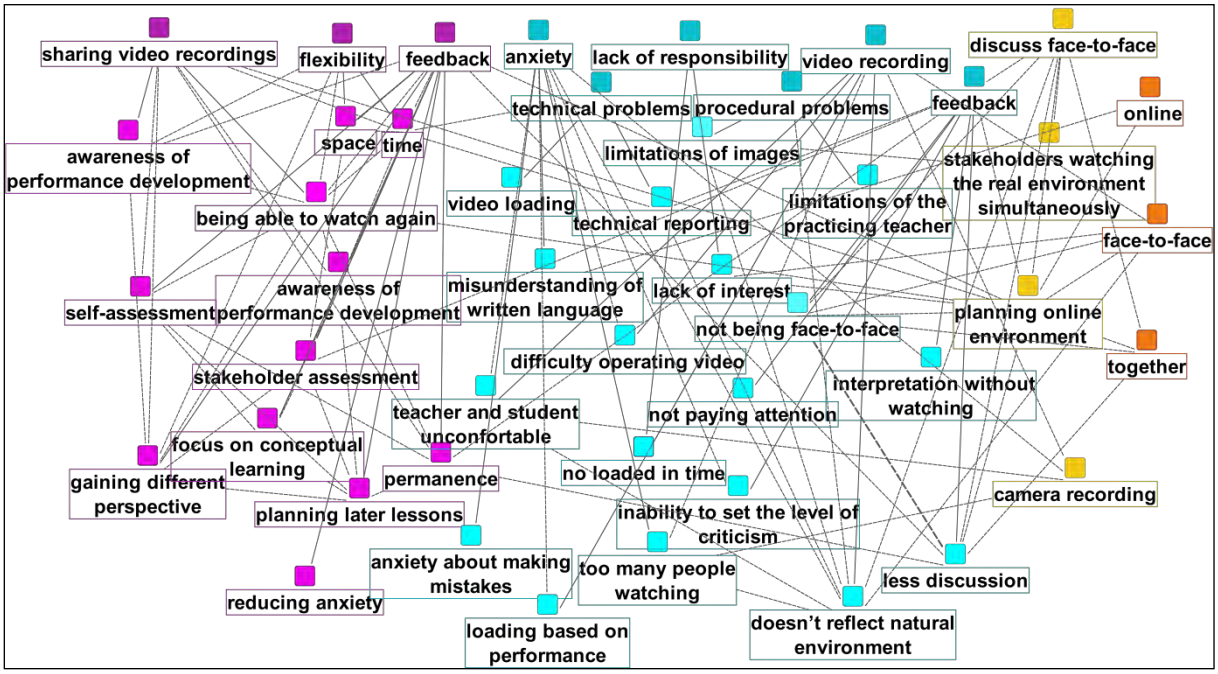

Figure 5. Relational map obtained from the opinions of preservice teachers

The importance of feedback (Hattie & Timperley, 2007; Black & Wiliam, 1998; McFadzien, 2015) which should be included in every educational situation and one of the elements that define the quality of educational services, has once again been acknowledged with this study. The lack of this essential element in the process of teaching practice was stated in many study results such as the inability of preservice teachers to get adequate guidance from lecturers and mentor teachers, not getting enough feedback for their reports (Ozmen, 2008), and not providing enough feedback for their lesson presentations (Paker, 2008; Eraslan, 2009). In the studies of the literature, according to the preservice teachers' adverse conclusions concerning the teaching practice lesson, they stated that they did not teach enough and receive feedback under the instructor (Aslan & Sağlam, 2018; Kazu & Yenen 2014; Boz & Boz, 2006). In other words, it can be mentioned that if the candidates receive useful feedback for their observed lessons, they believe that the teaching practice lesson will contribute to their development.

It is stated that applying feedback and correction activities together in the teaching-learning process is essential in motivating further learning (Reece & Walker, 2007). As it can be understood from the influential relations among the strengths of the application and the sub-theme of the application in the relational map in Figure 6, it is assumed that the candidates consider the given feedback needed, thus gain different perspectives, use these gains while preparing their next lessons, and thanks to this chain, each passing lecture is better. This situation tells us that the preservice teachers' progress is not only due to the weekly lectures but also from the feedback they receive from their peers and the application lecturer. It is observed that peer evaluations contribute to preservice teachers in the process of receiving and giving feedback in an online environment. Demiraslan-Çevik (2014) found that both sides were satisfied in his study, where he determined the preservice teachers' opinions on the question of "Who is satisfied? The one who gives the feedback or the one who receives the feedback..." in an online environment. Emphasizing the importance of feedback in improving learning, Al-Bashir, Kabir, and Rahman (2016) argue that most educators maintain the process of giving feedback traditionally. Still, this process can be more effective thanks to modern and developing technologies. Besides, in a study carried in a web-based environment according to a socio-cognitive perspective, it was determined that students who gave feedback to t higher-level cognitive strategies such as critical thinking more than those who did not (Wang & Wu, 2008). It can be assumed that the anxiety of the preservice teachers, who were evaluated by the stakeholders in the study and who took lessons for their future studies, decreased from all these positive relationships.

Saving the video recordings online, sharing them with other stakeholders participating in the application, and providing the chance to be watched again can be counted among the application's strong results. Calık Uzun et al. (2019) presented "Creating environments in which lecturers, mentor teachers and preservice teachers take part as stakeholders, independent of time and space, and "researching the efficiency of practice lessons to be conducted in these environments" as a study proposal to the researchers due to the result of their study. They reviewed the opinions of preservice teachers on their experience of improving their teaching practice performance. In this study, considering this suggestion, teaching practice lesson was conducted by providing time and place flexibility in an online environment. When the findings gained from the opinions of the preservice teachers are examined, the sub-themes of "time" and "space" under the theme of "flexibility" are among their views on the strengths of the study. Thus, it can be assumed that preservice teachers find it positive in terms of being evaluated online to be independent of time and place. Simultaneous discussions are conducted online to allow for the potential to reflect the participants' opinions depending on their response times (Black, 2005). The preservice teachers believe that the simultaneous feedback feature in the Google Classroom environment, which is covered in the research, contributes positively to the online feedback process's functionality.

The themes that determine the weaknesses and the strengths of the implementation and the relationships between them can be seen on the map (See Figure 6). It can be assumed that the preservice teachers presented more opinions on the procedural problems, technical problems, and feedback sub-themes in the shortcomings of the application. Procedural problems are at the top of the

difficulties with video shooting. Per Law on the Protection of Personal Data in Turkey, official permission is required for video recordings to be performed in the classroom. Besides, students' faces cannot be shown in the relevant records. This situation inevitably generated a problem in recording the candidates' lectures throughout the application process in the research. Official permission was obtained from the meetings with the Directorate of National Education regarding the point in question to ensure the research's sustainability. The recording of the lectures of the candidates with video is limited. Thus, video recordings were shot of the front rows during the lesson. Naturally, this situation led to the inability to follow the class as usual by those who watched the video recording. The relationship between preservice teachers' thinking that course records do not reflect the natural environment and procedural problems can be explained thus and so.

Besides, the preservice teachers stated that they encountered technical problems while uploading their presentations to their classes created in the Google Classroom application. The fact that the quality and duration of the video they are trying to upload are at the top of these difficulties made the candidates express these obstacles due to the study's deficiency. Although these problems are resolved by applying utilities that enable them to reduce files, the time spent transferring the records to the system may have led them to a negative thought. When evaluated from this point of view, although the content design included in the online education process is regarded as essential in the success of online learning environments (Davis, 2000; Fayer, 2017), it shows the importance of the principles in planning lessons in the multimedia environment (Mayer & Fiorella, 2014).

An impressive result obtained in the study is that the "feedback" sub-theme attracts attention with a strong connection among the themes that constitute the application's deficiencies. Preservice teachers genuinely expressed the shortcomings of the feedback received online. The lack of face to face of the feedback creating less discussion environment since the criticisms made in the online environment are written, the reader misunderstanding in different ways than what the author is trying to express, and this situation increasing their anxiety can be counted among the results obtained. A related situation was emphasized in Klemm's (2000) study, and it was reported that the students did not make the required contribution besides being content with reading what is written in online discussion platforms. It is thought that students should be guided in revealing their reflective views in their discussion texts.

Candidates who stated their opinions on the shortcomings of the application had suggestions to eliminate these deficiencies. It can be said that their suggestions are in a strong relationship with their preferences. The candidates offered suggestions to plan the online environment in a way that would also allow face-to-face discussion. In this context, their choice is to run an online and face-to-face environment together.

In summary, preservice teachers perceived the online environment healthy in terms of allowing them to evaluate the online environment regardless of time and place, to be able to watch the course records again, to have permanent feedback, to see their performance improvements concretely. They found the practice incomplete due to reasons such as the fact that the discussion environment was not practical since the feedback was not face to face in the same environment, and that the written language was open to misunderstanding, which increased their concerns. In this sense, it is understood that communication among the person who receives and gives feedback is essential. In many studies, attention has been drawn to the mutual interaction between the recipient and the person giving it for effective feedback (Brinko 1993; Thurlings, Vermeulen, Bastiaens & Stijnen, 2013). Therefore, they stated that using this application within the scope of the course will serve the candidates. Still, face-to-face feedback and discussion environment will be more beneficial for them. In this context, the preference of the candidates was more to use online and face-to-face applications together.

2-Discussion and results regarding the opinions of the mentor teachers

It is observed that teachers' opinions, one of the other participants of the study, are mostly focused on the deficient aspects of the application, and the themes of suggestions (Figure 7). It can be assumed that this is due to the different roles of the preservice teachers and teachers during their studies. It is encouraging for the teachers, who have an evaluative mission, to present their observations on the shortcomings of the implementation and suggestions to correct them

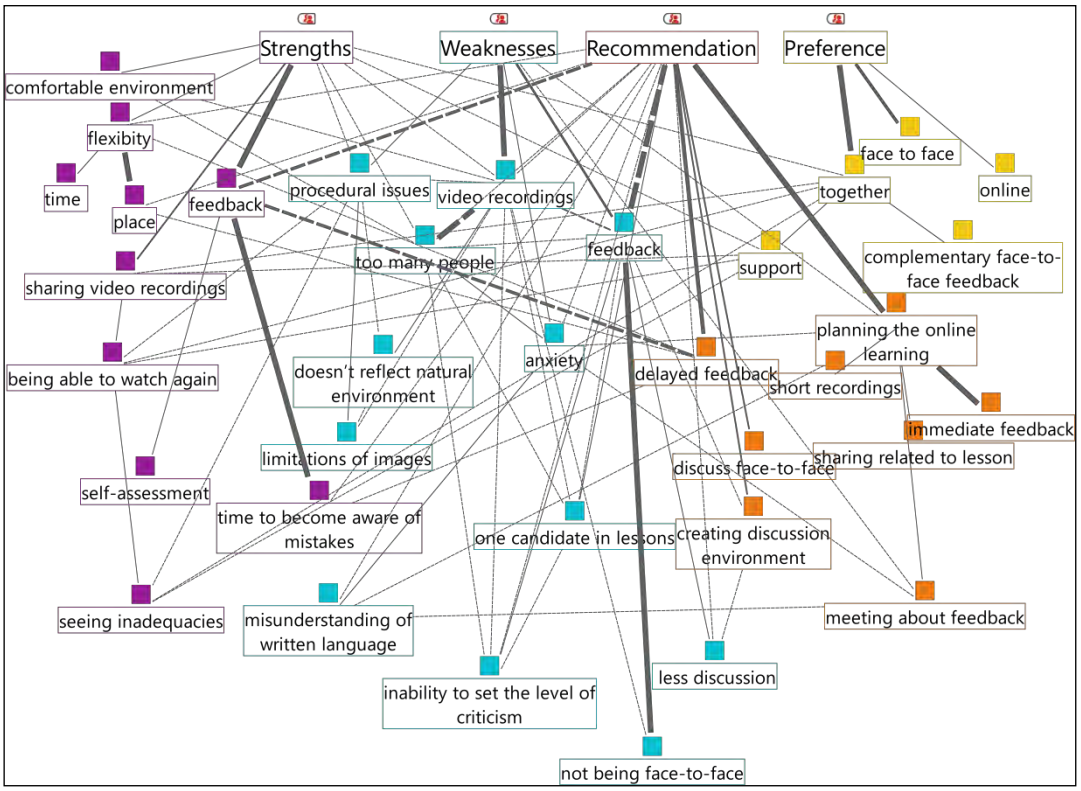

Figure 6.Relational map obtained from the opinions of mentor teachers

Teachers who experience related thoughts with the preservice teachers regard it as a great comfort to watch the presentations recorded in the application, particularly in several places. They express the ability to watch the recordings repeatedly whenever they want, wherever internet access is available (Lin & Hsieh, 2001). The feedback theme stands out as another strength of the application. Teachers find it positive that the online environment's feedback gives the candidates time for self-evaluation and recognizing their mistakes. The opinions of the teachers about the shortcomings of the application are under the theme of video shooting. In addition to the procedural difficulties that the preservice teachers have similar views, one of the teachers thinks that all the preservice teachers' presence during the course registration increases the anxiety of the preservice teacher. He suggests that only the teacher should be present in the classroom and that the other candidates should watch their friends online. Teachers support the idea that preservice teachers' writing online can be misunderstood, and that would increase the candidates' anxiety. Teachers who offer suggestions for planning the online environment to make up for this deficiency stated that at the beginning of the application, it would be helpful to hold a meeting with the candidates for the feedback and to warn them to pay attention to the written language.

Teachers' opinions on whether the feedback is only online or together in face to face and online environments differ. One of the teachers describes the study's deficiency as having feedback only online and not having discussions face to face. He argues that face-to-face feedback should be available to discuss this deficiency and that the online environment should be used as a supportive

one. It would not be wrong to mention the effectiveness of blended learning environments (Picciano, 2006; Vaughan, 2007) in the face of this aspect of the teacher. The other teacher claims that the entire application should be online, each candidate should lecture alone, and other stakeholders should evaluate the candidate online. According to this teacher's feedback, postponing rather than giving it right after the lesson is more effective in giving the preservice teacher time to make self-assessment and realize his/her mistakes.

When Figure 6 is reviewed, teachers' opinions about the process also affect their preferences. By completing the application's specified deficiencies, the results of online execution and running face to face and online together have been obtained.

In summary, the teachers found the practice efficient in allowing the records to be reviewed and evaluated independently from the location. Due to the online environment's permanent feedback, the preservice teachers improved their performance and were allowed to make self-evaluation. Teachers' suggestions concerning the shortcomings of the application vary. These can be expressed as:

- The teaching practice course should be carried online. The design can be updated as follows: Only the narrator teacher should be in the classroom; other stakeholders should monitor and evaluate the trainee online. Thus, all stakeholders can have the opportunity to watch the lecture for the first time and evaluate it in detail. Instead of giving immediate feedback after the lecture, the preservice teacher will have time to make his/her self-assessment, thanks to the postponed feedback.

- Teaching practice courses should be conducted online and face to face. Lessons should be recorded for a shorter period, and the recordings should be used to identify the deficiencies. All stakeholders should watch as many lectures as possible, prompt, and face-to-face feedback should be given right after the lecture presentations. A rich discussion environment should be constructed.

3-Discussion results regarding the common views of preservice teachers and mentor teachers.

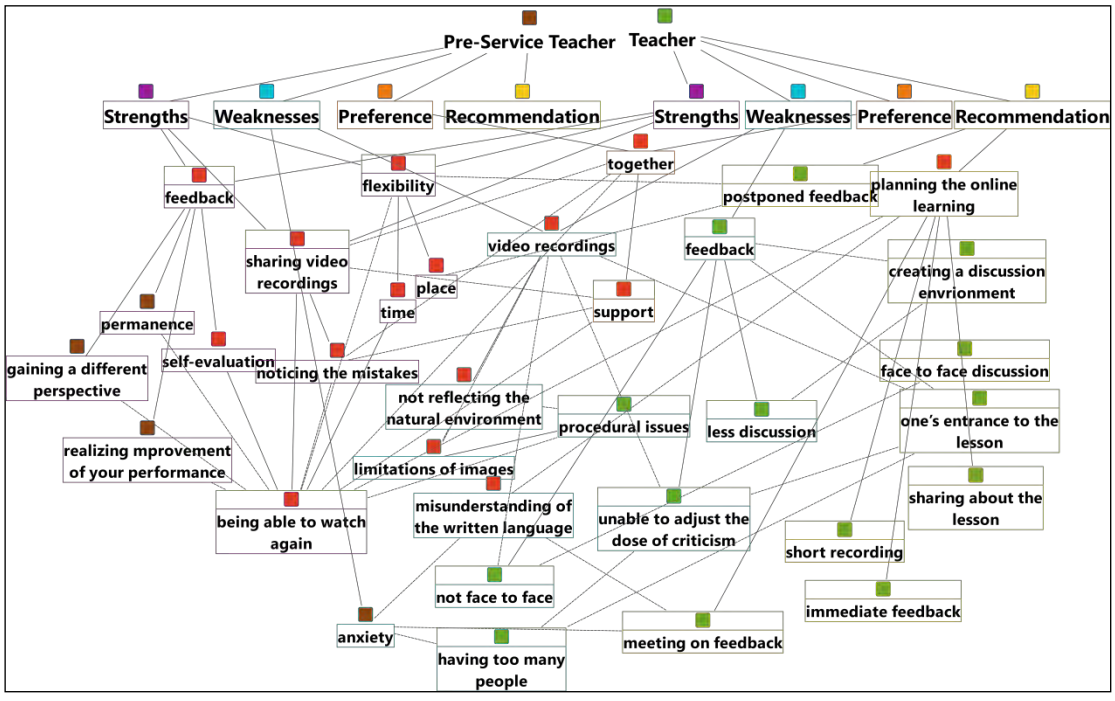

Figure 7.Relational map obtained from the opinions of preservice teachers

The sub-themes labelled in red in the relational map given in Figure 7 indicate the standard views of preservice teachers and teachers concerning the application. The results obtained from the map can be summarized as follows.

- Stakeholders evaluate the application efficient and beneficial since the permanent feedback given in the online environment, the opportunity to be watched again by providing flexibility in terms of time and place, and the opportunities it affords for self-assessment and eliminating the shortcomings of the candidates.

- Stakeholders think that video footage is limited due to procedural reasons, and hence the recordings do not fully reflect the real environment.

- The preservice teachers thought that the online environment's feedback was misunderstood due to the written language and consequently caused them to worry about making mistakes. Besides, teachers support the candidates' opinions by expressing that this anxiety will increase if the other stakeholders are in the class and that having too many people in the course may disturb the preservice teacher. According to the teachers, talking with the preservice teacher about the dose and style of criticism will prevent misunderstandings from the written language at a meeting to be held before the application starts.

- For stakeholders, designing the online environment to complement face-to-face feedback is the more dominant suggestion.

SUGGESTIONS

Some suggestions can be offered based on the results obtained within the research.

- The first suggestion can be given over the methodological model in which the study was conducted. As a result of the research's re-design with an experimental model, studies that reveal the differences in the control group can be carried. Active participation in online learning environments is an essential issue for reflecting the ideas critically and contributing to learning products. Before the applications to be carried out, students should be notified of this issue.

- It is also possible to present suggestions for researchers who want to carry out the teaching practice process online. Participants within the scope of this study consisted of preservice teachers studying in elementary mathematics education. Related studies can be carried out in which the research group consists of candidates from different departments to ensure the research's generalizability.

- In this research, discussions via videos were conducted over Google Classroom. Online discussions can be handled on other programs considered to be more beneficial than this one.

- Feedback corrections made online and face-to-face throughout the period can be applied together.

- Besides, it is seen that the current COVID-19 pandemic process has adversely affected life in almost all areas. This unfavorability also includes the education process, and the educational activities carried out at all education levels were negatively affected When considered in terms of learners, the mentioned educational activities emerge as a situation that should not be neglected. With the awareness of this situation, the concept of distance education has gained importance. It has been recognized that

countries around the globe are trying to carry out their educational activities for students through online platforms. Preservice teachers are not expected to be deprived of these practices in case of any unfavorable situation that may occur, considering the importance of practical lessons within the scope of teacher training activities. If the current COVID-19 epidemic process and its consequences are assessed within the scope of these negativities, likely, preservice teachers will not be physically involved in school environments. At this point, distance education environments where simultaneous and nonsynchronous communication opportunities are offered can be implemented to ensure school applications. The active participation of students in applications carried out through online environments is regarded as necessary for the applications' efficiency. In this sense, the students' level of readiness who will participate in the applications should not be overlooked by determining the necessary improvements within the scope of pilot applications.

REFERENCES

Akgün, Ö. E., Gökmen, Ö. F., Özer, E. A., Kaymak, Z. D., Horzum, M. B., & Kıyıcı, M. (2015). Needs analysis results regarding an information system to be developed to monitor and support student teachers internship training. *Educational Technology Theory and Practice, 5*(2), 54-72. Retrieved from http://www.turkegitimindeksi.com/PDFArticle.aspx

Arkün, S. (2011). *The development of a social media based model for faculty - school collaboration: School experiences case* [Unpublished doctoral dissertation]. University of Hacettepe.

Arkün-Kocadere, S., & Aşkar, P. (2013). A review of views about student teaching courses and an application model proposal. *Hacettepe University Journal of Education, 28*(2), 27-43. Retrieved from https://dergipark.org.tr/tr/download/article-file/87158

Aslan, M., & Sağlam, M. (2017). Evaluation of teaching practice course according to opinions of student teachers. *Hacettepe University Journal of Education*, *33*(1), 144 - 162. https://doi.org/10.16986/HUJE.2017030313

Aydın, F., & Akgün, Ö. E. (2014). Problems of senior teacher students in on-site school training. *Sakarya University Journal of Education Faculty*, 0(28), 1-14. Retrieved from https://dergipark.org.tr/en/download/article-file/115885

Ayvacı, H. Ş., Ozbek, D. & Bülbül, S. (2019). An evaluation of a teaching practice course by different participants. *Hacettepe University Journal of Education 19*(1), 57-66. https://doi.org/10.17240/aibuefd.2019.19.43815-487564

Baki, M., & Arslan, S. (2015). Examining the effect of lesson study on prospective primary teachers' knowledge of lesson planning. *Turkish Journal of Computer and Mathematics Education 6*(2), 209-229. http://doi.org/10.16949/turcomat.02379

Al-Bashir, M.M., Kabir, M.R., & Rahman, I. (2016). The value and effectiveness of feedback in improving students' learning and professionalizing teaching in higher education. *Journal of Education and Practice, 7*(16), 38-41. Retrieved from https://eric.ed.gov/?id=EJ1105282

Batman, D., & Saka, A. Z. (2019). Determining the effects of micro-reflective teaching practices on the development of reflective thinking tendencies of pre-service physics teachers. *Gazi University Journal of Gazi Educational Faculty (GUJGEF), 39*(2), 627-654.

Black, A. (2005). The use of asynchronous discussion: Creating a text of talk. *Contemporary Issues in Technology and Teacher Education, 5*(1), 5-24. Retrieved from https://www.learntechlib.org/p/5993/

Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education, 5*(1), 7–74. https://doi.org/10.1080/0969595980050102

Brinko, K. T. (1993). The practice of giving feedback to improve teaching: What is effective?. *The Journal of Higher Education*, *64*(5), 574-593. https://doi.org/10.1080/00221546.1993.11778449

Boz, N., & Boz, Y. (2006). Do prospective teachers get enough experience in school placements? *Journal of Education for Teaching, 32*(4), 353–368. https://doi.org/10.1080/02607470600981912

Bulunuz, N.,& Bulunuz, M. (2016). Best teaching practices for preservice teachers' professional development: clinical supervision model. *Uludag University Journal of Education Faculty, 29*(2), 401-429. Retrieved from https://dergipark.org.tr/en/pub/uefad/issue/26859/282485

Büyüksahin, Y. & Sahin, A.E. (2017). Quality problematic in education from teachers' view point. *Bartin University Journal of Faculty of Education, 6*(3), 1131-1152. https://doi.org/10.14686/buefad.290859

Calık-Uzun S., Kul Ü., Aksu Z., Çelik S., Birişçi S.(2019). Views of pre-service mathematics teachers on the process about developing their teaching practice performance. 4. International Turkish Computer & Mathematics Education Symposium, İzmir, Turkey.

Cepni, O., & Aydın, F. (2015). The problems prospective geography teachers encounter in teaching practice lesson and solution suggestions. *The Journal of Turkish Social Research, 2*(2), 285-304. Retrieved from https://dergipark.org.tr/en/download/article-file/200558

Çimer, S. O., Bütüner, S. Ö., & Yiğit, N. (2010). An investigation of the types and qualities of teacher feedback *Journal of Uludag University Faculty of Education, 23*(2), 517-538.

Council of Turkish Higher Education [CoHE] (1998). *World Bank National Education Development Project for Pre-Service Teacher Education* [The Faculty-School Cooperation Booklet]. Ankara: Teacher Education Series.

Davis, J. H. (2000). Traditional vs. on-line learning: It's not an either/or proposition. *Employment Relations Today, 27*(1), 47. https://doi.org/10.1002/ert.3910270105

Demir, Ö., & Camlı, Ö. (2011). Schools teaching practice lesson practice problems encountered the investigation of class and opinions of pre-school students: A qualitative study. *Uludag University Faculty of Education, 24*(1), 117-139. Retrieved from http://acarindex.com/dosyalar/makale/acarindex-1423935378.pdf

Demiraslan-Cevik, Y. (2014). Who is more satisfied: assesse or assessor? students' views on online peer feedback. *Journal of Instructional Technologies & Teacher Education, 3*(1), 10–23.

Demirel, Ö. (2012). *Öğretim İlke ve Yöntemleri Öğretme Sanatı* [The Art of Teaching Principles and Methods]. *Ankara: Pegem Press.*

Durusoy, O. (2011). Developing the teachers' self-efficacy through Web 2.0 technologies and digital videos in teacher training [Unpublished master's dissertation]. University of Balıkesir

Eraslan, A. (2009). Prospective mathematics teachers' opinions on teaching practice. *Necatibey Faculty of Education Electronic Journal of Science & Mathematics Education*, *3*(1), 207-221.

Fayer, L. (2017). A multi-case study of student perceptions of instructor created videos in online courses. *International Journal for Scholarship of Technology Enhanced Learning, 1*(2), 67–90.

Gökmen, Ö. F. (2015). The computer education and instructional technologyteacher candidates' views about teaching practice. *Mersin University Journal of the Faculty of Education, 11* (1), 96-115. https://doi.org/10.17860/efd.49532

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112 https://doi.org/10.3102%2F003465430298487

Hurioğlu, L. (2016). The effect of feedback on pre-service teachers' teachingpractice and lesson plan preparing skills along with selfefficacy levels during the process of teaching experience [Unpublished doctoral dissertation]. University of Çukurova .

General Directorate of Teacher Training and Development, (2017). Retrieved from https://oygm.meb.gov.tr/

Karasu Avcı, E.. ve İbret, B. Ü. (2016). Evaluation of teacher candidates' views regarding to teaching practice-II. *Kastamonu Education Journal, 24* (5), 2519- 2536. Retrieved from https://kefdergi.kastamonu.edu.tr/index.php/Kefdergi/article/view/1461/456

Kazu, İ. Y., & Yenen, E. T. (2014). A new approach in teacher education: Clinical practice. *Elementary Education Online*, *13*(3). 796-805. Retrieved from http://ilkogretim-online.org.tr/index.php/io/article/view/2143/1969

Kalender, B. (2020). Sınıf Öğretmenliği Adaylarının Öğretmenlik Uygulaması Sürecine Yönelik Algılarının İncelenmesi: Karma Bir Araştırma. Harran Education Journal *5*(1), 88-112.

Klemm, W.R. (2000). What's wrong with online discussions and how to fix it. Proceedings of the WebNet 2000 World Conference on the World Wide Web and Internet, San Antonio, TX

Lin, B., & Hsieh, C. (2001). Online teaching and learner control: a research review. *Computers & Education, 37*, 377-386.

O'Reilly T. (2007). What is web 2.0: Design patterns and business models for the next generation of software. *Communications & Strategies, 65*(Jan), 17-37. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1008839

Mayer, R. E., & Fiorella, L. (2014). Principles for reducing extraneous processing in multimedia learning: Coherence, signaling, redundancy, spatial contiguity, and temporal contiguity principles. In Mayer, R. E. (Ed.), The Cambridge handbook of multimedia learning (2nd ed., pp. 279–315). Cambridge, UK: Cambridge University Press.

McFadzien (2015). Why is effective feedback so critical in teaching and learning? *Journal of Initial Teacher Inquiry, 1*, 16-18.

Ozan, S. & Odabası, F. (2016). The opinions of students about the use of social media in the guidance process implemented within school practicum course. *Kırşehir University Faculty of Education, (KEFAD), 17*(1), 599-613.

Ozmen, H. (2008). Student teachers' views on school experience I and II courses. *Ondokuz Mayıs University, Journal of Faculty of Education 25*, 25–37. Retrieved from https://pegem.net/dosyalar/dokuman/124566-2011081915552-25-25-haluk-ozmen.pdf

Paker, T. (2008). Problems of student teachers regarding the feedback of university supervisors and mentors during teaching practice. *XIV. National Educational Sciences Congress*, Pamukkale *University Faculty of Education*, Denizli.

Picciano, A. G. (2006). Blended learning: Implications for growth and access. *Journal of Asynchronous Learning Networks 10*(3), 95–102. Retrieved from https://scholar.google.com/scholar?hl=tr&as_sdt=0%2C5&q=.Picciano%2C+A.+G.+%282006%29.+Blended+learning%3A+Implications+for+growth+and+access&btnG=

Reece. I., & Walker, S. (2007). *Teaching Training and Learning* (6th ed.). Business education publishers limited Inc. Great Britain.

Shantz, D., & Ward, T. (2000). Feedback, conservation and power in the field Experience of pre-service teachers. *Journal of Instructional Psychology, 27*(4), 288- 294.

Simsek, S., Alkan, V., & Erdem, A.R. (2013). A qualitative study about teaching practice. *Pamukkale University Journal of Education, 34*(34), 63-73.

Taşdere, A. (2014). Classroom teacher candidates' problems regarding teaching practicum class and proposed solutions. *Turkish Studies, 9*(2), 1477-1497. http://dx.doi.org/10.7827/TurkishStudies.6254

Thurlings, M., Vermeulen, M., Bastiaens, T., & Stijnen, S. (2013). Understanding feedback: A learning theory perspective. *Educational Research Review, 9*, 1-15. https://doi.org/10.1016/j.edurev.2012.11.004

Tunc-Pekkan, Karagöz Akar & Akcan, (2019). University within School Model: Affordances for Teacher Education. *Elementary Education Online, 18* (3), 17-32. doi:10.17051/ilkonline.2019.612200

Wang, S., & Wu, P. (2008). The role of feedback and self-efficacy on web-based learning: The social cognitive perspective. *Computers & Education, 51*, 1589-1598. https://doi.org/10.1016/j.compedu.2008.03.004

Unver, Y. (2016). Connection between the theory and practice in pre-service teacherneducation programs in Turkey. *Journal of Higher Education and Science, 6*(1), 61-70. DOI: 10.5961/jhes.2016.143

Yeşilyurt, E., & Semerci, C. (2011). The problems and their solutions of practice teachers in teaching practice process. *Academic View Journal, 27*,1-23. Retrieved from http://www.acarindex.com/dosyalar/makale/acarindex-1423868092.pdf

Vaughan, N. (2007). Perspectives on blended learning in higher education. *International Journal on ELearning*, *6*(1), 81–94.

Yildirim, A. & Şimşek, H. (2011). *Qualitative research methods*. Seçkin Press: Ankara.