

The effect of social network-supported microlearning on teachers' self-efficacy and teaching skills

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Abstract

To train qualified teachers, it is important to use methods that employ theory and practice together in teacher training. For microteaching to be more effective, supporting it with online environments is essential. This study aims to find out the effects of social network-supported microteaching (SNSM) on self-efficacy and teaching skills of pre-service teachers. The study was conducted using mixed research model. The participants of the research are 17 pre-service teachers from the Department of Computer Education and Instructional Technology. The SNSM process took place in two stages. Firstly, Pre-service teachers were asked to respond to Teacher Self-efficacy Scale prior to SNSM. Then, the open-ended interview questionnaire and opinions of the pre-service teachers were received and the data on the effect of SNSM on teaching skills were collected. Consequently, quantitative results indicated that SNSM increased teacher self-efficacy levels in terms of student engagement, classroom management and teaching methods. Qualitative data also support the results of quantitative data.

Keywords: Microteaching, social network-supported learning, teacher education.

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1. Introduction

The quality of instruction depends on the interaction between the curriculum, the students, the learning environment, the opportunities and similar elements and involvement of those in the instructional process. It is the teachers to assume the role of enhancing the efficiency of instruction by ensuring that those elements interact effectively. Teachers acquire knowledge and skills such as lesson planning, classroom management and communication during their teacher training. Moreover, they may feel themselves professionally competent as a result of their experience they gain during their teacher training.

The concept of 'teacher self-efficacy', a concept explaining the professional competence of pre-service teachers, was derived from the concept of self-efficacy, which was first introduced by Bandura (1982) and is a part of social cognitive learning theory. Bandura (1982) refers to the concept of self-efficacy as the awareness of people on their ability to organise and perform actions that are necessary to achieve certain performance types. Bandura (1982) states that decisions on self-efficacy are based on four basic sources of information: performance experiences (the experiences that one has achieved from the work s/he has succeeded); vicarious experiences (observing performance of others and comparing them to theirs); verbal persuasion (being persuaded by someone else that s/he can achieve the task) and physiological states (instinctive belief in the ability to fulfil the task). According to Bandura, these sources form the basis for the factors that affect the self-efficacy of the individual. Furthermore, Tschannen-Moran, Hoy and Hoy (1998) as well argue that these sources constitute the main factors affecting the self-efficacy of the individual and that the knowledge gained from these sources constitute the teacher self-efficacy by activating their cognitive processing.

Tschannen-Moran et al. (1998) consider teacher self-efficacy as a teacher's belief in his/her capability to plan, organise and implement the activities needed to successfully perform an instructional work in a particular context. It has also been found out in research studies that the improvement of teaching skills may increase the belief in self-efficacy or that a firm belief in self-efficacy plays a positive role in the improvement of teaching skills. For example, a teacher with a firm belief in his/her self-efficacy may have a high self-confidence, classroom management skills and competence to use innovative methods effectively (Holzberger, Philipp & Kunter, 2013).

It can be said that it is important to create learning environments that enrich the theoretical knowledge with practical activities, in order for pre-service teachers to increase their belief in their self-efficacy and to improve their teaching skills (Orhan, 2017; Sisman, 2017; Skaalvik & Skaalvik, 2016; Tok, 2016). However, in order for pre-service teachers to improve their teaching skills and increase their belief in their self-efficacy, authentic classroom settings may not be suitable as a learning platform initially. In order for pre-service teachers to acquire teaching experiences based on the principle of learning by experience, initially, a learning atmosphere simulating authentic classroom settings should be constructed. It can be said that such structured learning atmosphere, which is of great importance in teacher training, can provide authentic environments for the pre-service teachers and prepare them for different conditions without having to step into the profession (Hammond, 2016; Koross, 2016; Orhan, 2016). Such practices contribute to the pre-service teachers' perception of professional competence. Thus, the pre-service teachers may exhibit their potential, in a positive learning atmosphere at its maximum, using the knowledge and skills they acquire. In the teacher training process, it seems that many different methods that integrate theory and practice are used. One of these methods is the microteaching (Becit, Kurt & Kabakci, 2009). Microteaching, a method first introduced by Allen and colleagues at Stanford University (Allen, 1967), is a simplified, limited in time and number of students, used to provide immediate feedback to pre-service teachers (Allen, 1980), representing an authentic learning environment (Allen & Ryan, 1969), is a minimised (Allen, 1967) laboratory method (Deniz, 1993). The microteaching method, which includes steps such as planning, recording and implementing the lesson, re-planning the lesson according to expert and peer

feedbacks and recording and implementing it again (Remesh, 2013), is actually a try-test cycle called 'teach-reteach' (Aydin, 2013; Demirel, 2000). It has emerged through studies that through the successful management of microteaching that integrate theory and practice successfully (Koross, 2016), classroom management and some teaching skills (such as lesson planning, material development, effective use of methods) as well as self-efficacy, self-confidence and professional perspectives of pre-service teachers are improved (Aydin, 2013; Bilen, 2014; Karatas & Cengiz, 2016; Marulcu & Dedeturk, 2014; Peker, 2009; Sen, 2009). By using the microteaching method, a more structured and cost-effective learning platform for pre-service teachers can be built (Koross, 2016). Thus, the teacher self-efficacy levels can be increased by improving the teaching skills of the pre-service teachers.

Although there is an effort to improve teaching skills in teacher training, the most essential factor for the efficiency of such training is one-to-one guidance (Ozan & Odabasi, 2016). Pre-service teachers have the opportunity to observe, self-evaluate and to improve themselves, being provided with the interaction between the instructor and pre-service teacher, and the peer-to-peer interaction and effective feedback (Bulut, Acik & Ciftci, 2016; Ozan & Odabasi, 2016; Ping, 2013). However, it is shown in the research studies that the most basic problems in teacher training are that importance of practice is ignored, lack of one-to-one guidance and interaction between instructors and pre-service teachers due to the increasing number of pre-service teachers in higher education and lack of technological facilities (Bulut, Acik & Ciftci, 2016; Mergler & Tangen, 2010; Orhan, 2017; Ozan & Odabasi, 2016; Sendag & Gedik, 2015; Yesilyurt & Semerci, 2011; Yigit, 2013). In order to solve these basic problems, it is necessary to establish a more effective feedback and interaction system within the methods used in teacher training. At this point, it may be useful not to limit the pre-service teachers to the classroom environment, and to employ technology for the continuity of training.

In this context, studies conducted in recent years have revealed that school-based education, being supported by social network-supported learning environments that include Web 2.0 technologies, has increased students' achievement, influenced their attitudes towards school and their motivation positively (Bicen & Uzunboylu, 2013; Hung & Yuen, 2010; Kelleci & Tetik, 2015; Kuzu, 2014). It can be argued that Facebook, one of the social networks, is suitable for use as an educational environment especially by active participation and cooperation it provides (Mazman, 2009; Munoz & Towner, 2009; Tinmaz, 2013). Cimen and Yilmaz (2014) emphasised in their research where they sought for teachers' opinions on the use of social media for educational purposes that using Facebook groups for educational activities is effective in the process of teaching.

On the other hand, with teacher training supported with social networks, it has been seen that the interaction as well as the instructor and peer feedback are provided more effectively (Goktalay, 2015; Lin, 2018; Okumus & Yurdakal, 2016; Ozan & Odabasi, 2016). Okumus and Yurdakal (2016) have sought for the opinions of pre-service teachers in their research where they supported their teaching methods with Facebook-based peer feedback, and consequently, pre-service teachers have expressed that this practice has improved the teaching skills. Ozan and Odabasi (2016), on the other hand, received opinions of pre-service teachers regarding the guidance process for teaching practice in the social media. As a result of this study, pre-service teachers have also stated that this practice enhanced the interaction between pre-service teachers, instructors and mentor teachers and contributed to their professional development.

In the light of those research studies, it can be said that supporting teacher training through social network contributes positively to the teaching skills of the pre-service teachers.

However, the reasons such as the fact that pre-service teachers know each other, the lack of knowledge and evaluation skills in the field affects the quality of peer feedbacks negatively and this situation may cause pre-service teachers to exhibit a negative attitude towards peer feedback

(Goktalay, 2015; Lin, 2018). For this reason, both student and teacher feedbacks can be employed via social networking in microteachings.

In general, it is observed that the studies carried out are limited to receiving the opinions of the pre-service teachers regarding the use of social networks in teacher training, and therefore, that there is a need for mixed studies on the effects of social network-supported microteaching on both teachers' belief in their self-efficacy and teaching skills. Also, research studies in this respect show that in teacher training, either instructor or peer feedbacks are included, but research studies where both instructor and peer feedbacks are included are limited in number.

For this reason, the aim of the study is to analyse the effects of social network-supported microteaching (SNSM) on teachers' belief in their self-efficacy and to receive the opinions of pre-service teachers on SNSM's effects on teaching skills.

In this respect, sub-problems of the research are:

1. How did the pre-service teacher self-efficacy change in the SNSM process?
2. What are the pre-service teachers' opinions on effects of SNSM on their teaching skills?

2. Method

2.1. Research design

This study has been conducted using a mixed method of qualitative and quantitative approaches together. Through the research process, a mixed method called a convergent parallel design by Creswell and Plano Clark (2015) was preferred. In the quantitative dimension, time series of the semi-experimental models; and in the qualitative dimension, case study were used. In the convergent parallel design, researchers obtained qualitative and quantitative data simultaneously, and in the analysis, the process was completed by excluding the findings and combining the data obtained during interpretation.

2.2. Participants

The participants of the study are pre-service teachers in the third grade of Department of Computer Education and Instructional Technology of a Faculty of Education of a university in the 2016–2017 academic year. Although the participants completed courses that include the theoretical or pedagogical content, they have not completed any courses that include the content or the context in which they could develop their teaching skills. The study was initialised with 25 participants but due to loss of data, the study was completed with 17 pre-service teachers, 7 females and 10 males.

2.3. Procedure

The study was conducted according to the steps of the SNSM process given in Figure 1. Within the SNSM process, training for pre-service teachers in the classroom environment was supported by a learning environment associated with a course group created on Facebook—a social network—, Google Drive, Google Forms and Sheets. In this social network-supported learning environment, the planning and implementation stages have been carried out based on the microteaching method.

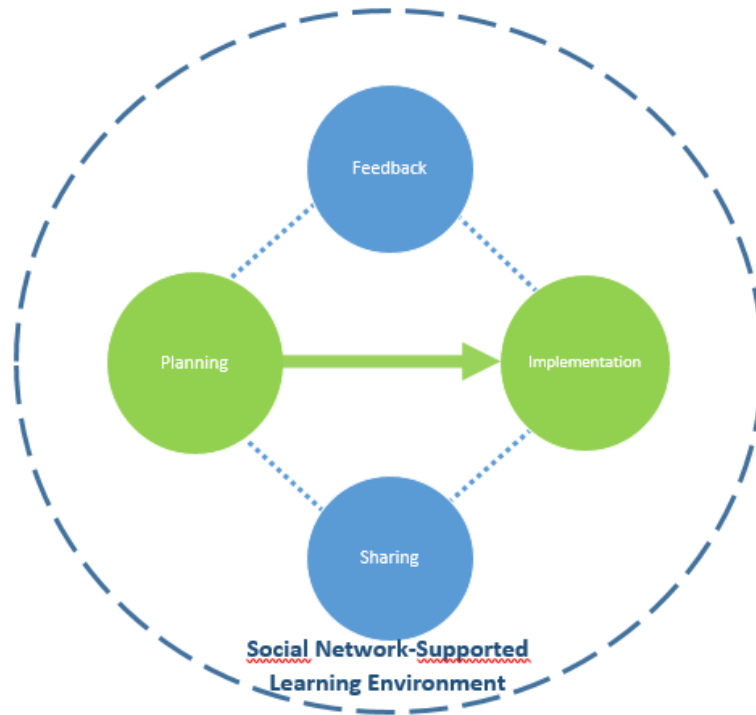


Figure 1. SNSM process

As shown in Figure 1, at each stage of the process, the pre-service teachers share and receive the lesson plans and other materials they have developed, through social networks and receive teacher and peer feedbacks via spreadsheets. In this way, an active learning environment and an effective feedback mechanism have been established and the pre-service teachers have been given the opportunity to overcome the deficiencies they have noticed.

The SNSM process timeline is given in Figure 2. Accordingly, the SNSM process was carried out for 14 weeks. In this context, initially, the pre-service teachers were asked to respond to Teacher Self-Efficacy Scale (TSES). After the planning stage was completed, TSES was applied as a second measurement. At the end, SNSM process was completed by applying the TSES and open-ended interview questionnaire (OEIQ) as the final measurement.

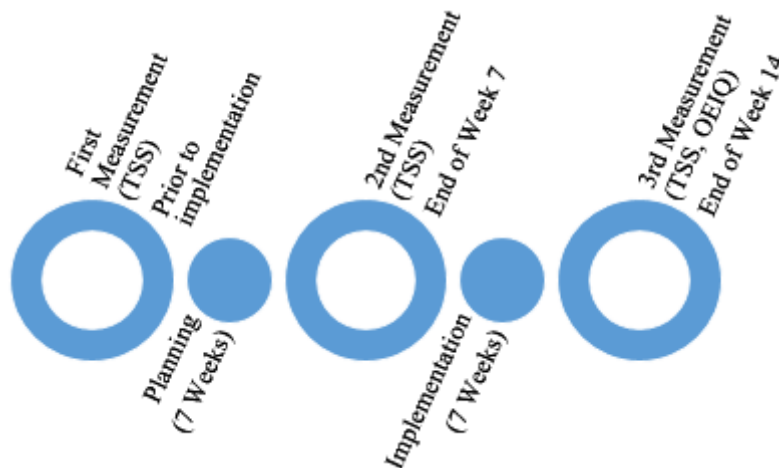


Figure 2. SNSM process timeline

Details for the stages of SNSM process are given as follows:

2.3.1. Planning

This stage was carried out according to the lesson plan preparation, feedback and rehearsal steps.

Preparing a lesson plan: Pre-service teachers define performance goals first. Within this scope, analysing the achievements for information technologies course for secondary schools and Imam-Hatip Secondary Schools (5th, 6th, 7th and 8th grades) published by the Board of Education and Discipline (BED) in 2012, they determined an achievement for themselves. In this respect, they prepared a 15-minute lesson plan according to the nine Instructional Events by Gagne, Briggs and Wager (1992), and shared those draft lesson plans in the social network group.

Feedback: All peers are allowed to access the shared lesson plans. For the lesson plans, feedbacks were given by the instructor and pre-service teachers through the social network-supported learning environment (SNSLE) every week. Pre-service teachers have improved lesson plans by revising according to the feedbacks given.

Rehearsal: The pre-service teachers revised their lesson plans again according to feedbacks they were given after implementing the lesson plans they developed previously by revising, in a small group of 3–5 peers.

2.3.2. Implementation

This stage was conducted according to the structured learning atmosphere, instruction and feedback steps.

Structured Learning Atmosphere: First, a learning atmosphere representing real classroom environments has been constructed in order for pre-service teachers to gain teaching skills based on the principle of learning by experience. In this context, stereotype and extreme student profiles encountered in primary education were determined on the ground of literature. The determined student profiles were distributed to the pre-service teachers by lottery, and the pre-service teachers were asked to play these roles in the class.

Performance: The pre-service teacher, who carried out the microteaching process, assuming the role of the teacher, has carried out his/her class in accordance with the final lesson plan in this structured learning atmosphere prepared.

Feedback: The process was completed by feedbacks given to the pre-service teacher who carried out the microteaching process, at the end of the instruction, through the feedback platform associated with the social network created by the Google spreadsheets by the course instructor and peers.

2.4. Data collection tools

This section includes information on qualitative and quantitative data collection tools used during the study and on social network-supported learning environment.

Social network-supported learning environment: A Facebook group has been created to provide continuous feedback and sharing, in addition to SNSM's face-to-face activities in the planning and implementation stages. This group includes all participants. The group's privacy settings were changed so that the group is accessible only by group members. The instructor-pre-service teacher and peer-to-peer interaction were provided by using the features of Facebook groups such as file uploads, comments, messaging and liking. In addition, the feedback platform built on Google Sheets was associated with the Facebook group in order to enhance the co-operation of pre-service teachers.

A screenshot of the Facebook group created within the social networking learning environment is given in Figure 3.

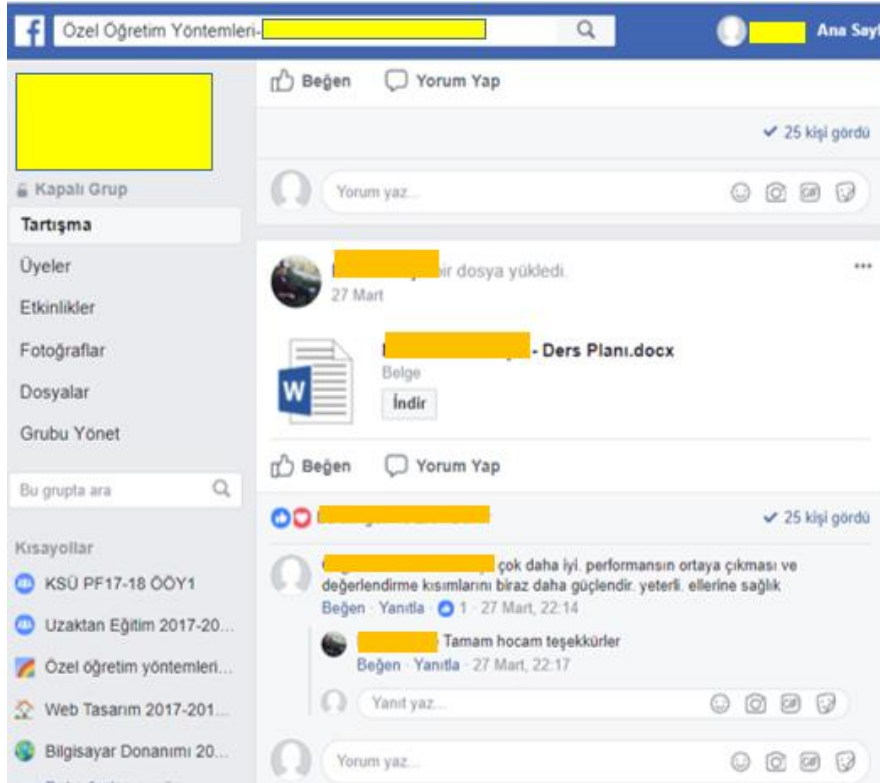


Figure 3. SNSLE

Teacher self-efficacy scale: The TSES used in the study to obtain teacher self-efficacy scores of participants was developed by Tschannen-Moran and Hoy (2001) and adapted to Turkish by Capa, Cakiroglu and Sarikaya (2005). The 9-point Likert-type scale consists of 24 questions and three dimensions, being student engagement, teaching strategies and classroom management. Internal consistency coefficients of the TSES were 0.79 for the student participation dimension, 0.89 for the teaching strategies dimension, 0.88 for the classroom management dimension and 0.94 for the scale points. In this study, Cronbach alpha internal consistency coefficient for TSES was calculated as 0.913.

Open-ended interview questionnaire: An open-ended interviewing method was preferred to obtain detailed and descriptive expressions of pre-service teachers on the SNSM process. According to Rubin (1983), the OEIQ is one of the interview types. In the open-ended interview questionnaires, there are a set of standard questions, and the individuals interviewed respond to these questions in the way they want and in a subjective way (as cited in Yildirim & Simsek, 2011). When preparing the open-ended interview questionnaire, considering the research questions and implementation process, a literature review was conducted. Subsequently, the draft was presented to a field specialist with a master's and a doctorate degree in the field of survey and then, to a Turkish language specialist. After making the necessary corrections, the questionnaire became a standard questionnaire consisting of five open-ended questions.

Evaluation Questionnaire for SNSM Process (EQSP): In addition to the open-ended questionnaire, an EQSP was created to allow pre-service teachers to assess each stage in the SNSM process in terms of their contribution to lesson planning and implementation skills. The EQSP is a 5-point Likert-type Scale consisting of six items.

2.5. Data analysis

In the analysis of quantitative data, repeated measures ANOVA was used in SPSS 21 program. In the analysis of qualitative data, content analysis method was preferred. The two-stage qualitative analysis process carried out separately by each researcher is as follows:

Stage 1: Raw data from open-ended questionnaires were encoded around survey questions. Thus, an encoding list was drafted.

Stage 2: The codes in the drafted encoding list were conceptualised referring to the literature, and the questionnaire data was revised again. From the final encoding list, the themes were created.

After the individual analysis period, the researchers tried to reach a mutual agreement by discussing points where they disagreed. After the discussion, the researchers were able to identify the agreed and disagreed points and the analysis process was completed. As a result of the reliability analysis for the qualitative dimensions of the research, Consensus/(Consensus/Dissidence) formula was used (Miles & Huberman, 1994). The result showed a 93% consensus. In addition, after the codes and themes are constructed, descriptive statistics such as frequency and average are included in the analysis of qualitative data.

3. Findings

In this section, findings obtained for the research questions are presented first as quantitative and then as qualitative evaluations.

Research Question 1: How did the pre-service teacher self-efficacy change in the SNSM process?

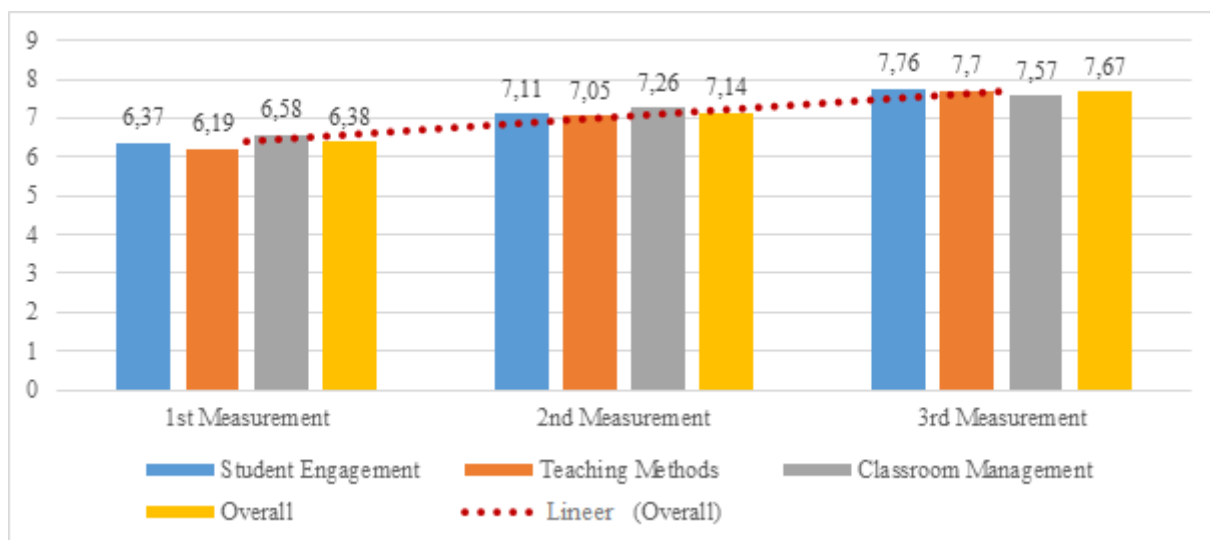


Figure 4. Change in teacher self-efficacy of teacher candidates during SNSM process by time aspect

As it can be seen in Figure 4, considering all the dimensions of the scale and the overall points, it is surprising that the difference between the first and second measurements is greater than the difference between the second and last measurements. As a matter of fact, lesson plans were prepared between the first measurement and the second measurement. During the lesson planning activities, pre-service teachers had very limited chance to practice in the classroom. Between the second and third measurement, their implementation of the lesson plans, in other words, use of the microteaching technique, resulted in a relatively less increase than what was predicted. When the first and last measures are considered, it is observed that there is an increase by 1.39 in the student

engagement dimension, by 1.51 in teaching methods dimension, the highest increase, by 0.99 in classroom management dimension, the lowest increase, and finally by 1.29 points in overall average. In this case, it is shown that the implementation process has a positive effect on teacher self-efficacy of pre-service teachers.

Table 1. Results for repeated measures ANOVA in teacher self-efficacy scores

Source of variation	Sum of squares	df	Mean of squares	F	P	Significant difference
Between samples	10.645	16	0.665	11.958	0.000	1–2, 2–3
TSES	14.331	2	7.166			
Error	19.175	32	0.599			
Total	33.506	50				

In Table 1, in order to determine how teacher self-efficacy of pre-service teachers changed by time in the SNSM process, the scores obtained from the TSES were compared using ANOVA for repeated measures. The sphericity test is the main condition for this analysis. Furthermore, even if the data do not show normal distribution characteristics, this analysis may produce correct results, therefore, the results should be checked with non-parametric analysis (Friedman Test) (Can, 2014). Therefore, it was determined that there was no significant difference between the variances in the measurements according to the Mauchly's test of sphericity result ($p = 0.688$). As the results of the sphericity test were acceptable, there was a statistically significant difference between teacher self-efficacy scores of pre-service teachers according to results of variance analysis for repeated measurements [$F(2-32) = 11.958, p = 0.00$]. The results of the Friedman test, which is a non-parametric counterpart of the ANOVA test for repeated measures, also showed a significant difference ($p = 0.001$). Having compared the averages of the first measurement scores ($X_{M1} = 6.38$), the second measurement scores ($X_{M2} = 7.14$) and the third measurement scores ($X_{M3} = 7.67$) to each other, the average of each measurement showed a significant increase.

Research Question 2: What are the pre-service teachers' opinion on the effects of SNSM on their teaching skills?

Within the qualitative dimension of the research, opinions of pre-service teachers on the effects of SNSM on their teaching skills were received. Pre-service teachers' opinions on the SNSM process were obtained through an open-ended interview questionnaire and the analysis of qualitative data is presented in Table 2.

Table 2. Frequency distribution of the opinions of pre-service teacher on the effect of SNSM process on their teaching skills

Themes	Sub-dimension	SNSM planning stage	SNSM implementation stage	Pre-/post-SNSM	Total
Instructional design skills	Teaching methods and techniques	1		3	4
	Lesson planning	6		1	7
	Developing materials for student needs	5		2	7
	Classroom management		10	5	15
	Implementing lesson plan		5	2	7
Psychological factors	Time management	1			1
	Acquisition of professional identity		4	3	7
	Self-awareness	6	2	2	10
	Self-confidence	2	7	3	12

	Professional satisfaction		2		2
	Motivation		1		1
	Self-regulation	7	5		12
Supporting factors	Removing cosmetic effect	2			2
	Gaining experience	1	3	1	5
	Facilitating	3			3
Total		34	39	22	95

Table 2 contains the opinions of pre-service teachers on the effects of SNSM planning and implementation stages and the pre- and post-SNSM changes on their teaching skills. The data obtained were collected under three themes as instructional design skills, psychological factors and supporting factors.

Instructional design is divided into subcategories as teaching methods and techniques ($f = 4$), lesson plan preparation ($f = 7$), developing materials for student needs ($f = 7$), classroom management ($f = 15$), instruction ($f = 7$) and time management ($f = 1$). P14 summarises the contribution of SNSM activities to his/her instructional design skills saying:

'I learned that the most important and essential element to have an effectively controlled, time-saving class is the lesson plan. I observed that there is great difference between the lessons I had with and without lesson plans. Therefore, I keep the lesson plan, for which you provided feedbacks and corrections, like a treasure. Because it is like guide to my professional life from now on. What a lesson plan is to a teacher is the same as what a canvas is for an artist'.

Psychological factors theme is divided into subcategories as acquisition of professional identity ($f = 7$), self-awareness ($f = 10$), self-confidence ($f = 10$), professional satisfaction ($f = 2$), motivation ($f = 1$) and self-regulation ($f = 12$).

P9, saying *'I understood that the most important point in a lesson is the lesson plan'*, emphasised that s/he has become aware of the importance of preparing lesson plans.

On the other hand, P8, referring to activities in planning stage of SNSM, said *'It has had a great impact on planning a lesson and you feel confident before you go into the class. Preparing a good lesson plan shows you the potential difficulties in a lesson and makes you experienced in classroom management'* and expressed both that his/her awareness of the importance of preparing lesson plans and that those practices contributed to his/her self-confidence.

Similarly, P11 emphasised that the feedbacks s/he received during the planning stage of SNSM had an impact on preparing lesson plans and on implementation stage, and P11 stated that:

'Better late than never, I've understood the importance of preparing a lesson plan. I improved my lesson plans according to the feedbacks. I focused on the achievements, which are of primary importance. As our instructor said, as the achievements have an impact on my lesson plan, I focused on the achievements. I developed my lesson plan accordingly. This lesson plan provided me with a comfort and ease during the lesson and improved my self-confidence and self-efficacy'.

Moreover, P8, saying *'The reactions by the students to the material I designed were great. I want to plan such projects and design such materials that everyone can use'* stated that the lesson planning activities motivated him/her professionally.

P9 on the other hand said:

'Having a class, feeling like a teacher, and students saying "Teacher!"... They were good feelings. I felt self-confident. While I had been saying "Could I do this, would I be shy, How could I do this", I had the chance to experience this through microteaching. I defeated my anxiety'.

And explained the s/he had the sense of professional identity for the first time. Considering the changes in the pre- and post-implementation by the participants under the theme of psychological factors, the most frequently expressed are the self-awareness they gained through planning and implementation activities and the increase in self-confidence due to the successfully simulated experiences during the transition to practice from theory. P11, saying *'I've become aware of my teaching skills, what I can do and my limits'*, confirmed this.

The supporting factor was categorised as removing cosmetic effect ($f = 2$), gaining experience ($f = 5$) and facilitating ($f = 3$).

P9, saying *'I've understood that preparing a lesson plan is the most important point of teaching. Having a lesson plan facilitates teaching'*, emphasised that learning how to prepare lesson plans during SNSM process facilitated instruction for the pre-service teachers, and P3 said *'Sharing information and receiving feedbacks via social networks facilitated the course'* and supported this idea.

In addition to frequency analysis of results obtained through open-ended interview questionnaires, averaging calculations of the opinions of pre-service teachers on the effects of EQSP and SNSM activities on their course planning and implementation skills, in order to determine their opinions on the effects of SNSM on their teaching skills. The findings are presented in Table 3.

Table 3. Opinions of pre-service teachers on the effect of SNSM on lesson planning and implementation skills

SNSM stages		Lesson planning skills	Lesson plan implementation skills
Planning	Preparing lesson plan	4.714	4.428
	Feedback	4.714	4.5
	Rehearsal	4.285	4.642
	Mean	4.571	4.523
Implementation	Structured learning atmosphere	4.153	4.538
	Feedback	4.384	4.461
	Performance	4.153	4.153
	Mean	4.23	4.384

5: Very high, 4: High, 3: Satisfactory, 2: Low, 1: Very low

In the third measurement, pre-service teachers were asked to evaluate the contribution of all stages of the SNSM process to the lesson planning and lesson plan implementation skills, and the results are given in Table 3. When Table 3 is examined, it is observed that the SNSM stages have a high impact on the lesson planning and implementation skills of the pre-service teachers. However, pre-service teachers have expressed an opinion that the planning stage of SNSM has a greater impact on lesson planning and implementation skills compared to the SNSM implementation stage. This finding is consistent with the findings in the graph for the change in teacher self-efficacy of the pre-service teachers given in Figure 4. Accordingly, the change in the self-efficacy of the pre-service teachers was higher in SNSM's planning stage compared to the implementation stage. Also, Table 2 shows that the planning stage of SNSM increases awareness of pre-service teachers and results in removal of cosmetic effects. This may be one of the reasons why SNSM's planning stage has a higher impact on pre-service teacher self-efficacy and teaching skills compared to the implementation stage.

When Table 3 is examined, it is clear that in the first stage, pre-service teachers prepare lesson plans and receive feedback on the social network during this process are the practices that contribute to the lesson planning skills the most. For the second stage, the creation of a structured learning atmosphere and giving feedbacks rather than an instruction stage by itself seem to contribute to acquisition of such skills undeniably.

When Table 3 is evaluated in combination with Table 2 considering the stages of the implementation process, planning activities seem to provide the greatest support for self-regulation,

awareness, preparation of lesson plan and need-based material development, while implementation seems to have the greatest impact on classroom management, implementation and self-regulation skills. Students particularly expressed that receiving feedbacks on lesson plans played an important role on the development of psychological factors dimension.

4. Discussion and conclusion

Microteaching is one of the methods in which teacher training that is based on theory and practice and offers a school-based experience to pre-service teachers. Pre-service teachers gain applied teaching experiences in the light of theoretical knowledge with microteaching method. In order for the method to be efficient, the interaction between the pre-service teachers and the instructor must be achieved in an efficient way. Thus, pre-service teachers may increase their self-efficacy levels through observations and feedbacks and have the opportunity to improve their teaching skills. However, there may be difficulties in implementing the method as the classes are crowded and the interaction is difficult in universities. Supporting education through social networks, one of the online learning environments, increases student–teacher interaction by providing continuity of education and customises the education by creating an active feedback mechanism.

In this study, the effect of SNSM on teacher self-efficacy of pre-service teachers was examined and opinions about the effects of SNSM on teaching skills were received.

When the quantitative findings obtained were evaluated, it can be said that the SNSM process increased the self-efficacy levels of the pre-service teachers. When the activities in the SNSM process were evaluated on some (planning, implementation) basis, the self-efficacy levels of pre-service teachers increased significantly at the end of both phases. However, it was seen that SNSM activities during the planning stage led to a further increase in the self-efficacy levels of the pre-service teachers compared to the activities during the implementation stage. In addition, in the qualitative studies, the pre-service teachers expressed that the planning activities for SNSM improved the lesson plan preparation, self-awareness and self-regulation skills, and the implementation activities improved the class management skills and self-confidence levels.

When both qualitative and quantitative data are evaluated together, the reason why SNSM planning activities improve the self-efficacy of the pre-service teachers more when compared to implementation activities, may be due to the fact that planning activities increase self-efficacy and self-regulation skills. Thus, lesson planning and rehearsal activities have been seen to have an effect on teaching skills when used in social network-supported microteaching.

Findings from pre-service teachers' opinions on the effects of SNSM stages on the ability to plan lessons and implement the lesson plan are also in support of these findings. In addition, it has been found out that the SNSM process stages, that contributed to the lesson planning and implementation skills of pre-service teachers the most, were receiving feedback from the social network to the lesson plans and feedback via online spreadsheets. In the research by Okumus and Yurdakal (2016) as well, it was found out that sharing the lesson plans via the social network and correcting them according to the feedbacks received, contributed to the lesson planning skills of pre-service teachers. Ozan and Odabasi (2016) also pointed out that providing counselling for pre-service teachers via the social network enhances the interaction between pre-service teachers and instructors, and that it enabled pre-service teachers to develop more qualified lesson plans and facilitated the lessons.

It is considered that for future research studies, experimental studies and qualitative research is needed to demonstrate the effects of feedback processes. In addition, considering the use of technology by the teachers of the age of information in their educational processes, in the future studies technological pedagogical content knowledge and identified indicators of teachers' technology integration may be included in the SNSM process. Furthermore, anxiety and motivation levels and professional identity acquisition and instructional design skills of the pre-service teachers as well as

psychological factors that are determined in the qualitative dimension of the research can be examined in more detail with validated and reliable measurement tools.

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