Active Learning Methods and Techniques Preferred by Teacher Candidates

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Abstract

The aim of this study is to determine the active learning methods and techniques that teacher candidates prefer. The study was conducted in accordance with scanning method. The participants of the study were consisted of teacher candidates (n=266) who were received pedagogical formation education in Kastamonu University at 2017-2018 spring term. All of the participants had taken the lessons of "Teaching Principles and Methods" and "Special Teaching Methods". The survey form developed by the researchers was used as data collection tool in the study. The survey form was formed as ranking scale by consulting the field specialists' opinions. Accordingly, to state the active learning methods and techniques preferred by teacher candidates 5 Likert-type items, from always to never, were used in the scale. According to the pre-implementation results the Cronbach's alpha value of the form was calculated .86 and after the revision of the scale, final form was consisted of 25 items. Percentage, frequency and descriptive analysis were used for the analysis of the data obtained from teacher candidates' opinions. According to the findings of the study, it was concluded that question-answer, brainstorming and problem-solving were the most preferred active learning methods and techniques while gossip, court and buzz were the least preferred ones.

Keywords: Teacher candidates, active learning, teaching methods and techniques.

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Öğretmen Adaylarının Tercih Ettikleri Aktif Öğrenme Yöntem ve Teknikler

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Öz

Bu çalışmanın amacı, öğretmen adaylarının tercih ettiği aktif öğrenme yöntem/tekniklerini belirlemektir. Tarama modeline göre gerçekleştirilen çalışmanın katılımcılarını 2017-2018 akademik yılı bahar yarıyılında Kastamonu Üniversitesi'nde pedagojik formasyon eğitimi almış olan öğretmen adayları (n=266) oluşturmaktadır. Çalışmada veri toplama aracı olarak araştırmacılar tarafından geliştirilen anket formu kullanılmıştır. Anket formunda öğretmen adaylarının tercih ettikleri aktif öğrenme yöntem/tekniklerin belirlenebilmesi için 5'li likert tipi maddelere yer verilmiştir. Hazırlanan anketin ön uygulaması yapılmış, cronbach alpha değeri .86 olarak bulunmuştur. Anket üzerinde düzenlemeler yapılarak ölçeğin son hali 25 maddeden oluşacak şekilde hazırlanmıştır. Araştırma sonunda elde edilen verilerin analizinde yüzde, frekans ve betimsel analiz kullanılmıştır. Araştırmada elde edilen verilere göre öğretmen adayları tarafından en fazla tercih edilen aktif öğrenme yöntem ve tekniklerinin; soru-cevap, beyin fırtınası ve problem çözme olduğu belirlenirken dedikodu, mahkeme ve vızıltının en az tercih edilen yöntem ve teknikler olduğu tespit edilmiştir.

Anahtar Sözcükler: Öğretmen adayları, aktif öğrenme, öğretim yöntem ve teknikleri.

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Introduction

Today it has become more important for a knowing person to use what he knows and reach to new information instead of just knowing it. And the teacher has an important place in the gaining of these characteristics. Because teachership is an important job which raises qualified labor force which is required in public.

The teacher of the 21. century who is supposed to meet the requirements of today and tomorrow is not someone who just teaches students and assesses them. Today, it is expected from a teacher to organise teaching-learning processes, to be a good manager, a good observer and a qualified guide. In this context, today the teachership has become a profession which requires more qualification and proficiency.

Today, as technology progresses, the debates about the role of the teachers in education increased as well. In the past, when the teacher was the most important element of teaching, he was regarded as the distributor of knowledge and what he does and what he says were considered as teaching. If education is described only as the transfer of knowledge, it can be said that the role of teachers in education has lessened. But, today education has a meaning beyond the ordinary transfer of knowledge. (Ergun,1999, p.73). Today, although the task of the teacher has changed rapidly in the teaching activities which arise from the application of modern technology products in the field of education, the teacher keeps his place as an important element in education. In our age where the knowledge has increased incrementally and knowledge base has changed continuously, teachers shouldn't teach the transfer of knowledge, but the ways to reach the knowledge which the age requires and to use what is known. The raising of individuals according to the information society is only possible with teachers who give up from just transferring the knowledge, memorising the knowledge and reclaiming this memorised knowledge in the exams (Halat et al. 2006).

Teaching is a complex process which is formed from the interactivity of teacher, objective, subject, method and environment elements and which student is in its axis (Büyükkaragöz & Çivi, 1999). A good education depends on the usage of these elements in harmony and in an effective way. The task of the teacher is to help students structure their knowledge in an active way by using various teaching methods and techniques, technology, equipment in the learning environment. The way which was followed in order to reach the goals defined in the teaching process indicates the selected method.

Method is stated as an ordered way which is selected and followed deliberately in order to reach a goal such as solving a problem, concluding an experiment, learning or teaching a subject (Oğuzkan, 1989) or the presentation of so many techniques in a way to form integrity in order to achieve the same target (Tan, 2007). Besides these definitions, method is defined as systemised, ordered approaches at the stages of preparation, support, application and assessment of teaching experiences (Aydın, 2003), and it is also described as a way of achieving the target which certain techniques and equipments are used in it (Snowman, 1986), and as a systematic plan which is used in the introduction of learning-teaching equipment as well (Demirel & Ün, 1987).

Methods and techniques have an important place in the usage of knowledge, skill, attitude and values which were learned by individuals in their lives. In the process of learning, the more the individual is ensured to become active by thinking, searching, asking, problem-solving and working in collaboration, the more qualified and permanent the learning becomes, and the individual can use what he learned in life. Thus, the methods and techniques preferred in the learning process have an important role in the transfer of knowledge to life along with providing the permanence of knowledge.

In the teaching-learning process at schools it is aimed for students to have the educational attainment which was determined in the curriculum. And in the curriculums of today constructivist approach has come into prominence. According to the constructivist approach, teachers are expected to use methods and techniques which ensure students to become more active in teaching- learning process instead of methods and techniques which are traditional. Students are ensured to be more active in the application process of the selected methods and techniques in order to facilitate students to have the determined educational attainment and to make the students learn in an effective way. Thus, we can speak of students to take on responsibility and effective learning.

For a good learning, it is not enough to be competent in the area of the subject which will be taught, but it is also required to know the methods and techniques which will be used in the teaching of the subject. And teachers selecting the correct methods and techniques depends on knowing methods-techniques and using them properly. Thus, teachers are required to have method richness (Demirel, 2006). There is no method which can be magic wand for any lesson. It can not be said that this method is used in this lesson and that method can be used in the other one. The teacher will choose the most appropriate methods for his classroom through his personal effort and sensitiveness and he will make changes according to the signals he will take from his classroom. The important point is that the teacher uses the method which provides the most effective teaching in accordance with the characteristics of the students and the subject (Küçükahmet, 2000). One of the easiest ways of reaching the goals determined in the curriculums is using the correct teaching methods and techniques which were selected at the appropriate time.

One of the critical qualifications that should be found in a teacher is the effective use of teaching methods and techniques. As Demirel (2003) emphasizes, it should be attached importance to the usage of more than one method instead of a single method or technique in order the teaching to be effective. In this context, teachers should use different methods and techniques in teaching-learning process. Teachers using instructional methods and techniques in accordance with the target, subject and situation in the period of one course enables students to learn better by keeping their attention alive (Demirel, 2006) and this also increases their interest in the lesson, their learning enthusiasm (Saracaloğlu, 2003), their attendance to lesson and their success in the classroom (Şahin, 2004).

The teacher's ability to use teaching methods and techniques is an important element in terms of the effectiveness of teaching. The teacher should also take the characteristics, pre-learning, expectations, interests, attitudes towards the lesson and learning speed of students into account while deciding on the method and technique to be used in the teaching-learning process, and should direct students to critical and creative thinking and research. Because selected methods and techniques are one of the most critical variables of teaching-learning process. In addition, the activities of the methods and techniques determined by the teacher should be implemented in a planned manner. If the teaching-learning process does not take place as planned, the methods and techniques used in this process should be revised and replaced with new ones if necessary (Aydede, et al. 2005).

Researches on the effectiveness of teaching methods and techniques show that there is no single teaching method required for all kinds of learning. The effect of the methods and techniques varies according to the teacher, student characteristics, field of the subject and the educational attainments which are requested to be given. Therefore, teacher candidates and teachers should know the teaching methods and techniques very well and select the most appropriate method to use (Erden, 1997, p.98).

In recent years, it has become more important to teach students how to how to reach the knowledge, which way to be followed in case of a problem and how to use their knowledge rather than storing knowledge. It can be said that the ability of an individual to use his knowledge in the situations he confronted depends on the application of methods and techniques that provide effective learning and transfer of what was learned to life. In this context; the nature of the teaching-learning process depends on the method-techniques which were selected and implemented by teachers in this process. The effective use of methods and techniques that have an important role in achieving the goals/educational attainments defined in education and in the organization of the teaching-learning process requires teachers to have knowledge about this subject. It can be said that an important process in which teachers increase their experience about the methods and techniques that are expected to be applied in the teaching-learning process is their years in the faculty where they are educated and practised in this field. The teacher candidates are expected to gain as much experience as possible about the active learning methods and techniques required by the age within the period they are educated. In this context, while determining the active teaching methods and techniques preferred by teacher candidates can help them gain experience on the one hand, it can be determined which active learning methods are more preferred on the other hand.

Objective of the Study

The general objective of this study is to determine the active learning methods and techniques preferred in the activities carried out by teacher candidates. It was also aimed in the study to determine whether the preference of the methods and techniques varied according to the departments or not. In this respect, the opinions of the teacher candidates in three different departments were asked. Therefore, the answers for the following questions were sought within the scope of this study:

1. What are the active learning methods/techniques preferred by the teacher candidates?

2. What are the active learning methods/techniques preferred by the teacher candidates according to the departments they grautuated from?

Method

Research Model

In this descriptive study which aimed to determine the active learning methods and techniques preferred by teacher candidates, survey model was used due to the aim of putting the present situation forth.

Participants

The participants of the study consisted of teacher candidates who had pedagogical formation education in Kastamonu University in the spring semester of the 2017-2018 academic year (n = 266). All of the teacher candidates took the lessons of teaching principles and methods and special teaching methods. As these lessons are carried out according to the micro teaching method, teacher candidates have sufficient knowledge about active learning methods/techniques. Distribution of teacher candidates by gender is given in Table 1:

Table 1

Distribution of Teacher Candidates by Gender

Gender	f	%
Female	156	59
Male	110	41
Total	266	100

As seen in Table 1, more than half of teacher candidates participating in the study are female teacher candidates. Distribution of teacher candidates who were participated in the study according to the departments they graduated from is given in Table 2:

Table 2

Distribution of Teacher Candidates according to the Departments They Graduated from

Departments which were graduated from	f	%
Literature	90	34
Theology	78	29
Mathematics	98	37
Total	266	100

As can be seen in Table 2, it can be said that all three groups of teacher candidates who have graduated from the departments of Literature, Theology and Mathematics have similar rates. However, it can be stated that teacher candidates who participated in the study mostly consisted of people graduated from the mathematics department and at least the ones who graduated from the theology department.

Data Collection Tool and Data Analysis

In the study, the questionnaire form developed by the researchers was used as data collection tool. The questionnaire form is prepared in the form of a ranking scale which is formed by applying to the opinion of the field experts. Accordingly, in order to determine the active learning methods/techniques preferred by teacher candidates, 5 point Likert type items in the form of always, frequently, occasionally, rarely, never were given place in the scale. The preliminary application of the prepared questionnaire was performed and the Cronbach alpha value was found as .86. The final version of the scale was prepared to be consisted of 25 items by making arrangements on the questionnaire. Within the scope of the research, percentage, frequency and descriptive analysis were used in the analysis of the data obtained by applying to the opinions of teacher candidates, the obtained data was examined and presented as tables.

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Findings

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The data gathered from teacher candidates within the scope of the research was grouped and presented in the form of tables. The distribution of the active learning methods/techniques preferred by all teacher candidates participated in the study is given in Table 3:

Table 3

Active Learning Methods/Techniques Preferred by Teacher Candidates

Method / Technique	Always		Frequently		Occasionally		Rarely		Never		X
	f	%	f	%	f	%	f	%	f	%	
Question Answer	64	48	46	35	18	14	3	2	2	1	4,25
Brainstorm	38	29	48	36	30	23	11	8	6	4	3,75
Problem-solving	39	29	33	25	34	25	22	17	5	4	3,59
Concept Map	29	22	34	25	30	23	29	22	11	8	3,32
Shared Teaching	23	17	36	27	32	24	35	27	7	5	3,25
Mind Map	29	21	30	23	30	23	33	25	11	8	3,24
Case Study	25	19	22	17	39	29	37	28	10	7	3,10
Debate	18	14	33	25	42	31	20	15	20	15	3,06
Fishbone	27	20	16	12	37	28	37	28	16	12	3,02
Educational Games	25	19	23	17	28	21	32	24	25	19	2,92
Station	15	11	31	23	30	23	41	31	16	12	2,90
Talking Circle	15	11	29	22	34	26	32	24	24	17	2,84
Bread and Butter	10	7	30	23	37	28	40	30	16	12	2,84
Quick Tour	10	7	28	21	42	32	29	22	24	18	2,79
Roleplay	21	16	21	16	26	20	38	28	27	20	2,76
Snowball	10	7	17	13	43	32	57	43	6	5	2,7
Hour glass	13	10	27	20	31	23	37	28	25	19	2,7
Aquarium	16	12	18	14	33	25	47	35	19	14	2,7
Six Hats	10	7	28	22	27	20	49	37	19	14	2,6
Card Display	13	10	22	17	27	20	50	37	21	16	2,6
Sandvich	5	4	26	20	35	26	48	36	19	14	2,6
Philips 66	6	4	18	14	28	21	53	40	28	21	2,4
Buzz	12	9	17	13	21	16	43	32	40	30	2,3
Court	8	6	13	10	22	17	48	36	42	31	2,2
Gossip	3	2	8	6	24	18	52	40	46	34	2,0

When Table 3 is examined, it is seen that the most preferred three methods/techniques by teacher candidates are question-answer (x=4,25), brainstorm (x=3,75) and problem-solving (x=3,59). After these ones, it is seen that the other preferred methods/techniques by teacher candidates are concept map (x=3,32), shared teaching (x=3,25) and mind map (x=3,24). Another significant finding is that the average of opinions belonging to teacher candidates related to these items is at the level of "frequently". And it is seen that the least preferred active learning methods/techniques preferred by teacher candidates are gossip (x=2,02), court(x=2,23) and buzz (x=2,39).

It was also required within the scope of the study to determine whether the active learning methods/techniques preferred by teacher candidates vary according to the departments they graduated from or not. For this purpose, the distribution of the average of opinions related to the methods/techniques preferred by teacher candidates according to the departments they graduated from is given in Table 4:

Table 4

Active Learning Methods/Techniques Preferred by Teacher Candidates according to the Departments they Graduated from

Method/Technique	Averages Belonging to the Departments			GeneralAverage
	Literature	Theology	Mathematics	
	X	X	X	X
Question Answer	4,54	4,17	4,06	4,25
Brainstorm	3,72	4,02	3,58	3,59
Problem-solving	3,40	3,12	4,12	3,59
Concept Map	3,34	3,43	3,18	3,32
Shared Teaching	3,50	3,17	3,08	3,25
Mind Map	3,13	3,53	3,12	3,24
Case Study	3,25	3,00	3,08	3,10
Debate	3,43	3,46	2,44	3,06
Fishbone	2,90	3,30	2,86	3,02
Educational Games	3,06	2,97	2,78	2,92
Station	2,88	3,25	2,66	2,90
Talking Circle	3,20	3,25	2,24	2,84
Bread and Butter	2,59	3,00	2,92	2,84
Quick Tour	2,65	2,76	2,90	2,79
Roleplay	2,97	2,94	2,48	2,76
Snowball	2,68	3,00	2,64	2,75
Hour glass	2,38	2,89	2,94	2,73
Aquarium	2,86	3,02	2,40	2,72
Six Hats	2,77	2,71	2,64	2,69
Card Display	2,97	2,56	2,48	2,65
Sandvich	2,77	2,41	2,66	2,62
Philips 66	2,38	2,58	2,28	2,40
Buzz	2,50	2,51	2,18	2,39
Court	2,11	2,76	1,86	2,23
Gossip	2,11	2,17	1,82	2,02

When Table 4 is examined, it is seen that the most preferred active learning methods/techniques preferred by teacher candidates are question-answer for both literature and theology departments, and

problem-solving for mathematics department. While the question-answer technique is the second most preferred method/technique for the mathematics department, it draws attention that the second most preferred method/technique for other two departments is brainstorm for both of them again. It is also seen that all three groups specified gossip technique in common as the least preferred method/technique by teacher candidates and in all groups, the average of teacher candidate's opinions is at the level of "rarely".

Whereas the methods/techniques preferred by teacher candidates according to departments resemble to a large extent, it can be said that the most difference of opinions between the groups are in the techniques of debate and talking circle. When the preferences of the candidates from literature and theology department related to these techniques are examined, it draws attention that whereas they have a close average such as 3,43 and 3,46 then 3,20 and 3,25 respectively, maths teacher candidates have comperatively less averages (x=2,44 and x=2,24)

Discussion, Conclusion and Recommendations

Active learning is the process which the learner bear the responsibility of the learning process, the learner is given the opportunity to take decisions about the different directions of the learning process and to make self-regulation, and the learner is forced to use his cognitive abilities during learning through complicated teaching procedures (Açıkgöz, 2005). By this research, it is aimed to determine the active learning methods/techniques which teacher candidates preferred in order to transform learning processes into active learning environments. According to the findings obtained from the research, whereas it is determined that the most preferred active learning methods/techniques preferred by teacher candidates are question-answer, brainstorm and problem-solving, the least preferred methods/techniques are defined as gossip, court and buzz.

When the opinions of teacher candidates are assessed with a holistic view, it can be said that the average of the opinions for any method/technique is never at the level of "never", there is no method/technique in the table which has an average at the level of "always" except question-answer and for most of the methods/techniques presented in the table (f=17), average of the opinions are at the level of "occasionally".

It can be said based on the preferences of the participants that they preferred primarily group teaching methods/techniques which they can use comfortably in different lessons and suitable for developing various skills of students such as critical thinking, questioning, problem-solving, creative thinking, self-expression etc. As another reason for the preference of these methods/techniques, it could be thought that the practice of these methods/techniques is easier and more practicable when compared to the other methods/techniques on the questionnaire and also these methods are widespread and common than the other ones. And when the least preferred active learning methods/techniques by teacher candidates are examined, it can be said that teacher candidates preferred these methods/techniques lesser than the others because of the effect of the consideration that when these are implemented noise may come out of it in the learning environment.

In the study conducted by Toptaş (2012), it was concluded that the methods most used by the class teachers in the mathematics lesson were question-answer, problem-solving and plain expression respectively, and the buzz technique was among the least-used methods/techniques. In the study carried out by Aykaç (2011) in order to determine the methods/techniques used by the class teachers in the life science lesson, it was determined that question-answer and problem-solving methods were used by the majority of teachers in the lessons. In the study done by Çelikkaya and Kuş (2009) with social studies; it is concluded that teachers use mostly question-answer, direct instruction, dictation and brainstorming methods in the classroom. And in the study performed by Saracaloğlu et al. (2008), brainstorming, question-answer, discussion, demonstration and role-playing have been expressed as the most commonly recommended methods techniques to be used by Turkish teachers. Accordingly, it can be said that the findings obtained in this study coincide with the results of the relevant researches.

Teachers play an important role in enabling the teaching processes to be delivered to a student-centered structure that will enable active learning. Along with teachers prepare proper learning experiences which will reach the students to educational attainments, it is quite important that these

experiences provide active participation of students in lessons both cognitively and physically. Therefore, taking advantage of proper active learning methods /techniques continuously and consistently is important in terms of enabling students to become active in the learning environment as well as in terms of bringing this learning approach into behavior. Thus when the preferences of participant teacher candidates are taken into consideration along with their opinion average related to these preferences, the averages belonging to most of the methods/techniques being at the level of "occasionally" makes us think that these methods/techniques will not be used by teacher candidates at the desired level.

When the active learning methods/techniques preferred by the participants are examined according to the departments which teacher candidates graduated, it is concluded that the preferences of the teacher candidates in three different sections are much similar but the debate and talking circle techniques are less preferred by mathematics teacher candidates. When the aforementioned techniques are examined, it can be said that obtaining the original thoughts of students and enabling to see the differences between their opinions are common features of these techniques. Therefore, it can be said that consideration of the use of these techniques in the subjects of verbal lessons being more appropriate is effective in this. In addition, the possibility that the time to be spent for these techniques may be extended may cause these techniques to be less preferred by mathematics teachers.

In the study conducted by Taşkaya and Kösece (2015), it was concluded that the debate technique was one of the least used methods/techniques used by mathematics teachers. When the results of the study conducted by Yulu (2014) with mathematics teachers, it is concluded that these teachers do not use teaching with games, project-based teaching and simulation techniques which will make mathematical teaching enjoyable because of the reasons such as these methods/techniques taking a lot of time, not establishing the classroom control due to being a loud activity, and teachers not knowing suitable games for teaching. Accordingly, it can be said that the results of the related studies are similar.

When the results of the research are evaluated with a holistic approach, it can be said that preference levels of teacher candidates for a vast majority of active learning methods/techniques in the questionnaire are under the expected and desired level despite their positive perceptions about teaching method/technique.

Since the teacher candidates recognize all the methods/techniques in the questionnaire form with their practices within the framework of the micro-training method in the relevant pedagogical formation courses, it is thought that although they are aware of the advantages that active learning processes will offer to them and the students in achieving the educational outcomes, they also envisage their disadvantages. In order to apply active learning methods/techniques effectively, teachers need to spend more labor and time both in planning, preparation and implementation compared to traditional methods/techniques. In addition, the fact that classes are not equipped for the implementation of these methods/techniques, the readiness levels of the students and the educational attainments in curriculums being determinative in the method/technique selection may be listed as the aforementioned disadvantages which lead to the declination of preference levels of teacher candidates.

Saracaloğlu and Karasakaoğlu (2011) stated in their study that Turkish teachers avoid using various methods and techniques due to various impossibilities and restrictions such as lack of time in their courses, lack of appropriate level of students and classrooms being overcrowded, although these are very necessary. In a study by Temizöz and Koca (2008), although mathematics teachers liked the lesson plan prepared according to the learning approach through discovery, more than half of the respondents stated that this plan was not applicable under the conditions of our country. The participants stated the reason for this as negativities such as the implementation of this approach taking more time, the curriculum being intense, the difficulty of using materials in the lessons due to economical situation of students and students behaving uninterested against the lesson. When the opinions of teachers in both studies are examined, it is thought that they determined their preferences through a similar system of thought.

According to the findings obtained in the research; the following suggestions can be offered:
1. Teacher candidates should be given the opportunity to make more practice in the pre-service training processes to feel more comfortable while using active learning methods/techniques.

2.   It can be enabled for teacher candidates to see more implementation examples by using active learning methods/techniques also in the other lessons they take in the pre-service training processes.

3.   The inefficacies which are regarded as obstacles in the implementation of active learning methods/techniques in the teaching processes could be eliminated and these processes can be made eligible for the implementation of these methods/techniques.

4.   The sufficient number of lesson plan examples can be given place in curriculums in order to use active learning methods/techniques effectively in teaching processes.

5.   New studies with teacher candidates and teachers from different branches could be conducted with regard to scrutinizing low preference levels of teacher candidates despite their positive perceptions and their results may be compared.

6.   The opinions of the students with regard to the practice of active learning methods/techniques in teaching processes can be received.

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