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Opinions of prospective teachers about utilizing the 5E instructional model

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Abstract

The aim of this study is to determine the opinions of prospective teachers about utilizing the 5E instructional model. The study was carried out during spring semester of 2008 educational periods. The sample of the study consisted of 60 sophomore prospective teachers at the Department of Primary Teacher Education in Faculty of Education at Artvin Çoruh University in Artvin. In the study, qualitative research method was used. This study was conducted in three stages. In the first stage, the prospective teachers were given national education standards which were about fourth and fifth class Science and Technology course and then they were asked to prepare an activity appropriate for the 5E instructional model. In the second stage, they were asked to carry out those activities into classroom. In the last stage, semi-structured interviews were followed up with the prospective teachers. The results of study revealed that the prospective teachers have positive opinions on applying of the 5E instructional model in classroom. They believe that the 5E instructional model provides the students to learn the topic. But the prospective teachers complained that insufficient learning materials and equipments which were needed for applying to the 5E model in classroom environment. In addition to these results, prospective teachers said that designing and implementing activities takes too much time when activity is practiced in classroom.

Keywords: Learning theories; Cognitive learning theory; Constructivist approach; 5E model; Prospective teachers

1. Introduction

In educational studies, there are some studies related to the descriptions of learning and the existence of learning process [1-3]. Educators are interested in how students can learn and

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gather their knowledge [4]. Scientists have more knowledge about how learning takes place and how effective learning can be provided; it causes some changes in learning theories. These changes have given rise to the wide range of learning theories to break out. Learning theories handle learning processes from different aspects and explain how people learn and what affects the learning processes [5].

There are over 60 learning theories because of some features can be changed from researcher to researcher. In essence, learning theories are based on two approaches: behaviorist approach and cognitive approach [6]. The scientists, who are in favor of behaviorist approach, describe the learning as an acquisition of new behavior, focuses on observable behavior and disregard any mental activities [7]. According to Craig [8], when a person reacts the stimulus it turns to habits and in time learning takes shape behaviorist scientists focus on observable behavior in contrast disregard, cognitive scientists, focus on mental process. Cognitive scientists' aims are to discover the huge emphasis on mental process that how people learn, remembers and interact [7, 9]. According to cognitive learning theory, cognitive process is more important than stimulus-respond. The factors that provide the learning are perception, thought, insight and purpose [8].

In cognitive learning theories, constructivist approach is the most common approach. Piaget is the first person who put forward the constructivism. Piaget and Elkind [10] thought that knowledge is obtained through life-long constructive process in which we make an effort to arrange and restructure our experience according to pre-existing schemes of thought. According to constructivist approach, learning occurs as new information coming outside when a person's current structure of knowledge, understanding and skills are reconstructed and added something on them [7, 9, 11]. The constructive approach can be described in a shorter statement: Knowledge is constructed in the mind of learners [12].

Constructivist approach has re-organized the roles of teacher and student in the classroom environment [13]. Because of the fact that constructivism gives the ownership of learning process to students. Teachers' roles are being a coach or consultant in constructivist approach [14]. The vision of constructivist approach is that student constructs the knowledge in his / her mind and plays active role in his / her learning process; the roles may be creative about building of personal knowledge [15]. Furthermore constructivist approach has changed the teacher's role in classroom environment. In context of behaviorist approach, while teacher has active role in learning process, teachers' active participation has been reduced in the constructivist approach. Teachers' responsibilities are guiding students, organizing the classroom environment and encouraging the interaction between students and teachers [16]. Also teacher plays important role for students to construct new knowledge according to pre-existing scheme of knowledge [17].

Constructivist approach is a learning theory and some learning models can be used in order to put this approach into practice. There are a lot of ways to apply constructivist approach in science education such as the 4E Model, 5E Model and 7E Model. One of the ways of applying constructivist approach in elementary science education is the 5E model which was firstly put forward by Atkin and Karlplus [18] in 1960's and was detailed in 1997 [19, 20]. This model consists of 5 phases: Engage, Explore, Explanation, Elaborate and Evaluation [21].

The steps are as follows: (1) Engagement: The teacher assesses the students' prior knowledge and helps them become engaged in a new concept through the use of short activities. These activities promote curiosity and elicit prior knowledge. The activity should

make connections between past and present learning experiences, expose prior conceptions and organize students' thinking toward the learning outcomes of current activities. (2) Exploration: In this phase, students are facilitated with a common base of activities within which current concepts (i.e., misconceptions), processes and skills are identified and conceptual change. Students may complete lab activities. These activities help them to use prior knowledge to generate new ideas, explore questions and possibilities and design and conduct a preliminary investigation. (3) Explanation: The explanation phase focuses students' attention on a particular aspect of their exploration experiences and provides opportunities to demonstrate their conceptual understanding. This phase also gives teachers the opportunity to directly introduce a concept, process or skill. Students explain their understanding of the concept. An explanation from the teacher may guide them toward a deeper understanding, which is a critical part of this phase. (4) Elaboration: Teachers challenge and extend students' conceptual understanding and skills. Through new experiences, the students develop a deeper and broader understanding, more information and adequate skills. Students apply their understanding of the concept to a real world situation. (5) Evaluation: The evaluation phase encourages students to assess their understanding and abilities, and it provides opportunities for teachers to evaluate student progress toward achieving educational objectives. Also, the teacher should observe students' knowledge and skills along with their application of new concepts and a change in thinking [19, 22, 23].

Teacher's capacity of assimilation and utilization of the 5E instructional model has an effect on learning productivity and good management of learning process. Therefore it is very important to adopt the 5E instructional model in learning environment. In this respect, the 5E instructional model was generally used in the course context in order to learn and utilize the 5E instructional model. Therefore; it is very important to determine what are the perceptions of the prospective teachers about the 5E instructional model.

When the literature is examined, it can be seen some studies is carried out on investigating effects of the 5E model on student success [24-30] developing instructional materials for the 5E Model [31-34]. Amongst these studies, however, determining perceptions of teachers are very limited on the 5E instructional model [35, 36]. The aim of this study is to determine teacher perceptions on utilizing the 5E instructional model in science education.

2. Method

This study was interpretation in nature it was aimed to systematically examine that qualitative measures were used to examine perspectives and meanings that teachers formed about teaching and learning [37, 38]. In this study, the qualitative research method was used. Qualitative research is a method in which researchers examine subjects in their natural environment, make an effort to comment about it [39]. In this frame the semi-structured interview was made to collect data. It is possible to determine experiences, attitudes, thoughts, intentions, comments, cognitive perceptions and reactions through interviews [40].

2. 1. Process

This research was carried out during spring semester of 2008 at Artvin Coruh University, Faculty of Education Primary Education Department with 60 sophomore prospective teachers in the Science and Technology Laboratory-II Course. The prospective teachers learnt theoretical knowledge about constructive approach and its' model such as four steps, the 5E and 7E model in second year in context of Science and Technology Laboratory-I and Science

and Technology Teaching-I courses. For that reason it is thought that prospective teachers have enough knowledge about constructivist approach and its' model.

In this study qualitative research methods were used and it was completed in three stages. In the first stage: the standards related to science subject in fourth and fifth Science and Technology course contents were given the prospective. It was asked them to design an experiment that is appropriate with the constructivist approach. Each designed at least two activities about their topics and they prepared totally 120 activities. In the second stages: the prospective teachers were wanted to carry out those activities individually within 25 minutes in the classroom. This process was completed within fourteen weeks. All of the prospective teachers presented these activities based on the 5E model in classroom. In the third stage: the semi-structured interviews were implemented with the prospective teachers to determine their perceptions on the 5E instructional model.

2. 2. Data collection

In the study, in order to determine their perceptions about the 5E instructional model of the constructivist approach, face to face interviews were carried out with two randomly selected prospective teachers. After it was fulfilled, we tried to develop the interview form

The interview form consisting of open-ended questions was developed it was considered that prospective teachers was carried out interview and examined some studies [35, 36, 41, 42]. The draft interview form was examined by four experts, two teachers at the scope of measurement and assessment and two Turkish teachers. As a result of examinations necessary corrections were made on the interview and it had five questions and each question constituted sub problems of research. After the questions were determined, it were arranged in the interview form and asked to the prospective teachers. Interviews were held in a place where the prospective teachers felt themselves comfortable and explained anything without hesitation. Each interview was recorded and finished within 20 minutes at a single session. In order to define perceptions of the prospective teachers, they were asked, extra questions such as *"why", "how", "what do you mean exactly and explain"*:

-What do you think about practicability of the 5E instructional model? Please explain?
-Do you think that the 5E instructional model has any positive effect? Please explain.
-Do you think that the 5E instructional model has any negative effect? Please explain
-Did you encounter any problems when you designed and applied an activity concerning with the 5E instructional model? Please explain.

2. 3. Data analysis

The first step taken in the analysis of the interviews was to organize data procedures which are recommended by Bogdan and Biklen [43]. In organizing the data, the researcher revisited each interview and listened to each audiotape while reviewing the transcripts to ensure the accuracy of the data. Each participant's interview transcripts were later analyzed according to data analysis procedures described by Bogdan and Biklen [43], which call for development of coding categories, mechanical sorting of the data, and analysis of the data within each coding category. The initial codes were supplemented with emergent main categories and sub-codes [43]. In this study, a realist mode was used to represent the participants' perspectives through closely edited quotations and interpretations of those quotations [44, 45]. Thus, the researchers neither claim to be arbiters nor assess the right answers about questions related

to 5E instructional model, but the researchers let the participants share their views on the 5E instructional model.

The interview data were coded and classified into categories by the researches. Then the categories were grouped and reduced to the following set of descriptions and themes: 1) *"Practicability of the 5E Model"*, 2) *"Positive Effect of the 5E Model"*, 3) *"Negative Effect of the 5E Model"*, and 4) *"the problems when being designed and applied an activity"*. Besides, it was regarded that many sub-codes could be constituted from the replies of the prospective teachers. It was taken into consideration that extra sub-codes might have been formed from the answers which were given by prospective teachers. After researchers had formed main categories and sub-codes, frequency was kept about sub-codes. In the finding, main categories, sub-codes and values of sub-codes frequency were displayed with tables below.

The results of the interview data are presented as a description of the emergent themes that were developed through the content analyses All participants in the study were given pseudonyms (such as: Prospective Teacher 1, Prospective Teacher 2, Prospective Teacher 3, …) in order to keep their identity anonymous.

After researchers made content and descriptive analysis, main categories and sub-codes were compared and the ones with consensus and the ones with disagreement were discussed and necessary regulations were made. The reliability formula which formulates the reliability, as Reliability = Consensus /Consensus + Disagreement was suggested by Miles and Huberman [46] and this reliability was used for the research. The reliability was calculated as 81 % at the result of calculation. If the reliability calculation exceeds 70 %, this calculation can be accepted as reliable [46]. The result that was obtained was adopted as reliable.

3. Findings

In the interview, first question was directed as "*What do you think about practicability of the 5E model at lessons? Please explain.*" to teachers. From answers of teachers, it was consist of categories and sub codes and determinate frequency of these. This frequency levels is given in the Table 1.

Table 1. Frequency of sub-codes related with the 5E model's practicability

		The prospective teachers who thought the 5E model is practicable	f
Practicability of the 5E Model	1	If the topic which is going to be taught is suitable, it can be applied.	12
	2	If prospective teacher embraces the 5E model, it can be carried out.	12
	3	If the subject that is taught is appropriate, the 5E model can be performed.	9
	4	If school and class environment conditions are convenient, the 5E model can be practiced	9
	5	If the level of students is suitable, the 5E model can be performed.	8
	6	If the teacher predominates on the subject, the 5E model can be applied.	4
		The prospective teachers who thought the 5E model isn't practicable	
	1	The 5E model is so difficult and onerous that it cannot be performed.	8
	2	The 5E model takes so much time that it cannot be applied.	4
	3	It is so difficult to provide student participation that it cannot be practiced.	1

When Table 1 is examined, most of the prospective teachers thought that the 5E model could be practiced for subjects but some of them stated that the 5E model could not be practiced. 12 prospective teachers who were thought that *"the 5E model could be practicable"* said that *"If the topic which is going to be taught is suitable, it can be applied"*, 12 of them *"If prospective teacher embraces the 5E model, it can be carried out"* 9 of them "If *school and class environment conditions are convenient, the 5E model can be practiced"* and "*If the subject that is taught is appropriate, the 5E model can be performed*". Contrary to

them 8 prospective teachers thought that *"The 5E model is so difficult and onerous that it cannot be performed"* and 4 prospective teachers stated that *"The 5E model takes* so much time *that it cannot be applied"*.

The answers that were given by the prospective teachers were shown below:

"This approach is better because it is student-centered. It is effective to keep student's interest, care and concentration. However teachers need to embrace and adopt that approach. If teacher adopts and embraces it well, he teaches well. " (Prospective teacher 1)

"The 5E model of the constructivist approach can be applied to science education but I think it is very difficult to be applied to social studies. Because it is very tough to design activities or experiments at the phase of discovery, the 5E model's practicability depends on nature of subject. " (Prospective teacher 14)

"First the 5E model is a good method to have the knowledge rather than giving it straight. Child relates the knowledge to his initial experience and discovery. This causes the knowledge to be permanent. However if we assume that we practiced it to the classroom with 50-60 students, it was not possible to teach productively. Therefore condition, the equipments of school and the case of classroom and the environment are important for the 5E model's practicability. " (Prospective teacher 48)

In the interview, another questions was directed as *"Do you think that the 5E model has any positive effect? Please explain."* to teachers. According to answers, it was consisted of categories and sub codes and frequency them. This frequency levels is given in the Table 2.

Table 2. Frequency of sub-codes related with the 5E model's positive effect

	Positive effect of the 5E model	f
1	It maintains to permanency of student learning with the 5E model	25
2	It provides that students participate actively with the 5E model	21
3	Teachers what to teach and how to teach with the 5E model	8
4	The 5E model provides that the topic which is taught is made concrete	8
5	Students have more pleasure to the lessons with the 5E model	7
6	Students have more motivate to lesson with the 5E model	7
7	Student interesting to lesson are increases with the 5E model	7
8	Students' communication skills are increase with the 5E model	6
9	The 5E model encourages that students make research	6
10	Teachers develop self-confidence with the 5E model	5
11	The 5E model encourage to teacher and student to ask questions.	5
12	Student develops self-confidence with the 5E model	5
13	The 5E model helps teacher to improve himself.	4
14	The 5E model helps to teacher to use learning materials effectively.	3
15	The 5E model ensures that student understand the lesson better.	2
16	The 5E model enables student to evaluate himself.	2

When Table 2 is examined, the prospective teachers have a lot of positive effects of the 5E model. 25 of prospective thought that **"***It maintains permanency of student learning*", 21 of them *"It provides that students participate actively"*, 8 of them *"It helps teachers about what to teach and how to teach"*, 8 of them *"It ensures the topic which is taught, to be concrete"* and 7 of them *"Students have more pleasure to the lessons with the 5E model*".

The answers that were given by the prospective teachers were shown below:

"I think the 5E model has a lot of positive effects, because teacher and students play active roles in lessons. According to this model student needs to take part in the lesson actively. The students are so active that the knowledge which is learnt is more permanent." (Prospective teacher 10)

"I believe the knowledge that is taught through the 5E model is more permanent. In the 5E model the student's preliminary learning is inspected so teacher teaches according to the student case. This helps the teacher to decide what to teach and how to teach. Moreover the lessons which are instructed with the 5E model pass with more pleasure." (Prospective teacher 54).

In the interview, it was directed a questions as *"Do you think that the 5E model has any negative effect? Please explain."* to teachers. From answers of teachers, it was consisted of categories and sub code and determinate frequency of these. This frequency is given in the Table 3

Table 3. Frequency of sub-codes related with the 5E model's negative effects

	Negative effects of the 5E model	f
1	The 5E model doesn't have any negative effect.	15
2	There isn't enough material to application of the 5E model.	9
3	I need to so much time in order to application of the 5E model	8
4	The 5E model application is very tiring	5
5	If the 5E model is not used effectively, misunderstanding appears.	5
6	Having difficulty with active student participation	5
7	the 5E model confuses to students' mind	5
8	It isn't discussion about whether student's preliminary knowledge is true or not.	4
9	the 5E model entails so much research	4

When Table 3 is investigated it can be seen that 15 of prospective teachers said that "T*he 5E model doesn't have any negative effect"*, 9 of them "*There isn't enough material to application of the 5E model"*, 6 of them said that *"We don't receive appropriate answers to the questions that are asked"*, 5 of them said that *"The 5E model application is very tiring"* and 5 of them said that *"If the 5E model is not used effectively, some misunderstanding appears"*

The some of the answers that were given by the prospective teachers were shown below:

"I don't think the 5E model has any negative effect. Because when I introduce the topic, it becomes effective. I have a facility to create a discussion ambiance .This is effective. (Prospective teacher 5)

"One of the most negative effects of the 5E model is not find material about the topic. I think the most important factor about not using the 5E model for teacher is lack of learning material. (Prospective teacher 22)"

"Asking questions continually gets me bored. Sometimes students are jammed with giving answers to the questions. Besides I do not have enough time for the presentation that we made during the lessons. When I couldn't receive the replies that I wanted, I slogged away in picking up the topic. I did not manage to use time effectively. (Prospective teacher 16)

In the interview, it was directed a questions as *"Did you encounter any problem when you designed and applied an activity concerning the 5E model? Please explain."* to teachers. From answers of teachers, it consists of categories and sub code and was determinated frequency of these. This frequency is given in the Table 4.

When Table 4 is examined, it can be understood that 25 of the prospective teachers had problem with "*It does not find appropriate material for the topic"*, 17 of them *"I do not carry out to my plan designed as the 5E model completely"*, 13 of them *"I don't provide students' motivation and take attention to the topic"*, 8 of them *"Designing activity takes too much time."*, 8 of them *"I haven't any experience related to activity designing"*, 8 of them *"I get excited when the activity is being practiced"*, 7 of them "*Designed activity are not suitable for student level"* and 7 of them *"I am not able to use the material effectively on time*"

The some of the answers that were given by the prospective teachers were shown below:

"We designed the activity about the topic which was given us that is appropriate for the 5E. However I had difficulty with finding material that is suitable for the topic. Therefore the topic is very important for finding material. While designing material, to find appropriate materials and tools was very though. We experienced a difficulty with finding – making material." (Prospective teacher 5)

Table 4. Frequency of sub-codes related with the 5E model's problems when being designed-applied activity

	The problems when being designed and applied an activity	f
1	It does not find appropriate material for the topic	25
2	I do not carry out to my plan designed as the 5E model completely	17
3	I do not provide students' motivation and take attention to the topic	13
4	Designing of activity takes too much time.	8
5	I haven't any experience related to activity designing	8
6	I get excited when the activity is being practiced	8
7	Designed activity are not suitable for student level	7
8	I am not be able to use the material effectively on time	7
9	School and Environment conditions are not enough.	6
10	I am not be able to make a complete and exact evaluation	5
11	I am not manage to ask appropriate questions for students' level	5
12	I am not design suitable evidence at the phase of deepening.	4
13	I am not able to design an activity that examine whether students understand to topic	4
14	I am not able to design an experiment related to topic.	3

"First we need to know the topic well. Therefore long time research is required. After that we have to consider that what I should do to make students understand better so we simplify the topic. Separated activity need to be comprehensible. This takes a long time and wearies the brain." (Prospective teacher 48)

"I design activities about the 5E model. However I can't put the plan that I contemplated before into practice. I can use different materials and make various experiments but I cannot do in the way which I planned and aimed to." (Prospective teacher 12)

"My topic which I explained was for such 4th and 5th grades that it couldn't draw attention of university students. Therefore I can't acquire their motivation and interest." (Prospective teacher 37)

4. Discussion and conclusion

This study's aim is to determine perspectives of prospective teachers about using the 5E instructional model. For this aim, semi-structure interview was carried out with the prospective teachers. After analyzing data, many results were revealed. These results were collected four categories. These categories were called as "the 5E model's practicability", "the 5E model's positive effects", "the 5E model's negative effects", and "the problems just as activities being designed and the problems just as activities being practiced".

4. 1. The 5E model's practicability

In this category, it was seen that most of the teachers think that the 5E instructional model was put into practice. But a few of them weren't agreed. In literature, there are some studies [36, 47, 48] explained that the teachers want to apply the 5E instructional model in classroom. A result of this study is the same as result of Sezen et al. [47] and Nas [48]. It is put forward from this result that teachers were willing to use the 5E instructional model in the classroom. But, Gokdere et al. [41], Bozdogan and Altuncekic [42] and Demircioglu et al. [49] expressed that the 5E instructional model was not put into practice. This result arise from students have insufficient knowledge about the 5E instructional models. In addition to this result, prospective teachers express the 5E instructional model can be put into practice in lessons up to suitability of the subject to be taught. It was understood that prospective teachers thought that all topics in science and technology course were not suitable for the 5E instructional model. It can be said that if topics are appropriate for the 5E model, they will be used in class

otherwise, it won't. This result was supported some researches [35, 36, 42]. These researchers have been revealed that the 5E instructional model is not appropriate for all topics in Science and Technology course. One of results in this study, prospective teachers believed that if school and environment conditions are convenient, the 5E model can be practiced in classroom. Environmental conditions are very important in constructivist approach. That is because according to constructivist approach, teachers' responsibilities are guiding students, organizing the classroom environment and encouraging the interaction between students and teachers [16]. Also teacher plays important role for student to construct new knowledge according to pre-existing scheme of knowledge [50]. Furthermore, many researchers [36, 41, 51-53] have expressed that appropriate classroom environmental have been very considerable role in a matter of teaching students in constructivist approach and the 5E instructional model.

4. 2. The 5E model's positive effects

In this category, many prospective teachers think that the 5E instructional model maintains to permanency of student learning. That is to say, students want to learn topics continuously with the 5E instructional model. One of results in category, prospective teachers said that the 5E instructional model provides active participating towards lessons. Many researchers [7, 11, 31, 36, 42, 47, 48, 54-59] provided to this result. These researchers put forwards that students must be active role to learning of new knowledge in constructivist learning environment so students want to learn new knowledge about topics. Otherwise, students do not learn the topic. Another result of this study, the prospective teachers thought that the 5E model provides that the topic which is taught is made concrete. It can be said that the 5E model helps to students to concretize topics. In exploration phase of the 5E instructional model, students may involve lab activities, design materials and perform experiments [11, 27, 31, 32, 49]. So, topic can be made concrete by students. For this reason, the prospective teachers can believe that the 5E model rescues the topic from discrete form to concrete. One of the results in study, the prospective teachers believed that the 5E instructional model helps to teachers about what to teach and how to teach. It was believed that the prospective teachers have this opinion in order to prospective teachers are know and are said what to do in every phase of the 5E model.

4. 3. The 5E model's negative effects

In this category, many prospective teachers think that the 5E instructional model doesn't have any negative effect. Generally, the prospective teachers have positive opinions about the 5E instructional model. But some prospective teachers express that the 5E does not applied in classroom, because there isn't enough learning material and equipment. That is to say, the prospective teachers complain to insufficient learning material and equipment which was needed for application of the 5E models in classroom environment. According to this result, it was said that if there aren't appropriately classroom environment and learning material, applying of the 5E model effectively is very difficult. This result was supported to some studies [11, 31, 36, 41, 42, 52, 53]. In addition to this result, it was seen that the prospective teachers said to need so much time in order to application of the 5E model in classroom. It was said that the prospective teachers weren't used completely to the 5E instructional model in classroom environment because of insufficient time. I mean, it needs too much time for application of the 5E model. This result was supported by Cepni et al. [31], Ozmen [11] and Metin and Ozmen [35]. One of the results in study, prospective teachers put forward that

application of the 5E instructional model is very tiring.

4. 4. The problems just as activities being designed and applied

In this category, the prospective teachers have a difficult for finding appropriate material in teaching subjects so it was thought that the 5E instructional model wasn't applied effectively by prospective teachers. This result is similar to result of some studies [35, 36, 42]. In addition to this result, the prospective teachers reveal that your plans designed as to the 5E model before application in classroom isn't carried out completely. It was said that the prospective teachers didn't applied plan effectively. This result arises from prospective teachers' expectations very different from students. That is to say, the prospective teachers explain to topic related to fourth and fifth class Science and Technology course. However, university students have knowledge about topic so, prospective teachers provide to students' motivation and attention to the topic. Because of this conduction, the prospective teachers' plan is to be unsuccessful. Another result in study, prospective teachers said that designing of activities take too much time and get excited when activity is be practicing in classroom. This result is probable. Prospective teachers do not have any experience related to activity designing as to the 5E instructional model. So, it is possible to spend so much time for designing of activity. This result was supported by Metin and Ozmen [35] and Baskan et al. [36]. These researchers revealed that prospective teachers spent so much time while plan preparing that the 5E models was trying to apply in classroom. The reasons of this result were explained that prospective teachers have first experience related to activity designing as to the 5E model and they do not have enough knowledge about application of the 5E instructional models.

As conclude, it was said that prospective teachers have positive opinions application of the 5E instructional model in classroom and they believe that the 5E instructional model is provide students to learn subjects continuously. But they complain about insufficient learning material and equipment which was needed for utilizing the 5E models in classroom environment. In addition to these results, prospective teachers reveal that your plans designed according to the 5E model before application in classroom isn't carried out completely. Besides, prospective teachers said that designing and applying of activities take too much time and make them excited when activity is being practiced in classroom [59].

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