Extended Summary

The 5E model is a constructive learning theory-based model involving different process steps. The 5E learning cycle adopts a model based on research by constructivist approach principles (Campbell, 2000). The 5E model enables to learn a new concept or comprehend a deeply known concept (Ergin, Ünsal & Tan, 2006). As stated by Bozdoğan and Altunçekic (2007), research reports that the 5E instructional model increases students’ success, contributes to their conceptual development, and changes their attitudes in a positive way, but it is very important that an appropriate educational environment is created based on the views of teachers, who are the implementers of the model, about the positive and negative aspects of the model in practice. The 5E model motivates students to get involved in a topic by several phases of learning, to explore this topic, to be provided with a definition for their experiences, to obtain more detailed information about their learning, and to evaluate it (Wilder and Shuttleworth, 2005).

This study aims to examine the views of mathematics teachers about the 5E instructional model. Descriptive method was used in the study. Descriptive method is a research approach that aims to describe a past or a present situation as it was/is. It attempts to describe the case, person, or object that is subject of research as it or s/he is and considering the conditions in which it occurs or s/he acts. The research sample consisted of 27 middle school mathematics teachers who worked in various primary schools in the central district of Kastamonu Province in the 2013-2014 academic period.
participants were female, and 11 were male. They had a professional experience of 3 to 33 years. Semi-structured interview and semi-structured observation were used for data collection. In developing the semi-structured interview form, the related literature was reviewed, and basic problems experienced in employing the constructivist approach were taken into consideration. The questions used for collecting data are presented below.

1. Have you ever heard of the 5E model? If yes, where or how have you heard of it?
2. Do you use the 5E model?
3. Do you think the 5E model is suitable for the mathematics course?
4. What sub-dimensions of the 5E model do you think are important?
5. In which sub-dimension of the 5E model do you have most difficulty?
6. What do you do in the phases of Engage and Explore?

It was seen that most of the teachers had not heard of the 5E model before. However, when explanations were made about the model, some teachers who had said that they did not know the 5E model noticed that they actually used it in their lessons unknowingly. It is striking that even many education faculty graduates participating in the study did not know the 5E model, and those who knew it had learned it in an environment different from the university.

Most of the teachers using the 5E model stated that they had difficulty in the phases of Engage and Explore. The participating teachers employed activities related to the phase of Engage more than those related to the phase of Explore. They mostly used thought-provoking questions in the phase of Explore.

Another remarkable point was that none of the teachers made mention of classroom activities, whereas activities are one of the building blocks of the 5E model. The model aims to construct knowledge in students’ minds through classroom activities, but no participating teacher laid an emphasis on activities. That may indicate that teachers do not have enough knowledge of the 5E model.

Majority of the teachers who knew the 5E model said that the model is suitable for the mathematics course. Thus, it can be argued that teachers are eager for using the 5E model, but they cannot use it because they do not have suitable classroom environments. In this matter, lack of materials and overcrowded classrooms are the primary negative factors. According to Duru and Korkmaz (2010), teachers experience some difficulties in using the model. They report that the primary problems are lack of materials and tools, problems related to preparing activities, overcrowded classrooms, existence of too many
assessment and evaluation instruments, and not knowing how to use such instruments. Similar results are reported by Bozdoğan & Altunçekiç (2007) and Keser (2003), too.

It was seen that some participating teachers continued to teach in a teacher-centered way although they knew that the curriculum was student-centered. Therefore, it can be said that even though the student-centered curriculum has been in effect for 8-9 years, teachers have not internalized it completely yet. Though the curriculum has been changed, traditional practices still continue in its implementation. That shows that teachers do not implement the curriculum accurately. This result is similar to the results of many studies in the literature (Adıgüzel, 2009; Bozdoğan & Altunçekiç, 2007).

Based on the research results, the below-mentioned suggestions are made:

- The physical conditions of classrooms should be arranged in a way that allows students to study comfortably, and course materials and tools should be supplied in full so that the 5E model is implemented successfully.
- Education faculties should teach the 5E model in detail.
- The 5E model should be introduced to teachers through in-service trainings which should involve practices.
- Testing system should be rearranged in a way that allows the 5E model to be implemented perfectly and enables teachers and students to achieve teaching/learning without any exam anxiety.

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