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Mentoring in Developing Questioning Behaviors

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Abstract

Asking questions is one of the important pedagogical strategies that a teacher should have. This study, it was tried to develop the questioning behavior of a pre-service teacher with the support of an expert in the field. In this context, the research was carried out with studies aimed at improving the questioning behaviors of a teacher candidate who received formation training in the branch of Mathematics Teaching at a state university. During the studies, brief information was given to the pre-service teacher about the questioning behaviors by the expert researcher, and the questions that could be used for the gains of the lesson were discussed with the teacher candidate. The data of the study were obtained from the records obtained as a result of the 4-hour teaching of the pre-service teacher, the researcher's field notes, and the self-evaluation form. As a result of the analysis of the data and the evaluations, it was revealed that the pre-service teacher could better decide the questions that he could use in the lessons with the support of experts and thus manage the questions more easily. As a result, expert support played an important role in preparing an effective plan and deciding on the questions to be used by the pre-service teacher during their teaching practices.

Keywords: Asking Questions, Prospective Teacher, Development, Mentoring

INTRODUCTION

Asking questions is one of the important pedagogical strategies that a teacher should have. For this reason, it is important for the pre-service teacher to develop these skills during their education years. It plays an active role in facilitating many processes such as asking questions, thinking, understanding, learning, and evaluating, which play an important role in developing students' language, mental and social skills (Güneş, 2016). Effective teaching in all teaching levels and in all courses takes place with qualified questions. Teachers often refer to questions to develop students' skills such as critical and creative thinking and problem-solving (Cotton, 1988; Filiz, 2002). Guiding students with qualified questions, especially in mathematics courses where thinking skills are used at a high level, play an important role in creating

appropriate answers. Effective use of questions that spark thinking is essential for effective mathematics teaching (Akbulut, 1999). Because the act of thinking begins with questions and continues until satisfactory answers are received. In this context, it is obvious that asking questions is an effective and active tool in the teaching process.

Involving students with active questions and asking questions that shape students' answers are the preferred way to effective mathematics teaching. Student answers often bring with them a set of questions that can be asked (Moyer & Milewicz, 2002). This situation helps students to reveal their thoughts better and to make them understand the situation better. For this reason, it is possible that the teacher needs some strategies to maintain the dialogue with the student based on the response from the student (Shaunessy, 2005). These strategies are mostly based on a number of activities such as directing or questioning the student's answer (Şahin, 2015). With such activities, the teacher also ensures the active participation of the students in the lesson. Because active participation plays an important role in the beginning of mathematical thinking and correct operation skills.

Teachers can reveal how students construct concepts and ideas by asking questions that will go into their thoughts rather than just asking specific questions (Çelik & Güzel, 2016). In this way, they can see whether students are learning or not, and where they have difficulties, and they can help them to achieve conceptual learning. Teachers can easily see where and which concepts the students have difficulty in reaching the result by asking questions that will bring the students to the truth and reach the result (Chin, 2006). Therefore, asking additional questions about student answers in addition to teaching questions during the lesson is seen as an important part of meaningful learning.

If asking questions is an important component that directs mathematics teaching, it is also important that this component is used by the teacher. In this sense, it is necessary for teachers to have strong field knowledge to use this skill effectively. The development of questioning skills is also basically related to the training that the candidates receive in education faculties. In this respect, candidates involuntarily ask questions in their applications during the course period, but they are not sure of the quality of the questions they use. A number of activities that can be done with them on asking questions can enable them to use questions more effectively. The purpose of this research is to examine the development of a pre-service teacher's questioning behavior in the presence of a mentor.

METHODOLOGY

In this study, it was tried to develop the questioning behavior of a pre-service teacher with the support of an expert in the field. In this context, the research was carried out with studies

aimed at improving the questioning behaviors of a teacher candidate who received formation training in the branch of Mathematics Teaching at a state university. The study was designed in accordance with a special case study, as the development of the current situation regarding a current situation is interpreted by using multiple information sources (observation, self-evaluation form) (Yıldırım & Şimşek, 2016).

Implementation Process

During the studies, brief information was given to the pre-service teacher about the questioning behaviors by the expert researcher, and the questions that could be used for the gains of the lesson were discussed with the teacher candidate. In this context, the researcher and the teacher candidate met before the lesson, brief information was given to the teacher candidate by the researcher at the meeting, a plan was made about the lesson to be carried out, the questions to be used during the preparation of the plan were discussed, what can be done against unplanned situations that may occur during the lesson and what kind of questions should be used. How approaches should be used in order to reveal the student's knowledge was emphasized and as a result of the 3-hour discussion, an effective plan was tried to be prepared for the pre-service teacher. In the study, the pre-service teacher conducted the first 2 lesson hours independently in the school where he practiced as required by the teaching practice, while the other 2 lesson hours were carried out in line with his studies in the company of an expert. In the evaluation of questioning behaviors, the candidate self-evaluation form and the observations of the teacher and the instructors were taken into account. The items in the self-evaluation form were created in light of the literature and submitted for the approval of expert opinions.

While the pre-service teacher was implementing the prepared plan, the expert, visiting lecturer, and teacher of the course observed the lesson as participants. Immediately after the lesson, including the guest lecturer, came together to evaluate the lesson, and the positive and negative aspects of the lesson were discussed. After the evaluation, the plan of the applied lesson was reviewed again, and it was discussed what changes could be made in case the lesson was repeated.

Data Collection and Analysis

Researcher field notes, self-evaluation form, and the records obtained as a result of the 4-hour teaching of the pre-service teacher were used to evaluate the data of the study. Simple statistical calculations were used in the analysis of the data.

RESULTS

In the light of the findings of the study, the pre-service teacher stated that she felt differences in herself, conducted the lesson more effectively and the questions used were effective in increasing participation, while the lecturers stated that the lesson was well prepared, very effective questions were used at the entrance and during the lesson and that helping the teacher-led to positive changes. Observing teachers and instructors stated that there were differences between the first two lessons of the candidate and the last two lessons, there were significant changes in the questioning skills of the candidate, and the tendency of the candidate to ask questions that would encourage students and reveal their thoughts was higher. In the self-evaluation form of the candidate for asking questions, it is observed more clearly what kind of changes were experienced in the pre-application and post-application in Table 1.

Table 1. The Change in the Pre-Study and Post-Study Questioning Behaviors of the Pre-Service Teacher

(1: Incomplete; 2: Acceptable; 3: Good)

BEHAVIOURS	Study Pre			Study Post		
	1	2	3	1	2	3
Asking questions that reveal prior knowledge		x			x	
Asking key questions to focus attention on the subject	x					x
Asking questions to reveal misconceptions		x				x
Asking questions in a way that makes it easier to get answers	x					x
Asking questions that require connection		x				x
Asking questions that require reasoning and inference		x				x
Asking questions that require establishing a cause-effect relationship		x				x
Asking questions that require personal judgment		x			x	
Asking questions to check learning		x				x
Asking practice-type questions to reinforce learned knowledge			x			x
Asking a problem-type question that requires using the learned information in different situations		x			x	
Asking app-type questions with different paths and outcomes	x				x	
Asking research-type questions with original solutions	x				x	
Asking guiding questions that can make it easier for the student to answer or help them complete their answer		x				x
Asking interrogative questions in a way that allows the student to deepen his answer	x					x
Asking questions in a way that makes the student open his answer a little more	x					x
Using clear language when asking questions			x			x
Expressing the question differently in cases where it is not understood			x			x
Asking questions in a structure that can be solved with current gains			x			x
Determining the questions according to the level of the students			x			x
Asking structurally different questions		x				x
Asking easy to hard questions			x			x
Giving students the opportunity to express their thoughts		x				x
Give students enough time to think	x					x

Using wait time for the student to expand on their answer	x					x
Encouraging students to give different answers by directing questions to different students	x				x	
Using approaches that will make all students think about the question (group work, random student removal, brainstorming, etc.)	x				x	
Asking questions to guide students' individual work at home		x				x
Creating an environment for conversations in the classroom	x			x		
Encourage students to think creatively and critically and develop problem-solving skills	x					x
Using students' answers to deepen and enrich the lesson	x				x	
Asking questions in a way that arouses interest and curiosity in students		x				x
Activate and adequately encourage students		x				x
Getting multiple answers in a question and summarizing the answers received	x				x	
Asking questions related to other topics that may concern the same answer		x				x
Giving different students a say			x			x
Encouraging students to ask questions			x			x
Using student questions as a tool to transition to better questions	x			x		
Asking questions to the class in a balanced way		x			x	
Using tone of voice and body language effectively		x			x	
Asking some natural questions based on student questions	x					x
Encourage students to answer each question asked	x					x
Asking questions in a way that allows the student to expand on the correct answer and add new information	x					x
Asking high-level thinking questions		x				x
Include questions that require broad participation	x				x	
Striking the balance between a high-level question and a low-level question	x				x	
Asking multiple questions at once	x				x	
Asking high-level questions before the topics are well learned		x		x		
Asking mostly superficial and simple informational questions		x			x	
Focus on a small number of students that do not include the entire class	x			x		
Inappropriate responses in case of wrong answers	x			x		
Not taking student answers seriously	x			x		
Preferring to ask questions when more appropriate strategies are available		x			x	
Asking irrelevant questions	x			x		
Asking questions of the same type and difficulty and repeating similar questions		x			x	
Pre-planning all the questions asked			x		x	
Deciding on some of the questions asked during the lesson		x			x	
Using questions consciously while preparing a plan			x			x
Using questions consciously during the lesson		x				x

When Table 1 is examined, it is seen that there are significant changes in the behavior of the candidate asking questions. Therefore, many behaviors have increased in degrees. This means that the pre-service teacher paid attention to all the details of asking questions in the last application compared to the pre-application. For example, the student's not cutting his/her answer short and questioning, searching for different solutions, guiding the student when he/she can't solve it and giving the student enough time to think are just a few of them.

After the implementation, teachers and lecturers were also aware of this change. During the discussion, it was expressed that there were significant differences in questioning behaviors, some skillful questioning behaviors were observed, and the training was clearly reflected in practice.

CONCLUSION

As a result of the analysis of the data and the evaluations, it was revealed that the pre-service teacher could better decide the questions that he could use in the lessons with the support of experts and thus manage the questions more easily. As a result, expert support played an important role in preparing an effective plan and deciding on the questions to be used by the pre-service teacher during their teaching practices.

Learning can be accelerated by choosing the questions used to guide students in accordance with their level of understanding (Borich , 2007). The operations that the students perform by understanding and questioning themselves increase the permanence in the mind. Solving problems with only the presentation method during teaching and students understanding the solution by just watching may cause them to memorize indirectly without questioning anything. Therefore, including students in problem-solving as much as possible during teaching, allowing them to ask questions and questions, going down to the causes by examining the solutions, have an important role in the development of questioning behaviors that require pedagogical competence.

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