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Examining The Views Of Classroom Teachers On Mathematics Teaching: A Phenomenological Study*

Sibel Bilgili[1], Alper Çiltaş[2]

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Abstract: As the ability to gain behaviors related to mathematics forms the basis for applying mathematics, the role of mathematics is gradually increasing. It is known that gaining these behaviors continues from pre-school education to all levels of higher education, thus the increase in the importance of mathematics increases the importance of mathematics teaching. With the foundation of the mathematics laid in elementary school, there are tasks for classroom teachers to make students truly love mathematics and help them understand it. For this reason, in this study, it is aimed to determine classroom teachers' views on teaching mathematics. This study, in which phenomenological pattern is used, has been realized with the participation of classroom teachers working in the schools affiliated to Erzurum province center. The data of the study which was carried out with a total of five teachers were collected with semi-structured interviews and were analyzed descriptively. Each of the interviewed teachers stated that they felt math anxiety at some stage of their education life and that it was teacher-based. In addition, classroom teachers, who have emphasized that primary school students should learn in a concrete way and mostly by doing and experiencing, have mentioned that these possibilities are inadequate in village schools. They also pointed out that the family support is lacking and that the curriculum is noteworthy for students and families living in the city center, but that this is rarely achieved in village schools. The classroom teachers, who indicated that the mathematics courses they had attended during their undergraduate education were appropriate in theory but insufficient for implementation, have suggested that mathematics instruction courses should be more productive.

Keywords: Classroom teachers, teaching mathematics, phenomenology

[1] **Corresponding Author:** Sibel Bilgili, **e-mail**: sibel.bilgili@atauni.edu.tr, Res. Assist., Atatürk University
[2] Alper Çiltaş, **e-mail**: alperciltas@atauni.edu.tr, Assoc. Prof., Atatürk University

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INTRODUCTION

While mathematics is seen as a door opener of a good life and a good career by people (Stafslien, 2001), it is also thought to be an auxiliary element to understand the life and the world and to produce ideas about them (Ernest, 2013). The aim of reform studies made on mathematics education today is to create a system that can help students to learn by understanding mathematics (Franke and Kazemi, 2001; Smith, 2000). Therefore, every breakthrough created reveals a phenomenon that increases the functionality of mathematics and that the students are also involved in the process. However, although mathematics has such a crucial function, it is not liked by most of the students and is seen as a boring and abstract course (Aksu, 1985).

It is being stated in the current mathematics curriculum that there is now a need for people who are able to use knowledge to solve problems, apply it to different disciplines, make assumptions and generalizations, think analytically, can model the problems encountered using mathematical reasoning and can connect models with verbal and mathematical expressions and this openly presents the aims of the mathematics (Ministry of National Education, 2018). Despite the fact that there are many goals and requirements of mathematics, it is also true that most of the students have problems in learning mathematics. This fact is confirmed by the data obtained from the 6th International Science and Mathematics Research (TIMSS), which was last carried out in 2015. In this study where 49 countries participated for the 4th grade and 39 countries participated for the 8th grade, the achievements of the students in mathematics and science courses were evaluated. Looking at the results, Turkey is in the last quarter among these countries in terms of mathematical success. Many studies have been conducted in our country to investigate the cause of this failure. Some of the research indicated that the activities of the students in mathematics classes consisted of just listening and memorizing the information the teachers told them about during the lessons against the blackboard (Aydın, Sarıer and Uysal, 2012; Özenç and Arslanhan, 2010). In addition, it has been shown that the most important factor affecting the student attitude is the teacher's view of the course in many studies aimed at the classroom teachers for the primary school period in which the foundations of mathematics were laid (Hare, 1999; Peker, 2006).

According to Bloom (1979), 42% of the achievements shown until the age of 18 are explained by achievements in primary school. Learning experiences in primary school serve as prerequisites for subsequent learning. Therefore, the place and importance of the primary education level in the education system is an indisputable reality. It is known that the attitudes, behaviors, and beliefs of teachers towards mathematics are also effective in the students' achievements of mathematics, as well as having studying habits and the attitude towards mathematics course at both primary and secondary level. (Peker, Mirasyedioğlu and Yalın, 2003). Yenilmez and Özbey (2006) emphasize that anxiety, which is created by the thoughts such that mathematics is difficult, that he/she cannot succeed mathematics, plays an important role in many students' negative attitudes towards math. Peker (2006) stated that teachers could control this anxiety if they are aware of the mathematical anxieties their students have. Hare (1999), on the other hand, tells that a person's view of mathematics is directly related to how he or she learned mathematics.

It will be easier to recognize the importance of the role of the teacher in mathematics education, if we take into account that the teacher factor plays the leading role in the factors that play an active role in a learning environment and facilitate or complicate the learning process (Turanlı, Karakaş Türker and Keçeli, 2008). For this reason, there are serious tasks for the classroom teachers who set the foundations of mathematics. The aim of this study is to determine what the opinions of classroom teachers are about mathematics teaching.

METHOD

Research Design

This study adopted phenomenology research design, which is a qualitative research approach. The aim was to reveal individuals' experiences related to a phenomenon, perceptions and the meanings they have loaded on them that is studied with a sample of fewer individuals. Interview and observation methods were used as data collection tools and the aim was to reveal generalizable results. Data sources in phenomenology research are the individuals or groups who are experiencing the phenomenon that the researcher focuses on, and who can reflect or reveal this phenomenon (Yıldırım and Şimşek, 2016). Therefore, in this study, the teachers who are currently active in the course of lecturing have been selected. For this reason, in this study, the opinions of the classroom teachers about mathematics teaching were attempted to be determined by semi-structured interviews using phenomenology research design.

Participants

The research group of this study is composed of five classroom teachers. Four of the classroom teachers participating in the study are male and one is female. In addition, the teachers whose statements are mentioned in the study are coded by taking their initials, and their names are not included in the ethical rules (e.g. SB for Sibel Bilgili).

Data Collection Tools

Semi-structured interview form was used as a data collection tool in the research. The content of the interview form was issued in accordance with the subheadings in the findings section of the study. The studies conducted by Peker (2006), Dursun and Dede (2004) were used to prepare the interview questions. These interview questions were examined by two faculty members and their validity and reliability were tried to be provided in this way. In addition, a pilot study was conducted with a classroom teacher candidate to ensure the validity and reliability of the interview questions in terms of intelligibility. The interviews were conducted to determine the opinions of classroom teachers about teaching mathematics. In the interviews, permission was taken from the teachers to record the interview, and interviews were recorded with the voice recorder. Interview notes were transcribed on the same day. The interviews lasted 10-15 minutes.

Analysis of Data

Descriptive analysis was used in the analysis of the data obtained from the interviews conducted to determine the opinions of the classroom teachers on teaching mathematics. In the descriptive analysis, the data are summarized and interpreted according to the themes which are set out by the pre-determined research questions or achieved as a result of observation and interview. The categories created for analysis in this study were inspired by the works of Hoşşirin - Elmas (2010) and Peker (2006). The data obtained from the interviews made were trancribed within the same day, and then the category and code list for these data was created. Data are classified under these categories and is brought into a meaningful state for the reader. In order to increase the reliability of the study, the codes determined were examined by a specialist and it was observed that the percentages of concordance were close to each other. In addition, the reliability of the study was provided by making quotations from the data obtained from the interviews.

FINDINGS

In this section, the findings of data obtained from semi-structured interviews with classroom teachers were presented.

Table 1: Category, Code, and Frequency Table of Classroom Teachers

Categories	Codes	f
The look at mathematics in student life	Frightening	3
	Difficult	1
	Tasteful	1
Adaptation of mathematics to everyday life	Possible	4
	Difficult	1
Undergraduate math courses	Theoretical	3
	Useful	2
Those that are felt when telling math	Boring	2
	Pleasant	2
	Ordinary	1

In examination of category, code and frequency table of the classroom teachers, it was observed that the classroom teachers answered to all questions and the answers were used for creation of category and code.

Opinions of Teachers About Their Mathematical Perspectives in their Student Life

The answers given by the teachers whose opinions were received on mathematics during their elementary school, junior high school, high school and university education were coded as "frightening, difficult, and tasteful".

B.H.'s statement of seeing mathematics as a frightening lesson throughout all student life is as follows:

> *My classroom teacher in elementary school was not a teacher, but was an Agriculturist. He would attach much importance to mathematics as he thought it was important and would constantly give homework. I fear from mathematics since then. Because it was an important class and I could not do it. It was the same in the secondary school. Once a teacher helped me and I almost liked it, but that teacher left the school. And the new coming one forced us too much. I even did a class repetition because of mathematics. I should not talk about high school. I do not know how I could pass the class. I became aware of the situation, when I was in the university. I had to learn the lesson that I was going to teach, but I was still afraid. I neither liked mathematicians nor mathematics.*

Teachers' Opinions on the Adaptability of Mathematics to Daily Life

The answers given by the teachers on the question of whether mathematics topics could be related to daily life were coded as "possible, difficult".

The excerpt of T.T. expressing that mathematics can be related with daily life, are as follows:

> *…In fact, mathematics is in relation with real life and we should teach it with real examples. Otherwise, students cannot understand it. It's a village school. If I do not mention cows or chickens a student cannot understand the meaning of mathematics in real life? I always give examples from real life. I am talking about Fenerbahçe and Galatasaray. I teach addition by asking the number of goals in total. I teach subtraction by asking which team had more goals in total. . I think it should be like that. Already, mathematics is the language of nature. It is available in daily life.*

Opinions on the Applicability of the Courses of Teachers Acquired during Undergraduate Education

The answers given by the teachers whose opinions were received about the applicability of mathematics courses taken during their undergraduate education in teaching life are coded as "theoretical, useful".

The excerpt of Ö.G. who expresses that the courses he took were theoretical and were not so useful in practice is as follows:

> *Those days, we were students and we thought that we should pass the courses. When I became teacher, I saw that those courses were necessary for me. But we only memorized those courses. Teaching cannot be learned by just explaining the course once a semester on the blackboard. My courses were theoretical and we just memorized them. But real life is different, you need to practice. Yes, of course, it's working but we should be more involved. Maybe training is more practiced nowadays. I am a teacher for 23 years. Maybe now they're teaching how the process will be. That's how it should be.*

Opinions about feelings while Teaching Mathematics

The answers given by the teachers whose opinions their feelings for teaching mathematics about what they felt while teaching the mathematics course was coded as "boring, pleasant, ordinary".

The excerpts of A.H. expressing that he does not feel anything different from other courses while he is teaching mathematics and it is ordinary is as follows:

> *I always liked math. Now, I think, I make my students like it, too. But for my feelings during teaching, do I feel something different from other lessons? No. It is almost the same. I feel the same things as other classes. It is normal. When I say it is an ordinary class, but it is an important class as well. I feel the same pleasure and joy for other classes as well. I do not feel something special for math.*

Teachers' Opinions and Recommendations

The opinions and recommendations of the five classroom teachers A.H., B.H., Ö.G., S.O., T.T. who attended the interviews are as follows:

> *"The curriculum we use is suitable for students who live in the city center, but it is unrealistic for students here at the village school. A curriculum that covers everyone, unfortunately, does not exist. Students want to learn by doing and living, but conditions are not suitable for this, sorry but the entire math is not running with the animals in the barn. So I think, the curriculum should cover the general and material support should extend to everywhere"*
>
> *"In fact, there is not much to say. It is good in general. I do not reflect the negativities in my student life on my students personally. I want them to develop a positive attitude toward mathematics."*
>
> *"So now, there's nothing much to say. If a student likes the teacher, nothing else matters. If the teacher is good, then the course is good. So, everything starts with us. Students do repetitions every day. He/she studies for 5 minutes every day, and that is enough for him/her. But of course, family support is also necessary. That is what we do not have. Because the family thinks everything is okay when the student goes to school. However, that's not how it works. Cooperation with the family is important ... "*
>
> *"I want to talk about the importance of undergraduate courses. Personally, I think I am very good at teaching mathematics with the education I got from my tutor in undergraduate. We learned how to teach. And for here, for our students, a good curriculum is necessary. It is no go if it changes constantly. It should settle down. In fact, in any way, we need to teach our children*

through living and doing. And I always ask myself. If my child has a teacher like me, will I be happy? We need to say yes to this... "

"Now, I am a teacher for 19 years. I'm almost experienced. I can tell that the teacher is not the only criterion for a good math alone. The student's intelligence and ability are certainly important, environment matters, family matters. We do not have family and teacher cooperation here. You can not even set up a WhatsApp group because parents have no smartphones or do not understand the internet. The student is not uncomfortable financially with regards to materials. Get it done, it does not. We cannot always get from our pockets. So there should be material support suitable to the curriculum. And also a curriculum suitable for surrounding conditions. The child over here never saw the sea, the problem about the sea never interests him/her, too. But when it is talked about snow, shovel, stove, then he/she engages in the question himself/herself immediately. Have I made myself clear?."

In evaluation of the answers given by classroom teachers, it was observed that concrete materials should be used for teaching mathematics. Moreover, the curriculum should be changed in a way to address everyone by relating mathematics with real life and parent-teacher association board meetings should be performed more often.

DISCUSSION AND CONCLUSION

In the interviews, the classroom teachers were asked about their views on mathematics in elementary school, junior high school, high school and university, and it was stated that the mathematics course is mostly frightening in the student life, and also that it is fundamentally based on the teacher and the meaning attributed to the course. These results are in line with the results of metaphor perceptions on the mathematics concept of classroom teacher candidates in Güveli, İpek, Atasoy and Güveli's (2011) study.

When the opinions of classroom teachers on whether mathematics can be related to everyday life are considered, all of the teachers stated that it is required to be related though just barely and that this is necessary for the student profile which is within concrete operations period. They also pointed out that relating mathematics to everyday life is important for drawing attention to the course and making the course intelligible. This approach has been seen to be in line with the achievements in the Ministry of Education Mathematics Instructional Program (2018).

The answers given by classroom teachers on the reflections of the mathematics courses they have taken during their undergraduate education to their current teaching life is similar to the opinion of classroom teacher candidates that the link between theory and practice in undergraduate courses should be strengthened which was obtained by Şahin-Taşkın and Hacıömeroğlu (2010) in their study.

The answers given by classroom teachers whose opinions were received on what they felt when they were teaching mathematics are in line with the attitudes and beliefs of elementary school teachers towards mathematics teaching found in the study of Ren and Smith (2018). Moreover, according to the results of the study, it was stated that the attitudes of the teachers towards the course differed according to the gender and it was also reflected in the students the same way. Also in this study, according to the feedback from the classroom teachers, if the teacher had a positive view on the mathematics course, he/she stated that he/she even increased the number of course hours, but the teacher, who expressed that he/she found it boring, told that it also lasted long for him/her especially in some subjects.

Opinions and recommendations for teaching mathematics were taken from the classroom teachers and the findings were collected on three main elements: the program, communication with

the family and undergraduate courses. These results are parallel to the results of Akyüz, Pala (2010), Şahin-Taşkın and Hacıömeroğlu (2010) and Duru and Korkmaz' (2010) studies.

Recommendations

Considering that the most important element in the implementation of the existing teaching program in Turkey is the teacher, it is recommended that either the curriculum, or the school-family cooperations, or the undergraduate courses taken at the university should be made useful for the teacher and more detailed studies on these three basic subjects should be conducted.

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