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Attitudes of primary school 2nd and 3rd grade students towards mathematics course

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Abstract

This study has been aimed at 230 students that have participated from 12 different primary schools that are part of the Ministry of Education and Culture (MEC) in accordance to their attitudes towards mathematics course. The work group is part of 2009-2010 academic year from 12 different primary schools of the North Cyprus. In this study in order to establish attitudes of primary education 2nd and 3rd grade students towards mathematics courses, “Emotional Facial Expressions” were used, due to their age level. A questionnaire form was developed by the researchers in 2009 from a questionnaire developed by Trehearne (2003) was used to measure the students' attitudes towards reading-writing through the help of emotional facial expressions and different mathematic attitude scales developed also used by other researchers. The questionnaire form consists of 10 questions. The students' were required to answer the questions by colouring the given facial expressions stated as; very happy, happy, neutral, and sad. As a result of the study, students' expressed positive attitudes towards mathematic courses.

© 2010 Elsevier Ltd. Open access under [CC BY-NC-ND license](https://creativecommons.org/licenses/by-nc-nd/4.0/).*Keywords:* Mathematics anxiety; mathematical problem-solving skills; the relationship between mathematical problem-solving and anxiety.

1. Introduction

Individuals always face problems in their daily lives. It's compulsory to solve the problems we face for the In the TDA (Turkish Language Association) the dictionary of Math defined mathematics as; “the study of the measurement, relationships, and properties of quantities and sets, groups of related sciences, including algebra, geometry, and calculus, concerned with the study of number, quantity, shape, and space and their interrelationships by using a specialised notation”. Baykul (2005) defined mathematics as; “The scientific relationship between the greatest, numbers, space and shape, a language related to symbols which all human can use”. According to Yıldırım (1996) mathematics is “a thinking method that guides you to the correct and exact information”. Savaş (1999) defined math as; a tool used in our daily lives in solving problems. As a result, mathematics prepares individuals towards precise and effective thinking, it helps one to study in accordingly, it supports to use efficient and understanding explanations and it's a scientific field that guides you towards examinations and reserches (Sarali & Güldal, 1978).

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Due to mathematics being a significant scientific field, it is important that it takes place in classes at schools. Researchers argue that mathematic courses should proceed through projects, games, performances and similar activities. These types of different activities should be carried out in class as it increases student motivation which proves as an important factor. According to Corell (2000), when students enjoy the mathematic courses their desire to learn and motivation also increases. On the other hand, results of studies that have been made from around the world and our country show that their success and desire to learn is very low (Baykul, 1987; Chiappelli, 1987; Nesin, 1994; Peker, 2003). The reason for the students being unsuccessful in mathematics is that the level of their desires (Corell, 2000) and their anxieties in this situation have shown their negative attitudes (Rounds & Hendel, 1980).

Being in anxiety in mathematics is a scope of fright and drawn back behaviours. The anxiety which occur in mathematics Baloğlu (2001) stated anxiety in problem solving, mathematic tests, grades, learning mathematics and performance. In addition, attitude is defined as; situation to be “ready for action” (Arkonaç, 2005); elements found in scientific and emotional fields and a stable system that involves behavioural guidance (Freedman, Sears & Carlsmith, 2003). On the contrary, attitudes towards mathematics show how students’ behaviour will be towards the courses and the effect which contributes towards their motivation. Also, it can be thought that attitudes towards mathematics where students either “desire mathematics or not” shows their individual emotions (Bayturan, 2004). It has been proved that most researches show students success in mathematics is affected through their attitudes towards mathematics (Minto & Yanese, 1984; Ethington & Wolfle, 1986; Cheung, 1988; Erkin, 1993). In order to get younger students views emotional facial expressions were used in this research. Çelik, Tuğrul and Yalçın (2002) had used this measuring scale in a research for children between 4-6 years of age in how they perceive their teachers and families. In this study, the work group consists of primary school 2nd and 3rd year students. After 3rd year graders, due to their intensive mathematics education, it is important to state the learners’ attitudes towards mathematic courses. Students’ attitudes will guide them towards mathematics education. If the students’ attitudes are not positive, it should be constructed into positive attitudes through organising activities in order to increase student success in mathematic learning in the up-coming years. For this reason, this study conveys much importance.

1.1 Problem

The main problem which was taken into hand in this research was to state primary school 2nd and 3rd grade students’ attitudes towards their mathematic courses. In conjunction to this, the sub-problem in this research has provided the following question: “What are the 2nd and 3rd grade students’ attitudes towards their mathematic course?”

2. Method

2.1 Research Model and Participants

In order to state the attitudes of students towards mathematic courses, it was taken place in 2009-2010 academic year in North Cyprus primary schools which are linked to the MEC that consisted of 230 participants made up of 2nd and 3rd grade primary school students.

2.2 Data Collection

In accordance to the research topic, a literature review was administered and the given data concluded the theoretical section. In order to obtain experimental datum, researchers began to develop the “Emotional Facial Expressions” in a questionnaire form in 2009. Five experts in their fields helped to the face validity of the questionnaire form through face to face debates. After the pre-study, the two negative questions were removed. Cronbach alfa reliability coefficient obtained as 0.87. This questionnaire was inspired from a questionnaire developed by Trehearne (2003) was used to measure the students' attitudes towards reading-writing through the help of emotional facial expressions and different mathematic attitude scales developed also used by other researchers (Akay 2006; Aşkar 1986; Sulak 2002; Duatepe and Çilesiz 1999; Tezer and Ekizoğlu 2007). The questions were prepared in order to measure the students’ attitudes. The students’ answers were stated through colouring the given

emotional facial expressions as; very happy, happy, neutral and sad. The reason for using emotional facial expressions is that their age group was suitable and the emotional facial expressions have been proved to play an important role in social communications. In developing childrens social abilities it is very important that they recognise emotional facial expressions. As an answer to the question of, how will the emotional facial expressions be understood? Can be answered as the point in which theorists meet is that it's important in the cognitive period that they discover their emotions. To be able to understand feelings and be defined in both intellectual period and motivation is an effective factor. It is indicated as a specification from birth that emotional facial expressions are apparent in early periods, but for this specification to be apparent and developed it works hand in hand with maturity and learning (Izard, 1971; Maletesta & Izard, 1984).

There are many studies on primary school first three grades and pre-school children where they comprehend that facial expression are expressed through human emotions (Havell, Green & Flavell, 1990). In these studies, children are able to define happiness, sadness and anger (Bullock & Russel, 1984), happiness and sadness, uncertainty and anger is a sign that they can tell the difference together they are able to state that anger and sadness are the easiest to define that it's followed after happiness. Between these expressions, children can easily notice how happiness is expressed (Bullock & Russel, 1984; Denliam, 1986), together they are able to state that anger and sadness are easily defined that it's followed after happiness (Denliam, 1986; Felleman et. al., 1983) and it also states that straight after these follows uncertainty and fright (Michalson & Lewis, 1985). Again, in other studies, it shows that children have difficulties in understanding natural expressions, but can easily understand definite expressions (Felleman et. al., 1983). For children of this era, characteristic emotional facial expressions and other communicative factors play an important role in expressing emotional attributes. It's also indicated that in the adult period these attributes play an important role in communication (Denliam, 1986; Michalson & Lewis, 1985; Russel, 1990).

2.3 Data Analysis

The data was collected through the developed questionnaire form where students' coloured the emotional facial expressions that were rated as; very happy 4, happy 3, neutral 2, and sad 1 point; these datas were analysed on SPSS17 for windows program. In the evaluation, descriptive statistics were applied. As a result of the analysis the mean value of each question were taken into hand and were evaluated between 1.0 – 4.0.

2.4 Assumptions

Students were expected to answer the questions honestly, the measuring tool used is measured accurately and the work group is a successful representative stated as the researches assumptions.

2.5 Limitations

The work group is part of 2009-2010 academic year from 12 different primary schools of the North Cyprus that consist of 230 students and it was limited to the 10 questions on the questionnaire form.

3. Findings and Discussion

Table 1. Student attitudes towards Math courses

Questions	Mean (\bar{X})	Std. Deviation (SD)
How do you feel when you are doing a math course?	3,62	,67
How does it make you feel when you are doing mathematical calculations?	3,32	,79
“What I learn in my math course I use in my daily life” with which idea do you emotionally agree to?	3,16	,85
“Math courses do not frighten me” which facial expression would you reply with for this idea?	3,32	,85
How do you feel towards the follow statement when the teacher says: “We will be doing a math course all day”?	3,03	1,06
“I do not find it difficult in understanding math course” which facial expression would you reply	2,79	1,32

with for this idea?		
How does it make you feel doing mathematics in your freetime?	2,73	1,28
How do you feel when you are faced with a mathematical problem?	3,24	,87
“The course I mostly like is math” which facial expression would you reply with for this idea?	3,15	,92
Do you believe that math courses are enjoyable?	3,20	,97

In this study, Table 1 shows the obtained data of students' attitudes towards mathematic courses. As can be seen in the table, the statement for “How do you feel when you are doing a math course?” obtained a mean value of 3.62. This statement received the highest mean value of students' attitudes in the questionnaire form in comparison to the other questions. As the value obtained was above 3.26 the results reflect that in general students feel “very happy” in their math course.

In the questionnaire form, another question where “how does it feel doing mathematics in your freetime?” obtained the lowest mean value. After the calculations of the given data and the opportunity of meeting face to face, this was the expected result to be obtained. The reason for this, due to their age a 2nd and 3rd grade primary school student enjoys game playing courses. As math is a difficult and abstract course, in their freetime they prefer to do more enjoyable courses such as; playing games, draw, play music or do PE (physical education). Yet again, this question obtained 2.73 mean value which lies between the values of 2.51 – 3.25. Therefore, this indicates that it makes students feel “happy” to be doing math in their freetime.

On the other hand, another question that states “I do not find it difficult in understanding math course” received the lowest Mean value of 2.79. Therefore, it can be resulted to the idea that due to the lesson being abstract it shows that mathematics lesson is difficult when the topics are not concrete.

Another question which took place states that “we will be doing a math course all day” obtained in general, yet again in comparison to the other questions, the lowest mean value. This question received 3.03 mean value which expressed “happy”.

The mean value obtained by students for “what I learn in my math course I use in my daily life” obtained 3.16. The received value is between 2.51 – 3.25 values which receives a “happy” expression. This value is very close to the “very happy” expression, so it can be interpreted that students are beginning to use the studied data in math courses as part of their daily life and what students have learnt reveals competence in “data which is useful for me” statement. This result is especially due to the latest development of mathematic programs and newly written coursebooks proves that these are useful factors.

The statement “math course doesn't frighten me” obtained 3.32 mean value. This result indicates that students are not afraid of math courses and they made this explicit through expressing with the “very happy” emotion.

4. Conclusion and Recommendation

As a conclusion to this research, students' attitudes towards mathematic courses have been evaluated as a positive value. From here onwards, it shows that students' do not have any negative suspicions and have positive attitudes towards mathematics courses. It's an exciting result that students at this age have displayed positive views towards mathematics courses. In the up-coming years with the same study group of students, we will continue our researches and at a particular level more extended studies may be administered with the remaining students.

The positive views of students towards mathematic courses suggest to continue abstract practices should be demolished. In order to take precautions, teachers teaching math should be informed and updated on different teaching methods.

Another suggestion that can be mentioned about the results of the study is to be informed of the teaching approaches and behaviours through teachers' views about the classes they teach. Data received from teachers and studies administered by researchers should be simultaneous, and with the significant results seminars should be organized by experts for the remaining mathematic teachers. Therefore, all the students' positive attitudes towards mathematic courses can be developed.

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