

Study on 8th Grade Students' Thoughts about the Mathematics Course

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This paper investigates the thoughts of the 8th grade students in Turkey on the mathematics course and the relations between the mathematics courses and other variables such as the students' origins, gender and the mathematics scores students achieved. Based on the results, it was concluded that there is not evidence reflecting a relation between students' origins and thoughts, but there is a relation between their thoughts, their gender and their mathematics scores.

Key Words: Thoughts about mathematics course; Mathematics course; mathematics scores of the students

Everybody agrees that mathematics and mathematical thinking can achieve scientific and technological developments. For this reason, in each level of the education, maths is an inevitable course. Although mathematics and mathematical thinking have an important place in both individual and social life, it is a common idea in almost all societies that maths is a difficult course. Therefore, it is a topic investigated at international level and the education program of maths courses should be prepared by taking care of the mental structure of students and the nature of the math course (Coburn (1989); Jackson, (Ed.), (1992); Kroll (1989); Lam (2002); Remillard, (1999)). In Turkey, programs for the primary level are also developed and these programs are evaluated from the respect of proficiency and productivity. New goals are specified and necessary changes are made through these new goals by taking into consideration the present conditions. (Eden, (1995); Güteryüz, (1998); Varis, (1988)). For this purpose, in 1998, some changes were made and implemented in "The Education Program of Mathematics Course in Primary", which was employed in 1992. Having students develop a positive attitude towards maths courses and having them recognize the importance of the mathematics are among the main targets of this program. For this reason it was considered worthy to investigate what students think about the mathematics and what sort of relations there are between the students' thoughts and the settlements students live in, their genders and their mathematics scores.

The purposes of this study were to investigate:

- Thoughts of students related to the mathematics,
- Whether there is a relation between these thoughts and some variables such as settlements students live in, gender and their mathematics scores they achieve or not.

The study was conducted in the schools of Eskisehir, which is a city in Turkey, and the focus was on 8th grade classes. Because the scope of the universe is too large, the method of sampling from the universe was employed. Therefore, 15 % of the primary schools in Eskisehir were selected randomly. The questionnaire used for collecting data was distributed in the last two weeks of the period. The numbers of the schools and students included in the survey were exhibited in Table 1.

| | Number of Schools | Number of Female Students | Number of Male Students | Total Students |
|--------------|----------------------|------------------------------|----------------------------|-------------------|
| City Centre | 12 | 297 | 259 | 556 |
| Town Centre | 3 | 73 | 46 | 119 |
| Village | 6 | 94 | 62 | 156 |
| Total | 21 | 464 | 367 | 831 |

Table 1: Sampling

As seen in Table 1, the total number of the respondents was 831. The respondents were asked to fill in the questionnaires during the personal visitations of the researchers. 56 % of the respondents were female and 44 % of them were male.

In the selected schools, the survey was carried out in the last weeks of the education year of 2001-2002. The researchers visited all the schools and informed the respondents about the purpose of the survey. Following the informing process, the questionnaires were handed out. In the analysis of the data, frequency, percent and chi-square test were employed as statistical method.

RESULTS AND SUGGESTIONS

In this section, the findings of the survey were presented. The students' thoughts towards mathematics are given in Table 2.

| | n | % |
|--|------------|------------|
| It is an enjoyable course for me | 117 | 14 |
| Sometimes I like, sometimes I have difficulty in understanding | 462 | 56 |
| Usually I have difficulty in understanding | 191 | 23 |
| I never like it | 61 | 7 |
| Total | 831 | 100 |

Table 2: Thoughts of the students towards maths

As seen in Table 2, 14 % of the respondents consider maths as an enjoyable course, while 7 % respondents state their dislike. Again from Table 2, we can see that 462 respondents (56 %) prefer the choice of "sometimes I like, sometimes I have difficulty in understanding." 23 % of the students state that it is a course that they usually have difficulty in understanding.

The relation between the thoughts of the students on the mathematics course and their settlements are given in Table 3.

| Settlements | It is an enjoyable course for me | | Sometimes I like, sometimes I have difficulty in understanding | | Usually I have difficulty in understanding | | I never like it | |
|-------------|----------------------------------|----|--|----|--|----|-----------------|----|
| | n | % | n | % | n | % | n | % |
| City Centre | 73 | 13 | 317 | 57 | 125 | 23 | 41 | 7 |
| Town Centre | 18 | 15 | 60 | 51 | 29 | 24 | 12 | 10 |
| Village | 26 | 17 | 85 | 55 | 37 | 23 | 8 | 5 |

$$X_{Cal.}^2 = 4.12 \quad X_{0.05,6}^2 = 12.592$$

Table 3: The Relation between the thoughts of the students on the mathematics course and the settlements

As presented in the Table 3, the percentages of the students who perceived mathematics as enjoyable according to settlement type were 13 % in the city centre, 15 % in town centre and 17 % in village. The percentages of the students who sometimes like mathematics and sometimes have difficulty in understanding were 57 % in the city centre, 51 % in the town centres and 55 % in the villages. The percentages of the students responding with the choice of “usually I have difficulty in understanding” were 23 % in city centre, 24 % in town centres and 23 % in villages. The percentages of the students who never like mathematics were 7 % in the city centre, 10 % in the town centres and 5 % in the villages.

The relation between the thoughts of the students on the mathematics course and the genders was given in Table 4.

| Gender | It is an enjoyable course for me | | Sometimes I like, sometimes I have difficulty in understanding | | Usually I have difficulty in understanding | | I never like it | |
|--------|----------------------------------|----|--|----|--|----|-----------------|---|
| | n | % | n | % | n | % | n | % |
| Female | 55 | 12 | 276 | 59 | 107 | 23 | 26 | 6 |
| Male | 62 | 17 | 186 | 51 | 84 | 23 | 35 | 9 |

$$X_{Cal.}^2 = 10.87 \quad X_{0.05,3}^2 = 7.815$$

Table 4: The Relation between the thoughts of the students on the mathematics course and the genders

As seen from the Table 4, 12 % of the girls perceive the mathematics course as an enjoyable course while 17 % of the male students consider it as an enjoyable course. The percentages of the girl students who sometimes like mathematics and sometimes have difficulty in understanding was 59 % whereas it was 51 % for the male students. The percentages of both female and male students responding with the choice of “usually I have difficulty in understanding” was 23 %. The percentages of the female students who never like the mathematics course were 6 % and 9 % for the male students.

The relation between the thoughts of the students on the mathematics course and the mathematics scores they receive was given in Table 5.

| Scores | It is an enjoyable course for me | | Sometimes I like, sometimes I have difficulty in understanding | | Usually I have difficulty in understanding | | I never like it. | |
|--------|----------------------------------|-----|--|-----|--|-----|------------------|-----|
| | n | % | n | % | n | % | n | % |
| 1 | 12 | 10 | 100 | 22 | 67 | 35 | 32 | 53 |
| 2 | 20 | 17 | 125 | 27 | 84 | 44 | 11 | 18 |
| 3 | 12 | 10 | 104 | 22 | 27 | 14 | 7 | 11 |
| 4 | 16 | 14 | 68 | 15 | 8 | 4 | 4 | 7 |
| 5 | 57 | 49 | 65 | 14 | 5 | 3 | 7 | 11 |
| Total | 117 | 100 | 462 | 100 | 190 | 100 | 61 | 100 |

$X_{Cal.}^2 = 189.48$ $X_{0,05,12}^2 = 21.06$

Table 5: The Relation between the thoughts of the students on the mathematics course and their mathematics scores (5 is the highest score and 1 is the lowest)

A seen in Table 5, among the students who perceive mathematics as enjoyable, the distribution according to their mathematics scores was as follows; 10 % of the students received “1”, 17 % of them scored by “2”, 10 % by “3”, 14 % of the students by “4” and 49 % of them by “5”. Among the students who sometimes like mathematics and sometimes have difficulty in understanding, the percentage of the students scored by “1” was 22 %, by “2” was 27 %, by “3” was 22 %, by “4” was 15 % and by “5” was 14 %. 35 % of the students who stated that they usually have difficulty in understanding were scored by “1”, 44 % by “2”, 14 % of them by “3”, 4 % of them by “4” and 3 % of the students by “5”. The percentage of the students who stated that they never like mathematics were scored as follows, in turn; 53 % of the students by “1”, 18 % by “2”, 11 % by “3”, 7 % by “4” and 11 % by “5”.

In this study, the following results were reached.

- Based on the chi-square test employed by using data given in Table 3, there is no relation between the thoughts on mathematics and the settlement ($p < 0,05$). We can conclude that the thoughts related to the mathematics course are not differentiated according to the types of the settlement.
- Based on the chi-square test employed by using data given in Table 4, there is a relation between the thoughts on mathematics and the gender ($p > 0,05$). In other words, the thoughts are changing according to the gender. For example, the rate of the male students who perceive the mathematics course as enjoyable is higher than that of the female students. On the other hand, the rate of the male students who never like the mathematics is also higher than the rate of the female students claiming the same thing.
- Based on the chi-square test employed by using data given in Table 5, there is a relation between the thoughts on mathematics and the scores the student got ($p > 0,05$). The rates of the students who perceive the mathematics course as enjoyable and are scored by “5” was 49 % and scored by “4” was 14 %. If we accept the scores of “4 and 5” as representatives of the success, then we can accept that 63 % of the students who perceive the mathematics course as enjoyable were successful. Based on this result, we can conclude that the

students who like the mathematics course are successful students in the mathematics course. Also, the rate of the students who claim that they usually have difficulty in understanding and whose scores were “1” and “2” was 35 % and 44, in turn. The total amount, 79 %, was quite higher rate. Based on this rate, we can claim that the great amount of the students who have difficulty in understanding were not successful.

For this reason, we think that students will be more successful in the mathematics course in the primary schools even if the mathematics programs are developed and evaluated more frequently, the course books are prepared as to make students enjoy the mathematics classes and programs for TV and computers are prepared.

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