



8 TH GRADE STUDENTS' ATTITUDES TOWARDS MATHEMATICS APPLIED GUIDANCE ACTIVITIES AND MATHEMATICS COURSE SUCCESS APPLIED GUIDANCE ACTIVITIES

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ABSTRACT

The purpose of this study is to research the act of students' attitudes towards mathematics and mathematics course success to applying 8th grade students of guidance activities. This research is designed as pretest / posttest experiment and control group quasi-experimental design model. The research sample is consisted of two class that total of 40 students studying in 8th branch, at 2012 - 2013 academic year in a special primary school classroom in the district of Hatay Dortyol. The experimental group is consisted of first half of these students and the control group is consisted of the other half. Total of 12 guidance activities program has been implemented to experimental group twice a week for 6 weeks. Each activity is applied at the end of the courses for 60 minutes. There has not been any action applied to control group during this time. The mathematics achievement test (MAT) and scale of attitudes towards mathematics (SATM) is applied to all groups as the data collection tool in research.

Analysis of all the data obtained from tests which are applied to students, are made by using the package program SPSS-17. This data belongs to the mean, standard deviation, frequency and percentage values analyzed with descriptive statistics. Independent groups t test is used for solving the the research problems.

At the end of the research; a significant difference about mathematics success are found in favor of the experimental group students, between 8th branch students who participated in the experimental group guidance activities and the students who did not receive guidance activities in the control group. At the same time; a significant difference about attitudes towards mathematics are found in favor of the experimental group students, between 8th branch students who participated in the experimental group guidance activities and the students who did not receive guidance activities in the control group.

Indexing Terms / Keywords

Guidance activities, attitudes, success

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INTRODUCTION

The guidance activities have been applied since 1974 in Turkey in Primary Schools. These activities have begun in the application of 8 years process system in Primary School stage in Turkey. In USA these activities have been applied since 1965 and have been organized again in 1968. But then the Primary Schools Teaching system has changed and now the system of 4 years of Primary Schools have been under process. After the 5th class the guidance activities are applied in the middle stage schools.

In [5] Coban has searched attitudes of 8th class students towards mathematics. As a result he determined that the students have negative attitudes towards Mathematics. The cause of negative attitudes is the negativity of their behaviours to their Mathematics Teachers. In [3] Baykul has also researched the attitudes of students from primary schools to high schools. He has determined that negative attitudes towards mathematics have increased from 5th class to the end of high schools. The desire of success of students in the high schools exams has caused the increase of negative attitudes towards mathematics. In [7] Peker and Mirasyedioglu have searched 500 students in 8 high schools in 10th class. They have searched the attitudes of students towards mathematics and academic success in mathematics and the correlation between them. They have found that more than half of the students have positive attitudes towards mathematics. But they have found that %68,4 of students have failed the mathematics achievement test (MAT). They have found that there is a meaningful difference between the attitudes of students towards Mathematics and their Academic Mathematics Success. The studies on the attitudes of students towards mathematics and science lessons have continued after then. It is determined that the negative attitudes towards mathematics have been based upon the difficulties of mathematics subjects.

The purpose of this study is to search the act of students' attitudes towards mathematics and mathematics course success to applying 8th grade students of guidance activities. This research is designed as pretest / posttest experiment and control group quasi-experimental design model. The research sample is consisted of two class that total of 40 students attending in 8th class, in 2012 - 2013 academic year in a special primary school classroom in the district of Hatay Dortyol. The experimental group is consisted of first half of these students and the control group is consisted of the other half. Total of 12 guidance activities program has been implemented to experimental group twice a week for 6 weeks. Each activity is applied at the end of the courses for 60 minutes. There has not been any action applied to control group during this time. The mathematics achievement test (MAT) and scale of attitudes towards mathematics (SATM) is applied to all groups as the data collection tool in research.

THE RESEARCH PROBLEM, SUBPROBLEMS AND HYPOTHESIS

In this section we give the research problem, subproblems and hypothesis based upon these problems. The aim of this study is to determine whether there is a statistical meaningful difference between the attitudes of 8th class students towards mathematics and the arithmetic mean of mathematics test points between the students who take guidance activities and the others who do not take. The research problem is given below:

"Is there a meaningful difference between the attitudes of 8th class students towards mathematics and the arithmetic mean of mathematics test points between the students who take guidance activities and the others who do not take?"

The subproblems are given below:

- 1) Is there a meaningful difference between the 8th class students' arithmetic mean of mathematics test points who take and do not take guidance activities?
- 2) Is there a meaningful difference between the 8th class students' attitudes towards mathematics who take and do not take guidance activities?

The hypothesis based upon the general research problem is as follows:

"There is not a statistical meaningful difference between the attitudes of 8th class students towards mathematics and the arithmetic mean of mathematics test points between the students who take guidance activities and the others who do not take."

The group of subhypothesis based upon the general research hypothesis is given below:

- 1) There is not a meaningful difference between the 8th class students' arithmetic mean of mathematics test points who take and do not take guidance activities.
- 2) There is not a meaningful difference between the 8th class students' attitudes towards mathematics who take and do not take guidance activities.

MATERIALS AND METHODS

This research is designed as pretest / posttest experiment and control group quasi-experimental design model. The properties of real experimental model is to select the individuals unbiased in experimental conditions. But we may not always make the groups randomly. Under these conditions we use the quasi-experimental model. In this method, the groups which have been organized before are taken again. One of the groups is experimental group and the other is control group and they are selected randomly. The teaching method which is to be tested is evaluated to the experimental



group and no other method is evaluated to the control group. Pre-test and post-test are evaluated to each group and the efficiency of the method on the experimental group is examined. (See [4])

The universe of the research is the 8th class students in a middle stage school in Dortyol, Hatay. The sample consists of 40 students in 2 classes (1304, 2203) in the years 2012-2013. In order to determine the equivalence of experimental group and control group, the gender of the students and their pre-test points are determined. For this aim SPSS 17 programme is used. The gender of the students and the results are given below:

Table 1: Experimental and Control Group Students' Gender and Their Frequency

GROUPS	Girls		Boys		Total	
	f	%	f	%	f	%
Experimental	9	22,5	11	27,5	20	50
Control	8	20	12	30	20	50

In order to determine the equivalence of the pre-test points of the Mathematics Achievement Test of two groups, the t test is used. The results are given in table 2:

Table 2: Arithmetic Mean of Experimental and Control Group MAT Pre Test Points

	N	\bar{X}	Ss	Sd	t	p
Experimental G.	20	8,65	2,230	38	-1,209	0,234
Control G.	20	9,70	3,180			

N=40, p >0,05

Arithmetic Mean of pre-test points of MAT of the experimental group is 8,65 and the control group is 9,70. Standart deviation is 2,230 in the experimental group, while it is 3,180 in the control group. Since p=0,234 it is obtained that there is not a meaningful difference between the pre-test points of the experimental group and control group. (t (38)= -1,209, p > 0.05).

In order to determine the equivalence of the pre-test points of the scale of attitudes towards mathematics (SATM) of two groups, the t test is used. The results are given in Table 3:

Table 3: Arithmetic Mean of Experimental and Control Group SATM Pre Test Points

	N	\bar{X}	Ss	Sd	t	p
Experimental G.	20	59,65	8,761	38	0,179	0,859
Control G.	20	59,15	8,857			

N=40, p >0.05

Arithmetic Mean of pre-test points of SATM of the experimental group is 59,65 and the control group is 59,15. Standart deviation is 8,761 in the experimental group, while it is 8,857 in the control group. Since p=0,859 it is obtained that there is not a meaningful difference between the pre-test points of the experimental group and control group. (t (38)= 0,179, p > 0.05).

In order to determine the effect of guidance activities to the 8th year mathematics success and attitudes towards mathematics the sample is determined. The sample consists of randomly selected groups. The experimental group (2203) and the control group (1304) are determined.

In evaluation of method stage mathematics lessons are considered by the same teacher. The evaluation occurs by the help of teacher who has a certificate on guidance activities. Also an expert on the guidance activities has given his/her idea. In experimental group 60 minutes of guidance activities have been applied for 6 weeks two times in a week. In 12 weeks guidance activities are applied. At the beginning of all the activities the students opinion about the subject and necessary information has been given. Some information about the next course is given and after some homework the activity is finished. The guidance activities applied to experimental group is given below:

- 1ST SCHEDULE- Determining aim
- 2ND SCHEDULE- Begin to work
- 3RD SCHEDULE- Interruption of studying lessons



- 4TH SCHEDULE- Preparing a lesson plan
- 5TH SCHEDULE- To be afraid of Mathematics and studying methods
- 6TH SCHEDULE- Efficient and fast reading

In the guidance activities applied in the experimental group, giving information, question-answer, discussion, application, giving homework and comparison methods are used. Blackboard, lesson notes and presentation rooms are used as materials.

Before the application of the method, mathematics achievement test (MAT) and scale of attitudes towards mathematics (SATM) are applied as pre-test to all students. After the application of the method, mathematics achievement test (MAT) and scale of attitudes towards mathematics (SATM) are applied as post-test to all students.

FINDINGS AND COMMENTS

The pre-test and post-test results of MAT and SATM are given in Table 8 in the experimental and control groups.

Table 8: The pre-test and post-test results of MAT and SATM

Groups	Dependent Variables	n	Skewness	Curtosis	Arithmetic Mean	Standart Deviation
EG	Pre -MAT	20	0,933	0,134	8,65	2,230
	Post-MAT	20	0,392	-0,126	11,20	2,261
	Pre-SATM	20	-0,518	-0,869	59,65	8,761
	Post-SATM	20	-0,044	-0,806	63,75	9,391
CG	Pre -MAT	20	-0,306	-0,721	9,70	3,180
	Post-MAT	20	0,742	0,442	9,45	2,258
	Pre-SATM	20	0,091	0,170	59,15	8,857
	Post-SATM	20	-0,211	-0,989	57,60	9,681

EG: Experimental Group (The Group Applied Guidance Activities)

CG: Control Group (The Group Which Guidance Activities Not Applied)

To test the general research problem and the determined hypothesis, independent groups t-test is used and all hypothesis are tested in 0,05 alpha level.

Table 9: Independent t Test Results of Arithmetic Mean of Post-MAT Points of Experimental and Control Group Students

	N	\bar{X}	Ss	Sd	t	P
Experimental G.	20	11,20	2,261	38	2,448	0,019*
Control G.	20	9,45	2,258			

N=40, p<0,05*

In Table 9 the arithmetic mean of post-MAT test points of the experimental group is 11,20 while the control group's arithmetic mean is 9,45. The standart deviation is 2,261 in the experimental group while it is 2,258 in the control group. The result of independent t-test shows that there is a meaningful difference between the arithmetic mean of post-MAT test points of experimental group and the control group. (t(38) = 2,448, p< 0,05)

Table 10: Independent t Test Results of Arithmetic Mean of Post-SATM Points of Experimental and Control Group Students

	N	\bar{X}	Ss	Sd	t	P
Experimental G.	20	63,75	9,391	38	2,039	0,048*
Control G.	20	57,60	9,681			

N=40, p<0,05*

In Table 10 the arithmetic mean of post-SATM test points of the experimental group is 63,75 while the control group's arithmetic mean is 57,60. The standart deviation is 9,391 in the experimental group while it is 9,681 in the control group. The result of independent t-test shows that there is a meaningful difference between the arithmetic mean of post-SATM test point of experimental group and the control group. (t(38) = 2,039, p< 0,05)



CONCLUSION

In this paper the effect of guidance activities of the attitudes of 8th class students towards mathematics and academical success in mathematics are investigated. If we examine the first research subproblem we conclude that the academic mathematics success of students who take guidance activities has increased. The academic mathematics success of students who do not take guidance activities have not been changed. This result shows that guidance activities have positive effects on the academic mathematics success of 8th class students. This result supports the results obtained in [1], [6] and [8].

If we examine the second research subproblem we conclude that the attitudes of students towards mathematics who take guidance activities have increased. The attitudes of students towards mathematics who do not take guidance activities have not been changed. This result shows that guidance activities have positive effects on the attitudes of 8th class students towards mathematics. This result supports the result of [9], [1], [3] and [2].

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Author' biography with Photo



Associate Prof. Dr. Melis Minisker was born in Adana, Turkey in 1974. She has graduated from Cukurova University, Mathematics Department in Adana in 1996. She has finished master's degree and doctoral degree in Cukurova University Mathematics Department. She has worked as a research assistant in Cukurova University Mathematics Department for 8 years. In 2005 she has begun to work as Assistant Prof. Dr. in Mustafa Kemal University Faculty of Education, Antakya, Hatay, TURKEY. She has taken Associate Prof. Dr. degree in 2010. She has studied on new research papers since then and has supervised 10 master's students. 5 of them have finished their master's degree on mathematics education. She has research papers and projects in algebra, semigroup theory. She has also some presentations in Mathematics Education symposiums in Turkey.