Research for Mathematics Anxiety of Students Attending Social Programs in Community Colleges: Yalova Community College Sample

SalihYildiz
Yalova University, Yalova, Turkey
slhyldz1@gmail.com

Abstract

The oldest description of mathematics anxiety is expressed as "the formation of emotional response syndrome against arithmetic and mathematics" by Dreger& Aiken in 1957 (Baloğlu, 2010:508).

There exist many studies in literature to determine the mentioned anxiety. "Most of the problems to see mathematics anxiety put forth the fact that there exists no consensus for mathematics anxiety therefore various measurement techniques were developed. The first mathematics anxiety rating scale is created by Dreger& Aiken (1957) (Kazelskis, 1998:623).

The study is prepared to clarify the reasons for mathematics anxiety of the students taken basic mathematics courses in Yalova Community College. Therefore surveys as anxiety rating scale (consisted of 10 items and created by RecepBindak in 2005) are applied to 400 students and 175 of them are taken into account. SPSS 16 program is used to analyze the research data.

Keywords: Education of mathematics, Anxiety, Mathematics anxiety, Yalova

Introduction

Anxiety is defined in broadest sense as an emotional situation which experiencing a sense of perceived weakness during the preparation of a perceived risk. Anxiety have three different varieties arising from personality, status, and event. Anxiety, caused by personality , in some individuals encountered in a continuous situation is a part of the human personality. Anxiety, caused by situation is defined as faced reaction to a significantly situation in a specific time. Finally, anxiety, caused by event experienced face of significant events (Ellis, 1994). Mathematics anxiety is defined by Miller and Mitchell (1994) as ; when students think about mathematics , illogical state of fear which causes to stay in concern, reduces the performance and hence preventing their learning. Hembree (1990) also stated that mathematics anxiety causes to creation of anxiety towards to mathematics such as decrease in mathematics achievement and avoidance of mathematics. For these reasons, mathematics anxiety is a serious problem, composed students mostly at the beginning of learning and solution is not easy(Hannula, 2005). Students who are under the influence of such a concern cannot acquire the desired level of knowledge of mathematics and they may choose the way of memorization without understanding, assimilating and conception of acquired mathematical information(Işık, Çiltaş and Bekdemir, 2008). About the reasons of mathematics anxiety, many studies have been proposed as possible causes (Lazarus, 1974), and emphasized on there may be a general concept that mathematics anxiety caused by interaction of mentioned many factors. We can state that a few of these factors are; factors sourced the field of mathematics,

educational factors, factors related to the attitudes of parents, personal values and expectations of the overall success. The relationship between mathematics anxiety and mathematics achievement is one of the areas that most interest for mathematics anxiety researchers (Zakaria and Nordin, 2008). However, there are differences in opinion about the effects of mathematics anxiety on mathematics achievement. Some studies could not find a remarkable link between mathematics anxiety and mathematics achievement (Boodt, 1980; Llabre and Suarez, 1985, etc.)... In a lot of studies serious findings were observed that mathematics anxiety have negative effect on the success of mathematics. (Dreger and Aiken, 1957; Richardson and Suini, 1972; Tobias and Weisbrod, 1980, etc.)...

The Purpose of the Study

The purpose of the study is revealıng how the perceive the cognitive level of accounting through metaphors among graduate and undergraduate students.

The purpose of the study is revealing mathematics anxiety at students who is studying at undergraduate program in Yalova \ Yalova University Vocational School and had mathematics lesson.

The Methodology of the Study

A 10-point anxiety scale questionnaire which developed by RecepBindak (2005) was implemented on participants and this questionnaire was evaluated. The data source has been generated from data which have been collected from students. SPSS 16 program was used for analysis of the data.

Analysis of the Data

Frequency and percentage of the data obtained from the results of used scale were distributed.

After calculating score which obtained from 5-point Likert-type scale towards mathematics anxiety , these points , were subjected to relational statistics with variables.(gender graduated high school, transition state of university, going or not going to extra courses in preparation term of university entrance exams, department and class of university, learning methods, staying where during the academic year, like or dislike the teaching style of mathematics teacher, an effect on the success of the class course).

In relational analyzes t-test and ANOVA test were used. Differences are expressed at the level of 0.05 in meaning.

Findings and Conclusion

In this section anxiety of vocational school students' to mathematics is analyzed according to various demographic information.

Table 1: Differences in anxiety of mathematic according to gender of vocational school students

Question 3: I'am always concerned in Mathematics lessons a questionbeing askedtomeworried						
Gender	N	X	Ss	t	Sd	p
Female	229	2,52	1,283	2,380	398	,018
Male	171	2,84	1,374			
Question 5: I'm not afraidof anything else as well as Mathematics exams.						
Gender	N	X	Ss	t	Sd	p
Female	229	2,76	1,401	2,767	398	,006
Male	171	3,16	1,453			

As shown in in Table 1, "I'm always concerned in Mathematics lessons a question being asked to me" and "I'm not afraid of anything else as well as Mathematics exams." t-Test of these statements according to gender, P <0.05 significant difference was observed. According to these expressions female students more concerned than male students.

In the analysis based on the transition of university status, there was not found any significant difference in any expression.

Table 2: Differences in mathematics anxiety for vocational school students according to the state of going to extra course

Question 8: I could not know how to study to mathematics exam.						
Gender	N	X	Ss	t	Sd	p
Male	162	3,20	1,361	3,246	396	,001
Female	236	2,76	1,332			

As shown in in Table 2, the statement of ": I could not know how to study to mathematics exam." Observed that according to t-test results which based on students went to extra courses or not, there is a p<0,05 level of significant difference.

In this expression, anxiety of students who did not go to extra courses was significantly higher than students who went to extra courses.

In analysis which made according to classrooms (1. Class, 2. Class), there was not found any significant difference in any statement.

In analysis which made according to education type of students (regular education, secondary education) there was not found any significant difference in any statement.

In analysis which made according to graduated high school type there was not found any significant difference in any statement.

Table 3: The analysis of "I am scared that I cannot pass my class because of mathematics "statement according to department of education

f , X , Ss Values					ANOVA Results					
Point	Groups	N	X	Ss	Source of Varience	Sum of Squares	Sd	Avarage of Squares	F	p
S 6	Office Services and Secretary Dept.	91	2,66	1,558	Between Groups	41,145	4	10,286	4,761	,001
	Acc. And Tax Dept.	88	3,45	1,405	In Group	853,453	395	2,161		
	Hotel, Restaurante and Catering Services Dept.	97	3,00	1,392	Total	894,598	399			
	Mark. and Foriegn Trade Dept.	61	2,80	1,547						
	Transportation Servisec Dept.	63	2,56	1,468						
	.									
	Total	400	2,92	1,497						

Students of Office Services and Secretary Department, Accounting and Tax Department and transport services department have expressed significant views different from each other.

Students of the Accounting and Tax Department have expressed their feeling of "I am scared that I cannot pass my class because of mathematics "less than Office Services and Secretary Department and Transportation Services Department students'.

Table 4: Analysis of statement "When I enter to mathematics, I feel puckered "according to education department

f , X , Ss Values					ANOVA Results					
Points	Groups	N	X	Ss	Source of Varience	Sum of Squares	Sd	Avarage of Squares	F	p
S 7	Office Services and Secretary Dept.	91	3,18	1,546	Between Groups	25,888	4	6,471	3,156	,014
	Acc. And Tax Dept.	88	3,81	1,321	In Group	809,994	395	2,051		
	Hotel, Restaurante and Catering Services Dept.	97	3,37	1,333	Total	835,877	399			
	Mark. and Foriegn Trade Dept.	61	3,21	1,416						
	Transportation Servisec Dept.	63	3,11	1,567						
	.									
	Total	400	3,36	1,447						

Students of Office Services and Secretary Department, Accounting and Tax Department and transport services department have expressed different views from each other significantly.

Students of the Accounting and Tax Department have expressed their feeling of "When I enter to mathematics, I feel puckered "less than Office Services and Secretary Department and Transportation Services Department students'.

In analysis based on education department, students of Accounting and Tax Department and Transportation Services Department have expressed different views from each other significantly.

Students of the Transportation Services Department have expressed their feeling of "I could not know how to study to mathematics exam. "more than Accounting and Tax Department students'

In analysis based on education department, students of Office Services and Secretary Department, Accounting and Tax Department have expressed different views from each other significantly.

Students of the Accounting and Tax Department have expressed their feeling of "Mathematics is so funny for me " more than Office Services and Secretary Department students'

In the analysis based on location where students stay in , there was not found any significant difference between location and mathematics anxiety.

Do you like teaching style of mathematics teacher?" Question of the survey were analyzed according to the following conclusions;

Students who strongly dislike (X=1,81) teaching style of mathematics teacher are expressed their feeling of " Mathematics minds me complex, incomprehensible things. " significantly more than strongly like (X=2,82) and like (X=2,55) students'.

Again, who neutral like (X=2,27) and dislike (X=2,04 are expressed that statement significantly more than strongly like students'.

There is a significant difference between groups of students who strongly like (X=2,89 teaching style of mathematics teacher and students neutral like (2,00) and students strongly dislike (X=2,00) about statement of " It is hard for me to come to the blackboard in mathematics lessons".

The group of students which strongly like have expressed that it is less hard for them to come to the blackboard.

There is a significant difference between groups of students who strongly dislike (X=2,14) teaching style of mathematics teacher and students dislike (X=1,96)) and students strongly like (X=3,04) about statement of " I am always concerned in Mathematics lessons a question being asked to me "

The group of students which strongly dislike and dislike have expressed that they have more anxiety than strongly like students.

There was not found a significant difference between groups of students who strongly dislike (X=2,14) teaching style of mathematics teacher and students dislike (X=2,37)) and students neutral like (X=2,58) and students like (X=3,01) about statement of "I'm not afraid of anything else as well as Mathematics exams."

The students who strongly like have expressed that they are less afraid from mathematics exam than other student groups.

There is a significant difference between groups of students who strongly like (X=3,54) teaching style of mathematics teacher and students like (X=2,10) and students neutral like (X=2,56) and students dislike (X=1,81) and students strongly dislike (X=2,10) about statement of " I am scared that I can cot pass my class because of mathematics ".The students who strongly like and like have expressed that they are less afraid than other student groups.

There is a significant difference between groups of students who strongly like (X=3,93) teaching style of mathematics teacher and students neutral like (X=2,99) and students dislike (X=2,67) and students strongly dislike (X=2,76) about statement of "When I enter to mathematics, I feel puckered ".The students who strongly like have expressed that they feel less puckered than other student groups.

There is a significant difference between groups of students who strongly like (X=3,45) teaching style of mathematics teacher and students neutral like (X=2,59) and students dislike (X=2,56) and students strongly dislike (X=2,43) about statement of "I could not know how to study to mathematics exam."

The students who strongly like have expressed that they are less worried about how to study to mathematics exam than other student groups.

There is a significant difference between groups of students who strongly like (X=2,62) teaching style of mathematics teacher and other students about statement of "Mathematics is so funny for me ". Again there is a significant difference between group of students who like (X=3,25) teaching style of mathematics teacher and other student groups. There is not a significant difference between groups of students who neutral like (X=3,73) and dislike (X=4,00) and strongly not dislike (X=4,14). The group of students who strongly like feels that the most funny. The student group of like feels less funny than students who strongly like, but the student group of likes feels funnier than other three groups.

There is a significant difference between groups of students who strongly like (X=3,79) teaching style of mathematics teacher and students neutral like (X=3,14) and students dislike (X=2,76) and students strongly dislike (X=2,67) about statement of "I am afraid to ask any question in mathematics lesson".

The students who strongly like are expressed that they are less afraid to ask any question than other three groups.

The following conclusions were reached by the survey when this question is analyzed "What is your opinion about Mathematics lesson contents?"

There was not found a significant difference between groups of students who think mathematics lesson is very easy (X=3,62) and who thinks easy (X=3,30) about statement of "Mathematics minds me complex, incomprehensible things. ". The students who think mathematics lesson is very easy are expressed the statement of "Mathematics minds me complex, incomprehensible things. "Less than other groups.

The students who think neutral easy(X=2,56) are expressed significantly more than students who think very easy and easy. Also significantly less than students who think very difficult and difficult?

Again, the students who think very difficult (X=1,53) have perceived that mathematics as more complex than students who think difficult (X=2,05) .

There was not found a significant difference between groups of students who think mathematics lesson is very easy (X=3,38) and who thinks easy (X=3,32). There is a significant difference between groups of students who think mathematics lesson is neutral easy (X=2,57, difficult (X=2,09) and very difficult (X=1,42) about statement of " It is hard for me to come to the blackboard in mathematics lessons". The students who think mathematics is very difficult are significantly expressed that more than other groups. The students who think mathematics is difficult are less expressed that statement than students who think difficult but more expressed than other groups.

The students who think neutral easy are less expressed than students who think difficult and very difficult but more expressed than students who think easy and very easy.

There was not found a significant difference between groups of students who think mathematics is very easy (X=4,25) and easy (X=3,68) about statement of "I am always concerned in Mathematics lessons a question being asked to me"

There is a significant difference between groups of students who think mathematics lesson is neutral easy (X=2,66), difficult (X=2,32) and very difficult (X=1,66). There was not found significant difference between groups of students who think mathematics lesson is neutral easy and difficult.

There is a significant difference between groups of students who think mathematics lesson is neutral easy and very difficult. The students who think very easy and easy they are the group which have less concerned.

The group of students who think neutral easy is less concerned than student group who think very difficult but less concerned than student group who think easy and very easy.

There was not found a significant difference between groups of students who think mathematics is very easy (X=4,00) and easy (X=3,40) about statement of "Now i can understand but i am worried it will be more difficult" There is a significant difference between groups of students who think mathematics lesson is neutral easy (X=2,53) and difficult (X=2,56) and very difficult(X=2,38).

Although they understand from mathematics lessons, the students who think mathematics is very difficult, difficult and neutral easy are more worried that it will be more difficult than the students who think mathematics is easy and very easy.

There was not found a significant difference between groups of students who think mathematics is very easy (X=4,69) and easy (X=3,40) about statement of "I'm not afraid of anything else as well as Mathematics exams." There was not found a significant difference between groups of students who think mathematics lesson is neutral easy (X=2,53) and difficult (X=2,38) . But there is a significant difference between students who think mathematics is very easy , very difficult and students who think mathematics is neutral easy, very difficult and difficult. The students who think mathematics is very difficult are most afraid from mathematics lesson.

There was not found a significant difference between groups of students who think mathematics is very easy (X=4,69) and easy (X=3,40) about statement of "I cannot pass my class because of mathematics". There is a significant difference between other groups. The students who think mathematics is very difficult (X= 1,67) they expressed they cannot pass class because of mathematics. more than the students who think mathematic is difficult (X=2,46).The students who think mathematics is neutral easy ,they expressed they cannot pass class because of mathematics. more than the students who think mathematic is very easy.

There was not found a significant difference between groups of students who think mathematics is very easy (X=4,69) and easy (X=4,54 about statement of "When I enter to mathematics, I feel puckered ". There is a significant difference between other groups. The students who think mathematics is very difficult (X=2,11) expressed that statement more than students who think mathematic is neutral easy. The students who think mathematics is neutral easy expressed that statement more than students who think mathematic is easy and very easy.
The students who think mathematics lesson is very difficult (X=1,78) ,they expressed statement of " I could not know how to study mathematics" significantly more than the students who thinks mathematics is Difficult (X=2,44) and neutral easy (X=2,9). The students who think mathematics lesson is neutral easy (X=2,97) ,they expressed statement of " I could not know how to study mathematics" significantly more than the students who thinks mathematics is easy (X=4,10) and very easy (X=4,44) .

The students who think mathematics lesson is very easy (X=1,69) and easy(X=2,44)they expressed statement of " Mathematics is so funny for me" significantly more than the students who thinks mathematics is neutral easy (X=3,15) . The students who think mathematics lesson is neutral easy, they expressed statement of "Mathematics is so funny for me" significantly more than the students who thinks mathematics is difficult (X=3,97) and very difficult (X=4,40) .

The students who think mathematics lesson is very difficult (X=2,44) ,and difficult (X=2,97)they expressed statement of " I am afraid to ask any question in mathematics lesson " significantly more than the students who thinks mathematics is neutral easy (X=3,45) . The students who think mathematics lesson is neutral easy (X=4,38) ,they expressed statement of " I am afraid to ask any question in mathematics lesson" significantly more than the students who thinks mathematics is easy (X=3,90) and very easy (X=4,38) .

References

Baloğlu, M. (2010). An investigation of the validity and reliability of the adapted mathematics Anxiety rating scale-short version (MARS-SV) among Turkish students. European Journal of Psychological Education, 25, 507-518.

Bindak, R. (2005), "F. Ü. Fen veMühendislikBilimleriDergisi", 17 (2), 442-448

Boodt, M. (1980). "The Nature of the Relationship Between Anxiety Toward Mathematics and Achievement in Mathematics", Dissertation Abstracts Int., 40: 5346A.

Dreger, R.M. ve Aiken, L.R. (1957). "the Identification of Number Anxiety in College Population", Journal of Educational Psychology, 48: 344-351.

Ellis, R. (1994). "The Study of Second Language Acquisition", Oxford University Press, 1994.

Hannula, M. (2005). "Affect in mathematical thinking and learning. The Future of Mathematics Education and Mathematics Learning". BIFEB Strobl. Austria, August.

Hembree, R. (1990). "The Nature, Effects and Relief of Mathematics Anxiety", Journal of Research in Mathematics Education, 21(1), 33-46.

Işık, Ahmet - Çiltaş, Alper – Bekdemir, Mehmet (2008). "Neccesity and Importance of Mathematics Education" KazımKarabekir Education Faculty, (KKEF) Magazine No:17, Year:2008.

Kazelskis, R. (1998). Some dimensions of mathematics anxiety: a factor analysis across instruments. Educational and Psychological Measurement, 58, 623-633.

Lazarus, M. (1974). "Mathophobia: Some Personal Speculations", National Elementary Principal, 53: 16-22.

Llabre, M. ve Suarez, E. (1985). "Predicting Math Anxiety and Course Performance in College Women and Men", Journal of Counseling Psychology, 32:283-287.

Miller, L.D., Mitchell, C.E. (1994). "Mathematics Anxiety and Alternative Methods of Evaluation", Journal of Instructional Psychology. 21(4), 353-358.

Richardson, F.C. veSuinn, R.M. (1972). "The Mathematics Anxiety Rating Scale: Psychometric Data", Journal of Counseling Psychology, 19:551-554.

Tobias, S. ve Weisbrod, C. (1980). "Anxiety and Mathematics: An Update", Harvard Educational Review, 50(1): 63-69.

Zakaria, Efandi ve Nordin, Norazah Mohd (2008). "The Effects of Mathematics Anxiety on Matriculation Students as Related to Motivation and Achievement", Eurasia Journal of Mathematics, Science & Technology Education; Feb2008, Vol. 4 Issue 1, p27-30, 4p.