

Reviewing the Effect of Problem-Solving Methods and Processes to Reduce Stress and Anxiety of the Teacher`S Evaluation and Fifth Grade Math Teacher for Male Students in Sabzevar City 2016-2017

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Abstract

The current study aimed to investigate the effects of problem-solving methods and processes to reduce teacher`s evaluation stress and anxiety and stress in math teacher`s class in fifth grade of elementary school for male students in Sabzevar city. The statistical population of the study includes fifth grade male students of region 2 of Sabzevar city and the sample group consists of 70 students randomly selected of the statistical population. These people are randomly assigned into two experimental and control groups, alternative and experimental group received eight sessions of training on George Puglia problem solving methods, respectively. For data collection, Math Anxiety Scale for Children meter for data collection (MASC) was used. Data analysis was performed by using analysis of covariance showed that the greatest impact happened in reducing math exam anxiety and least effective happened in decreasing anxiety and stress from math teacher.

Key words: Math anxiety, Problem solving, Problem-solving methods and processes, Test anxiety, Math skills, Training, Anxiety of exam (evaluation), Having stress from teacher

INTRODUCTION

Rapid advances in science and technology and its impact on different aspects of human life, shows that needs for learning the basics of math, even for those who have the easiest jobs is more obvious day by day (Shokuhi, 1983). The importance and role of basic mathematics in the history of Thought is undeniable by the Science and Industrial evolution. In fact, mathematics is one of the very basic personal skills in the continuity of everyday life in modern societies (Erden & Akgul, 2010). But one factor that can make the process of studying mathematics and positive factors difficult is the anxiety originates from

math. Many people know mathematics as a hard course. For many, math is associated with a strong feeling of failure and their memory of school regarding mathematics is tests and exams, frustration and fear of “making false answers” (Hawson and Wilson, translation: Maleki, 1989). Anxiety and stress arise from a state of discomfort when mathematics students decide to do their homework. The main features of this condition include dislikes, fears, with particular protests behavior such as stress, disappointment, confusion, weakness and disorganization when handling mathematical work is psychological. In addition, feelings of anxiety can lead to panic, stress, helplessness, anxiety, embarrassment, inability to cope, sweaty palms, nervous stomach, difficulty breathing and loss of the ability to concentrate (Aqajani et al., 1391). In our society, many people are studying in different stages of education; in addition to that, there may be negative and traditional attitude to learn and apply mathematical. This problem is more especially bold and more serious about mathematics (Ammary, 2004). Thus, there should be thoughts in order to the take advantages of benefits

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and importance of this lesson and contemplates to pave the way of success. Pattern of Processes and methods of problem solving is a method in accordance with experiments and conducted research in this field. The study of human performance in problem-solving is not new; the first empirical research focused on the subject is least for 90 years ago. The study of problem solving in specific areas such as mathematical problems, solving physics problems and etc., and is a more recent research tradition (Ammari, 1383). Especially in the last decade, goal of math education have changed in elementary schools in general. There is no more emphasis on four main factors as calculator performs these actions (Bromers, Agatha, Kambobach, translation: Keramati, 2007). Also, the only purpose is not breeding elite and math enthusiasts or certain people who want to continue mathematical at the college level, but the purpose of the program is betterment students' everyday life. Thus, communication between math and everyday life, having mathematical modeling and problem solving skills, development of thinking, communication between the various displays of math and interpretation, communication between mathematics and other sciences and, in general, using mathematical concepts in environment and the interpretation and analysis are of the main objectives of this course. Iranian students are not exempt from this rule. The results of the Third International Study of Mathematics and Science Themes show that educational outcomes of our country, even in comparison with developing countries are very different. Iranian students test scores in math were much lower than the average for countries participating in the study. In a way, in Thames studies, the mean score of participating countries was 495 (Shyvandy Cholicheh, 2010). Considering the fact that, one of the most important methods and teaching strategies to achieve this possible and is very revealing in this regard are methods and problem solving process and the procedure is performing in basic math book in sixth grade of elementary for the first time and is not put into practice in fifth grade at all. The current study is in search of reviewing the effect of this method and strategies for reducing Math anxiety in fifth grade in city of Sabzevar, because math anxiety is also a problem that Iranian children has long suffered from it, especially girls. Living in today's society requires employing various skills, including skills: such as problem solving, reasoning, hypothesis, the hypothesis testing and estimation, computing skills, algebraic thinking, understanding of geometric concepts, anticipating results and etc. it is indicated that the Thames findings and studies suggest that the acquisition of these skills is less than expected (Lashkar Boluki, 2013). Although the mathematics is of the fundamental courses at school, since students learn right-thinking by studying math,

they often do not know how to study math. Therefore, phenomenon such as math anxiety and test anxiety arise and make students' poor performance.

Part of the weakness is related to the approach and training methods which play a major role in making meaningful understanding and generalization of learning to real situations (Lashkar Boluki, 2013). This issue and meanwhile, doubt in the effectiveness of traditional math classes led to anxiety among students, including the imposition of a teacher authority, public exposure and time limitations, on the other hand, deal with new methods of teaching mathematics are justified (Mousavi, 2011). This study focused on problem-solving methods and processes to reduce stress and anxiety in teachers' math exam and anxiety from math teacher in fifth grade of male students of Sabzevar city and it will be assessed to improve this problem. Since, if the anxiety got chronic and persistent, can be the source of failure, lack of compromise and wide frustration that deprives people from much of their capability (Dadsetan, 1992). Thus, now it's time to fill these deficiencies and create application systems for teaching problem solving in order to make different and groundbreaking ways; education needs numerous research, to explore the principles of the training and then applicable methods; finally, to identify the status of this way in an academic curriculum (according to the Shyvandy Cholicheh, 2010).

In this study, the researcher is trying to "review the impact of problem solving methods and processes to reduce stress and anxiety of teacher's evaluation and male students in fifth grade elementary school anxiety from math teacher in Sabzevar city to reach significant results.

- Fiore (2001) knows parental and mathematics teachers' attitudes towards math, poor self-concept, inability to pass failure and emphasis on mathematics through practicing without understanding as the underlying factors for math anxiety.
- Lazarous (1974) found that parents who have math anxiety, they transmit it to their children and teachers who have math anxiety transmit it to the students as well as the origin of the anxiety backs to the primary school.
- Williams (1984) also stated that math anxiety is rooted more in teachers and mathematics education system and a bad experience from math teacher. Green (1994) quoting Bower (2002), mentioned that math anxiety is related to the presentation of the subject, rather than teachers and parents' labeling to the students as those who are stupid and incapable; also lack of teacher's motivation and the lack of having support at home by parents and negative comments by teachers or parents to the students is another reason for having anxiety

and stress in math classes (Fiore, 2000).

- Green Wu (1984) states that it is important to consider solving problem issues and discuss multiple strategies in solving these issues in the prevention of math anxiety. Also, it is expected that the presence of the teacher in the class reduces worries and anxiety in students with lack of confidence. (Ibid)
- Toraby (1392) showed that among all the components of math anxiety, only anxiety of learn math could predict performance in mathematics, but there was no significant difference between boys and girls.

Research Methodology

Research method is Semi-experimental and it has a control group and experimental group, with pre-and post-test. In this project, by using a post-test (meter scale mathematical anxiety of children MASC) the group with tested experimental variable is compared (problem-solving methods and processes) with a group that this variable is not tested.

The statistical population of this study includes all fifth-grade male students in 42 elementary schools in the second District of Sabzevar city. It should be noted that the total number of primary schools that have two fifth grades in elementary school simultaneously are 10 schools.

The Statistical Sample and Population

In this study, 70 male students were used as the subjects. Sampling was done randomly. This means that primarily a list of schools for boys in the city of Sabzevar was prepared and among them, schools were selected with two fifth grade classes and one of them was randomly selected. The number of students studying in the class is 30 to 36 people. Between two classes, 32-student class selected as the experimental group and called Class 1 and it was randomly selected to conduct dependent variable (problem-solving skills training). 35-student Class entitled Class 2 was selected as a control group. It should be noted that it was tried that the students scattered appropriately as weak, medium, strong and this confidence obtained through Question and Response from the teachers and administrators. In this study, “math scale for kids” MASC “(Henry and Chiu, 1990) was used in order to examine math anxiety from subjects. Henry and Chiu adjusted the Mathematics Anxiety Scale for Children based on Math Anxiety Rating Scale-Short Form (S-MSRS) which was drafted by Blake and Parker. Due to what they have mentioned, this scale can be used for children in fourth to eighth grades. (Shyvandy Cholichch, 2010).

This scale consists of 22 short phrases which describes activities related to math. All participants will be asked to rate their anxiety on each of the positions on the basis of the Likert’s scale below:

1: No 2: a little 3: High 4: very high

The minimum score on this scale is 22 and the maximum is 88. To perform this study, at first a questionnaire entitled “math scale for kids” MASC” was carried out on both experimental and control groups as a pre-test. This means that the students were asked to respond to the questionnaire. After answering to the questionnaire and data collection, training sessions and working with experimental group began that generally contains 8 training sessions in one hour and a half.

In this part, obtained data from the math test anxiety were studied and were analyzed by descriptive statistics (mean and standard deviation) and inferential statistics (controlled pre-test), ANCOVA to neutralize the variance pre-test (early differences between subjects in the two groups).

Analysis of the Hypotheses

1. Problem-solving processes and methods in reducing anxiety of male students in fifth grade from math teacher in Sabzevar city are effective.

F Levine test for the assumption of equal variance in two control and experiment groups

Variables	Statistical indicators			
	Degree of freedom 1	Degree of freedom 2	F	Significance level
Anxiety from math teacher	1	53	4.34	0.062

F. Levine test was confirmed to review the assumption of equal variance in two groups with a significance level of 0.072 in the component of anxiety of math. (P> 0.05).

ANOVA test to review the slope of regression in the component of anxiety from math teacher in two groups

According to the table of data, variance test was approved to review the slope of regression in the component of anxiety from math teacher in two groups $F_{(1,26)} = 0.09$ and significance level of 0.776. (P> 0.05).

The results of ANCOVA on modified scores between the two groups regarding the component of anxiety from math teacher

Statistical indicators	Sum of squares	Degree of freedom	F	Level of significance	Measurement of the impact	Power of test
Variables						
Pre-test	0.29	1	0.14	0.714	0.004	0.066
Group	10.52	1	5.156	0.029	0.088	0.608
Error	112.06	65				
Whole	646.06	95				

According to the table of results of the covariance analysis between scores of the two groups regarding the component of anxiety from math teacher with $F_{(1,55)} = 5.156$ and significant level of 0.029, showed a significant difference between the two groups with a 95 percent confidence. ($P < 0.05$). It means teaching problem solving processes and methods is effective in reducing anxiety. The null hypothesis is rejected and the hypothesis is confirmed. The modified average of the experimental group was 2.59 and the control group was 3.46. The average of the experimental group is less than the control group.

2. Problem-solving processes and methods is effective in reducing anxiety of teacher's assessment from students in fifth grade math in Sabzevar city.

F Levine test to review the assumption of equal variance in two control and experiment groups

According to Table of F Levine test for the assumption of equal variance in two groups in the anxiety of math exam the significance level was 0.329. ($P > 0.05$).

DISCUSSION AND CONCLUSION

1. "Problem-solving processes and methods are effective in reducing anxiety of students in fifth grade regarding math teacher in Sabzevar city."

Findings of the current research suggest that teaching methods and processes of problem solving is effective in reducing the anxiety of math class in fifth grade of elementary school in Sabzevar city. On the other hand, George Puglia problem solving method, teaching skills and essential skills for learning of math education for teachers and learners in the experimental group was effective to reduce the anxiety from math teacher in comparison with the control group.

Math teacher anxiety (Maths.TCH.anx) was evaluated in items 4 and 12 of the questionnaire that consider the same features of math teacher. Conducted studies suggest that problem-solving skills reduce math teacher anxiety, but this amount is subtle. However, results obtained from the table and anxiety assessment found that the amount of students' anxiety were low from the beginning and it may imply that there is a constructive communication between the experimental group teacher and learners and it is understood that the teacher has been able to communicate with students or whole education center ranging principle, deputy and teachers effectively in terms of teacher characteristics in the aspects of expertise and personality in order to establish educational and human approach.

Some researchers have thought that math anxiety can be caused because of the traditional methods of teaching, (Toybaz 1993), especially math is taught by memorization rules and manipulating symbols with the lowest signification level in comparison with a unified conceptual framework and it is far more difficult to learn; and this issue confronts children with emotional obstacles in the way of progress (Skamp 1986).

Therefore, teachers can create anxiety in children with overemphasis on memorizing formulas, learning mathematics through "practice" and the application of the rules in the form of "rote memorization" (Greenwood, 1984). Among Math teachers who have anxiety, have little desire to use non-traditional methods of teaching, such as games, problem solving and individual training in small groups. In addition, teachers who are nervous in teaching math would rather teach concepts than their skills (Noorowood, 1994).

2. The "problem-solving processes and methods are effective in reducing anxiety math exam of students in fifth grade in Sabzevar city."

The findings of this study, based on the results suggest that teaching problem solving processes and methods is effective in reducing mathematics evaluation anxiety in fifth grade of elementary students of city of Sabzevar. In other words, George Puglia method of problem solving, skills of teaching problem had an impact on essential learning math training for teachers and learners in the experimental group, compared with the control group, in reducing anxiety assessment of math students.

Mathematics Evaluation Anxiety (Maths.EVAL.anx) refers to situations related to the mathematical evaluation. Items 15 to 22 in the questionnaire were evaluated such as preparing for math exam or thinking about math exam a day earlier.

An integral part of the debate regarding the definition and measurement of math anxiety is clarifying the relationship between this structure and math anxiety. Mathematics evaluation component has the greatest impact in reducing math anxiety. Students in the control group were exposed to training in this field and their mathematics evaluation anxiety showed fewer rates in comparison with the control group, however, the difference was slight.

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