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Review of the Relationship Between Self- Efficacy of Teachers on Achievement Motivation and Academic Achievement in Teaching Math of Sixth Grade Elementary School Students in Ardebil City

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Abstract: This study has investigated the relationship between self- efficacy of teachers on achievement motivation and academic achievement in teaching mathematics of sixth grade elementary school students. Therefore, all teachers of the sixth grade of elementary school in Ardebil city were selected through census method (N=44). For each teacher, 10 students were randomly selected, 10(n=440). Teacher's self- efficacy questionnaire (Tschannen— Moran) was used to measure the teachers's self- efficacy. Bernard Weiner achievement motivation questionnaire has been implemented to measure the students' achievement motivation. Marks the end of the first year of students was used to measure students' academic achievement. The results of the study were indicated that the self- efficacy of teachers has not effect on the students' achievement motivation. self- efficacy of teachers has a positive impact on the students' academic achievement. also showed that there was a positive correlation between students' achievement motivation and academic achievement.

Keywords: Academic Achievement, Achievement Motivation, Self-Efficacy

INTRODUCTION

No one is worn on the importance of education. An investment can not be valued, and that is what the man of the evening darkness has led to the era of light (Unesco; Translation Noori 2009). Education, it is time-consuming, difficult, yet fruitful that teachers as a starting point for any changes in education over the top of most of them are responsible. Therefore, teaching is one of the key jobs of any society is because the teachers are responsible for guiding and nurturing a generation society (Zahed et al., 2010). So pay attention and research, especially in the field of occupational variables related to teacher's self- efficacy is very important as it seems.

One of the goals of education in all societies is to help the person to efficacy. For an adult to be effective, must develop character in its infancy and students. The purpose of the planning predetermined and three general strategies (modeling, use of information feedback and retraining of documents) in order to more efficiently and also promote the achievement of this purpose is supplied. Bandura (1997) self-efficacy as people's beliefs about their ability to perform activities of daily living are defined. Social cognitive theory of self-efficacy theory arises and include self-efficacy and outcome expectancy is the main structure (Bandura., 2002). Bandura's social cognitive theory, psychological functioning in terms of "mutual causation triad", he explained (Bandura., 1997). In this model, the "inner person in the form of cognitive, emotional, biological, behavioral patterns, and

environmental events" each other in interaction as determinants have been introduced. Moreover, he claims that human behavior is not automatic and controlled environment are formed and not fully in control of the global features are, both experimental and internal factors shared in the way of interaction, often complex, to determine whether the behavior is determined.

Tschannen- Moran and Woolfolk (2001), teacher's self- efficacy as his judgment about their ability to create positive outcomes for student learning and engage them in academic matters, even with troubled students or motivation, are defined. Teacher efficacy in teaching, his belief about assignments and responsibilities and with his educational experience is associated (Yenice., 2009). Teacher self-efficacy as long as the researchers were that bunch of research as the RAND (Adopting the name from a contraction of the term research and development) showed, this structure is also pervasive development and application of innovative teaching methods, the teacher is expected. Researchers at RAND study (Armor, Conry- Oseguera, Cox, King, Mc Donnell, Pascal., 1976; Berman, Mc Laughlin, Bass, Pauly, Zellman., 1977) the researchers, that teacher's self-efficacy is measured only by means of the two structures revealed two distinct aspects. The first aspect, generally called self-taught, which is about the overall environmental influences on student performance are discussed and the second aspect, Teacher self-efficacy or personal teaching called which is specifically about a teacher's belief about his ability to influence students talking (Hossein chari et al., 2010).

Studies have shown high efficacy teachers are directly related to students's motivation (Martin and Marsh., 2006). Motivation is the activation of human behavior. Various studies show that motivation is one of the major causes of behavior and in all behaviors including learning, performance, perception, attention, memory, amnesia, thought, creativity and passion has an effect. One of the most important types of motivation, achievement motivation is. This approach focuses on the goal of student success and failure (Glover; translation Kharazi 2003). Gage and Berliner confused motives or a desire to improve the overall success or achievement in a particular field of interest has been defined (Seif., 2001). achievement motivation the social motivation is important that has a special relationship with teacher's work.

Students who have a high achievement than students with low achievement motivation, they persisted longer doing homework and even the failure of these efforts are not hindered; these people, their failure to lack of effort (A condition for change, but internal) are compared. In short, students with high achievement motivation, expectation of success and when they fail in their Efforts add (Weiner 1980; translation kadivar 2004).

High teacher's self- efficacy is directly related to students's academic achievement (Ross., 2002). Students's academic achievement and factors affecting is important that the bulk of the research is allocated to education. In educational and training structures, criteria for measuring the achievement of educational goals is academic achievement. In fact, we can say that the most important objective and the fruit of the education system to promote learners' academic achievement of the society. Terms of educational attainment is the achievement of levels of students to pre- determined learning goals that we expect they in their efforts of learning to reach them (Seif., 2001). Several factors contribute to academic achievement, these factors are divided into two categories individual and environmental. Research in this field has shown that personality and cognitive variables (individual agents) in 70% and other variables such as social and environmental and situational to account for 30% of the variance in academic achievement (Freidman., 2002).

Research shows that teachers's self- efficacy positive relationship with the teacher's efforts and persistence in the face of difficulties (Poodel and Soodak., 1993; translation \Box Cakiroglu., 2008), professional commitment (Coladarci., 1992; translation \Box Cakiroglu., 2008) and motivation of students (Feldlaufer and Eccles., 1989; Translation \Box Cakiroglu., 2008). Also studies have shown that teachers with high self-efficacy are more likely to use student-centered approaches, while ineffective teachers tend to use teacher-centered strategies (Czernika., 1990; translation \Box Cakiroglu., 2008). In addition, teachers who feel they have a higher efficiency, greater opportunities for advancement are available to their students. Teacher's self- efficacy is related to achievement motivation and academic achievement of students and research has shown that teaching methodologies, passion, commitment and teaching methods will affect them (Wolters and Daugherty., 2007).

In research by Guo et al. (2010) about the relationship between teacher's self- efficacy, quality of class and students's academic achievement were done, concluded that self- efficacy of teachers plays an important role in

improving the quality of education and enhancing the protective environment in the classroom. They also concluded that students of teachers with higher self-efficacy, have positive attitudes towards learning and academic achievement.

The aim of this study is review of the relationship between self- efficacy of teachers on achievement motivation and academic achievement in teaching mathematic of sixth grade elementary school students.

The main hypothesis are:

- 1. self- efficacy of teachers in students's achievement motivation is involved.
- 2. self- efficacy of teachers in students's academic achievement in mathematics is involved.
- 3. There is relationship between students's achievement motivation and academic achievement in teaching mathematics.

Methodology

The present research was descriptive correlational. The study population consisted of all teachers of the sixth grade of elementary school in Ardebil city and theire students in 2013- 2014. Sampling in this research was census method (N=44). For each teacher, 10 students were randomly selected, 10(n=440).

In this study, two groups were studied population:

The first group: All teachers of the sixth grade of elementary school in Ardebil city in the 2013- 2014 academic year were selected through census method (N=44) and teacher's self- efficacy questionnaire were distributed among them. A total of 44 teachers who responded to the questionnaire, 14 people were super high and 30 cases have been BA. The teacher of 8 people who have experience between 5 to 10 years, 7 people between 11 and 16 years of experience, 14 of teachers were between 17 and 22 years and 15 people of experience between 23 and 28 years respectively. Meanwhile, the 21 number of female teachers and 23 male teachers included in this study. According to the results research 7 teachers aged 25-30 years, 6 people of teachers aged 31-36 years, 11 teachers aged 37-42 years and 20 teachers who were aged 43-48 years.

The second group: Students of teachers who had answered the teacher's self- efficacy questionnaire and in the 2012-2013 academic year in the sixth grade elementary schools in Ardebil city were enrolled. For each teacher, 10 students were randomly selected, 10(n=440) and Achievement Motivation questionnaires were distributed among the students. The 440 students in the sixth grade Qaen city's public schools and non-coeducational school in 2013- 2014 academic year were enrolled, 210 female students and 230 male students have to answer to the question of motivation achievement.

Data analysis methods: The data was analyzed by using Regression analysis and Pearson correlation coefficient.

Tool

In this study, the following questionnaires were use:

Teacher's self-efficacy questionnaire (Tschannen – Moran): This questionnaire is related to teacher self-efficacy that by Tschannen- Moran and Woolfolk (2001) is produced and used. The questionnaire contains 24 questions that the five-part Likert scale (1- very low, 2 - low, 3 - medium, 4 - high, 5 - very much) was used. For very much options, four grades and for very low option, zero score awarded. Sum of items scores, indicating the overall efficiency score. This questionnaire examined various aspects teacher self-efficacy such as teacher's beliefs about control effective teaching strategies (questions 7, 10, 11, 17, 18, 20, 23 & 24), classroom management (questions 3, 5, 8, 13, 15, 16, 19 & 21) and will keep students active (questions 1, 2, 4, 6, 9, 12, 14 & 22). Hossein chari et al. (2010) reliability of the scale using Cronbach's alpha 0.83 are obtained.

The reliability of the questionnaire using Cronbach's alpha test 0.91, respectively that is statistically significant. The reliability of each subscale was calculated using Cronbach's alpha test that for subscales of self-efficacy in will keep students active 0.804, for subscales of self- efficacy in control effective teaching strategies 0.784 and for subscales of self- efficacy in classroom management 0.778, respectively.

The validity of the questionnaire items associated with each of its components obtained are statistically significant. Results showed a high correlation (p< 0.05). Correlation results, both for the scale of the phenomenon of gauge showed. The results show that convergence is a single phenomenon in the survey questionnaire.

Bernard Weiner achievement motivation questionnaire: This questionnaire was developed to measure achievement motivation in children 6 to 14 years old, has been developed by Bernard Weiner at the University of California. This test three aspects of emotional (Fear or Hope 3, 7, 8, 9, 12, 13, 16, 20), behavior (The acquisition or avoidance 1, 4, 10, 17, 18) and risk-seeking (Easy, medium and difficult to prioritize targets 2, 5, 6, 11, 14, 15, 19) for opportunities to express and measure progress. This test consists of 20 questions in each of the two options is subject to the two situations are different. This position is based on the theory of constructive Mc Clelland tests ,achievement motivation and other situations of low achievement motivation measures. As participants in each question, select the option that is related to high achievement motivation, a score will be. And if you choose the option to be related to low achievement motivation, the score will be zero. Thus, the minimum and maximum score on the test subjects can be achieved from zero to twenty. The grading scale has been reversed. If the subject in question 2, 6, 8, 13, 15, 16, 17, 18 and 20 option A is chosen to be a score. And if the questions 1, 3, 4, 5, 7, 9, 10, 11, 12, 14 and 19, option B is chosen to be a score. Since the mean opinion score of 11 or above 11 who are motivated to earn high achievement and who earn scores lower than 11, have low motivation to progress.

The reliability of the questionnaire method Kvdr - Richardson KR20 relationship was calculated and 0.89 respectively. The reliability of each of the subscales using Kvdr - Richardson was calculated that for subscales of emotional 0.72, for subscales of acquisition or avoidance 0.60 and for subscales of component, or process to avoid the 0.60 and for subscales of risk-seeking 0.69, respectively, which is statistically significant. The validity of the questionnaire items that were associated with each component. Results showed a high correlation (p< 0.01). Correlation results, both for the scale of the phenomenon of gauge showed. The results show that convergence is a single phenomenon in the survey questionnaire.

Academic achievement: The academic achievement in this research, is the mean scores of achievement in mathematic in sixth grade elementary students that after testing the first term (a few marks) obtained from the teachers and raise student achievement, and relationships with teachers's self- efficacy survey was administered to measure.

Results

Hypothesis 1- self- efficacy of teachers in students's achievement motivation is involved.

The correlation coefficient between the criterion variable achievement motivation and Predictor variable self-efficacy of teachers 0.03, the ratio of -0.001 and the standard error of estimate of 4.59 quarters ,respectively. In other words, a small portion of the variance in achievement motivation can be explained by the predictor variable.

Table 1 . Results of regression analysis between the criterion variable of achievement motivation and predictor
variable of teachers's self- efficacy

Significant P	F	Mean square MS	Degrees of freedom df	Square SS	Model
0.44	0.58	12.37	1	12.37	Regression
		21.10	438	9244.44	The remaining
			439	9265.81	Total

According to Table 1, calculated on the assumption F (0.58) error at 0.44> 0.05 is not significant. So teachers's self- efficacy variable can not predicted achievement motivation.

Table 2. Results of regression analysis between the criterion variable of achievement motivation and predictor variable components of teachers's self- efficacy

Significant P	F	Mean square MS	Degrees of freedom df	Square SS	Model
0.10	2.09	43.78	1	131.36	Regression
		20.93	438	9125.45	The remaining
			439	9256.81	Total

In table 2, calculated on the assumption F (2.09) error at 0.10> 0.05 is not significant .So components of teachers's self- efficacy variable can not predicted achievement motivation.

Hypothesis 2- self- efficacy of teachers in students' academic achievement in mathematic is involved.

The correlation coefficient between the criterion variable of academic achievement (Mean score of students in the mathematics) and predictor variable self- efficacy of teachers 0.11 and the ratio of 0.01, respectively. 1% of the variance in academic achievement can be explained by the variable self- efficacy of teachers.

Table 3. Results of regression analysis between the criterion variable of academic achievement and predictor variable of teachers's self- efficacy

Significant P	F	Mean square MS	Degrees of freedom df	Square SS	Model
0.01	5.73	8.85	1	8.85	Regression
		1.54	438	677.08	The remaining
			439	685.94	Total

In table 3, results of regression analysis shows, the criterion variable of academic achievement (average scores of students in math) indicates that the value of F 5.73 in the error 0.01 is significant. So, self-efficacy of teachers variable has a significant role in explaining academic achievement variable.

Table 4. Results of regression analysis between the criterion variable of academic achievement and predictor variable components of teachers's self- efficacy

Significant P	F	Mean square MS	Degrees of freedom df	Square SS	Model	Step
0.0001	18.43	27.70	1	27.70	Regression	1
		1.50	438	658.24	The remaining	
		-	439	685.94	Total	
0.0001	12.93	19.17	2	38.35	Regression	2
		1.48	437	647.59	The remaining	
		-	439	685.94	Total	

In table 4, the results of the regression analysis showed that in the first step $F_{1,438 \text{ with }} 18.43$ in error 0/0001 is significant. So will keep students active variable has a significant role in explaining academic achievement variable. In the second step $F_{2,437 \text{ with }} 12.93$ in the error 0/0001 is significant. So at least one of the variables of will keep students active and classroom management have a significant role in explaining academic achievement variable.

Table 5. Results of regression analysis between the criterion variable of Science score and predictor variable of teachers's self- efficacy

Significant P	F	Mean square MS	Degrees of freedom df	Square SS	Model
0.05	3.72	6.25	1	6.25	Regression
		1.68	438	735.69	The remaining
			439	741.94	Total

In this hypothesis, the value of the correlation coefficient between grade science and teachers's self- efficacy 0.09 and the coefficient of determination 0.006, respectively. 0.6% of the variance science score can be explained by variable of teachers's self- efficacy. The results of the regression analysis of Criterion variable grade science and teachers's self- efficacy (Table 5) showed that the amount of F 3.72 in error 0.05 is significant. Thus, the variable of teachers's self- efficacy has significant role in explaining the science score.

Table 6. Results of regression analysis between the criterion variable of Math score and predictor variable of teachers's self- efficacy

Significant P	F	Mean square MS	Degrees of freedom df	Square SS	Model
0.42	0.64	1.48	1	1.48	Regression
		2.30	438	1008.12	The remaining
			439	1009.60	Total

The correlation coefficient between math scores and teachers's self- efficacy 0.03 and the ratio of -0.001, respectively. In other words, a small portion of the variance in math scores could be explained by the variable of teachers's self- efficacy. Table 6 shows the regression F with the 0.64 in level of error 0.42 is not significant. Thus variable of teachers's self- efficacy has not significant role in explaining the math score.

Table 7. Results of regression analysis between the criterion variable of Persian score and predictor variable of teachers's self- efficacy

Significant P	F	Mean square MS	Degrees of freedom df	Square SS	Model				
0.37	0.80	0.95	1	0.95	Regression				
		1.18	438	517.90	The remaining				
			439	518.85	Total				

The correlation coefficient between persian scores and teachers's self- efficacy 0.04 and the ratio of 0.0001, respectively. In other words, a small portion of the variance in persian scores could be explained by the variable of teachers's self- efficacy .Results of regression analysis (Table 7) showed that the amount of F 0.80 error in the 0.37 is not significant. Thus variable of teachers's self- efficacy has not significant role in explaining the persian score.

Hypothesis 3- There is relationship between students's achievement motivation and academic achievement in teaching science, mathematics and Persian.

According to Table 8, the results showed a correlation coefficient Between emotional component and academic achievement (P<0.01, r=0.23), Between the acquisition or avoidance component and academic achievement (P<0.01, r=0.24), Between risk- seeking and academic achievement (P<0.01, r=0.26), Between achievement motivation and academic achievement (P<0.01, r=0.24) there is a direct relationship. Whatever students's achievement motivation be more, Levels of academic achievement in mathematics, science and persian courses would be more.

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5	4	3	2	1	Variables	
				1	1- Emotional	
			1	0/82**	2-Acquisition or avoidance	Achie moti
		1	0/82**	0/90**	3- Risk- seeking	< <
	1	0/96**	0/85**	0/96**	4- Achievement motivation	ement ation
1	0/24**	0/26**	0/24**	0/23**	5- Academic achievement	

Table 8. Results of correlation coefficient between achievement motivation and academic achievement

Discussion

Hypothesis 1- self- efficacy of teachers in students's achievement motivation is involved.

In this study, regression analysis to examine the role of teachers's self- efficacy on the achievement motivation of the students were employed. The obtained F (0.58 error in p<0.05) results of regression analysis showed that teachers's self- efficacy is not able to predict the achievement motivation. This result is contrary to previous findings in similar fields: Martin and Marsh (2006), Miskel et al. (1986), Usher and Pajares (2006). This difference may be due to high student achievement motivation or low sample volumes teacher is.

Hypothesis 2- self- efficacy of teachers in students' academic achievement in science courses, math and Persian is involved.

The role of teachers's self- efficacy on academic achievement was evaluated. Results of regression analysis showed that F with 5.73 error at 0.01 is significant. The teachers's self- efficacy variable has a significant role in explaining academic achievement variable. The role of teachers's self- efficacy in academic achievement research conducted by Muijs and Rejnolds (2001), Haughey and Murphy (2003), Bandura (1997) ,Guo et al. (2007), Poddel and Soodak (1993), Tschannen – Moran and Hoy (2001) and other studies in this field or similar fields is consistent.

This agreement reflects the results of the hypothesis with the results of other studies, Thus the results confirm the above hypothesis. The higher the self-efficacy of teachers are more confident that their work is important and useful and have a positive impact on student learning. Believing the same to ensure that their behavior is causing that in reality most students will be progress and success.

Teachers who have a higher sense of self-efficacy are better able to coordinate with their students and to better respond to special needs students. This high self- efficacy of teachers can cause behaviors such as Spend more time in the classroom, Greater creativity in design curriculum, proper management of the classroom and the use of teaching methods that better fit the characteristics of students may be. Finally, teachers's beliefs, especially self- efficacy beliefs those concerning effective by teachers on educational decisions affecting them and thereby affect learning and students's academic achievement (Haughey and Murphy., 2003).

Hypothesis 3- There is relationship between students's achievement motivation and academic achievement in teaching mathematics.

The results of correlation coefficient showed Between emotional component and academic achievement (P<0/01, r=0/23), Between the acquisition or avoidance component and academic achievement (P<0/01, r=0/24), Between risk- seeking and academic achievement (P<0/01, r=0/26), Between achievement motivation and academic

achievement (P<0/01, r=0/24) there is a direct relationship. The results of the third hypothesis, With the findings of research conducted by the Story et al. (2009), Seyed Mohamadi (2006) and other studies in this field or similar fields is consistent. These findings confirm the third hypothesis. Students who have high achievement motivation compared to students who have low achievement motivation, the longer they resist doing homework instead their failure to external factors such as task difficulty or luck attribute it did not attempt to ascribe to redouble their efforts to succeed (Slavean, translation Seyed Mohamadi 2006).

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