# The Predictive Power of Self-Efficacy Sources for Mathematics Achievement

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## Abstract

The relations between self-efficacy and mathematics achievement were examined in this study. The research was carried out with 350 (51% male and 49% female) 7th grade students who are in different schools in the centre of Konya. Sources of mathematics self-efficacy scale was used to determine the self-efficacy sources of students and end-of-term mathematics grades were used to determine their mathematics achievement. Pearson Product-Moment Correlation Coefficient and Multiple Linear Regression Analysis were used in the analysis of the data. According to the results, there are high and medium-level significant relations between mathematics self-efficacy sources and mathematics achievement. The order of importance of self-efficacy sources on mathematics achievement is as follows: personal experiences, social persuasions, physiological states and vicarious experiences. Personal experiences, social persuasions and physiological states are significant predictors of mathematics achievement. Vicarious experiences have not a significant effect on mathematics achievement. The variables that predict the mathematics achievement explain nearly 59% of the change in mathematics achievement. Some recommendations were made for practice considering the findings.

## Introduction

The need for mathematical knowledge and skills cover a wide range of areas from simple calculations in daily life to high level academic research. In daily life, individuals use mathematics as a tool in order to make the right decision in various activities that require selection and comparison. On the other hand, it is seen that mathematical processes are used intensely in the analysis of scientific data in academic studies. Therefore, it is understood that mathematical knowledge and skills have particular importance for the success of individuals both in their daily and academic and professional life. On the other hand, there has been a rapid change in all areas of life with the technological developments. It is stressed that individuals and societies that can use mathematics effectively in this period of rapid change will have a voice on increasing the opportunities and potentials which can shape their future (NCTM, 2000). In this respect, it has been understood that having mathematical knowledge and skills and becoming successful in mathematics gained more importance today.

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International examinations have shown that mathematics success of Turkish students are not at the desired level (Mullis, Martin, Robitaille and Foy, 2009; Mullis et al., 2012; Milli Eğitim Bakanlığı [MEB], 2013). This has brought cognitive and affective characteristics that effect mathematics achievement into focus of the research (Pahlke, Hyde and Mertz, 2013; Bilican, Demirtasli and Kilmen, 2011; Akyüz, 2014, Çalışkan, 2014). It is stated with theoretical explanations that especially affective characteristics are important factors that effect achievement (Bloom, 1998; Bandura, 1997; Schunk and Zimmerman, 1998). The findings of the studies on mathematics achievement support those theoretical explanations (Pajares and Graham, 1999; Chen, 2003; Peters, 2013; Chen and Zimmerman, 2007; Yıldırım, 2011; Yurt and Sünbül, 2014a; Loo and Choy, 2013; Ferla, Valcke and Cai, 2009; Wang, 2006; Usher and Pajares, 2009). One of the affective characteristics that effect mathematics achievement is self-efficacy belief of individuals that effect their activity choices, goal orientations, effort and perseverance, learning and achievement from various aspects (Bandura, 1997; Schunk, 2011; Usher, 2009). According to Bandura (1997), self-efficacy belief has four main sources. These sources are; Personal Experiences, Vicarious Experiences, Social Persuasions and Physiological Situations. Personal experiences express the experiences of the individuals. The results of the previous experiences for a task effect the belief for fulfilling a similar duty (Bandura, 1997). Personal experiences constitute the most importand and strongest source of self-efficacy (Bandura, 1997). Vicarious experiences express the indirect experiences that the individuals gain by monitoring the people (parents, teachers, siblings and peers) around them. The performance results of the monitored people have positive or negative effects on individuals' own self-efficacy belief (Schunk, 2011). It has been seen that vicarious experiences have more effect on performance especially when individuals have limited experiences to show the necessary performance for a new task or when they have not any evaluation about their own capacity for that task (Bandura, 1997). Social persuasions express the positive and negative feedback that individuals take from close people (family, teachers and friends) about their performance (Usher and Pajares, 2009). Physiological states express the mood of the individuals. The people who are under high stress and anxiety may not see themselves competent to fulfill any task (Bandura, 1997).

Self-efficacy is the belief of the individuals on their capacity to carry learning level and behaviours to target level (Bandura, 1997). Studies have shown that self-efficacy belief is effective at all levels of academic life and an important factor of successful behaviour of all types (Schunk, 2011). One of the areas in which self-efficacy is so effective is mathematics (Chen and Zimmerman, 2007; Collins, 1982, as cited in Schunk and Pajares, 2009, p. 39; Yıldırım, 2011; Yurt and Sünbül, 2014a). There are many studies in literature that examine the relations between mathematics self-efficacy sources (Lent, Lopez and Bieschke, 1991; Lopez et al., 1997; Gainor and Lent, 1998; Stevens, Olivárez and Hamman, 2006; Usher and Pajares, 2006; Usher and Pajares, 2009; Chen, 2010). In most of these studies, it has been stated that personal experiences have high and medium level significant relations with other self-efficacy sources (Arslan, 2012; Chen, 2010; Lopez, Lent, Brown and Gore, 1991; Lopez et al., 1997; Gainor and Lent, 1998; Usher and Pajares, 2009; Yurt, 2014). On the other hand, in most of the other studies, the relations between vicarious experiences, social persuasions and physiological states show variability. In these studies, low (Özyürek, 2005), medium (Arslan, 2012; Gainor and Lent, 1998; Stevens et al., 2006; Usher and Pajares, 2006; Matsui, Matsui and Ohnish, 1990; Joët, Usher and Bressoux, 2011) and high (Chen, 2010; Lopez et al., 1997; Hampton and Mason, 2003; Klassen, 2004; Yurt, 2014) level relations are reported between social persuasions and vicarious experiences. In addition, different levels of relations such as low (Stevens et al, 2006; Usher and Pajares, 2006; Hampton and Mason, 2003; Joët et al., 2011), medium (Arslan, 2012; Chen, 2010; Gainor and Lent, 1998; Joët et al., 2011; Matsui et al., 1990; Klassen, 2004; Lopez et al., 1997; Yurt, 2014) and high (Özyürek, 2005) have been identified between physcological states and vicarious experiences. Similarly, it is understood that there are low (Stevens et al, 2006; Özyürek, 2005), medium (Arslan, 2012; Chen, 2010; Hampton and Mason, 2003; Klassen, 2004) and high (Gainor and Lent, 1998 ; Matsui et al., 1990; Lopez et al., 1997; Yurt, 2014) level relations between physiological states and social persuasions. There was no significant relationship among self-efficacy sources in some studies. In these studies, it has been stated that there was insignificant relationship between physcological

conditions and vicarious experiences (Usher and Pajares, 2006; Hampton and Mason, 2003) and between social persuasion and physiological states (Hampton and Mason, 2003). When the studies in the literature are evaluated in general, it has been understood that the level of relationship among self-efficacy resources and their significance level are varied.

Bandura (1997) stated personal experiences are the strongest source that constitutes self-efficacy belief, but he did not do any explanation about the importance and order of the other sources (Britner and Pajares, 2006). When the studies in the literature examined, it is seen that personal experiences and mathematics achievement have the highest relations and social persuasions, physiological states and vicarious experiences follows it respectively (Joët et al., 2011; Usher and Pajares, 2009; Usher and Pajares, 2006; Lent et al., 1991; Lopez et al., 1997). On the other hand, there are some studies that show social persuasions have higher relations with mathematics achievement than other sources (Stevens et al., 2006; Stevens, Wang, Olivárez and Hamman, 2007). Besides, it has been reported in some studies that there are not significant relations between mathematics performance and vicarious experiences (Stevens et al., 2006; Stevens et al., 2007).

The overall evaluation of the studies in this field shows that especially the relationships of vicarious experiences and physcological states with academic achievement and mathematics achievement are varied. When the studies are examined, it is understood that  the vicarious experiences in Klassen (2004) with Indo-Canadian students in seventh grade math classes and in Arslan (2012, 2013) for academic achievement, learning, and performance of elementary school students,; physiological states in Gainor and Lent (1998) with university students, in Klassen (2004) with seventh grade Anglo Canadian students, in Stevens and colleagues (2006) with fourth, eighth and tenth grade students in Maths courses, arise as a significant self-efficacy resource. On the other hand, in the studies conducted by, Klassen (2004) with Anglo-Canadian students in the seventh grade, Özyürek (2005) with high school students and Joët and colleagues (2011) with elementary school students in mathematic course; Hampton and Mason's (2003) and Özyürek (2005) with high school students in math lesson, Joët and colleagues (2011) with elementary school students in the mathematics course and Arslan (2013) for the academic performance level, it has been found that physiological states as a source of self-efficacy have a low and insignificant effect.

It is understood that the studies which examine the relations between self-efficacy sources and mathematics achievement have found some inconsistent and different result (Usher and Pajares, 2006; Stevens et al., 2007; Matsui et al., 1990). In these studies, the importance and order of self-efficacy sources on mathematics self-efficacy beliefs also show variability (Joët et al., 2011; Matsui et al., 1990; Lopez and Lent, 1992; Özyürek, 2005). It is understood that research on self-efficacy sources get different results especially depending on the cultural differences and the educational level in the implementation (Chen, 2010; Klassen, 2004; Özyürek, 2005, Arslan, 2012, Joët et al., 2011). In this research, by examining the relationship among self-efficacy sources, it will be investigated that which of these sources are more important for Turkish students' success in mathematics. Thus, it is hoped that it can contribute to the understanding of different and contradictory findings in the literature.

On the other hand, although there are many studies in the literature, there are not any research in Turkey that examine the relations between mathematics self-efficacy sources and mathematics achievement of secondary school students. It is known that secondary school years are critical for mathematics success of the students (Reynolds, 1991). Also it is stated that the self-efficacy beliefs of students on that stage affect their academic performance in terms of cognitive, affective and motivational aspects (Bandura, 1995). Hence, determining the importance and the sequence of self-efficacy sources on students' mathematics achievement in that period can help educators in the planning process of mathematics teaching more effectively. Thus, ensuring the development of different applications and activities could contribute to the the positive development of students' cognitive, affective and motivational beliefs related to mathematics. For this reason, answers to the following questions will be sought in this study:

1- What kind of a relation do mathematics self-efficacy sources show with each other?

2- What kind of a relation do mathematics self-efficacy sources show with mathematics achievement?

3- What is the predictive power of mathematics self-efficacy sources for mathematics achievement?

4- What is the relative importance order of mathematics self-efficacy sources on mathematics achievement?

## Method

### Research Model

This is a descriptive study in relational survey model which analyse the relations between mathematics self-efficacy sources and mathematics achievement. Relational screening models aim to measure the presence and degree of change between two or more variables (Karasar, 2000, p.81).

### Study Group

The research was carried out with 350 7th grade students who study in different secondary schools in the centre of Konya. The students are 13 and 14 years old, 51% (n=178) of them are male and 49% (n=172) of them are female.

### Variables

*Mathematics Self-Efficacy Sources:* Mathematics Self-Efficacy Sources Scale, which was developed by Usher and Pajares (2009) and adapted into Turkish by Yurt and Sünbül (2014b), was used to determine the mathematics self-efficacy sources of the students. The scale, which was developed based on Bandura's (1997) Social Cognitive Theory, is composed of following dimensions: Personal Experiences (6 items), Vicarious Experiences (6 items), Social Persuasions (6 items) and Physiological States (6 items). The items in the scale are graded between 1-100 interval. Exploratory and Confirmatory Factor Analysis methods were used to examine the construct validity of the scale. In order to determine the reliability of the scale, Cronbach's Alpha Internal Consistency Coefficient, corrected item-total score correlation and t test were used for the analysis of the significance of the differences between item averages of 27% lower and upper groups. Cronbach Alpha values of the factors are between 0.80 and 0.94, corrected item-total score correlations are between 0.77 and -0.25. T test results show that all the differences between item averages of the 27% lower and upper groups are significant. The scale was administered to the students by the researcher in one session and it took nearly half an hour.

*Mathematics Achievement:* End-of-term mathematics grades were used to determine the mathematics avhievement of the students. End-of-term mathematics grades are the averages of three mathematics exam results and the score of a performance task. The subjects that the students studied during the term consist of the learning areas of Numbers, Geometry and Algebra. Students' mathematics grades' mean is 68.47, standart deviation is 20.41, median and mode are 70. End-of-term mathematics grades were taken from school administration after getting the necessary permissions.

### Data Analysis

The relations between self-efficacy sources and mathematics achievement are calculated with Pearson Product-Moment Correlation technique and multiple linear regression analysis was performed to examine the effects of mathematics self-efficacy sources on mathematics achievement. Some assumptions must be met before multiple regression. These assumptions can be listed as follows (Büyüköztürk, 2011): (*i*) the data show multivariate normal distribution, (*ii*) there is a linear relation between the independent variable and predictor variables, (*iii*) there are not high level relations between independent variables (multicollinearity). Whether multivariate normal distribution assumption is met or not can be anaysed by calculating mahalanobis distance value (Büyüköztürk, 2011). Mahalanobis distance values of the data were examined and no values that hamper linearity

and normality assumptions. Besides, multiple fallout matrix graph was analysed to see whether the data meets the linearity assumption. According to the results, it was seen that scatter diagrams, which were formed for standardized residual values and standardized predicted values, define a linear relation.

Another assumption of regression analysis is not to have a multicollinearity problem in data. Multicollinearity problem is the state of high level relations (r> 0.90) between independent variables (Çokluk, Şekercioğlu and Büyüköztürk, 2010). Many techniques were suggested in the literature to test multicollinearity (Büyüköztürk, 2011; Çokluk et al., 2010). Some of these techniques are the examination of Variance Inflation Factor (VIF) and calculation of Tolerance Values (TV), Conditions Index (CI) and relations between independent variables (Çokluk et al., 2010; Büyüköztürk, 2010). In this study, these four methods were used to determine whether there were multiple links between the variables. 10 or bigger variance improvement factors, 30 or bigger contitions index and 0.10 or smaller tolerance values show multicollinearity (Çokluk et al., 2010). The highest correlation between the variables in this study is 0.81. Variance inflation factor values, conditions index values and tolarenace values of the variables changes between 1.69-3.50, 1.00-12.69 and 0.29-0.59 respectively. These findings show that there is not multicollinearity between the independent variables. Preliminary analyses show that the data meets the necessary assumptions for multiple regression analysis. Therefore, regression analysis was performed with 350 data.

## Results

Correlation values for the relations between mathematics self-efficacy sources and mathematics achievement are given in Table 1. There are high and medium level significant relations between mathematics self-efficacy sources and mathematics achievement. The relation between mathematics achievement and personal experiences has the highest correlation value (r=0.749, $p$<0.01). The relations between mathematics achievement and social persuasions (r=0.69, $p$<0.01), mathematics achievement and vicarious experiences (r=0.57, $p$<0.01) and mathematics achievement and physiological states (r=0.55, $p$<0.01) follow that value respectively. On the other hand, the relations between mathematics self-efficacy sources are significant ($p$<0.01) and their values are between -0.63 and 0.81.

**Table 1.** Correlation Values between Mathematics Self-Efficacy Sources and Mathematics Achievement

| | Variables | X̄ | Ss | V1 | V2 | V3 | V4 | V5 |
|---|---|---|---|---|---|---|---|---|
| V1 | Mathematics Achievement | 68.47 | 20.41 | 1 | | | | |
| V2 | Personal Experiences | 351.12 | 157.42 | 0.75** | 1 | | | |
| V3 | Vicarious Experiences | 382.58 | 149.20 | 0.57** | 0.70** | 1 | | |
| V4 | Social Persuasions | 319.54 | 186.16 | 0.69** | 0.81** | 0.75** | 1 | |
| V5 | Physiological States | 320.21 | 192.83 | -0.55** | -0.63** | -0.52** | -0.54** | 1 |

**$p$<0.01, N=350

Table 2 shows the results of the multiple regression analysis about prediction of mathematics self-efficacy sources for mathematics achievement. The self-efficacy sources such as personal experiences, vicarious experiences, social persuasions and physiological states are used as the predictors of mathematics achievement in regression analysis. Except for the vicarious experiences, other self-efficacy sources predict the mathematics achievement significantly. It is seen that personal experiences, social persuasions and physiological states explain the 59% of mathematics achievement. Personal experiences are the strongest factor that predicts the mathematics achievement and explain

the 56% of the change in mathematics achievement. On the other hand, the contribution of social persuasions and physiological states to total variance is 3%.

**Table 2.** The Results of Multiple Regression Analysis about Prediction of Mathematics Self-Efficacy Sources for Mathematics Achievement

| Model | Predictive Variable(s) | R | R² | Change (R²) | Std. β | t | F |
|---|---|---|---|---|---|---|---|
| 1 | Personal Experiences | 0.749 | 0.561 | 0.561 | 0.75 | 21.08** | 444.33** |
| 2 | Personal Experiences | 0.764 | 0.584 | 0.023 | 0.54 | 9.28** | 243.57** |
|   | Social Persuasions |   |   |   | 0.26 | 4.40** |   |
| 3 | Personal Experiences | 0.769 | 0.591 | 0.007 | 0.48 | 7.66** | 166.98** |
|   | Social Persuasions |   |   |   | 0.25 | 4.23** |   |
|   | Physiological States |   |   |   | -0.11 | -2.52* |   |

**$p<0.01$, *$p<0.05$

## Discussion, Conclusion and Suggestions

The relations of mathematics self-efficacy sources with each other and with mathematics achievement were examined firstly in this study. According to the findings of the study, personal experiences, vicarious experiences, social persuasions and physiological states show high and medium level significant relations with each other. It was seen that especially personal experiences have high level and significant relations with other self-efficacy sources. There are studies in the literature which have reached similar findings. In this studies, it was stated that personal experiences show high level significant relations with vicarious experiences (Chen, 2010), social persuasions (Chen, 2010; Lent et al., 1991; Lopez et al., 1997; Gainor and Lent, 1998; Usher and Pajares, 2009) and physiological states (Lent et al., 1991; Lopez et al., 1997; Gainor and Lent, 1998; Usher and Pajares, 2009). On the other hand, there are some other studies in the literature which show insignificant relations between personal experiences and vicarious experiences (Matsui et al., 1990), vicarious experiences and physiological states (Usher and Pajares, 2006), social persuasions and physiological states (Usher and Pajares, 2006). It is stated that these inconsistent results may be related to the data collection tools which have low internal consistency coefficient (Usher and Pajares, 2008). In addition, it should be taken into account that different results can be optained in the studies examined the sources of self-efficacy depending on the cultural differences and age groups in the application procedures.

Another finding of the study is personal experiences are the most important source that predict mathematics achievement. It is understood that the students who have more successful experiences about mathematics have higher mathematics self-efficacy belief. This finding supports Bandura's (1997) thesis on self-efficacy sources. Bandura (1997) states that personal experiences are the strongest source that constitutes self-efficacy belief. In most of the studies in the literature, the relations between mathematics achievement and personal experiences were found to be higher than the relations between mathematics achievement and other self-efficacy sources (Gainor and Lent, ood1998; Usher and Pajares, 2009; Usher and Pajares, 2006; Lent et al., 1991; Lopez et al., 1997). Personal experiences are the most powerful and reliable experiences reflecting the individual's competence in a particular area (Usher and Pajares, 2008). Secondary school students' grades in mathematics, their math performance in different selection and placement exams, their experience in math-related tasks and projects, and their performance in in-class mathematics practice and activity constitute their personal experiences in mathematics. Positive and negative consequences of these experiences were found to be closely related to students' mathematics achievements and self-efficacy sources. It is identified that successful and unsuccessful experiences of the individuals about mathematics have more relations with mathematics achievement than vicarious experiences, social persuasions and physiological conditions. The studies which indicate that personal experiences are the strongest predictors for mathematics self-efficacy belief support this result (Lopez and Lent, 1992; Lent, Lopez, Brown and Gore, 1996; Lopez et al., 1997; Matsui et al., 1990).

Another finding of the study is that social persuasions and physiological states are most effective self-efficacy sources on mathematics achievement after personal experiences. When the studies in the literature are examined, it is seen that the relations of social persuasions and physiological states with mathematics achievement are at medium and low level (Stevens et al., 2006; Stevens et al., 2007; Gainor and Lent, 1998; Usher and Pajares, 2009; Usher and Pajares, 2006; Lent et al., 1991; Lopez et al., 1997). In these studies, the values of relations between mathematics achievement and social persuasions are at 0.23-0.44 interval and the values of the relations between mathematics achievement and physiological states are at -0.34-0.38 interval. Besides, there are some other studies in the literature that states social persuasions and physiological states are significant predictors of mathematics self-efficacy belief (Matsui et al., 1990; Özyürek, 2005). Encouraging speech that secondary school students hear from other individuals (I believe that I will be successful in mathematics), their classmates' desire to work with them because of their success, appreciation of their teachers and society are major concerns of social convinctions (Usher and Pajares, 2009). Social persuasion can have a positive influence on students making them spend more effort in mathematics and thus allow them to continue their efforts in mathematics performance. On the other hand the students' negative experiences in this period such as anxiety, stress, tension and burnout constitute the physiological state (Zeldin and Pajares, 2000). It has been found in this study that physcological states have negative effects on students' mathematics achievement. It can be said that negative physcological conditions affect the students' success in mathematics negatively by reducing their belief in the ability of mathematics

Another finding of this study is vicarious experiences have not a significant effect on mathematics achievement. Studies in the literature seem to support this conclusion. In many of them, the relationship of mathematics achievement with indirect experiences have shown that there is a lower relationship when it compared to the other sources and it has been reported (Usher and Pajares, 2009; Usher and Pajares, 2006; Lent et al., 1991; Lopez et al., 1997; Stevens et al., 2006; Stevens et al., 2007) as meaningless (Stevens et al., 2006; Stevens et al., 2007; Lent et al., 1991).Studies indicates that there is a significant predictor of mathematics' self-efficacy beliefs of indirect experience that supports this conclusion (Usher and Pajares, 2006; Lopez and Lent, 1992; Lopez et al., 1997; Özyürek, 2005). The absence of a significant effect of indirect experiences on mathematics performance is inconsistent with the theoretical explanations (Bandura, 1997; Schunk, 2011). This contradictory situation may have different reasons. One of these reasons is that individuals have to observe well the mathematical methods, strategies and techniques of the people whom they they take as a model. In this way, indirect experiences create a positive impact on the maths achievement of students. For example, individual who sees the success of a classmate in solving a problem, believes in himself to solve that problem and this is related to his/her careful observation of the technique of the role model student. Thus, it can be said that an individual's mathematical strategies, methods and technical knowledge can determine the level and nature of self-efficacy believes which he/she gained from indirect experiences. In this study, students' mathematical strategy, methods and technical knowledge may have hindered them at a certain level from gaining rich indirect experiences related to the mathematics. This may explain why the indirect experiences of secondary school students on math achievement are less effective. Another possible reason is that the role model individual's indirect maths experiences have no direct effect on mathematics achievement. Thus, these experiences through other sources of self-efficacy have affected students' mathematics achievements indirectly. In this case it is necessary to examine the relationship between direct and indirect sources of self-efficacy to make it clarified. In this direction, quantitative and qualitative studies on the subject should be done.

Personal experiences, social persuasions and physiological states that have significant effects on mathematics achievement explain nearly 59% of change in mathematics achievement. Especially the effect of personal experiences on the variance in mathematics achievement has been found to be quite high. In order to increase students' self-efficacy believes and gain them successful personal experiences in maths, first of all interest, sympathy towards mathematics should be developed. Then, it is necessary to help students to gain accurate, complete and successful experiences relevant to mathematics. Therefore, mathematics teachers should take individual differences into consideration while teaching the subjects and design the learning environments according to these differences. Especially, after teaching a new subject in class, the examples should be chosen carefully and first questions should be simple ones that students can solve easily. Students should absolutely gain the self-efficacy belief in understanding the subject and passing to the next stage.

The other important source that effects mathematics achievement is social persuasions. Social persuasions (positive) are encouraging conversation of the individuals' close environment. Social persuasions consist positive or negative feedback as well. Therefore, teachers and parents should use the positive and negative messages carefully. The positive and negative messages that will be given to the students should help them evaluate themselves properly (Usher and Pajares, 2006). However, it is stated that encouraging speech, which exceed individuals' capacity for the task and are unrealistic, may effect their self-efficacy beliefs negatively by causing individuals to make mistakes in the future (Bandura, 1997).

Finally, physiological states are the third important source that effect mathematics achievement. Physiological states are positive and negative mood such as anxiety, stress and burnout (Usher and Pajares, 2009). Individuals do not feel themselves ready and sufficient for a task under excessive anxiety and stress. This may effect self-efficacy beliefs of the individuals negatively for that task. Physiological states show a curvilinear relation with mathematics achievement (Britner and Pajares, 2006). For example, while very low or high anxiety level effects self-efficacy belief negatively, a medium-level anxiety may effect self-efficacy belief positively. Therefore, individuals may be helped for controlling their emotions to keep their emotional conditions at an optimum level. The individuals who can control their emotions have less anxiety and stress in similar conditions than the ones who cannot control their emotions. The self-efficacy beliefs of individuals who can control their emotions are higher (Bandura, 1997).

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