



Determinants of Self-Efficacy on Undergraduate Academic Achievement

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Abstract

This research focuses on the main theme of the determinants of self-efficacy on undergraduate academic achievement, particularly considering the Trincomalee Campus, Eastern University, Sri Lanka. Self-efficacy refers to people who believe in their own capabilities and abilities to accomplish a given task. When it comes to undergraduates in the university system, they are valuable stakeholders. Nowadays, the student-centered learning approach is practiced by universities, it is to be responsible for their own pedagogical progress. Their self-efficacy helps them to manifest themselves and achieve their academic performance. Therefore, self-efficacy plays a vital role in their academic achievement. Identify the objectives of this research, to discover the relationship between self-efficacy and academic achievement, to what extent does self-efficacy influence on academic achievement and to recognize the attitudes that play a role in mediating the relationship between self-efficacy and academic achievement. A particularly representative sample was selected from undergraduate management students at the Trincomalee Campus. The selected sample size is 234. Conceptual variables cover performance accomplishment, vicarious experience, verbal persuasion, physiological & emotional state, attitudes, and academic achievement. The researcher use the Sobel test for the data analysis. Based on the results, the main influencing factors are verbal persuasion and performance accomplishment. Academic achievement is not significantly related to physiological & emotional state and vicarious experience.

Keywords: *Self-efficacy, Attitudes, Academic achievement*

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Introduction

Education is a major contribution to the achievement of sustainable development. It provides undergraduate students the opportunity to enhance their skills, attitudes, competencies, and knowledge, and also creates an energetic workforce to achieve organizational success. Given their skill level, poor knowledge of English is a serious difficulty for students to do their best in academic achievement in university education (De Silva, 1977). When they enter university, they hope for a bright future, social status, and economic stability (De Silva, 1977; Ranathunga, 2007). Nowadays, student-centered learning (SCL) is practiced by universities, in particular by replacing lectures with active learning, cooperative group situation, and integration of self-paced learning programs. The ultimate goal of this approach is for students to be responsible for their own educational progress (Nanney, 2004).

Self-efficacy examines the strength of each individual. This belief supports the way people believe, think, and feel (Ormrod, 2006). In the educational system, students attempt to achieve two goals in the academic context; develop competence and appear competent. It indicates learning and performance goals (Elliot et al., 1988; Ames et al., 1988; Dweck et al., 1988; Harackiewicz et al., 2002; Nicholls, 1984). Compared to those who don't, students believe they can solve academic problems using cognitive and metacognitive procedures. This can impact both task selection and persistence. Future performance can be strongly predicted by self-efficacy during the first year of university.

Students with low self-efficacy are

more likely to ignore, postpone or quickly abandon their homework. Additionally, the process of cognitive engagement, which increases self-efficacy beliefs for classroom success, is facilitated by self-efficacy (Pintrich et al., 1990; Pintrich et al., 1991; Bandura, 1997; Schunk et al., 2000; Chemers et al., 2001).

Further, graduation expects graduates to have knowledge, skills, attitudes, and mindsets. As per the discussion above, self-efficacy is an important factor for students. They believe they can do the job in the right way. Therefore, the researcher intends to examine the "Determinants of Self-Efficacy on Undergraduate Academic Achievement".

The following objectives to examine the determinants of self-efficacy on undergraduate academic achievement is as follows, to what extent does self-efficacy influence on academic achievement, to find out the relationship between self-efficacy and academic achievement, and to recognize the attitudes that play a role in mediating the relationship between self-efficacy and academic achievement.

This research study is significant. The achievement of student performance determines the quality of education. One widespread idea about how students are educated is that they recall and repeated the knowledge needed for their exams. Self-efficacy needs to change a psychological pattern in order to get the desired outcomes. Additionally, take into consideration that self-efficacy is crucial for reaching learning objectives during the learning process. Students with high levels of self-efficacy are more confident than students with low levels of self-

efficacy that they can complete the challenging academic endeavor. Academic performance is facilitated by self-efficacy (Aggarwal, 2014; Ningsih et al., 2020).

Literature Review

Self-efficacy means that people believe in themselves and have the skills and abilities to perform a given task successfully. It's part of social cognitive theory. In this sense, self-efficacy has four sources: performance accomplishment, vicarious experience, verbal persuasion, and physiological & emotional state. People believe their past experiences support the current scenario, it was indicated by performance accomplishment, vicarious experience indicates that people gain confidence in observing others, which makes them look like role models. The verbal persuasion mentioned improves self-confidence through the encouragement of feedback. The last factor is the physiological & emotional state, it found that the emotional state influences self-efficacy.

Self-efficacy

People may differ from each other because of their feeling of persuasive self-efficacy (Forgas, 1979; Wish et al., 1977). Further, the author explains that people develop their capabilities as well as the ability to organize and execute the course of action required to achieve a specific goal through personal experience and comparisons with others (Bandura, 1997). The results were given by Robbins (2003), who specified that each individual believes they have the skills to perform the task. In addition, difficult situations are handled by people with high self-efficacy, with the support of more effort (Stajkovic et al., 1998),

which is the reason why these people show high self-efficacy performance (Bandura, 1997). On the other hand, low self-efficacy feel fear of managing difficult tasks and its characteristics are tension, depression, and helplessness (Bandura, 1977).

Students' Self-Efficacy

Authentic student evidence that supports their capability to successfully complete the task is a powerful source of creating a sense of efficacy (Palmer, 2006). Performance accomplishment explains how we create a sense of self-efficacy through our own performance. A successful situation creates a strong sense of efficacy and failure diminishes it (Bandura, 1997). In the vicarious experience, students can obtain information by observing others, especially those who offer suitable possibilities for comparison (Schunk, 1987, 1989). Consider verbal persuasion, it helps students persuade themselves of self-efficacy through communication and evaluative feedback (Bong et al., 2003). Physiological states express mood and emotional states. The feeling and symptoms (stress reaction, tension, excitement, and anxiety) can be explained as signals of failure. In addition, a positive mood strengthens self-efficacy (Pajares, 1997).

Self-efficacy has a positive link with student learning. It consists of motivation and learning (Pajares, 1996, 2006; Schunk, 1995,2003). Much research shows that self-efficacy affects the performance and learning behavior of students in aspects such as the tasks they choose, their effort, perseverance, and performance (Schunk, 1995, 2003). Self-efficacy has direct and indirect effects of student self-efficacy on

achievement (Bouffard-Bouchard 1990; Carmichael et al., 2005; Lane et al., 2004; Pajares, 1996, 2003; Relich et al., 1986; Schunk, 2003). Self-efficacy makes a difference in the way people feel, think, and act (Bandura, 1995). Students with high self-efficacy use their higher tendencies and strength to perform academic tasks and abilities (Bong, 2001). Students with low self-efficacy have low skills and are unable to improve (Wingate, 2010). Moreover, self-efficacy helps people achieve their goals and dreams, which are the results of human behavior. Self-effective students put more effort into perceiving academic materials, thinking more deeply, and planning performance tasks (Linnenbrink et al., 2003).

Academic Achievement

Knowledge, skills, concepts, and understanding of the idea are used to explain academic performance as a label (Tuckman, 1975). Some research has mentioned that undergraduate success on examination measures (Grade Point Average (GPA)). Moreover, factors influencing academic performance are previous schooling, parental education, family income, self-motivation, hard work, discipline (Hard et al., 2006), hours of study, skills, absenteeism, personalized learning environment, professional learning communities, meaningful and engaging curriculum, and support from teachers and administrators (Klem et al., 2004). Further, student success relies on greater attention, interest, perseverance, and, reciprocally, even more support from the teacher (Klem et al., 2004).

Attitudes

Attitudes explained the particular

entity with the degree of favor or disfavor. Another author defined it as protean and based on the values, feelings, and beliefs of individuals. Moreover, it is a perception developed by the reaction to the environment (Thompson, 1993; Philips, 2003). It is classified into three types: cognitive, affective, and behavioral (Eagly et al., 2003; Krosnick et al., 1995; Katz et al., 1959; Rosenbergy et al., 1960). Cognitive describes what people believe the object to be, affective consists of emotions, and behavioral explains what people intend to do with the object. Student attitudes are linked to self-belief, subject and have a positive effect on the school environment and students' performance. There was a relationship between self-efficacy and attitudes (Bindak, 2004; Canturk et al., 2007; Pajares et al., 1994; Stramel, 2010; Usher, 2009).

Relationship between self-efficacy and academic achievement

Self-efficacy is one of the predictors of academic performance success (Fast et al., 2010; Multon et al., 1991). In terms of academic performance, it explains how students manage their studies and face or accomplish different tasks given by the teacher (Banquil et al., 2009). Academic motivation depends on self-efficacy, which is linked to student's motivation to learn (Schunk, 1991; Matthews, 2010). It is one of the predictors of intellectual performance and it influences us through cognition and indirectly affects perseverance. And also, self-efficacy is positively correlated with their achievement. People with low self-efficacy face social isolation and even limited academic opportunities (Pajares, 2002). Previous research (38 research studies from 1977 to 1988) has shown

that self-efficacy has a positive relationship with academic achievement (Multon Brown et al., 1991). And also, twenty-five percent of academic success depends on self-efficacy (Pajares, 2006). A few studies have mentioned that their research results have shown that there is no significant relationship between self-efficacy and academic achievement (Himanshu et al., 2017; Rapoo et al., 2001; Liu et al., 2006; Atoum et al., 2015).

Relationship between self-efficacy and students' attitudes

Self-efficacy has a significant influence on the choice of learning activities of individuals (Bandura, 1977). It affects student perception (Bates et al., 2007). Attitudes play a major role in student self-efficacy (Wu et al., 2006). The finding of research results mentions that attitudes have a positive relationship with student self-efficacy (Tenbet et al., 2013).

Relationship between attitudes and academic achievement

Research results have revealed that Western countries show a relationship between positive attitudes and academic achievement (Iben, 1991; Ma et al., 1997; Tocci et al., 1991). In the context of Asia, consider that student attitudes were not always present with high achievement scores (Leung, 2002; Stevenson et al., 1993). Positive attitudes have long-term beneficial effects (Wilson, 2008).

Look at the section of the research article, the first section is the introduction part, which has the background, objectives, the significance of the study, and previous research work, the remaining part consists of four sections. The research methodology falls into the category of

section two, the results and discussion part in sections three and four. The last section contains the conclusion.

Methods

In this research, the method integrates the conceptual framework, sample selection, data collection, and hypothesis development.

Conceptual framework

Based on the background of the study and literature review, the researcher has formulated the figure-1, conceptual framework. Conceptual variables are given below.

Self-efficacy

Self-efficacy expressed is the personal conviction, one can complete a task with the support of their abilities and skills (Ivancerich et al., 2011). It has four sources of components; performance accomplishment, vicarious experience, verbal persuasion, and physiological & emotional state. Performance accomplishment means that past experience builds confidence and helps people achieve success and reduce repeated failure (Bandura, 1997). Vicarious experience has indicated that people compare themselves to others on the basis of similarities (age, capabilities, and personal character), which promotes increasing self-efficacy (Bandura, 1977, 1997). Verbal persuasion has described that encouragement and discouragement determine their ability to perform (Redmond, 2010). Influence of physiological & emotional state on psychological characteristics, emotional feeling affects people's judgment of their self-efficacy (Bandura, 1977).

Attitudes

It represents that particular entity with some degree of favor or disfavor (Eagly et al., 1993). It has three components; affective, behavioral, and cognitive.

Academic Achievement

It defined the result of a person's performance to achieve specific goals. Academic performance plays the role in students and is a key element in education (Rono, 2013). Influencing factors are parents' social-economic status, hours of study (Ali et al., 2013), academic background, encouragement (Farooq et al., 2011), communication skills, learning facilities, and proper guidance from parents and teachers (Singh et al., 2016).

Sample Selection

The researcher took the sample from undergraduate management students at Trincomalee Campus, Eastern University, Sri Lanka. Among the total population (585) of management students in 2021, the selected sample is 234 based on Krejcie & Morgan (1970) and the method of sampling is systematic random sampling.

Data Sources

This is quantitative research; data are collected through a standard questionnaire. Data sources are journal articles (indexed and refereed), research publications (abstract, extended abstract, conference proceedings), internet access, etc.

Time horizons

Cross-sectional studies are carried out at a given time on a particular phenomenon. It often employs the survey strategy (Easterby Smith et al., 2008; Robson, 2002)

Hypothesis development

In accordance with the literature review, the following hypothesis has been formulated

H₁: There is a significant relationship between the self-efficacy and academic achievement

H₂: There is a significant relationship between the self-efficacy and attitudes

H₃: Attitudes play the mediating role between the self-efficacy and academic achievement

Results

In the analysis, introduce the reliability test, correlation analysis, KMO & Bartlett's Test, regression analysis, and Sobel test.

Reliability analysis

Based on George & Mallery, 2003; Cronbach Alpha value of 0.891 (Table-1), this was in acceptable manner.

Correlation analysis

According to the correlation table-2 described that performance accomplishment, vicarious experience, and verbal persuasion indicated positive relationships except for physiological & emotional state with academic achievement.

Bartlett's Test

The table-3 directs that the selected sample is adequate and that the significant level is less than 0.05.

Regression Analysis

In the regression analysis, according to the results (table-4) of the study, the four variables (performance accomplishment, vicarious experience, verbal persuasion, and physiological & emotional state) contribute to the academic achievement of undergraduate

students. It explained that all four variables' combined contribution is 56.5%. Hypothesis one is accepted. There is a relationship between self-efficacy and academic achievement (Jahanian et al., 2013). These results are supported by Yazici et al., 2011. Previous research with college students in Singapore and Taiwan found that sources of self-efficacy influence their performance (Loo et al., 2013; Lin, 2016). The finding was supported by Marra et al., 2006. Higher self-efficacy of people shows better academic performance (Robbins et al., 2004). In addition, academic self-efficacy and personal self-confidence had a considerable influence on both achievement and expected accomplishment (Chemers et al., 2001). Self-efficacy influences a student's choice of effort, persistence, tasks, and achievement (Schunk, 1989). In particular, academic achievement is the discovery of intellectual capacity and motivation as well (Vecchio et al., 2007). This achievement is determined by study hours, skills, and absenteeism (Witt-Rose, 2003). Efficacy also plays a role in student happiness (Pordanjani et al., 2014).

Coefficient

The coefficient table-5 explained the relative contribution of each variable with academic achievement. It is described that performance accomplishment and verbal persuasion have a significant relationship with academic achievement. Further, vicarious experience and physiological & emotional state were not significantly associated with academic achievement. The experience is seen as internalized. In the past years, success has increased self-efficacy and reduced repeated failure, although

it relies on the capabilities of each individual (Bandura, 1986). Bandura (1997) found that self-efficacy beliefs improve academic performance; behavior, motivation, and process (Bandura, 1997). Author Lin (2016) expressed that a student's performance is determined by mastery experience, verbal persuasion, and vicarious experience. Mastery experience has the strongest correlation with academic performance (Loo et al., 2013), these results are supported by the author Jan, 2015. Self-efficacy has a positive association with mastery experience and verbal persuasion and has a negative association with physiological & emotional state and vicarious experience in academic performance (Fong et al., 2014).

Providing effective feedback is more complex in all situations (Price et al., 2010; Sadler, 2010). Verbal persuasion connects with teachers, who provide verbal feedback, encouragement, and evaluation, especially in the educational field. When the feedback information is realistic, only students can accept others' comments. It depends on students' understanding of feedback and their good communication skills (Higgins Hartley et al., 2001). The message must be credible, realistic, sincere, etc. (Bandura, 1986). Otherwise, students are frustrated, dissatisfied, and uncertain about their future (Price et al., 2010). Students can get feedback from lecturers, peers, senior students, and others. It can provide them directly, indirectly, or both.

Regression analysis between self-efficacy and attitudes

There is a significant relationship between self-efficacy and attitudes, it

was explained in table-6. In line with hypothesis two is accepted. The table explains that the contribution of self-efficacy to attitudes is expressed as 39.2%. This result was supported by Wu et al., 2006.

Sobel test

The figure-2 explains the Sobel test, it can describe how attitudes mediate between self-efficacy and academic achievement.

In Sobel's test, the statistic value is 10.42453 (p-value 0.000). The value is compared to a standard normal distribution to test for significance. If the Z-score is greater than 1.96, can conclude that the effect is larger than would be expected by chance and quality of the effect is significant. Hypothesis three proves that there is a strong link between self-efficacy, attitudes, and academic achievement. This result was supported by Li, 2012.

Discussion

According to the analysis discussion, most students fall into the income category of less than Rs 40,000. It shows that their cost of living is low and that their parents' dream of seeing their children become graduates. This intention generates those students who must develop their self-efficacy to achieve their goals in the academic field. Most of the students responded that their goal was to enter university to earn a higher degree. It showed that their self-efficacy was generated before they enter the university.

Testing for objective one, to what extent does self-efficacy influence on academic achievement. It described that all four variables (performance accomplishment, vicarious experience, verbal persuasion, and physiological & emotional state)

contribute to academic achievement by 56.5%. The second objective examines the relationship between self-efficacy and academic achievement. Performance accomplishment and verbal persuasion have a significant relationship, while vicarious experience and physiological & emotional state have no significant relationship with academic achievement. The third objective has shown that attitudes play a mediating role between self-efficacy and academic achievement, it was proved by Sobel test.

Look into a student's personal self-efficacy, academic performance, and motivational factors determine a teacher's efficacy (Anderson et al., 1988; Midgley et al., 1989; Ashton et al., 1986; Ross, 1992). Moreover, the determinants of self-efficacy not only soles rely on undergraduates, it also depends on the self-efficacy of the teacher. Performance accomplishment and verbal persuasion are inevitable factors in academic achievement.

Conclusion

Each student believes that their own abilities contribute to their academic achievement. It is a path to an achievable goal for each student. The level of individual performance of students determines their high and low levels of self-efficacy (Barkley, 2006).

Academic success depends on the teacher and student factors. Students' learning styles and achievements, as well as their motivation, are linked to their academic success (Busato et al., 2000).

In conclusion of the research study, self-efficacy positively affects student achievement and self-confidence, and it also has an impact on their entire

development (Sari, 2017). According to several studies (Gungor, 2020; Addison et al., 2018; Tiyuri et al., 2018), there is a significant relationship between self-efficacy and academic achievement, with a particularly direct relationship with students' mastery of subject matter.

Academic self-efficacy has a favorable and considerable impact on students' academic achievement, according to research by Alyami et al. (2017). Other research has demonstrated that academic self-efficacy significantly influences students' learning, motivation, and academic achievement (Ferla et al., 2009; Sadi et al., 2013; Villavicencio et al., 2013; Doménech-Betoret et al., 2017).

Few suggestions for improving the self-efficacy and academic achievement of undergraduate students. Lecturers create different modes of techniques to improve student self-efficacy, especially those with low self-efficacy. Continuously conduct the program of career guidance, counseling, recreational activities, etc. It warms the minds of

the students. The feedback system creates a bridge between academics and students. It is an effective way to communicate. Characteristics of high self-efficacy of teachers are closely monitored to the low level of self-efficacy of students. For example, lecturers support students in their self-reflective, persistence, goal section, high goal selection, self-concept, motivation triggered even by failure, victorious over external challenges, challenges, etc (Yost, 2002). These factors are directly linked to their performance. In addition, teachers provide opportunities in different ways: participating in collaborative activities, receiving feedback, focusing on content, redesigning success, and actively learning (Ross et al., 2007).

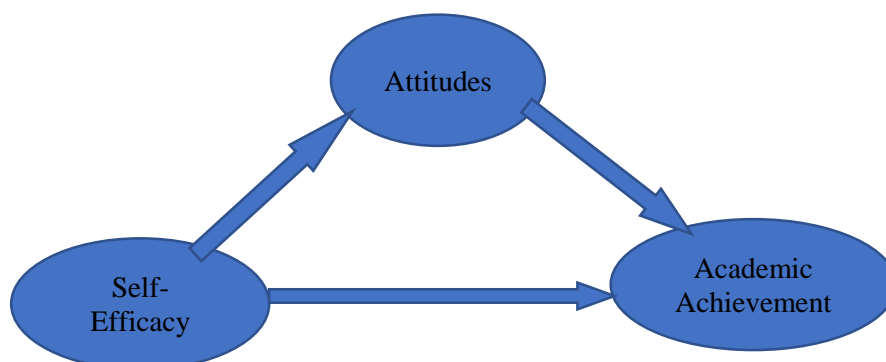
Author Contributions

This work was carried out in collaboration between the two authors.

Author Saravanabawan guided and supervised the entire study. Author Priyadharsan designed and worked on manuscripts.

Figures and Tables

Figure 1
Conceptual Framework



Source: Develop for research purpose

Table 1
Reliability test

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of Items |
| .891 | 25 |

Source-Survey data

Table 2
Correlation analysis

| | | Correlations | | | | |
|----|---------------------|--------------|---------|---------|---------|---------|
| | | PA | VE | VP | PS | AA |
| PA | Pearson Correlation | 1 | .691** | .708** | -.469** | .704** |
| | Sig. (2-tailed) | | .000 | .000 | .000 | .000 |
| | N | 234 | 234 | 234 | 234 | 234 |
| VE | Pearson Correlation | .691** | 1 | .807** | -.397** | .617** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 |
| | N | 234 | 234 | 234 | 234 | 234 |
| VP | Pearson Correlation | .708** | .807** | 1 | -.457** | .679** |
| | Sig. (2-tailed) | .000 | .000 | | .000 | .000 |
| | N | 234 | 234 | 234 | 234 | 234 |
| PS | Pearson Correlation | -.469** | -.397** | -.457** | 1 | -.424** |
| | Sig. (2-tailed) | .000 | .000 | .000 | | .000 |
| | N | 234 | 234 | 234 | 234 | 234 |

| | | | | | | |
|--|---------------------|--------|--------|--------|---------|-----|
| | | | | | | |
| AA | Pearson Correlation | .704** | .617** | .679** | -.424** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | |
| | N | 234 | 234 | 234 | 234 | 234 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | |

Note: PA-Performance Accomplishment, VE-Vicarious Experience, VP-Verbal Persuasion, PS-Physiological & emotional State, AA-Academic Achievement
Source: Survey data

Table 3*KMO and Bartlett's Test*

| KMO and Bartlett's Test | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .932 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 4470.363 |
| | Df | 300 |
| | Sig. | .000 |

Source: Survey data

Table 4*Regression analysis between self-efficacy and academic achievement*

| ANOVA ^a | | | | | | |
|---|------------|----------------|-----|-------------|--------|-------------------|
| Regression Model | | Sum of Squares | Df | Mean Square | F | Sig. |
| R = 0.752 R Square = 0.565 Adjusted R Square =0.557 | Regression | 94.090 | 4 | 23.522 | 74.316 | .000 ^b |
| | Residual | 72.483 | 229 | .317 | | |
| | Total | 166.573 | 233 | | | |
| a. Dependent Variable: Academic Achievement | | | | | | |
| b. Predictors: (Constant); Performance Accomplishment, Vicarious Experience, Verbal Persuasion, Physiological & Emotional State | | | | | | |

Source: Survey data

Table 5*Coefficient*

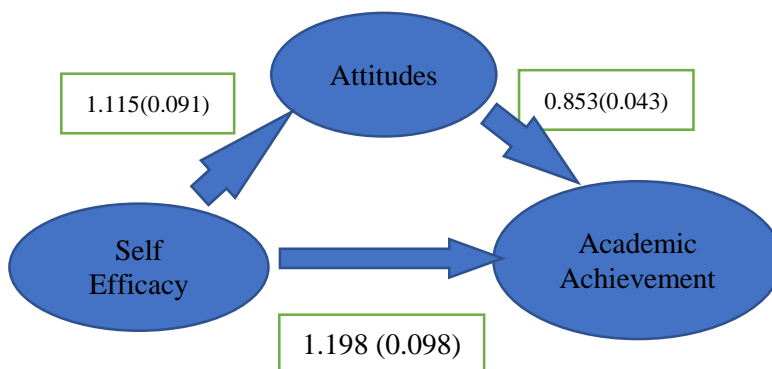
| Coefficients | | | | | | |
|---|---------------------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .740 | .324 | | 2.286 | .023 |
| | Performance Accomplishment | .493 | .078 | .416 | 6.295 | .000 |
| | Vicarious Experience | .055 | .083 | .051 | .658 | .511 |
| | Verbal Persuasion | .370 | .095 | .313 | 3.905 | .000 |
| | Physiological & Emotional State | -.064 | .049 | -.066 | -1.317 | .189 |
| a. Dependent Variable: Academic Achievement | | | | | | |

Source: Survey data

Table 6*Regression analysis between self-efficacy and attitudes*

| ANOVA ^a | | | | | | |
|--|------------|----------------|-----|-------------|---------|-------------------|
| Regression Model | | Sum of Squares | df | Mean Square | F | Sig. |
| R = 0.626 R Square = 0.392 Adjusted R Square = 0.390 | Regression | 56.312 | 1 | 56.312 | 149.731 | .000 ^b |
| | Residual | 87.252 | 232 | .376 | | |
| | Total | 143.565 | 233 | | | |
| a. Dependent Variable: Attitudes | | | | | | |
| b. Predictors: (Constant), Self-efficacy | | | | | | |

Source: Survey data

Figure 2*Sobel test*

Source: Survey data

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