Academic Self Efficacy as a Predictor of Academic Achievement of Students in Pre Service Teacher Training Programs

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Abstract

The study was designed to examine relationship between academic self-efficacy and academic achievement of students in pre service teacher training programs. The study also aimed to explore difference in the self efficacy level of students enrolled in regular and self-supporting degree programs. The sample of the study consisted of 135 students enrolled in two teacher training programs in the Department of Elementary Education, Institute of Education and research, Punjab University. Survey method was used for data collection. Results revealed a significant positive correlation between academic self-efficacy and academic achievement of the students. Students enrolled in regular degree program had higher level of academic self-efficacy than students enrolled in self-supporting programs. The study revealed that over estimation of one's capabilities may deteriorate the level of performance.

Keywords: Academic Self-efficacy, Academic achievement, Pre service teacher training, Self-supporting programs.

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Introduction

University students are required to be involved actively in their learning process and take independent responsibility of their learning. They have to set some goals and make effort to achieve these goals. The most important goal of a student is good academic performance which may be influenced by various factors. One of these factors may be their belief of being successful in getting good grades. An individual's belief about being successful on a particular task or achieving a goal may influence the performance on that task. Bandura (1997) named this belief as self-efficacy. Self-efficacy is also defined in terms of confidence in individual's ability which influences task performance (Köseoğlu, 2015).

One cannot master everything, individuals have different areas in which they cultivate their self-efficacy, therefore, "the efficacy belief system is not a global trait but a differentiated set of self-beliefs linked to distinct realms of functioning" (Bandura, 2006, p.307). As university students' area of functioning is related to their academic tasks, their efficacy beliefs may be referred to as academic self-efficacy. Academic Self-Efficacy may be defined as one's belief to achieve desired level of performance in academic tasks (Sharma & Nasa, 2014). Ayiku (2005) defined academic self-efficacy as a "construct where a student's intellectual performance is based on the development of cognitive skill and his or her perceived self-efficacy" (p.21). Students can develop academic self-efficacy through improvement in cognitive skills that requires applying learned skills in one area to another area.

Bandura (1997) asserted that a student's success in accomplishing a task is strongly affected by the belief in his or her ability to accomplish the task. According to Bandura (1994) self-efficacy develops through four main sources.

1. *Mastery Experience*: Individuals develop a strong belief in their personal efficacy when they are successful, while failure weakens this belief.
2. *Vicarious Experience:* The vicarious experiences provided by social models strengthen self-beliefs of efficacy. When individuals observe someone similar succeeding through sustained effort, their beliefs raise that they also can succeed. Similarly, others' failure lowers observers' self-efficacy.
3. *Social Persuasion:* When Individuals are verbally persuaded that they can achieve given goals, they are likely to do sustained effort. On the other hand, self-doubts and thinking about personal deficiencies lowers effort level.
4. *Moods:* Emotional states of people influence the estimate of their potential. Optimistic mood increases perceived self-efficacy, pessimistic mood reduces it.

Generally, students avoid such tasks which they do not believe to accomplish successfully, however, students willingly accept difficult tasks in areas where they have high levels of personal self-efficacy (Satici & Can, 2016).

Research shows that self-efficacy is related to various academic and learning tasks. Cheng and Chiou (2010) found positive correlation between self-efficacy and test performance of accounting students. Klassen (2010) found that self-efficacy for self-regulatory learning made significant contribution to end of the term English grades in adolescents. Michaelides (2008) reviewed various research studies which found relationship between efficacy beliefs and performance in mathematics. Webb-Williams (2006) found a positive correlation between self-efficacy and science performance of primary school children.

Doménech-Betoret, Abellán-Roselló, and Gómez-Artiga, (2017) concluded that some motivational factors mediate in the relationship of self-efficacy and academic achievement. Honicke and Broadbent (2016) reviewed research studies on the relationship of academic self-efficacy and academic achievement over 12 years. They concluded that academic self-efficacy moderately correlates with academic achievement and some other factors play role of mediators in this relationship. Köseoğlu (2015) found that academic self-efficacy significantly predicted academic performance. Dogan (2015) also came to the similar findings.

Zajacova, Lynch, and Espenshade (2005) studied effect of self-efficacy and stress on academic success and concluded that self-efficacy had a positive effect on academic performance and it was the single predictor of academic success. Mooi (2007) explored that the self-efficacy measures were significantly related to examination performance, however, students who underestimated their examination marks showed better performance than those who expected high grades. This result was explained in terms of more effort put by the students who expected low grades. Christensen, Barnes, and Rees (2002) also found that students having lower self-efficacy scores, had higher final examination scores and the final course grade. They concluded that when students expect low outcomes, they try to improve their performance, and when expectations are above outcomes, their subsequent performance declines.

The above review of literature leads to the idea that self-efficacy is an important construct that can influence an individual's performance in a particular area. As students generally have to deal with academic problems, their academic self-efficacy may influence their academic performance. Academic self-efficacy may include such cognitive perceptions as a belief in one's capabilities to achieve various academic goals, confidence in task performance and visualization of success. These perceptions help students enhance their effort to perform academic tasks successfully and positively influence students' performance.

On the basis of this theoretical framework, this study was conceptualized to examine the effect of academic self-efficacy on academic performance of students in pre service teacher training programs. Institute of Education and Research is a pioneer institution that offers various teacher training degree programs in Pakistan. Every year hundreds of students apply for admission in this institution. It is difficult for the institution to cater such a large number of students in regular degree programs. In order to provide opportunity for more students to get admission in various degree programs, the institute offers self-supporting programs for students who cannot attend regular classes in morning or fail to get admission in regular classes as per merit criteria. As the merit for admission in regular classes is generally higher than that for self-supporting classes, it may be postulated that self-beliefs of regular students in their capabilities of performing academic tasks may be different from those of self-supporting students.

Research Objectives

In the light of research literature, this study posits that academic self-efficacy positively affects academic performance of university students. The study aimed to:

1. explore the relationship between academic self-efficacy and academic achievement;
2. compare the academic performance of students with different levels of self-efficacy.
3. compare the level of academic self-efficacy of students in regular and self-supporting programs; and
4. find out the variance accounted for by academic self-efficacy in academic achievement.

Research Methodology

This study was correlational and descriptive in nature for which data were collected through survey method. Correlational and differential statistics were applied for data analysis.

Sample

The sample consisted of 135 students studying in the Department of Elementary Education, Institute of Education and Research, University of the Punjab. Four classes were conveniently selected. Two classes included first year students of regular degree programs of MA Elementary Education and MA Early Childhood Education. And the other two classes were first year students in self-supporting programs of same degrees. The number of students in regular classes was 65 and self-supporting classes 60.

Instrument

The instrument used for the study was Academic Self Efficacy Scale adapted from Sander and Sanders (n.d.). The scale consisted of 25 items that were statements about various academic behaviors. For example, understanding what I listen in class lecture, getting good grades in exams, etc. The responses were given on five point Likert scale ranging from very confident to not at all confident in a given academic behavior.

Data Collection

Data were collected from the students in their classes. The instrument was distributed in the class and instructions were given about how to give responses to the statements. The instrument took 10 to 15 minutes to be completed. Students reported the grades which they expected in their midterm exams, however, their actual grades were taken from their academic records. The data were analyzed using SPSS-17.

Results

Reliability of the academic self-efficacy scale was determined by Cronbach alpha. The value of Cronbach alpha (.95) indicated high internal consistency of the instrument (Table 1).

Table 1

Reliability Statistics

Cronbach's Alpha	N of Items
.949	25

Table 2

Coefficients of Correlation of Academic Self-esteem with Academic Achievement

	GPA (Mid)	GPA (Expected)	Academic Self-efficacy
GPA (Mid)	-		
GPA (Expected)	.41**		
Academic Self-efficacy	.34**	.56**	-

**p<.01

Correlation analysis revealed a significant correlation among self-efficacy, expected GPA and actual GPA in the midterm examination (Table 2). Self-efficacy was significantly correlated with expected GPA (r = .56, p< .01) and actual GPA (r= .34, p< .01) in midterm exams. Expected GPA was also correlated actual GPA (r = .41, p< .01).

Table 3

ANOVA among Mean GPA of Students with Low, Medium and High Level of Self Efficacy

| Variable | ASE | | | df | F |
	Low 30	Medium 81	High 24		
GPA	2.99_a (0.29)	3.31_b (0.50)	3.19_{ab} (0.30)	2, 132	3.68^*

Note. Standard deviations appear in parentheses below means. Means with differing subscripts are significantly different at .05 level based on Tukey HSD post hoc paired comparisons. $^*p < .05$

A one-way ANOVA test was applied to compare the mean GPA of students with low, medium and high level of self-efficacy.

Students with self-efficacy score one standard deviation below mean were considered to have low level of self-efficacy while those with score one SD higher than mean were considered to have high level of self-efficacy. All others were considered to have medium level of self-efficacy. A subsequent test (Tukey HSD) was conducted to evaluate pair-wise differences among mean GPA of these three groups.

The ANOVA test was significant for the three groups ($F(2, 132)= 3.68$, p< .05), however, the subsequent test for pair-wise comparison revealed significant difference in mean GPA of only two groups having low and medium level of self-efficacy (Table 3). The mean GPA of students with high level self-efficacy did not significantly differ from mean GPA of other two groups. The group of medium self-efficacy showed better results than both low and high groups.

Table 4

Regression Analysis for Academic Self Efficacy Predicting Expected GPA of Students

Criterion	Predictors	R	R^2	Adjusted R^2	Std. Error of the Estimate	F
Expected GPA	ASE	.56	.31	.30	2. 99	32.94^{**}

$^{**}p< .01$

Regression analysis was used to find out the predictability of academic self-efficacy for expected and actual GPA in midterm exams. Standard regression analysis (Table 4) revealed that self-efficacy significantly correlated with expected GPA (R = .56) and explained 31% variance in expected GPA ($R^2 = .31$, $F (1, 133) = 32 .94$, $p< .01$).

Table 5

Regression Analysis for Academic Self Efficacy Predicting Actual GPA of Students

Criterion	Predictors	R	R^2	Adjusted R^2	Std. Error of the Estimate	F
Actual GPA	ASE	.34	.12	.11	3.11	9.62^{**}

$^{**}p< .01$

Regression analysis was also revealed the predictability of academic self-efficacy for actual GPA in the midterm exams (Table 5). Academic self-efficacy was significantly correlated with actual GPA (R=.34) and explained 12% variance (R^2=.12, $F(1, 133)$=9.62, $p<$ .01) in actual GPA.

These results show that academic self-efficacy is a significant predictor of academic achievement and the performance of a student in academic matters can be predicted on the basis of student's academic self-efficacy.

Table 6
Comparison of Mean Scores of Regular and Self-Supporting Students on Academic Self-Efficacy

Variables	Program	N	Mean	Standard Deviation	Standard Error Mean	t-values
ASE	Regular	65	94.89	14.76	2.42	8.27[**]
	Self-Supporting	60	64.34	17.10	2.77	

[**]$p<$ .01

The significance of the difference in the mean scores of students in regular and self-supporting programs on academic self-efficacy scale was examined through *t*-test (Table 6).

There was a significant difference in the mean of academic self-efficacy scores of students in regular and self-supporting programs. The mean score of regular students on academic self-efficacy was significantly higher than that of students in self-supporting program which shows that students in regular program had better level of academic self-efficacy than the students in self-supporting programs.

Discussion

The result of this study indicated the significance of academic self-efficacy in predicting academic achievement of university students. Analysis of data revealed a positive correlation between academic self-efficacy and academic achievement of students in pre service teacher training programs. This result is in line with previous research studies, for example, Köseoğlu (2015), Dogan (2015) Sharma (2014), Cheng and Chiou (2010), Klassen (2010), Michaelides (2008), Webb-Williams (2006), etc.

Academic self-efficacy was found to be a significant predictor of expected GPA as well as actual GPA of students in midterm exams. The result is comparable to the study of Zajacova, Lynch, & Espenshade, (2005) who found self-efficacy as the single predictor of academic success. The students with strong beliefs in their capabilities expected higher grades in midterm exams and got relatively higher actual grades.

The comparison of three levels of self-efficacy revealed that only significant difference in actual GPA was between students with low and medium self-efficacy scores. The mean GPA of students with high self-efficacy was higher than that of students with low level of self-efficacy and lower than Mean GPA of students with medium self-efficacy. However, these differences were not statistically significant. These results correspond to the study of Mooi (2007) Christensen, Barnes and Rees (2002) who concluded that students who are doubtful about their capabilities felt greater need to increase their effort for improving performance as a result showed better performance. On the other hand students, who overestimated their capabilities, did not need to put enough effort resulting in relatively low performance.

A significant difference between academic efficacy scores of regular and self-supporting students shows that regular students had stronger beliefs in their academic capabilities than did self-supporting students. The difference may be due to previous academic records of both groups. This notion may be supported by the study of Sander and Sanders (n.d.) who found that Students' academic confidence is affected by their academic performance.

Conclusion and Recommendations

It is concluded from the study that academic self-efficacy positively affects academic performance, however, over estimation of one's capabilities may deteriorate effort level resulting in lower than expected performance. It is also concluded that students' previous achievements may affect their self-efficacy beliefs which in turn affect their future performance.

According to Becher (2009) self-efficacy beliefs may be developed in students through training and guidance. Therefore, it is recommended for institutions of higher education that such counseling and training programs may be offered for students that can be helpful in developing positive self-beliefs in students. Further research may be conducted to find out other academic and non-academic factors that can influence self-efficacy development and how these factors mediate the effects of self-efficacy on academic achievement.

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