

Academic Self-Esteem, Academic Self-Efficacy and Academic Achievement: A Path Analysis

Soheila Ahmadi*

Department of Educational Sciences, Urmia University, Iran

ABSTRACT

As academic achievement serves as a basis on which education decisions concerning students are made, knowledge of factors influencing the academic achievement is completely necessary. This study aimed to investigate the relationship between elements of academic self-esteem with academic achievement through academic self-efficacy. The target population of this research covered all second-cycle high school students in Urmia. Using stratified random sampling, a sample size of 365 people was achieved. Data was gathered using standard questionnaires of academic self-esteem (BASE) and the College Academic Self-Efficacy Scale (CASES). For evaluating the correlation of latent and observed variables in the conceptual pattern, path analysis was used. Findings of the path analysis showed that all elements of academic self-esteem except success/failure were associated directly with the academic self-efficacy of students. Moreover, all elements of academic self-esteem except success/failure were related indirectly to academic achievement through academic self-efficacy. Based on these findings, understanding relations among academic self-esteem, academic self-efficacy and academic achievement may provide additional information regarding planning interventions to improve the academic achievement of students.

Keywords: Academic performance; Academic self-esteem; Academic self-efficacy

INTRODUCTION

Academic achievement is the amount of knowledge derived from learning. Academic performance depends on a number of factors like students' attitudes, interests, personality characteristics and social class in addition to learning [1]. It has been argued that certain psychological factors like academic self-esteem and academic self-efficacy play major roles in determining the academic achievement of students [2]. These two variables are directly interrelated to each other; it is hypothesized that if one increases then it leads to an increase in the other variable.

Academic self-esteem is an individual understands of his or her own academic abilities and the perception of others about this understanding. It is a general belief that academic self-esteem contributes to the efforts of a child to take more initiative which in turn enhances one's achievement in different areas, especially in educational pursuit. Low self-esteem is often cited as the ultimate source of poor academic achievement and self-destructive behavior [3]. Branden claims that all problems, except those that have a biological origin, are related to self-esteem. Andres believes that children fail at school and why learning blocks hinder achievement

seem to have the same root of the problems: low self-esteem [4,5]. If a person has low self-esteem, it leads to an affective unbalance and therefore produces negative effects in academic performance [6].

Bandura describes self-efficacy as a person's evaluation of his or her ability or competency to perform a task, reach a goal, or overcome an obstacle. Self-efficacy can have different meanings in different contexts [7]. Thus, it is important to use "academic" self-efficacy instead of "generalized" self-efficacy in an academic setting. Academic self-efficacy refers to students' perceived capability to manage their own learning behavior, to master academic material, and to fulfill academic expectations [8]. Academic self-efficacy is the extent to which students believe that they will be able to succeed in school and it has been identified as a positive predictor of academic performance within different disciplines; English, mathematics; chemistry; and anatomy and physiology. Pajares stated that self-efficacy is a strong predictor of college student performance [9-14]. Some studies show that while the students have low academic self-efficacy are less likely to seek help, those with high levels of self-efficacy are more likely to seek help and persist [15].

Many studies have focused on academic achievement and tied

Correspondence to: Soheila Ahmadi, Department of Educational Sciences, Urmia University, Iran, Tel: +009613330856, E-mail: soheilaahmadi.mn75@yahoo.com, s.ahmadi2000@yahoo.com

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to determine its antecedents. Colquhoun and Bourne sought to examine how school factors such as school environment, teachers, peers, co-curricular activities as well as demographic factors such as age, gender, and family background influence academic performance and self-esteem. The results showed that there is a positive correlation between self-esteem and academic performance [16]. Aregu examined the effects of self-efficacy, self-esteem and gender on performances in speaking tasks among first-year university students. The results revealed that speaking self-esteem and speaking efficacy have great effects on performance in speaking tasks [17]. In another study, the researchers investigated the relation between explicit academic self-concepts, implicit self-esteem, and achievement for minority and majority elementary school students. They reported that children's actual achievement was related to their self-esteem in younger students. Khan et al. studied the relationship between self-esteem of secondary school students with their academic achievement [18,19]. They found out that there was significant correlation between the self-esteem and academic achievements of only male students. Yang et al. investigated relations among academic achievement, self-esteem, and subjective well-being among 807 elementary school students in China at 3 time points across 18 months [20]. The results showed significant bidirectional relations between self-esteem and subjective well-being in school.

Although many studies are carried out to explore factors affecting students' academic achievement, research on academic self-esteem is still limited. Unfortunately, academic self-esteem is still an unfamiliar concept in Iran and there is a lack of research in Iran on linking this variable with other educational outcomes. As far as we know, no previous research has investigated it; therefore, this research was designed to fill these gaps. According to the above theoretical framework (Figure 1), the objectives of the present study are as follows:

- To investigate if elements of academic self-esteem had

significant relationships with students' academic self-efficacy.

- To investigate if elements of academic self-esteem are associated with students' academic performance through academic self-efficacy.

RESEARCH METHODOLOGY

The target population was all high school students in Urmia in the academic year 2018-2019 (total 25000). To obtain the study sample, we first identified three branches (strata): humanities, math, experimental sciences; and then respondents (365) were selected by taking samples randomly from each stratum according to true proportion in the population. Academic Performance – For the purpose of this study, final GPA of students was collected from the schools' official records. The data were collected by using the following questionnaires:

Academic self-efficacy

It refers to the extent, or confidence, to which students believe that they will be able to succeed in school [7]. The study used the College Academic Self-Efficacy Scale (CASES), created by Owen and Froman [21]. It measures self-efficacy in 33 academic behaviors while completing routine and frequent tasks. CASES is designed to measure student's confidence in their ability to complete the list of behaviors associated with college success. A five-point Likert-type scale measures degrees of confidence ranging from quite a lot (5 points) to very little (1 point). Higher scores indicate higher college academic self-efficacy. Since its development in the late 1980s, the CASES instrument has frequently been used as a measure of academic self-efficacy and is considered a quantitatively reliable and valid measure of academic self-efficacy [22]; therefore, it is valid for the purpose of assessing the academic self-efficacy of the students in this study. The Cronbach alpha coefficient of the reliability of the whole scale was determined as ($\alpha=0.846$).

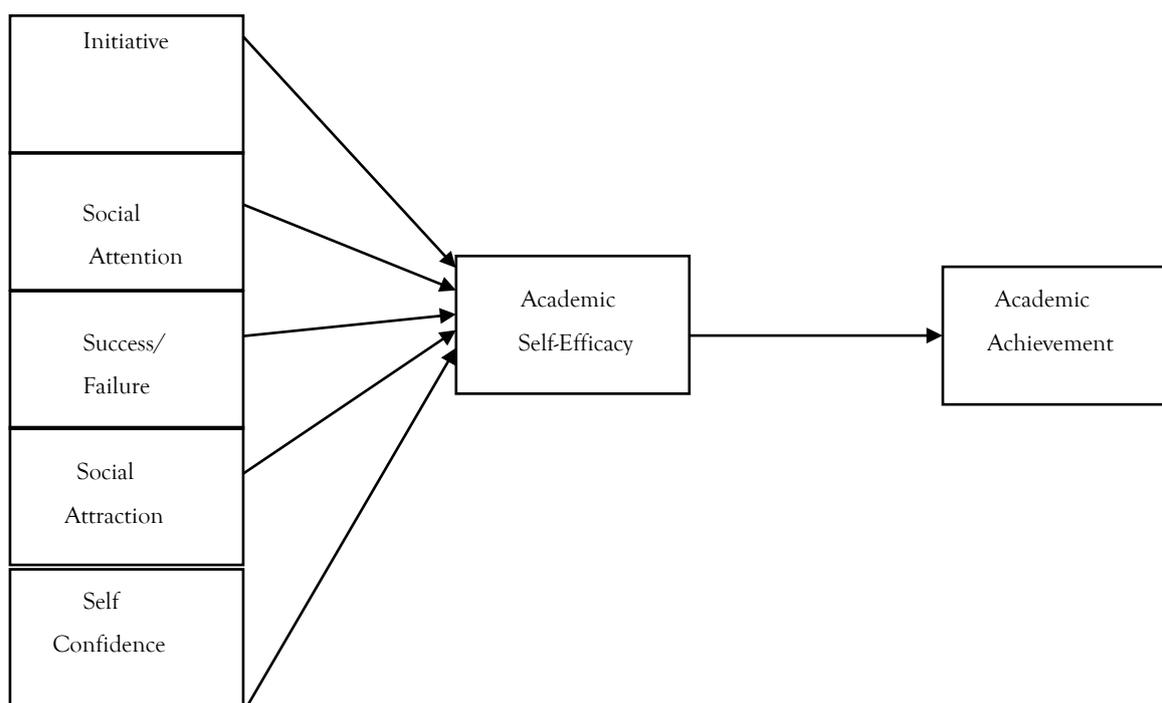


Figure 1: Hypothesized model.

Academic self-esteem

Academic self-esteem scale was developed based on the 16-item scale (BASE) originally developed to assess students' academic self-esteem or perception of self-competence in the academic domain. This instrument was translated into Persian by the researchers and has been used for the first time in Iran. To ensure the equivalence of the measures in the Persian and English versions, the scale was translated into Persian and then translated back into English by two translators. Then the original scale was compared with the translations and necessary changes were made. BASE was founded on Coopersmith's theory and research [23]. BASE has been used with children of preschool, elementary, and junior high school classes, both individually and in groups. The instrument addresses five factors found most revealing of children's self-esteem as seen in their academic performance, and identifies low-self-esteem students by using the total BASE score. Five BASE factor structure questions involved are: Student Initiative, Social Attention, Success/Failure, Social Attraction, and Self Confidence. Each item deals with separate behaviours. Agreement with each item was rated on a 5-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree). We used a pilot study to test the feasibility of scale and the Cronbach alpha coefficient of the reliability of the scale was determined as ($\alpha = .705$). Moreover, the confirmatory factor analysis was used to test whether the data fit a hypothesized measurement model. The results are reported in Table 1 and Table 2. As Table 1 shows, the entire factor loadings (λ) were significant ($p < 0.001$), ranging from 0.465 to 0.686 and fitness indices showed goodness of fit indices for the scale (Tables 1 and 2).

RESULTS

Table 3 represents the descriptive statistics of each of the research

variables. Correlations among study variables are reported in Table 4. As depicted in Table 4, all variables are correlated and the highest correlation coefficient is between social attention and initiative ($r=0.591$). The research question was addressed by path analysis. Table 5 shows that all the standardized path coefficients were significant, with exceptions of 2 paths: success/failure to academic self-efficacy, and success/failure to academic performance. The three largest values of relationships were observed between initiative and academic performance ($\beta=0.473$), social attraction and academic performance ($\beta=0.482$) and social attraction and academic performance ($\beta=0.350$). Figure 2 shows the tested model of the research.

The hypothesized model was tested, and the results indicated a good fit of the model to the data ($\chi^2/df=1.604$, AGFI=0.965, GFI=0.995, RMSEA=0.041). The results of the tested model are shown in Table 6 (Figure 2).

DISCUSSION

This study aimed to investigate the impact of academic self-esteem on academic achievement through academic self-efficacy. The results revealed that all elements of academic self-esteem except success/failure are related to academic performance through academic self-efficacy. These findings are consistent with the findings of previous studies. For example, the results of a study revealed that students who dropped out of the courses had lower self-esteem than either the students who satisfactorily completed them or similarly qualified students who did not take the courses [24]. And in a study Harris [25] found out that respondents with high cumulative and engineering GPA's were found to have higher levels of self-esteem.

Table 1: Confirmatory factor analysis for academic self-esteem scale.

Items	Factor Load	Cronbach's alpha
Academic self- esteem		0.870
Initiative		
Question 1	.49	0.79
Question 2	.514	
Question 3	.585	
Question 4	.452	
Question 5	.516	
Question 6	.487	
Social attention		
Question 7	.469	0.717
Question 8	.640	
Question 9	.609	
Success/failure		
Question 10	.459	0.716
Question 11	.483	
Social attraction		
Question 12	.643	0.74
Question 13	.465	
Question 14	.567	
Self confidence		
Question 15	.598	0.77
Question 16	.686	

Table 2: Fitness indices of academic self-esteem scale.

Indices	GFI	CFI	AGFI	RMSEA	X ² /df
	0.928	0.917	0.905	0.060	2.3

Table 3: Descriptive statistics.

Variables	Mean	SD	Minimum	Maximum
Student Initiative	3.35	0.55	1	5
Social Attention	3.58	0.68	1	5
Success/Failure	2.97	0.76	1	5
Social Attraction	3.25	0.75	1	5
Self Confidence	3.62	0.78	1	5
Academic self-efficacy	3.25	0.75	1	5
GPA	16	1.17	10	20

Table 4: Intercorrelations among study variables.

Variables	1	2	3	4	5	6	7
1. GPA	1	.451**	.451**	.238**	.401**	.378**	.487**
2. Student Initiative	.451**	1	.591**	.462**	.538**	.556**	.642**
3. Social Attention	.451**	.591**	1	.379**	.462**	.580**	.550**
4. Success/Failure	.238**	.462**	.379**	1	.351**	.465**	.421**
5. Social Attraction	.401**	.538**	.462**	.351**	1	.497**	.549**
6. Self Confidence	.378**	.556**	.580**	.465**	.491**	1	.572**
7. Academic self-efficacy	.487**	.642**	.554**	.421**	.549**	.572**	1

Table 5: Direct, indirect and total effect.

Path	Direct effect	Indirect effect	Total effect
Student Initiative → Academic self-efficacy	.31***	-	.31***
Social Attention → Academic self-efficacy	.18***	-	.18***
Success/Failure → Academic self-efficacy	.04	-	.04
Social Attraction → Academic self-efficacy	.20***	-	.20***
Self Confidence → Academic self-efficacy	.16***	-	.16***
Student Initiative → GPA	-	.473***	.473***
Social Attention → GPA	-	.221***	.221***
Success/Failure → GPA	-	.049	.049
Social Attraction → GPA	-	.228***	.228***
Self Confidence → GPA	-	.177***	.177***
Academic self-efficacy → GPA	.72***	-	.72***

Note: p<0.001***

Table 6: Fitness Indices of hypothesized model.

Indices	GFI	CFI	AGFI	RMSEA	X ² /df
	0.995	0.998	0.965	0.041	1.604

The effect of academic self-efficacy on academic achievement is well documented in the literature [26-29]. Academic self-efficacy has been reported to promote academic achievement directly and also indirectly by increasing academic aspirations and prosocial behavior [30]. The results of a meta-analysis showed that self-efficacy was related to academic performance [31]. Many researchers have reported a direct positive relationship between academic self-efficacy and academic achievement e.g., [28,30,32,33]. For example, Greene et al. [32] tested a model explaining the impact of 220 high school students' perceptions of classroom structures on their academic self-efficacy, instrumentality, and academic achievement. They found out that self-efficacy had a direct positive

relationship demonstrating the importance of self-efficacy for successful learning. The relationship between academic self-efficacy and academic performance can be understood from the perspective that students with high sense of efficacy have the capacity to accept more challenging tasks, high ability to organize their time, increased persistence in the face of obstacles, show lower anxiety levels, show flexibility in the use of learning strategies and have a high ability to adapt with different educational environments [33].

IMPLICATIONS

Educational achievement refers to educational or academic

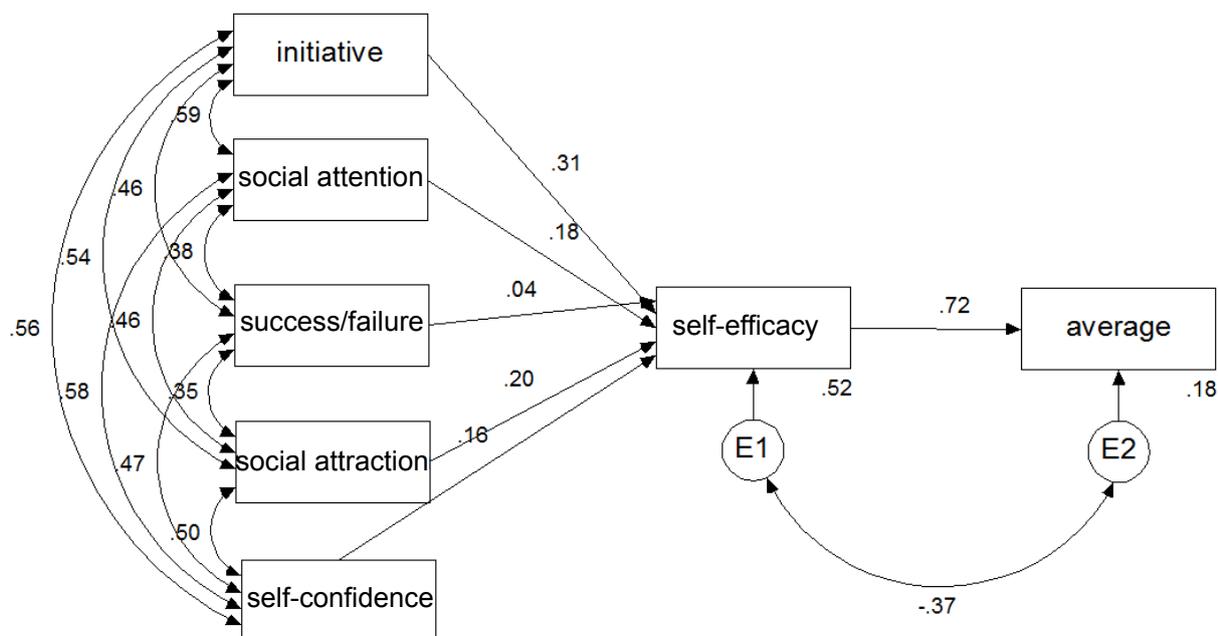


Figure 2: Research tested model.

performance as a specified level of attainment or proficiency in academic work as evaluated by teachers by standardized tests or teacher-made tests or by combination of both. By examining the selected variables, academic self-efficacy, and academic self-esteem of the students who participated in the research, we attempted to gain valuable insight into the relationship that exists between these variables and the academic success of high school students.

As one of the possible ways to enhance academic achievement is through improving its influential factors and academic self-esteem and academic self-efficacy emerged as predictors of this variable in this study, it's necessary to identify the ways to improve these influential factors. Coopersmith [23] suggested four major factors which are important in the development of self-esteem: the treatment and acceptance received from significant others in life, a person's past successes, the values and aspirations which modify and interpret a person's experiences, how a person responds to devaluation. Wachelka and Katz [34] stated that "high test anxiety is associated with low self-esteem, poor reading and math achievement, failing grades, disruptive classroom behavior, negative attitudes towards school, and an intense fear of failure." Reducing students' anxiety around taking exams may improve their self-esteem and address some of these problems. They recommended some programs to give students confidence by teaching them study and test-taking skills - as well as how to relax, develop a positive attitude, and overcome anxiety through techniques such as visualization [34].

Academic self-efficacy has been defined "as personal judgments of one's capabilities to organize and execute courses of action to attain designated types of educational performances" [33]. It has been argued that academic self-efficacy can be a good predictor of more general or aggregated academic achievement [35]. Teachers can do these activities to strengthen struggling learners' self-efficacy:

- (1) Plan moderately challenging tasks;
- (2) Use peer models;
- (3) Teach specific learning strategies;

(4) Capitalize on student choice and interest; and

(5) Reinforce effort and correct strategy use [36]. Schunk believes the teachers can enhance perceptions of efficacy in their students through training them to make use of a variety of learning strategies such as goal - setting, strategy training, modelling and feedback [37].

CONCLUSION

Findings of the path analysis showed that all elements of academic self-esteem except success/failure were associated directly with the academic self-efficacy of students. Moreover, all elements of academic self-esteem except success/failure were related indirectly to academic achievement through academic self-efficacy. Based on these findings, understanding relations among academic self-esteem, academic self-efficacy and academic achievement may provide additional information regarding planning interventions to improve the academic achievement of students.

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