Original Article

The Relationship between Self-Regulated Learning Strategies, Motivational Learning Strategies, Procrastination and Academic Performance among the First Grade of High School Male Students in Boushehr

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ABSTRACT

The purpose of this study is to investigate the simple and the multiple relationships between self-regulated learning strategies and motivational learning strategies, and procrastination and academic performance among the male first grade high school students in Boushehr. The participants are 300 (n=300) male first-graders, collected by random sampling method from all of the high schools in Boushehr during 1387-1388 year. The means of this study are: the Self-Regulated Learning Strategies Scale (SLSS) the Motivational Learning Strategies Questionnaire (MLSQ), the Tackman Procrastination Test, the General Self-efficacy Questionnaire (GSE), the Test Anxiety Inventory (TAI), and the Schwarzer, Smiths & Dihols Procrastination Scale. In order to analyse the data, statistical methods of simple correlation coefficient and multivariable regression have been used. According to the regression analysis, among the self-regulated learning strategies, which are the predictors of academic performance, only the self-consequence strategy is a predictor of academic performance. In addition among the self-regulated learning strategies which are the predictors of procrastination, the learning strategies of note review, self-evaluation, self-consequence and textbook review are efficient respectively. Moreover among the motivational learning strategies, which are the predictors of academic performance, the motivational strategies of self-efficacy intrinsic values, and test anxiety are efficient respectively. Also, among the motivational learning strategies the variables which are the predictors of procrastination, motivational strategies of intrinsic values, test anxiety, self-regulation and self-efficacy are the efficient ones respectively.

Keywords: Self-Regulated Learning Strategies, Motivational Learning Strategies, Procrastination and Academic Performance

INTRODUCTION

Since the beginning of the 20th century, psychologists started to present a variety of learning theories. In fact, this era is the epoch of prosperity and change of learning theories. Generally before 1950s it was believed that learning is the result of external motivations. But since 1950s investigators faced a challenge and started to do a series of studies that proved our learning and skills are more influenced by internal motivations. Social learning theory is one of these theories, and Albert Bandura is one of these theorists who have presented the so-called self-regulated learning in which learners have personal control over the process of learning.

Certain experts believe that self-regulated learners are more qualified to live in the rapidly changing future society. Self-regulated learning strategies as a modern learning theory, enable us to adopt our science and knowledge in real life, because of this learners are trained to form the basis of their knowledge independently [1].

In recent years many of investigators have shown interest in developing the theory of self-regulated learning. Also, by developing practical studies, investigation of factors and components connected to self-regulated learning has become a scientific activity. The results show that it is possible to help development of

these components among students. This study intends to investigate the relationship between self-regulated learning strategies (self-evaluation, organizing and transforming, goal setting and planning , seeking information ,keeping records and monitoring environmental structuring , self-consequence, rehearsing and memorizing, seeking peer assistance, seeking teacher assistance, seeking adult assistance, note review , test and homework review, textbook review) and motivational components (self-efficacy, intrinsic values, test anxiety, cognitive strategy and self-regulation strategy), and procrastination and academic performance of the male first-graders in Boushehr high schools during 2008-2009 year.

Studied self-efficacy and test anxiety, as correlatives of academic performance, among 249 university students in the east of Nigeria. The results provided a meaningful positive correlation between self-efficacy and academic performance, and a meaningful negative correlation between test anxiety and academic performance [2]. According to this high level of correlation, Onyezugbo thought that the high range of cheating in exams in Nigeria can be connected to the poor assessment of educational capability of students.

Studied the correlation between physics laboratory grades of a semester and motivational beliefs and learning strategies. The result showed a remarkable correlation between self-efficacy, intrinsic and extrinsic motivation, valuation of task, and physics laboratory grades of a semester. Moreover, elaboration learning strategy and final scores were correlated [3].

Studied general procrastination, academic motivation and academic self-efficacy as the predictors of academic procrastination among students of different subjects (physical education and sports) [4]. The participants were 774 students of physical education and Sports College in Selcuk, Samsun and Nigde universities in Turkey. The result showed that there are meaningful positive relationships between general procrastination and academic procrastination, although the relationship between academic procrastination and academic motivation and academic self-efficacy was not meaningful. Also, general procrastination was a meaningful predictor of academic procrastination.

On the other hand, Spinath et al. [5] have investigated the degree that motivation affects the prediction of school achievement among pupils a part from their general mental ability. The participants were 1678 nine-year-old pupils in Kingdom State who participated in twin's primary growth study. According to the results, general mental ability was the best predictor. Although in mathematics, and English both perception of self-ability and intrinsic valuation of pupils were better predictors than general mental ability perception of self-ability was a better predictor than intrinsic valuation [5].

Seyis et al. [6] investigated the relationship between emotional intelligence and self-efficacy beliefs and school achievement. The participants were 407 high school students (236 females and 171 males). This study proved that age, sex, and self-efficacy were meaningful predictors of school achievement. On the other hand, Klassen et al. [7] studied the relationship between academic procrastination, self-regulation, academic self-efficacy, self-esteem, and the self-efficacy as it is related to self-regulation among 456 university students. The results showed that although there is a relationship between other self-related variables and procrastination, the self-efficacy as it is related to self-regulation is the best predictor of tendency to procrastination [7].

MATERIALS AND METHODS

This study intends to investigate the prediction-based correlation. This study is planned to study the simple and the multiple relationships between self-regulated learning strategies, motivational learning strategies, procrastination and academic performance among the first-graders in high school.

Population, sample and sampling method

In this study population includes all of the male first grade students in Boushehr high schools during 1387-1388 year. To gather the participants of this study, 300 students were selected by stepwise random sampling.

Self-Regulated Learning Strategies Scale (SRLS).

Zimmerman and Martinez-Pons prepared this scale in 1988. It has 27 items. The first 24 items. Are related to the fourteen self-regulated learning strategies and each person's total score is obtained by adding up these 24 items. These fourteen strategies are: (self-evaluation organization and transforming , goal setting and planning, seeking information ,keeping records and monitoring ,environmental structuring ,self-consequence, rehearsing and memorizing, seeking peer assistance, seeking teacher assistance, seeking adult assistance, note review, test and homework review, textbook review) and motivational components are self-efficacy, intrinsic values, test anxiety, self-regulation and cognitive strategy.

Using Cornbrash's Alpha method calculated the reliability coefficient of this scale as 0.71[8]. Also, in this study using Cornbrash's Alpha method, reliability coefficient of this study was calculated as 0.78. Moreover, in this study the general self-efficacy (GSE) as used to investigate the validity of this scale. The correlation coefficient between self-regulated learning strategies and general self-efficacy questionnaire is calculated as 0.266 ($r=0.266$) when significance level is 0.001 ($p=0.001$).

Motivational Learning Strategies Questionnaire (MSLQ) This questionnaire was used to investigate the motivational degree of learning and cognitive strategies of students.

Different items have been adjusted and then proposed by Eccles [9]. Harter [10] and [11] this scale has 44 items and 5 minor scale. These minor scales are: self-efficacy, intrinsic values and test anxiety which are

motivational components, and self-regulation and cognitive strategies, which are self-regulated learning strategies. Using Cronbach's Alpha method, Eccles [9]. And Bandura and Schunk [10] reported that the reliability of self-efficacy was 0.89. Also, using Cronbach's Alpha method Eccles [9] and [11] reported that the reliability of intrinsic values was 0.87. In this study, Using Cronbach's Alpha method, the reliability coefficient was 0.86.

In order to investigate the validity of this questionnaire, the general self-efficacy questionnaire (GSE) and the test anxiety inventory (TAI) were used. The correlation coefficient between self-efficacy strategy and general self-efficacy questionnaire was 0.372 (r=0.372). Also, the correlation coefficient between test anxiety strategy and test anxiety inventory (TAI) was 0.629 (r= 0.62).

Tackman Procrastination Test:

Tackman procrastination test is a paper-and-pencil self-reporting questionnaire which has 16 items. This questionnaire was translated and normalized by Moghadas Bayat and its reliability was calculated as 0.73. In this study, using Cronbach's Alpha method, the reliability coefficient of the questionnaire was reported as 0.68. Also Schwarzer procrastination scale was used to investigate the validity of this questionnaire and the correlation coefficient between these two scales was calculated as 0.520.

RESULTS

Table 1 illustrates average and standard deviation of test cases of research variables.

Table 1. Average and standard deviation of test cases of research variables

Standard deviation	Average	Statistical index strategies
1.89	8.07	Self-evaluation
1.88	8.96	Organizing and transforming
1.52	6.04	Goal setting and planning
1.61	4.59	Seeking information
1.78	4.99	Keeping records and monitoring
1.44	5.36	Environmental structuring
1.52	5.72	Self-consequence
1.62	5.69	Rehearsing and memorizing
1.11	2.40	Seeking teacher assistance
1.11	2.64	Seeking peer assistance
1.09	1.98	Seeking adult assistance
1.05	2.80	Note review
1..01	2.85	Test and homework review
0.98	3.18	Textbook review
10.21	65.32	Total self-regulated
7.22	48.38	Self-efficacy
7.04	51.70	Intrinsic values
6.21	17.22	Test anxiety
9.25	67.62	Cognitive strategies
7.21	42.92	Self-regulation
6.31	34.07	procrastination
1.94	15.52	Academic performance

Table 2 illustrates the simple correlation coefficient between self-regulated learning strategies and motivational learning strategies and academic performance and procrastination.

Since illustrated in table 2, there is a meaningful relationship between goal setting and planning, and self-consequences, which are two minor scales of self-regulated learning strategies, and academic performance. Also, there is a meaningful relationship between total self-regulated learning and academic performance.

On the other hand, the variables of self-evaluation, organizing and transforming, self-consequence rehearsing and memorizing, seeking teacher assistance, note review, test and homework review, textbook review, and total self-regulated learning are meaningfully related to procrastination. In addition, there is a meaningful relationship between all five motivational learning strategies and procrastination and academic performance.

Table 2. The simple correlation coefficient between self-regulated learning strategies and motivational learning strategies, and academic performance and procrastination

procrastination	Academic performance	Criterion variables Self- regulated Learning strategies
R=-0.249 P=0. 001	R=0.118 P=0.041	Total self-regulated learning
R=-0.214 P=0.001	R=0.083 P=0.149	Self-evaluation
R=-0.174 P=0.002	R=0.091 P=0.117	Organizing and transforming
R=-0.093 P=0.106	R=0.117 P=0.043	Goal setting and planning
R=-0.038 P=0.510	R=-0.016 P=0.78	Seeking information
R=-0.042 P=0.468	R=0.009 P=0.88	Keeping records and monitoring
R=-0.043 P=0.454	R=-0.015 P=0.79	Environmental structuring
R=0.212 P=0.001	R=0.165 P=0.004	Self-consequence
R=-0.135 P=0.02	R=0.101 P=0.082	Rehearsing and memorizing
R=-0.165 P=0.004	R=0.045 P=0.436	Seeking teacher assistance
R=-0.016 P=0.78	R=0.077 P=0.181	Seeking peer assistance
R=-0.059 P=0.310	R=-0.004 P=0.94	Seeking adult assistance
R=-0.242 P=0.001	R=0.053 P=0.363	Note review
R=-0.177 P=0.002	R=0.070 P=0.228	Test and homework review
R=-0.227 P=0.001	R=0.058 P=0.316	Textbook review
R=-0.403 P=0.001	R=0.386 P=0.001	Self-efficacy
R=-0.430 P=0.001	R=0.355 P=0.001	Intrinsic values
R=0.285 P=0.001	R=-0.154 P=0.001	Test anxiety
R=-0.337 P=0.001	R=0.268 P=0.001	Cognitive strategies
R=-0.411 P=0.001	R=0.233 P=0.001	Self-regulation

Table 3 illustrates multiple regression analysis of the relationship between self-regulated learning strategies and academic performance, using stepwise method.

Since illustrated in table 3, stepwise regression analysis shows that from learning strategies, as predictive variables of academic performance, only self-consequence strategy is a predictor of academic performance and other strategies are not efficient. Multiple correlation coefficient (MR) and coefficient of determination (RS) of linear combination of predictive variable are 0.165 and 0.027 respectively, and their significance level is p<0.004.

Also, according to table 3 and based on the results of stepwise regression analysis from self-regulated learning strategies, which are predictive variables of procrastination, note review, self-evaluation, self-consequence and textbook review are better predictors of procrastination and other strategies are not efficient predictors of procrastination. Multiple correlation coefficient (MR) and coefficient of determination (RS) of linear combination of predictive variables are 0.354 and 0.125 respectively and their significance level is p <0.0001.

Table 3. Multiple correlation coefficients of self-regulated learning strategies, and academic performance and procrastination, using stepwise method

Dependent variable	Statistical index / Predictive variables	Multiple correlation coefficient MR	Coefficient of determination RS	Ratio F Probability P	Regression coefficient (B)				Absolute value(a)
					1	2	3	4	
Academic performance	1-self-consequence strategy	0.165	0.027	F=8.31 P<0.004	B=0.209 B=0.165 T=2.88 P=0.004	-	-	-	33.14
Procrastination	1-note review learning strategies	0.242	0.058	F=18.45 P<0.001	B=-1..44 B=-0.242 T=-4.29 P=0.001	-	-	-	38.12
	2-self-evaluation	0.302	0.091	F=14.89 P<0.001	B=-1.28 B=-0.215 T=-3.85 P=0.001	B=-0.610 B=-0.183 T=-3.27 P=0.001	-	-	42.6
	3-self-consequence	0.336	0.113	F=12.59 P<0.001	B=-1.13 B=-0.189 T=-3.37 P=0.001	B=-0.548 B=-0.165 T=-2.95 P=0.003	B=-0.30 B=-0.152 T=-2.71 P=0.007	-	45.27
	4-textbook review	0.354	0.125	F=10.55 P<0.001	B=-0.955 B=-0.160 T=-2.77 P=0.006	B=-0.503 B=-0.151 T=-2.70 P=0.001	B=-0.533 B=0.129 T=-2.26 P=0.025	B=-0.759 B=-0.119 T=-2.01 P=0.045	46.29

Table 4 illustrates multiple regression analysis result of relationship between motivational learning strategies and academic performance, using stepwise method.

Table 4. Multiple correlation coefficients between motivational learning strategies, and academic performance and procrastination, using stepwise method

Dependent variable	Statistical index / Predictive variables	Multiple correlation coefficient MR	Coefficient of determination RS	Ratio F Probability P	Regression coefficients (b) and (B)				Absolute value (a)
					1	2	3	4	
Academic performance	1-motivational strategy of self-efficacy	0.386	0.149	F=52.32 P<0.001	B=0.104 B=0.386 T=7.23 p=0.001	-	-	-	10.50
	2-motivational strategy of intrinsic values	0.418	0.174	F=31.35 P<0.001	B=0.073 B=0.272 T=4.17 P=0.001	B=0.054 B=0.195 T=2.99 P=0.003	-	-	9.21
	3-motivational strategy of test anxiety	0.431	0.186	F=22.53 P<0.001	B=0.256 B=0.069 T=3.92 P=0.001	B=0.198 B=0.055 T=3.05 P=0.002	B=-0.109 B=-0.034 T=-2.05 P=0.041	-	9.96
Procrastination	1-motivational strategy of intrinsic values	0.430	0.185	F=67.58 P<0.001	B=-0.385 B=-0.430 T=-8.22 P=0.001	-	-	-	53.99
	2-motivational strategy of test anxiety	0.502	0.252	F=50.1 P<0.001	B=-0.372 B=-0.415 T=-8.24 P=0.001	B=0.264 B=0.260 T=5.17 P=0.001	-	-	48.73
	3-motivational strategy of self-regulation	0.528	0.279	F=38.13 P<0.001	B=-0.290 B=-0.324 T=-5.72 P=0.001	B=0.213 B=0.209 T=4.04 P=0.001	B=-0.17 B=-0.195 T=-3.29 P=0.001	-	52.72
	4-motivational strategy of self-efficacy	0.541	0.292	F=30.45 P<0.001	B=-0.229 B=-0.255 T=-4.03 P=0.001	B=0.209 B=0.206 T=3.99 P=0.001	B=-0.135 B=0.154 T=-2.52 P=0.012	B=-0.132 B=-0.151 T=-2.37 P=0.018	54.46

Since illustrated in table 4 and based on the stepwise regression analysis results, from motivational learning strategies, which are predictors of academic performance, motivational strategies of self-efficacy,

intrinsic values and text anxiety are better predictors of academic performance respectively. In fact, other strategies are not efficient predictors of academic performance.

Multiple correlation coefficient (MR) and coefficient of determination (RS) of linear combination of predictive variables are 0.431 and 0.186 respectively and their significance level is p <0.0001. since illustrated in table 4 and based on the stepwise regression analysis results from motivational learning strategies ,which are predictive variables of procrastination , motivational strategies of intrinsic values ,test anxiety ,self-regulation and self-efficacy are better predictors of procrastination respectively and other strategies are not efficient ones. Multiple correlation coefficient (MR) and coefficient of determination (RS) of linear combination of predictive variables are 0.54 and 0.292 respectively and their significance level is p< 0.0001.

DISCUSSION

In order to explain the result of academic performance theories, it can be said that those who greatly employ goal setting and planning for their studies and learning will have better academic performance. It means that employment of the self-regulated learning strategies (goal setting and planning) influences students' academic performance. According to similar studies, it is clear that the self-regulated learning strategies and high level of academic performance are connected. It seems that the results of this study provide real and correct information about the effect of self-regulated learning.

There is not meaningful relationship between other self-regulated learning strategies and academic performance and it means that, for instance, there is no relationship between students' self-evaluation of their learning capability and their academic performance. In addition other strategies including organizing and transforming , seeking information, keeping records and monitoring and seeking adult, parents and peer assistance are not related to academic performance. Perhaps one reasonable explanation for this case is that in these schools, students are not required to employ these strategies or the opportunity for students to be encouraged to employ such strategies does not exist.

The self-regulated learning students' achievement and academic performance in mathematics are connected to perceived self-efficacy concept and self-organizing behavior theory in Bandura's theory. Bandura believed that many of human behaviors are self-organizing. Standards of performance are set via direct and observational learning and are employed as a guide to assess personal behavior. Thus, if the behavior does not meet the person's standards, it is assessed as negative and accordingly perceived self-efficacy is set via the person's direct and indirect experience of accomplishments and failures. Personal self-efficacy is crucial for people to decide what to do, for how long to continue doing it and what to expect to obtain. The self-regulated learning students consider many things in their academic planning to succeed [12].

The academic achievement of the self-regulated students in learning and academic performance in mathematics is connected to the concept of equilibration in Piaget's theory. Self-regulated students constantly try to achieve a level of equilibration and their attempt to reach this equilibrium causes their learning [13].

The academic achievement of self-regulated learning students and academic performance in mathematics are connected to the concept of students' attribution of academic achievement and failure in Weiner's theory [14]. According to Chang's studies [15]. Self-regulated students attribute their achievement to their attempt and not to their luck or the simplicity of their homework. Failure is a temporary problem for them and it is not an accusation against their capability. They are flexible to employ cognitive strategies and change their strategy according to their homework [16].

Moreover, while they are doing their homework, they always review their performance and when they are done with their homework, they assess their performance according to the goals they have in their mind. The students establish punishment for or promise reward to themselves based on their achievement or failure in reaching the selected goals.

The self-regulated learning students' academic achievement and performance in mathematics is connected to the concept of metacognition in Flavel's theory, too. Based on this theory, self-regulated learning students employ metacognition (planning, control and assessment) to learn [17].

In order to explain the results of procrastination theories it can be said that those who employ self-regulated learning strategies do not need extrinsic motivation to do their homework.

Therefore, these students less procrastinate their tasks. The self-evaluation strategy and procrastination have a negative relationship. In fact, the more students evaluate and review their performance the less academic procrastination they show.

On the other hand, there is a negative relationship between organizing and transforming strategy and procrastination. It means that if students be organized to develop their learning, their academic procrastination decreases. In addition, self-consequences strategy and procrastination have a negative relationship. Actually, the more students establish punishment for, and promise reward to themselves for their failures and accomplishments, the less they procrastinate their tasks. Also, there is a negative relationship between rehearsing and memorizing and procrastination. It means that the more students attempt to memorize the less they procrastinate their tasks. Also, seeking teacher assistance strategy and procrastination have a negative relationship which shows that the more students try to ask their teacher to help them with their questions the

less they procrastinate their tasks. Moreover, note review strategy and procrastination have a negative relationship, which shows that the more the students review and study.

Their notes at home and at school, the less they procrastinate their tasks.

Generally, those who employ mentioned strategies show less academic procrastination. Moreover, there is no negative correlation between other self-regulated strategies and procrastination. In fact if students do not employ goal setting and planning, seeking information, keeping records and monitoring, environmental structuring and seeking peer and adult assistance ,it is possible that they do not show procrastination.

Wainer [18] says that those who have intrinsic reasons to procrastinate their activities show less procrastination, but those who have extrinsic reasons to procrastinate show more procrastination. Also, those who become anxious or have less hope to organize their activities procrastinate more.

In fact, academic procrastination is correlated to negative affection, less resistance to doing homework and dissonance between behavior and attitude, which all decrease procrastination [8].

This study has some limitations. Firstly, the test cases were male students, so the provided data cannot be simply used for a similar analysis among female students. Secondly, the participants were all first-graders and the results cannot be necessarily the same for the other graders. Additional research in a wider range is recommended in order to properly investigate the factors and strategies which make students efficient and independent. Also, teaching and presenting self-regulated learning strategies to students is recommended, too.

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283

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