IJBS
International Journal of Behavioral Sciences

Original Paper 86

The Effectiveness of Teaching Motivation Self-Regulatory Strategies in Academic Self-efficacy with the Moderating role of the Effects of Mastery-oriented and Performance-oriented Goals among Students

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Submitted: 14 June 2019
Accepted: 25 July 2019

Int J Behav Sci. 2019; 13(2): 86-91

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Abstract

Introduction: In the time being, teaching self-regulation to learners is a critical concern which helps them to adapt themselves to changes and unpredictable events easily. Hence, the present study examined the effectiveness of teaching motivational self-regulation strategies in academic self-efficacy with the moderating role of the effects of mastery-oriented and performance-oriented goals among first-level high school students.
Method: The present study was a semi-experimental with a pre-test, post-test and a control group. The population consisted of 4752 grade 9 students in Karaj. The self-efficacy was measured among students. Data were then collected and multivariate analysis of covariance was used for data analysis.
Results: The results showed that teaching Motivational Self-Regulation Strategies (MSRSs) had a significant positive effect on students' academic self-efficacy ($p<0.05$), whereas the effect of teaching mastery-oriented and performance-oriented goals on self-efficacy was insignificant.
Conclusion: It can be concluded that teaching MSRSs has a positive effect on the academic self-efficacy of first-year high school students. However, performance-oriented and mastery-oriented goals cannot moderate the effects of teaching MSRSs on self-efficacy.

Keywords: MSRSs, Academic Self-efficacy, Mastery-oriented and Performance-oriented Progress Goals

Introduction

Researchers have found that academic progress is not just the result of personal intelligence or hardware capabilities in individual intelligence environments or hardware facilities in social environments, but psychological traits of individuals, like personality traits and learning styles are important as well [1]. The theory of self-regulation learning relies on how students organize meta-cognitive, motivational, and behavioral learning in themselves [2]. By definition, self-regulation is one's ability to develop knowledge, skills, and behaviors that can be transmitted from one learning field to another, as well as from learning situations to work and leisure fields. This new construct discusses issues in relation to schools around the world [3]. In addition, Schunk and Zimmerman and Wolters believe that self-regulating learners are often identified as learners who manage their learning experiences efficiently and in different ways [4-6]. Self-regulation is a deep and internal mechanism based on conscious, intentional and thoughtful behaviors of the individual [6]. Learning self-regulation has three basic components including the use of cognitive strategies, metacognitive processes and motivational beliefs [7]. What distinguishes self-regulating learners from others is that they see themselves accountable for their actions and believe that learning is active, spontaneous, and use strategies that help them achieve their academic goals [8].

Self-efficacy is among the important motivational factors related to self-regulation strategies. People with high levels of self-efficacy are persistent, have a lot of perseverance in solving cognitive problems, are more persistent and more resistant, and use problem-solving strategies [9]. Bandura believes that self-efficacy beliefs regulate human actions by four processes: cognitive, motivational, emotional, and selection processes [10] .Self-efficacy is effective in performing one's activity, effort, and endurance. Learners who have low self-esteem avoid doing things, but people who have high self-efficacy are well at work [11]. According to social cognitive theory, self-efficacy is the main determinant of thoughts, feelings and behavior in tension situations [12] and has a vital role in the self-regulation of emotional states [13]. The combination of the term "education" with "self-efficacy" has opened different aspects of learning and teaching process [14]. Midgley considered academic self-efficacy as students' perceptions of their ability to do classroom work [15]. Altunsoy defined academic self-efficacy as individual beliefs about the merits of doing homework in specific academic fields [16]. Academic self-efficacy means the knowledge and perception of individuals about their own academic achievement [17] and the conviction of individuals that they can successfully perform academic tasks at design levels [18]. The researchers in self-regulation learning theory stress that belief in "self-efficacy" and "self-regulation" as an important motivational behavior has led to increased performance and is a very effective factor in the individual's academic achievement [19].

The theory of goal-orientation, as one of the most effective approaches to motivation, provides important motivations in learning and practice and self-regulation strategies of students. Elliot considers goal orientation as a way for a person to judge his merit [20]. Goal orientations encompass the goals and meanings that a person considers for his behavior [21]. Concerning the types of goal-orientation, one of the common divisions is following performance-oriented goal (tendency-avoidance) and mastery-oriented goal (tendency-avoidance), which, according to different studies, mastery and functional goals are associated with learning strategies [22]. Even though there are contradictions regarding the positive effects of mastery goals, evidence of the negative effects of performance goals needs more consideration due to several reasons. For example, Pintrich found a positive relationship between the acceptance of some of the performance goals (approaches) and the application of self-regulation strategies, and a negative relationship between some other performance goals and the application of self-regulatory strategies [23]. Several researchers have considered mastery and performance goals as complementary, and propose multiple progressive goals that are the mix of different goal orientations [24].They believe that any efforts to act better than others is not necessarily in line with trying to achieve mastery in the assignment, and students may accept two orientations in varying degrees [25]. Some researchers have found that in the mastery goal orientation along with the low level of functional goal orientation, the optimal levels of cognitive involvement and performance are observed as well [23, 26]. Although different studies have examined the relationship between the goals of progress and the strategies for self-regulation of high school students, the causal and pseudo-causal study of this relationship is necessary for deeper studies and comparison of their performance in the field of self-regulation learning strategies. Thus, the researcher in this study tries to answer the question of whether training motivational self-regulation strategies have an effect on students' academic self-efficacy. In addition, does the process of affecting this method have a moderating role in affecting the academic self-efficacy and the tendency toward the main goal of the individuals, which means "mastery" and "performance"?

Method

The present study was a semi-experimental intergroup study with pre-test, post-test, and control group along with moderator variable. The pre-test and post-test design with the control group consisted of two groups of subjects, each of which was measured twice. The first measurement was done by administering a pre-test and the second measuring by a post-test. In this research, the population was first-year high school students, ninth grade, and educational districts of Karaj, who were studying in the academic year of 2015-2016. According to the statistics, they were 4752 people. After coordinating with the education authorities of Karaj and obtaining necessary permits, the first grade and also the ninth grade schools were selected from among the existing schools. Among the studied population, one district was randomly selected from the four educational districts of Karaj. Then, a school was randomly selected from the district. After on, the goal of progression questionnaire was distributed among these students. According to the scores of this questionnaire and in line with the cutoff points Z = +1.5 and Z = -1.5, 30 students with mastery-oriented progress goals and 30 students with performance-oriented goals were selected. Following that, 15 mastery-oriented students were placed in the experimental group and 15 in the control group. Moreover, the same process was conducted for the performance-oriented group. Self-efficacy was measured in the pre-test stage in all the four groups. Then, independently, for the experimental groups, motivational self-regulation skills was taught in twelve sessions. For the control groups, twelve sessions of classroom was held on diverse topics, including how to work together and form art and sport groups. After the end of the intervention, self-efficacy was measured again in the post-test stage.

The Morgan-Jinks Student Efficacy Scale (MJSES) was used for measuring academic self-efficacy [27]. This scale has 30 questions with three sub-scales of talent, efforts and context. The items of this scale have a Likert scale with four responses (completely agree, somewhat agree, somewhat opposed, and completely opposed). The developers of this scale stated its internal consistency 82%, using the Cronbach alpha. In addition, Cronbach's

alpha coefficients of three sub-scales of talent, effort and context were reported 0.78, 0.66, and 0.70, respectively. The Achievement Goal Questionnaire – Revised (AGQ-R) was developed for the first time based on the 2×2 progress goals [28]. Elliot and Murayama made some corrections to the questionnaire [29]. The questionnaire has 12 items in a 7-point scale. Items 1, 3, and 7 measure mastery-tendency orientation, items 5, 9, and 11 measure mastery-avoidance orientation, items 2, 4, and 8 measure performance-tendency orientation, and items 6, 10, and 12 measure performance-avoidance orientation. Elliot and McGregor used Cronbach alpha to determine the degree of internal consistency among students to differentiate their mastery-tendency, mastery-avoidance, performance-tendency, and performance-avoidance as 0.94, 0.88, 0.92 and 0.83, respectively, showing a desirable reliability of this questionnaire. In addition, construct validity was attained by performing exploratory factor analysis of four factors which explained 81.5% of the total variance and in 2 × 2 pattern verification factor, the goal of progress was confirmed [28].

The educational package of motivational self-regulation behavioral strategies in this study consisted of a program based on the teachings of therapists and theorists designing CBT and cognitive-social approaches to coding curricula [29]. As the program was adapted, it was necessary to consider the psychometric indices to ensure its effectiveness in improving the symptoms of academic stress, motivation and academic performance, so that it could be widely used in this study as one of the independent variables. Hence, the program was run in a limited dimension on three students. It should be noted that studying the effectiveness of educational-therapeutic approaches does not emphasize the long-term effects, but the aim is to determine whether an educational-therapeutic approach leads to cross-sectional changes in the short-run. Thus, in this study, given time constraints, it is impossible to study the long-term effects of the mentioned educational-therapeutic approach, so the cross-sectional and short-term effects as a measure of effectiveness were used and the training package was implemented in 12 sessions. In order to study the validity of the educational package of self-regulating motivational strategies, the corrective measures was taken after providing the list and contents of this program, according to the professors of guidance and psychiatric educators. Then, the content of the program was presented to a few psychometric experts for confirmation of content and formality.

The summary of the training sessions in the present study was as follows:

Table 1. Self-regulation strategies training package

Session	Self-regulation Strategies
First Session	Targeting and setting academic goals
Second Session	Educational planning
Third Session	Self-managing
Fourth Session	Self-monitoring
Fifth Session	Self-evaluating
Sixth Session	Self-correcting
Seventh Session	Self-reinforcement
Eighth Session	Positive self-talk
Ninth Session	Decision-making skills
Tenth Session	Time managing
Eleventh Session	Stress Managing
Twelfth Session	Self-organizing
Final Session	Post-test

Multivariate analysis of covariance using SPSS was used at a significant level ($p<0.05$) to analyze the data.

Results

Table 2 shows the mean and standard deviation of the self-efficacy in the pre-test, post-test separately for the groups including two groups of experiments (mastery and performance-oriented) and two control groups (mastery and performance-oriented). The results showed that the highest mean was for the mastery-oriented control group (pre-test) (91.67) and the lowest mean was for the experimental performance-oriented group (pre-test) (85.73) (Table 2).

The results of covariance analysis showed a significant difference between the scores of self-efficacy of the groups in the post-test (F2.53 = 8.003 and p> 0.000). This significance shows that training self-regulating motivational strategies has had a positive effect on students' academic self-efficacy (Table 2).

In addition, the results showed no significant relationship between self-efficacy and group tendencies ($F_{1,53}=0.07$, $p>0.793$, $\eta 2=001$). This shows that performance-oriented and mastery-oriented goals of progress cannot mediate the effects of self-regulating learning strategies on motivational behaviors on self-efficacy (Table 3).

Table 2. Descriptive indices of self-efficacy

Group	Indices	Pre-test	Post-test
Experimental Performance-oriented	Mean	85.73	91.6
	SD	10.1	9.57
	Group volume	15	15
Control Performance-oriented	Mean	87.4	87.53
	SD	11.54	12.79
	Group volume	15	15
Experimental Mastery-oriented	Mean	88.73	92.87
	SD	6.86	7.15
	Group volume	15	15
Control Mastery-oriented	Mean	91.67	90.53
	SD	7.81	9.19
	Group Volume	15	15

Table 3. The results of covariance analysis of the effectiveness of teaching self-regulating motivational strategies on academic self-efficacy

Sources of change	Total	Degree of freedom	MS	F	Sig.	Eta square
pre-exam	4371.4	1	4371.4	232.81	0.0001	0.815
group	450.6	3	150.2	8.00	0.0001	0.312
Error	995.2	53	18.8			
Total	5701.9	59				

Table 4. Results of univariate factor covariance analysis of the effectiveness of teaching self-regulating motivational strategies on academic self-efficacy, by moderating the effects of mastery and performance-oriented goals

Sources of change	Variable	SS	df	MS	F	Sig.	η2
Goals for Progress	Self-efficacy	28.85	1	28.85	1.54	0.221	0.028
Group	Self-efficacy	418.95	1	418.95	22.31	0.0001	0.296
Goal Tendency Group*	Self-efficacy	1.31	1	1.31	0.07	0.793	0.001
Error	Self-efficacy	995.17	53	18.78			

Discussion

The results indicated that teaching MSRSs has a positive effect on academic self-efficacy of students, which is consistent with the results of the following studies.

Alexiou & Paraskeva showed that teaching self-regulation learning strategies increases self-efficacy and motivation beliefs of students [30]. In a study on the effectiveness of teaching self-regulation strategies training on student self-efficacy and self-assessment, showed that students using self-regulatory strategies have better self-efficacy and evaluate themselves more positively and thus have a higher motivation to learn [31].

Moreover, the results of some studies have shown that self-efficacy has a significant relationship with high levels of utilization of self-regulatory strategies [28, 32, 33]. Likewise, research has shown that self-efficacy and self-regulation have the greatest effect on predicting academic performance [34].

In explaining these results,one can claim that as self-regulation and the strategies used by students can predict their future motivation, the successful use of these strategies has led to an increase in students' self-efficacy beliefs [35]. This is because the use of higher-level strategies and attention to how they progress will lead to deeper learning, as well as increase in self-esteem and higher academic performance of students. On the other hand, self-regulation skills enable the students to control and monitor their behaviors, i.e. assess their behaviors, measure them according to their own standards, and enforce and punish oneself. The person whose self-evaluation is positive considers himself/herself as efficient, uses more efforts, and is committed to doing things because he/she believes he/she can make more progress. Moreover, self-regulatory strategies cause individuals to initiate and direct actions and, in this regard, increase their self-confidence. Thus, these strategies lead to an increase in the individual's belief in his/her ability to influence educational activities, so that students can work more seriously and become more confident in their abilities. Self-regulatory strategies also increase the academic self-efficacy by providing self-regulation by providing the necessary context to ensure the individual's belief in learning new contents [36].

Furthermore, given the results in the present study, one can claim that the tendencies of performance-oriented and mastery-oriented goals have a significant moderating role in self-regulation. Davari showed that academic self-efficacy was positively correlated with the goals of proficiency-approach goals and had a significant contribution to its prediction and negatively associated with performance-avoidance goals. It also had a significant contribution in predicting this aspect of goal of progress, but gender had no significant contribution to predicting any aspect of the goals of progress [37].

Several studies have shown that the adoption of goals of tendency is related to mastery and the self-efficacy and perceived competence of students [28, 38-40]. Although all these studies have focused on goals of mastery rather than avoidance goals, one can predict that avoiding mastery (focusing on not making mistakes) creates anxiety rather than anxiety tendency. Moreover, interest and self-efficacy can be low. According to the results, the goals of the tendency to master the high self-efficacy are correlated. One can state that task goals (learning or mastering goals) show the interest of students to have mastery over materials and concepts, search for challenges and learning for the sake of learning. Nonetheless, performance goals (self-goals) show the student's interest in social comparison, doing things better than others, looking smart, and avoiding looking unable [41-43]. There are also two tendencies toward the main goal of "mastery" and "performance" with motivational, cognitive and behavioral implications. It has been stated that goals of mastering relate to various emotional consequences. Objectives of mastering correlate more to learning tasks and more positive attitudes towards tasks, such as giving greater value to these assignments, by expressing greater interest and enjoyment [23, 28]. In addition, interest and self-efficacy can be low, but these predictions should be tested in future studies.

The results of most studies in relation to progress goals and other variables show that the tendency goals are positively correlated with high self-efficacy, the use of deep cognitive strategies, self-regulation learning, effective dealing with problems and failures. Moreover, they are correlated with high scores, asking for help, and peer learning and, in general, with positive emotions, emotional profiles, and people's psychological well-being [44, 45].

Avoidance goals have a positive relationship with the use of superficial learning strategies such as mental retardation and retention, reducing the internal motivation for learning, reducing persistence and engagement in the assignment, avoiding request for help, anxiety, postponement, low scores, and overall negative emotions [44].

Conclusion

Procrastination is one of the most common problems of students with few resources and books in describing and treating this disorder in the country. Practical and practical solutions for increasing motivation educate teachers through in-service courses. Since the type of purpose and goals of progress play a significant role in the personal and social development of individuals, it is suggested that education be given to teachers and students to set goals and select goals more effectively. Considering the results of various studies, the goals of the development had no effects on teaching self-regulation and self-efficacy in this study. Thus, it is suggested that similar studies be conducted and compared in other levels of study. Moreover, according to literature review, a difference was observed between the motivation of girls and boys. On the other hand, motivational regulation is different in boys and girls. Hence, gender seems to be a moderating variable. Thus, it is suggested that moderating role of gender be considered in future studies.

Acknowledgement

The authors would like to express their deep gratitude to Professor Hashemi and Professor Birami, the research supervisors, for their patient guidance, enthusiastic encouragement and useful critiques for this research.

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