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Factors Affecting Academic Achievement of High School Students in Distance Education Centers in Kashan

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Abstract

This study investigated the relationships among self-regulated learning, motivation for academic achievement and self-concept in prediction of academic achievement of male high school students studying through distance education system in Kashan Province, Iran. A cross-sectional, descriptive-correlational design was conducted among all male high schools students in Kashan's distance education centers during 2015-2016 (n=718). Using a multistage cluster sampling, 270 students were selected. Data were collected using Herman's achievement motivation questionnaire (1970), the Pintrich & De Groot self-regulated learning scale (1990) and Becks self-concept scale (1990). Stepwise regression analysis was employed in the SPSS version 20. The results showed that self-regulated learning, motivation for academic achievement and self-concept had significant positive relationships and predicted academic achievement statistically ($p < 0.001$) and cognitive strategies contribution was over the other variables dominant ($\beta = 0.32$, $p < 0.001$). Collectively, the variables explained 34% of the variance of academic achievement ($p < 0.01$). Considering the more important role of self-regulated learning in prediction of the academic achievement of distance learners, it is essential to determine the self-regulated learning skills that enable learners to regulate and manage their own learning processes in distance learning environments.

Keywords

Educational Quality Evaluation, Desirability, E-Learning, Virtual Instruction Distance Education, Academic Achievement Motivation, Academic Achievement, Self-Concept, Self-Regulated Learning.

Introduction

Distance education refers to institution-based, formal education provided to geographically diverse students through interactive telecommunications systems. Since 1996, for the purpose of implementing its given educational policies and programs, Iran's Ministry of Education has established distance education centers across the country. These centers were established by the adopted Acts by the Supreme Council of the Cultural Revolution and Supreme Council of Education. These centers play an important role in providing education for those who can't attend the ordinary schools via correspondence while certain classes for problem-solving and other guidance services might be provided. It should be noted that in spite of increase in the number of distance education centers from 2004 onwards in different provinces of the country, the factors influencing the increase of students' learning ability

and academic achievement in such a system should also be considered and closely examined because the academic achievement of students is one of the important indicators in the assessment of education system, and distance education system is no exception. Over the past two decades, Researchers have generated a prolific array of findings with regard to factors that promote and correlate with academic achievement in an attempt to predict and prevent dropout [1]. One of the theories attracted the attention of researchers is the theory of self-regulation learning. The *research* on the concept of *self-regulation* emerged in the *mid-1980s* to answer “how *students can manage their own learning processes*. In recent years, this issue has been addressed extensively in learning environments. Part of the impetus for studying academic self-regulated *learning* came from research showing that *learners' skills and abilities* did not fully cover student achievement which *suggested* that *factors such as self-regulation* and motivation were important [2]. Self-regulation refers to thinking of a person about the flow of thought, that is, the flow of planning, monitoring, and evaluating of the progression in a particular activity or assignment [3]. The context of this theory is based on the assumption that how students organize their learning through cognitive, motivational, and behavioral beliefs [4]. Since the distance learners can study and learn at any time and place they want, they are responsible for planning, managing, and assessing their own learning processes [5]. These learners should know ways to achieve success and independently develop their skills [6]. The fact that distance learning is more flexible, learner-centered, and autonomous than face-to-face, learning requires learners to be self-regulated and use their self-regulated learning skills more frequently [7]. Furthermore, the lack of self-regulated skills results in high dropout and low retention rates [8, 9]. Previous studies show self-regulation is an important factor in students' academic achievement [10]. Celery and Zimmerman (2004) found that among students with low self-regulatory skills, behaviors such as lack of attention to classroom, low levels of reading skills and refusal to attend school are seen [11]. Artino (2007) argues that self-regulation learning skills may be critical in distance learning situations due to the high degree of student autonomy resulting from the instructor's physical absence[12]. One of the most important issues in this area is the lack of time and skills of the learning environment management, lack of individual motivation, lack of using cognitive learning strategies, and lack of adaptation to individual learning, all of which lead to the failure of learners in this context [13]. As Schunk and Zimmerman (1998) have pointed out, distance education is an area that essentially involves the use of self-regulation strategies. They argue that the use of self-regulation strategies due to the greater independence of the learners as a result of the absence of teacher is an important factor in their academic achievement. Also, when learners are active in the process of learning, this will promote their motivation and motivation is considered as an important factor in using self-regulated learning strategies [14]. Despite extensive research in the field of self-regulatory learning from the 1970s, little research has been conducted on the role of self-regulation skills in the distance education context so far. In addition, students' progress in the school depends not only on students' abilities, but also on their motivation, attitudes, emotional reactions to the school, and other issues involved [15].

Since the early 1970s, various research studies have been carried out to show the effects of the student's motivation on learning and academic performance [4]. Based on the results of these researches, student's motivation is an important factor in predicting the quality of learning, students encounter or avoidance of challenging learning situations and resistance to problems [16]. One of the early constructs developed by psychologists to explain this aspect of the achievement is the achievement motivation, seeking to respond why and how students are aroused under different learning situations. John William Atkinson, the pioneer

in psychological research on motivation theory, defined achievement motivation in terms of individual's need to excel, regardless of external rewards. According to Feld and Gold (2000), achievement motivation is one's general tendency to evaluate its performance according to the highest standards, the effort to succeed in the performance and the pleasure following success in performance [17]. Researchers believe that the academic achievement motivation depends on the factors such as reasons for student's success [18], the motivational features affecting successful outcomes [19], and considered as a result of the interaction between students' personality traits and educational approaches used. Okulou and Baher (2000) argue particular behaviors by students such as paying attention to teachers, asking for help, the continuation of the problem solving process, and risk-taking to achieve success stating the achievement motivation among them. Researchers and teachers have reported that students in distance context use new strategies to collaborate with their peers and friends, and their learning is motivated and they have high levels of self-confidence in doing things [20]. Also one of the other important internal factors affecting the academic performance is self-concept, which has been highly regarded by educators in recent years. [21]. Self-concept involves our attitudes, feelings and knowledge about, abilities, skills and social acceptability. Self-concept is based on previous judgments, perceptions and important people's feedback in the life and Individual's concept and perception of its ability to learn is one of the accepted types of academic behavior and performance in terms of academic achievement [22]. According to self-concept theory, which is considered as one of the self-evaluation theories, self-concept is a network of positive and negative beliefs about self-acceptance or self-rejection [23]. Academic self-concept is the process of formation an assessment of self-concept influenced by students' educational experiences and interpreting the educational context [24] and represents personal knowledge and perceptions about our ability to successfully accomplish academic assignments and considered as the most important and influential factors in the learning process [25]. Academic self-concept strongly relies on relative social information and reflects others judgments and has a normative nature. In the other words, one's academic self-concept is as a result of comparing oneself to others [26]. People who consider themselves to be more effective and capable in their work, will have higher self-concept as compared to others. Consequently, this self-concept will lead to the further academic achievement and the absence of negative emotions. Accordingly, those who developed a positive sense of themselves and their abilities, such positive sense would lead to their further academic achievement. Also their academic achievement gives positive feedback to self-concept and accuracy of their sense of abilities [25, 27]. According to the research findings and a comprehensive meta-analysis conducted by Marsh and Martin (2011), self-concept has a direct and indirect impact on subsequent achievement. Not only is self-concept an important outcome variable in itself, it also plays a crucial role in affecting other desirable educational outcomes. [28].

Muhammad and Abu Bakar (2015) examined the relationship between SRL and academic achievement among UniSZA undergraduate students in Malaysia. A sample of 364 students from nine colleges was selected randomly. Results showed that there is a strong relationship between SRL and academic achievement, and SRL serves as a good predictor of higher academic performance (GPA) [29].

Suarez-alvarez et al (2014) in their research titled Self-concept, Motivation, Expectations and Socioeconomic Level as predictors of performance Academic reported, self-concept, Expectations as well as socioeconomic level predict Students' academic performance. It can also be identified the students having self-concept with high motivation, have a good academic performance compared to other students[30].

Peng conducted a study to investigate the relationship between SRL and academic

achievement [31]. A sample of 101 college students from Jilin Normal University in China participated in the study; 54% were males. Findings showed that self-regulation, cognitive strategies, and anxiety were important predictors of academic achievement in science. His study indicated that SRL improves students' self-satisfaction and their motivation, and therefore enhances their academic achievement. [31].

Punithavathi (2011) conducted a research to investigate self-concept and academic achievement of students at the secondary level. The results of the analysis revealed a significant correlation between self-concept and academic achievement. Further a significant difference in self-concept and academic achievement was observed among students in different categories of school, namely, state, matriculation and central board schools. [32].

Usher & Pajares (2009) conducted a research entitled "role of Self-Regulatory Learning Strategies in Students' academic Achievement and Motivation. The sample size was 300 selected by multi-stage cluster sampling and research instruments included self-regulatory learning strategies questionnaire and academic motivation questionnaire. The results showed that student's beliefs about the role of self-regulating learning strategies in academic achievement and motivation play a significant role [33].

According to the findings cited above, despite studies on the effect of self-regulated learning, the achievement motivation and self-concept on academic achievement, there is few studies conducted on effects of these variables on increasing the academic achievement of distance learners. Therefore, the aim of this study was to investigate the factors affecting the academic achievement of students in distance education centers in Kashan authorized and supervised by the Ministry of Education.

Method:

This study, in terms of its purpose, has been conducted under the principles of applied research while in terms of time, it has been a retrospective one. For data collection and processing a descriptive approach with mainly correlational analysis has been adopted.

Population and sampling

The population of this study comprised all 718 male high schools students enrolled in distance centers during the academic year 2015-2016. Based on Cochran's formula with $\alpha = 0.05$ and $d=0.05$ and $p = q = 0.05$, 270 students were selected through a multistage cluster sampling method. Among distance education centers, 3 centers were selected among which, students of nine classes were randomly selected to receive the questionnaires. A total of 262 questionnaires were finally obtained for analysis.

Instrument

Data were collected by using three types of questionnaires. A scale by Pintrich & De Groot (1990) were used to test self-regulated learning. The questionnaires were The , Hermans (1970) Questionnaire was utilized as a measure of achievement motivation and in order to test Self-Concept Beck's (1990) measure was found as a suitable measure. The following sections will elaborate on each of these measures.

The Pintrich & De Groot self-regulated learning scale (1990):

The Pintrich & De Groot self-regulated learning scale(1990)was used to measure the self-regulated learning strategies of samples. This scale consists of 47 Items arranged into two sections, Motivational Beliefs consists of 25 items and Self-regulated Learning Strategies consists of 22 items (13 item for subscale of usage of cognitive strategies and 9 item for

subscale of self-regulatory strategies) on a 5–point-Likert scale. In this research, only Self-Regulatory Learning Strategies section was used. A total score can be calculated as a general index of Self-Regulatory Learning Strategies that ranges from 22 to 110. Mousavi Nejad (1997) used content validity method and Factor analysis to assess the validity of this questionnaire and three factors, lower level cognitive strategies, high-level cognitive strategies and metacognitive self-regulation were extracted. Also its reliability by Cronbach's alpha was obtained .98, .89, .74, respectively [34]. In this research reliability was tested using the Cronbach's alpha method for the sub-scales of usage of cognitive and self-regulatory strategies; alpha coefficients of which stood at 0.75 and 0.73, respectively.

Herman's Questionnaire: Measure of Achievement Motivation (1970)

The scale consists of 29 items. The format is incomplete sentences with 4 response choices after each sentence, with a possible score range from 29 to 116 where a high score indicates a high degree of achievement motivation. Hooman and Asgari (2000) calculated the validity coefficient of the scale using the Cronbach's alpha 0.80, which confirms the desirable validity of the scale. Also use of Principal Component analysis Indicated that the material of the questionnaire are generally correlated with one factor showing acceptable construct validity of the scale [35]. In this research Reliability was tested using the Cronbach's alpha method which stood at 0.71.

Beck Self-Concept Test (1990)

The scale consists of 25 items. The format is incomplete sentences with 5 response choices after each sentence, with a possible score range from 25 to 125 where a high score indicates a high degree of self-concept. Validity and reliability of the questionnaire were reported, 0/80 0/55, respectively [36]. In this research, reliability was tested using the Cronbach's alpha method and stood at 0.76.

Students' academic performance.

Student data were collected from school records including their mean scores and other detailed information.

Findings:

The descriptive statistics and the inter correlations among all the variables for the total sample are summarized in Table 1.

Table 1. Means, Standard Deviations, and Correlations among Variables

Variables	F	M	SD	1	2	3	4	5
Cognitive strategy	1	31.54	3.22					
Self-regulation	2	22.32	2.55	0.49**				
Academic achievement motivation	3	51.54	3.44	0.32*	0.39*			
Self-concept	4	74.52	2.14	0.27*	0.39*	0.34*		
Academic achievement	5	14.11	2.43	0.49**	0.42**	0.37*	0.35*	

*P<0.05 **P<0.01

As it can be seen in Table 1, mean values for Cognitive strategy, Self-regulation, academic achievement motivation, self-concept and academic achievement were 22.32, 31.54, 14.11, 74.52 and 51.54 respectively. The correlations among variables presented in Table 2 show that all variables are significantly and positively correlated with each other. Cognitive strategy has the highest correlation ($r = 0.49$) and self-concept has the least correlation ($r = 0.35$) with academic achievement.

To determine the exact contribution of each variable to the criterion variable, Stepwise Regression was used. Firstly, the contribution of the total sum of predictive variables to the criterion variable was estimated, i.e. prediction variables were entered into the regression analysis based on their multiple-order and differential correlation coefficients in the correlation matrix. Table 3 and 4 show the results of regression analysis for subsequent steps.

Table 3. A summary of the results of stepwise regression analysis

steps	SS	DF	MS	F	Sig	R	R ²
1	164.62	1	164.62	49.58	0.001	0.492	0.242
	867.66	261	3.32				
	1032.28	262					
2	233.94	2	116.97	38.10	0.001	0.531	0.281
	897.34	260	3.07				
	1032.28	262					
3	273.93	3	91.31	31.27	0.001	0.576	0.331
	758.35	259	2.92				
	1032.28	262					
4	302.31	4	74.32	28.47	0.001	0.591	0.349
	729.97	258	2.61				
	1032.28	262					

Table 4. coefficients of stepwise regression analysis for academic achievement

step	Predictors	B	Std. Error	β	T	Sig
1	Constant	26.22	1.17		22.31	0.001
	Cognitive Strategy	1.34	0.14	0.492	9.11	0.001
3	Constant	29.13	1.44		20.12	0.001
	Cognitive Strategy	1.18	0.13	0.417	8.54	0.001
	Self Regulation	0.97	0.15	0.326	6.33	0.001
3	Constant	32.66	1.78		18.26	0.001
	Cognitive Strategy	1.02	0.14	0.365	7.12	0.001
	Self Regulation	0.82	0.16	0.232	5.01	0.001
	Academic Achievement Motivation	0.62	0.15	0.191	3.92	0.001
4	Constant	36.54	1.93		17.35	0.001
	Cognitive Strategy	0.93	0.14	0.323	6.47	0.001
	Self-Regulation	0.76	0.16	0.204	4.23	0.001
	Academic Achievement Motivation	0.60	0.15	0.174	3.91	0.001
	Self-Concept	0.54	0.14	0.171	3.36	0.001

According to R Square values in table 3, cognitive strategy accounts for 24 percent of variance in academic achievement, which is significant. Self-regulation on was entered in the next step; R Square Value reached the significant amount of 28 percent upon entering self-regulation. By entering academic achievement motivation in the analysis at the third step, R Square reached 33 percent; and finally by entering self-concept in the analysis at the fourth step, R Square reached 34 and in total, these four variables account for 34 percent of variance in academic achievement.

Discussion and Conclusion

The aim of this study was to investigate factors affecting the academic achievement of high

school students at distance education centers run by the Ministry of Education in Kashan during the academic year 2015-2016. Findings of this study showed that there is a positive and significant relationship between self-regulation learning (cognitive strategy and self-regulation) and academic performance. This finding is consistent with the results from kuo, Walker, Schroder and belland [37], Usher & Pajares [28], Nursyahidah, Zazaleena, Nor Zalina, Mohd Norafizal [38], peng [31], Schunk [39], Pintrich, & DeGroot [40]. Also, the findings showed that, cognitive strategy and self-regulation, the components of self-regulation learning, have the most contribution to predicting academic achievement, and this can be well justified with the theoretical foundations of self-regulation learning. In this theory, learning is not considered as an induction from others, but as an event that is acquired by the students themselves. Self-regulated Students are engaged in learning, that is, during dealing with learning assignments, they manage and control their behavior by sorting out goals, making meaning of information, creating a logical connection to previous information, considering the various strategies, designing a map, and considering coordinated plans for dealing with problems. This will lead to increasing the self-efficacy and ability to learn, and the use of active learning methods that consider student responsible for learning and building knowledge, can increase student motivation and motivation is considered as an important factor in using self-regulated learning strategies and academic achievement.

Also, the findings showed that there is a significant relationship between the academic achievement motivation and academic achievement, and also, academic achievement motivation can significantly predict the academic achievement of the students. That is, higher student motivation predicts more academic achievement that is consistent with the results from Hosseini Tabatabai et al. (2007) [41], Keles (2012) [42]. It should be noted that students with high achievement motivation, compared to students with low motivation, showed more perseverance and seriousness in doing tasks, and they show better performance in different educational tests.

Also, the findings revealed that there is a significant relationship between self-concept and academic achievement. This finding is consistent with the results from Githua & Mwangi (2003) [43], Chiu and Klassen (2010) [44], Yara (2010) [45], (2008) Marsh & Craven (2006) [46], Möller et al [47], Marsh & Köller (2004) [48], Suarez-alvarez (2014) [30]. It can be said that increasing self-concept will lead to better academic achievement. Naboshima (2004) showed that students with a positive attitude and self-concept towards the science have higher academic achievement than their counterparts, hence, their positive self-concept significantly predicts their academic achievement. The importance of understanding ability is due to its predictive role for other motivational elements. When a student feels he/she is capable of successfully completing assignments, they become more involved in and try to learn more due to confidence. When students achieve a lasting sense of positive self-concept, they tend to be self-regulated, and through organizing, planning, and self-assessing of learning processes, they improve their academic performance. [49].

Also, stepwise regression analysis was used to determine the effects of predictors on academic achievement of learners in distance education centers. The results showed, , the four variables cognitive strategy, self-regulation, academic achievement motivation and self-concept have a significant contribution to explaining and predicting the academic achievement and totally are able to explain 34percent of academic achievement in four steps. Previous research suggests that the use of self-regulation strategies in addition to improving learning also increases the self-efficacy perceptions related to internal motivation and leads to academic achievement [10]. So it is essential to determine the self-regulated learning skills that enable learners to regulate and manage their own learning processes in learner-paced open and distance learning environments. Determining these skills will aid the teachers and instructional designers in developing new strategies, which will either

enhance the learners' skills in self-regulated learning or help them acquire skills crucial for a successful distance learning experience and becoming lifelong learners. Also, achievement motivation effects on the patterns of thinking and strengthens positive self-image, power of problem solving and self-esteem, and determines their level of motivation by controlling the amount of effort and sustainability against the obstacles. Also, self-concept can increase self-confidence and one's ability and ultimately lead to improving his/her academic performance. In the end, it can be concluded that, learner skills are key elements in distance education. Variables in this study were able to explain part of variance of academic achievement. However, a large part of the variance was not explained. Therefore, it is suggested that further research focus on other effective internal and external factors.

Suggestions for future research:

1. The Effect of Self-Regulatory Skills Training on Increasing the academic Achievement and motivation of Students in distance Schools
2. Investigating the Causes of Reducing the Capabilities of Distance Education Students in Using Self-Regulatory Learning Strategies and academic Achievement motivation

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Ethical Considerations

This research was conducted with the consent of the participants.

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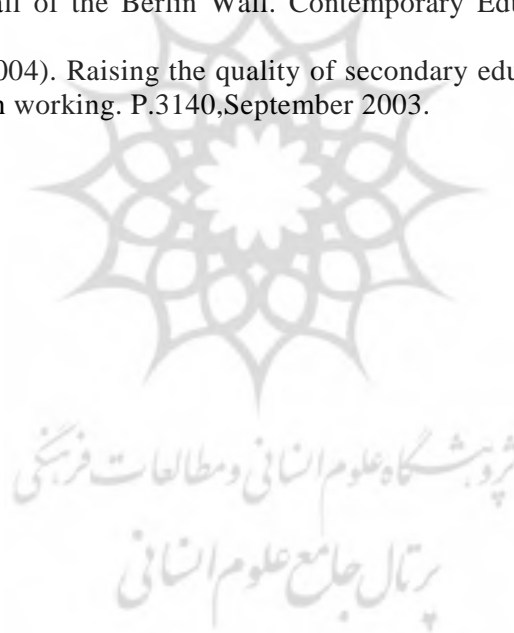
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