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THE RELATIONSHIP BETWEEN ACHIEVEMENT MOTIVATION, CRITICAL THINKING AND CREATIVE THINKING WITH ACADEMIC PERFORMANCE

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ABSTRACT

The aim of this study was to assess the relationship between achievement motivation, critical thinking and creative thinking with academic performance of secondary girl's school students. The study population consisted of all girl's student's in Ramhormoz high school that enrolled in the 2013-2014 academic year. From this population, a sample size of 300 participants was selected through multistage cluster sampling method. Three questionnaires were used to collect data that they include, California critical Thinking skills questionnaire (form B), and Hermans achievement motivation questionnaire and Abebi creativity questionnaire, in this study first semester GPA was used as academic performance. Results from multivariable regression analysis showed that between achievement motivation and academic performance ($r=56.0$, $p<0.001$) · critical thinking and academic performance($r=31.0$, $p<0.01$) and betweencreative thinking and academic performance($r=37.0$, $p<0.001$), there is a significant positive relationship. Also the results from multivariate regression analysis showed that total of three variables have predictive ability about 42/0 to predict academic performance. According to the three variables power to predict academic performance, education in situations needs to design the strategies that enhance the level of these variables in an educational setting.

Key Words: Academic Performance, Achievement Motivation, Critical Thinking, Creative Thinking

INTRODUCTION

The ultimate goal of all education in situations is educate and training the capable People that have desirable capabilities in their career. Academic performance is one of the most important criteria for measure the individual's ability and assess the achievement of educational and training purposes . Putwain and Daniels (2010) defined academic achievements, gain mastery in the information and theoretical knowledge in a special field and in a particular course.

Basic research related to academic performance considered that mental abilities, Such as intelligence and memory as a major factor in learning and academic performance. But today it is known that people differences in their educational attainment do not depend solely on the amount of intelligence and their memory, but other factors that have insignificance solidarity with mental abilities are contribute to the academic achievement (Pour *et al.*, 2008). Among the factor that has contributed to numerous researches we can cited to the critical thinking, creative thinking and achievement motivation.

Most scholars and thinkers in the field of education (Slavin, 2005; Gralewski and Karwowski, 2012; Eggen and Kauchak, 2001; Sayf, 2011) generally believe that creating and nurturing of thinking especially critical thinking and creative thinking is a result of active learning and avoid the passive state. No doubt it can be claimed that robust stature and complex of contemporary civilization is a result of evaluation of critical thinking, creativity and achievement motivation as the mental leading strength and maintaining of these efforts (Shabani, 2009; as quoted by Matrody, 2012).

Specialists and theorists in general, critical thinking involve Analysis, evaluation and inferences are considered. Interpretation, explanation and self-regulation as key components of critical thinking are considered. In general, Specialists and theorists believes that critical thinking involves analysis, evaluation and inference they considered interpretation, explanation and self-regulation as key

Research Article

components of critical thinking. Critical thinking also said to the investigate the hypothesis, understanding of the underlying values and assessment of evidence and conclusions.

Evidence suggests that critical thinking may occur and persist if it been advocated by others, frequently practiced and associated with Practical situations (Duchscher, 1999; Simpson *et al.*, 2002; Quoted by Yosafi and Shakan, 2012). However, there are some contradictions and inconsistencies that Saied if critical thinking is an essential capability or it's an ability and progressive learning skills, it's a scholastic attitude or is a cooperative process (Edwards, 2007).

In addition of critical thinking as a source of human civilization, creativity is proposed as a great need in all aspects of human life, Toynbee believes that creating opportunities to foster the creativity for the community is regarded as life or death. Thus, most societies have serious planning for recognizing the creative people and use the innovative teaching methods.

Creativity, such as justice, democracy, freedom, and other abstract concepts have different meanings for different people, but a common factor in all creativity form is noted to the new factors that creationfactoris available in them and acts as aheritagebut what is new, is the combination of this factors in a new paradigm (Khyllun, 2004).

Edgen and Kauchak (2001) in their definition of creativity stressed on its novelty and originality, creativity means the ability to identify or provide original and variety solutions to the problems (Guilford 1987; quoted to Sayf, 2011). He looks to the creation upon character, he believed that creativity is a set of skills and character in a person that cause creative thinking, he consider the creativity as a solving problem or series of big and small problems.

Sternberg (1989; quoted Sayf, 2010) believed that creative thinking is the combination of innovation power, flexibility and sensitivity to the ideas that enable the learner outside of irrational thinking, think about different results.

In addition of critical thinking and creativity as cognitive parameters that affected on education, in this study we examine the achievement motivation as a motivational variable that influence the process of students educating (Shabani, 2010; quoted to Matrody, 2011).

Contemporary views of motivation focus on targets that people set in progress position, like Objectives of compete with homework (Solving a challenging puzzle), Objectives of compete with yourself (Raising the average), Objectives of compete with others (Want to be the first student in classroom), (Reeve Translated by Mohammady, 2009). People with high level of achievement motivation are very diligent for solving problems and achieving success. Even after they failed in doing something, do not miss it and continue their strive to achieve the success. Students with high achievement motivation will always succeed and wait for it, and when they fail, continue their work until they will be successful (Slavin, 2006).

Several studies individually examined the variables such as achievement motivation, critical thinking and creative thinking with academic performance that we can mention the following cases:

Gloudemansand his colleagues (2012) in their research review the relationship between critical thinking skills and self-efficacy among nursing student, the results showed a significant positive correlation between critical thinking skills and self-efficacy at the level of 0/01in nursing students. Chan (2012) investigate the relationship between critical thinking and creativity among nursing students, the results showed a significant positive correlation between critical thinking and creativity in nursing students.

Nasrabadi *et al.*, (2012) in their research as the role of critical thinking and cognitive learning styles in predicting of academic performance, showed that critical thinking attitude and reflective observation specified about 50/0 of the academic performance changes, there was also a positive correlation between active experimentation and academic performance also a negative correlation was found between critical thinking and reflective observation. Tekin and Tasgin (2009) in their research examined the creativity level in gifted students; results showed that parent's educational level, Intelligence, Motivation and self-efficacy, are the strongest predictor in these creative students.

Ruhland *et al.*, (2007) based on their research investigate the role conflict and its relationship to achievement motivation and academic performance, they conclusion that there is a correlation between

Research Article

achievement motivation and academic performance and the students who are in higher classes has a bit of role conflict, this students have more achievement motivation than students with role conflict and high level of motivation have greater effect on student performance and it raise the level of student performance than the students who have little achievement motivation.

The Research Hypotheses

Hypothesis No. 1: There is a difference between the first child critical thinking, achievement motivation and creativity with single child.

Hypothesis No. 2: There is a difference between the first child critical thinking with single child.

Hypothesis No. 3: There is a difference between the first child achievements motivation with single child.

Hypothesis No. 4: There is a difference between the first child creativity with single child.

MATERIALS AND METHODS

Methodology

This method is based on correlational plans that check the relation between critical thinking, achievement motivation and creativity with academic Performance. Statistical methods that used in this study are Pearson correlation and multivariable regression analysis. It should be noted that in this study socioeconomic status of students were control.

The research sample included all of girl student in the Ramhormoz girl's high school that they were enrolled in school year 2012-2013. The study had a sample size of 300 people that they were selected by a multistage cluster random way. The sampling was done as below:

6 schools were randomly selected from 10 Ramhormoz girl's high school and from each school randomly 4 classes selected.

After coordination with the Department of Education and school management, we attend to school at the right time, we asked the targeted students to complete the questionnaire Also were asked the respondents to answer the questions accurately and honestly and answer to the all questions, Finally, thanks to their cooperation in this study.

Measuring Tools

- **California Critical Thinking Skills Questionnaire**

In this research for student critical thinking measurement, California critical thinking skills questionnaire (CCTST-B) was used (Facione, 1994).

The test includes 34 questions that each question has 4 or 5 options only with one correct answer. These questions were in five areas of cognitive skills of critical thinking (deduction, induction, evaluation, analysis, inference) response time was 50 minutes. In 20 questions there were 4 options and in 14 questions there were 5 options.

In deghaniand colleagues study (2011), the stability coefficient of this scale that calculated by Cronbach's alpha method was 0.78 also Facione (1994) reported the stability coefficient of this scale by Kuder Richardson method is equivalent to 68-70.

- **Achievement Motivation questionnaire (AMQ)**

In this research for evaluation student achievement motivation the Hermans achievement motivation questionnaire (1970) was used that by Boromandnasab (2003) has been translated into Persian. This questionnaire has 29 clauses, which are semi-finished sentences, for any clause, 4 options are offered, In some of clause option A have a Lowest score and In some of clause, option A have a maximum score. In questions number: 1, 4, 9, 10, 14, 15, 16, 20, 23, 27, 28 and 29, the scoring was as follows: A (1), B (2), C (3), D (4). In questions Number: 2, 3, 5, 6, 7, 8, 11, 12, 13, 17, 18, 19, 21, 22, 24, 25 and 26, the scoring was as follows: A (4), B (3), C(2), D (1). And range of scores was between 29-116.

In study that conducted by Herman, to obtain questionnaire stability used Kuder Richardson formula, the stability coefficient obtain by this method was 0.86 and the stability coefficient that calculated by Cronbach's alpha method was 0.66, The stability coefficient for all subjects that Shokrkon et al calculated by Cronbach's alpha method was 0.72.

Research Article

RESULTS AND DISCUSSION

Research Results

Table 1: Economic Socio economic state of research sample presented as a control variables

Economic State	Frequency	Frequency Percent
High	72	24
Moderate	167	55.66
Low	61	20.33

As you can see in table number 1, the most sample frequency have a moderate economic state with 167 person and namely about 55.66% and the low sample frequency have a low economic state with 61 people, about 20.33%

Table 2: Average, standard deviation, minimum score and maximum score of critical thinking, Achievement Motivation, Creativity

Variables	Statistical Indicators	
critical thinking	Average	9.95
	standard deviation	2.94
	minimum score	3
	maximum score	21
	Average	86
Achievement Motivation	standard deviation	7.09
	minimum score	65
	maximum score	100
	Average	124.29
Creativity	standard deviation	11.37
	minimum score	95
	maximum score	158
	Average	16.09
Academic Performance	standard deviation	2.5
	minimum score	11
	maximum score	20

Research Article

• **Abebi Creativity Questionnaire**

This questionnaire was first developed in 1986 by Abebi; this questionnaire has 60 clauses, 16 clause for fluid, 22 clauses for initiative, 11 clause for flexibility, 11 clauses for expansion. Each clause has 3 questions. Options represents low to high levels of creativity that respectively a score of 1 to 3, belongs to them and with the sum score of the four components we obtain a total score for creativity.

Kefayat (1995) calculated Abebi Creativity Questionnaire stability by Cronbach's alpha method and by split-half method, the stability coefficient that calculated by Cronbach's alpha method was 0.77-0/93 and by split-half method was 0/70-0/81. In the other research rafeiaian (2004) calculated stability coefficient by Cronbach's alpha method, the value that he obtained was 0.82. In this study the stability coefficient that calculated by Cronbach's alpha method was 0.77.

As you can see in table 2, critical thinking scale scores for average and standard deviation is 9.95and 2.94; achievement motivation scale scores for average and standard deviation is 86and 7.09; Creativyscale scores for average and standard deviation is124.29 and 11.37; Academic Performance scale scores for average and standard deviation is 16.09 and 2.05.

To investigate the first, second and third hypothesis Pearson's correlation coefficient was used; the results can be seen in table 3.

Table 3: Pearson's correlation coefficients between critical thinking, achievement motivation, creative thinking with academic performance

Predictor Variables	Academic Performance		
	Significance level	Determination Coefficient	Solidarity
Critical Thinking	0/01	0/096	0/31
Achievement Motivation	0/001	0/31	0/56
Creative Thinking	0/001	0/14	0/37

As can be seen in table 3, correlation between critical thinking and academic performance is 0/31 that at the level of 0/01 is significant, so the first hypothesis which implies the relationship between critical thinking and academic performance is confirmed.

Correlation between achievement motivation and academic performance is 0.56 that at the level of 0/001 is significant, so according to the table 3 result the second hypothesis which implies the relationship between achievement motivation and academic performance is confirmed.

Correlation between creative thinking and academic performance is 0/37 that at the level of 0/001is significant, so according to the table 3 result the third hypothesis which implies the relationship between creativethinking and academic performance is confirmed.

To evaluate the fourth hypothesis used Multivariable regression analysis use the Simultaneous Logging way (Enter) and the results can be seen in Table 4:

Predictor variables	Multiple correlation	Determination coefficient	Beta	t	Significance level	standard error
Critical Thinking			0/11	1/75	0/05	0/12
Achievement Motivation	0/65	0/42	0/68	7/49	0/001	0/059
Creative Thinking			0/36	3/86	0/001	0/075

Research Article

As can be seen in table 4, based on the multivariable regression analysis result and with Simultaneous logging way (Enter), Multiple correlation coefficient for linear combination of variables such as critical thinking, achievement motivation, creative thinking with student's academic performance is $MR=0/65$ and determination coefficient is $0/42$ that the effect of achievement motivation and creative thinking on academic performance at the level of $p<0.001$ was significant and the effect of critical thinking on academic performance at the level of $p<0.05$ is significant.

Conclusion

The results showed that there was a significant positive relationship between critical thinking and academic performance and review of some previous research has also demonstrated this case we can pointed out the research such as Gloudemans *et al.*, (2012), Kevin and Gary (2009), Anderson *et al* (2004), Nasrabadi *et al.*, (2012) and Ahmad (2011).

These findings can be explained that students with high levels of critical thinking because have high power to receive and process of information and organize it in an appropriate way, having the powers of reasoning and deduction, curiosity, tolerance and mind openness, Power to detect and the avoidance of prejudice, they can better meet the educational tasks and challenges and therefore they have higher academic performance than those with lower levels of critical thinking.

Other findings of this study were a significant positive correlation between achievement motivation and academic performance, this finding is consistent with the results of the following research:

Kim and Chung (2012), Kumbultz (2007), Ruhland and his colleagues (2007), Slavin (2006), and Vakilli and (2011), Yaghobi and his colleagues (2010)

It should be noted that people have differ emotional reactions when they faced with the superiority criteria, People with high achievement motivation, generally tendency to hope, pride, anticipation and pleasure, but people with low achievement motivation generally tendency to avoiding emotions, such as anxiety, fear and defense of failure.

When people are faced with the excellence criteria, they show differences in their choices, efforts, stability and willingness to accept responsibility for the consequences of their success or failure.

People who have high level of achievement motivation compared to those with low level of achievement motivation, rather easy assignments they choose rather difficult or difficult task, they have more try in relatively difficult task and show better performance because pride and hope makes them stronger (Reeve Translated by Mohamadi, 2009).

The results of this study showed that there is a significant positive relationship between creative thinking and academic performance previous research confirms this finding such as

Chan (2012), Tekin and Tasgin (2009), Ghodrati *et al.*, (2011) and Khezri (2009). In explaining these findings, we can say that from the perspective of Guilford (1987; quoted Sayf, 2010), that divergent thinking has features such as fluid, flexibility, novelty, composition and analysis.

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Research Article

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