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Comparison of critical thinking and self-efficacy beliefs in Male and Female Students (Case study: Mashhad Azad University)

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ABSTRACT

In the present century, a considerable attention is given to critical thinking. On the other side, self-efficacy has a dignified position in different aspects of life and plays an important role in people's thinking, how to face the problems and decision making. So, the present study aims at investigating the critical thinking and self-efficacy beliefs in male and female students. The present study have used descriptive and comparison method. So, 298 graduate students of Mashhad Azad University (201 female and 97 male) have been randomly selected based on Krejcie and Morgan table in multiple stage clustering and California form B questionnaire of critical thinking (1994) and public self-efficacy of Sheerer (1982) were used to evaluate the participants. The data were analyzed using the descriptive statistics of mean and standard deviation and deductive statistics of independent t-test. Findings of the study showed that there is no significant difference between male and female students in terms of critical thinking. It means that both genders are at the same level of critical thinking ($t = 0.45, p > 0/05$). In addition, there is no significant difference between male and female students in terms of self-efficacy. It means that both genders are at the same level of self-efficacy ($t = 0.89, p > 0.05$). The results of the study indicated that male and female students are at the same level of critical thinking and self-efficacy.

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INTRODUCTION

In the present century, there is considerable attention given to critical thinking, special national committees have been established for dealing with educational quality and have mentioned lack of ability to do critical thinking in the educational systems and wanted to place teaching critical thinking in curriculums as the fourth educational element after reading, writing and calculating and all the educational academic systems provided some courses in critical thinking as the prerequisite for students' graduation. Students cannot have critical thinking ability unless they can change their perception about reality and think about available realities. The question is about nature and the factors effective on critical thinking are discussed in this field and since critical thinking is an important issue in teaching process, creating a basic understanding of different meanings seems inevitable. However, different definitions are given about critical thinking but there is no agreement about the question that "what is critical thinking?"

Lyutykh believed that critical thinking is the correct way of thinking; Bowel defines critical thinking as involvement, reasonable decision making and responsibility about what is done. According to Bensley [7] critical thinking is a complicated process and enhancing one which needs special practices for thinking and using the taught skills in new conditions. Some others believe that critical thinking is created by special skills such as the ability to evaluate the reasons and measuring the existed reasons. Mason quoted Blumand defined critical thinking as higher levels of thinking (analysis, synthesis and evaluation). Annis stated that critical thinking happens when a person analysis the discussion precisely and is looking for the valuable evidences and reaches a correct judgement. Ballen said that critical thinking is a reasonable thinking which focuses on what we have and do. Finally, Facion and Facion defined critical thinking including the evaluation, deduction, induction and analysis skills. Mazino stated that critical thinking is reasonable thinking and focusing on deciding about what should be believed and done. In a general theoretical framework, Whitehead considered the main important element of critical thinking as interest and motivation for students. He believes that when students do

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not have a motivation for using critical thinking, suggesting a framework for teaching and using this thinking is useless. In order to create such motivation for students, they have to involve actively with real issues and need clear feedback of the professors for developing critical thinking.

On the other side, self-efficacy believes have a significant value and position in different aspects of life and how to face the problems and decide is very important in people's thinking [9]. Pajars states that self-efficacy is related to the judgments of the people about their abilities for meeting the designed levels of the performance. Self-efficacy may be defined as a level of self-confidence of people. But Bandura [2] defines self-efficacy as the level of people's beliefs about their abilities to do a special work or believing to be efficient in a special activity. According to Schultz people with weak self-efficacy avoid the problems and choose high factors for themselves which finally end in continuous defeats; Tierney believes that self-efficacy is the belief of a person about the abilities which is the consequence of innovation. Bandura [3] believes that self-efficacy believes in personal abilities for organizing and performing which leads to advancements. Sherer and Madux stated that self-efficacy is not only for a special condition or occasion but it is pattern of cognitive process for compatibility. So, they have proposed general self-efficacy and defined it as a collection of different experiences in success and defeats which people transforms them to new conditions. According to Bandura and Luck [5] self-efficacy and personal goals create motivation and improve the performance. According to what is stated about critical thinking and self-efficacy, the present study is done for studying and comparing the self-efficacy and critical thinking of male and female students. Finally, 298 questionnaires (201 female and 97 male) were studied and the data was analyzed using descriptive statistics (mean and standard deviation) and deductive statistics (independent t-test).

Research Method:

Population, sample and sampling method:

Population of the present study includes all the undergraduate students of Mashhad Azad University which have been studying during 2013-2014. 307 of the students (102 males and 205 females) are selected based on Kerjcie and Morgan chart based on random multiple stage clustering method and California form B questionnaire of critical thinking (1994) and public self-efficacy of Sheerer were used to evaluate the participants.

Research Instruments:

The instruments for collecting data were two questionnaires of Form B California critical thinking questionnaire and Sherer general self-efficacy scale.

- Form B California critical thinking questionnaire includes 34 questions with a correct answer in five fields of critical thinking skills including evaluation, deduction, analysis, analogical reasoning and deductive reasoning. The time for answering the test was 45 minutes and final score will be 34. Since the questionnaire was used in Iran before and its reliability was confirmed, there was no need to measure the face validity and the studies y Eslami and Bahmanpour and Khalili Shabani and others (2001) defined 82.35 Cronbach alpha coefficient for reliability of the test. Maroufi, Yousef zade and Bakhshkar defined reliability coefficient of 0.072 and Athari [1] defined it as 0.071.
- Sherer General self-efficacy: it has 17 questions of 5 point Likert scale which measures three aspects of behavior : "initializing the behavior" , " continuing behavior" and " facing problems and limitations". Sherer and others scored the test based on 5-point Likert scale and each answer is rated from 1 to 5. Higher scores show stronger self-efficacy and lower scores show weaker self-efficacy. In the studies of Keshavarz and Sarkhoush (2013), Cronbach alpha was 0.79 and in the study of Buchra and Smith it was reported as 0.69.

Findings:

Descriptive findings:

Based on the results given in table 2 the maximum and minimum score in critical thinking for male and female students is 17 and 8 respectively. In self-efficacy scores the maximum and minimum scores for female students was 85, 13 respectively and for male it was 85 and 24.

Table 1: Scores of critical thinking and self-efficacy of students based on gender.

Gender	Critical thinking		Self-efficacy	
	min	max	min	max
Female	17	8	13	85
Male	17	8	24	85

Table 2 shows the statistical indices of descriptive statistics of mean and standard deviation based on scores for critical thinking and self-efficacy by gender. As it is obvious, male students have high mean scores of self-efficacy and critical thinking. In sum, it can be said that where the average of test scores in standard process of America was 89.15, the mean score of the students (65.13) were weak and are not satisfying. But all the students are at a good level of self-efficacy (63.25).

Table 2: Descriptive statistics of self-efficacy and critical thinking of the students based on gender.

Variable	Female n-201		Male n-97		Total n-298	
	Means	Standard deviation	Means	Standard deviation	Means	Standard deviation
Critical thinking	62.12	81.3	70.12	74.3	65.13	79.3
Self-efficacy	56.65	75.20	53.65	16.19	25.63	22.20

Deductive Findings:

In table 3, the results of the t-test for critical thinking of male and female students are provided. Based on the results of this table, there is no significant relationship between critical thinking of male and female students. It means that both gender are at the same level of critical thinking ($t=0.48$, $p > 0.05$).

Table 3: The results of independent t-test for comparing the ratio of critical thinking of the students based on gender.

Variable	gender	M	SD	t	df	p
Critical thinking	Female	62.12	77.1	-0.48	295	0.75
	Male	70.12	70.1			

The results of the independent t-test for self-efficacy of the students are reported based on gender. Based on the given results, there is no significant difference between male and female students in terms of self-efficacy. It means that both genders are at the same level of the self-efficacy ($t= 0.89$, $p > 0.05$).

Table 4: The results of independent t-test for comparing the ratio self-efficacy of the students based on gender.

Variable	gender	M	SD	t	df	p
Self-efficacy	Female	55.62	16.70	-0.89	295	3
	Male	52.64	13.11			

Results and conclusion:

The present study aimed at comparing and studying the critical thinking and self-efficacy of the male and female students at Mashhad Azad University. In descriptive parts, it is observed that male and female students have been at a proper level of self-efficacy but their scores on critical thinking were not at a proper level. The findings are in line with the findings of Shafiee, Khalili and Mesgarani and the study of Banihashemian, Seif and Mouazen [6].

It can be stated that academic curriculum was not able to empower the critical thinking ability of the students during the courses. Totally, it seems that critical thinking of male and female students are not at the proper level and another finding shows that there is no significant difference between male and female students in terms of critical thinking and both genders are at the same level ($t= -0.45$, $p > 0.05$).

The findings are in line with the findings of studies by Alhasan and Madhoum, Jamshidian and Farahani, Kamali and Zare, Courtis, Miller, Babaahmadi and Khalili and are not in line with the studies of Scofi and Imanian. In this study, the amount of critical thinking in boys was higher than girls. It can be concluded that lack of compatibility in the results is more related to cultural and family factors. Unfortunately, questioning and curiosity is not acceptable in Persian culture and so it prevents critical thinking. Another finding of the study is that male and females are at the same level of self-efficacy ($t= -0.98$, $p > 0.05$). The results are in line with the findings of Afrouz, Moutamedi, Morris, Arabi and colleagues and it is due to the fact that male students have more freedom compared to female students before entering the university. The self-efficacy differences between male and female reaches its peak at the age of 20 and then declines. By increase in female's entrance to universities, both groups will be at same level and so there is no significant different between them. It is suggested that educational systems have to practice critical thinking in universities and in addition to decreasing the content of courses; they have to pay more attention to thinking process of the students and challenging activities.

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