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On the Interconnection between Bloom's Critical Thinking Taxonomy & Listening Comprehension Performance of Iranian EFL Learners

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ABSTRACT

Embedded in Bloom's critical thinking taxonomy, the present study is to find the relationship between critical thinking and listening comprehension of Iranian elementary EFL learners focusing the moderating role of gender. Having diminished Oxford Quick Placement test, the researchers randomly selected 40 male and 40 female elementary-level Iranian EFL learners as the main participants in this study. California Critical Thinking Skills Test and the listening comprehension test designed by Danar Wijanarko (2010) based on Bloom's Taxonomy was also administered to find the possible significant relationship between critical thinking and listening comprehension of Iranian elementary EFL learners considering gender's moderating role. Using two-way ANOVA, Pearson correlation and regression analyses, the researchers found that there was no significant interaction among critical thinking, gender and listening comprehension ability of the learners. However, the findings indicated that there were significant positive relationships between the critical thinking ability and listening comprehension of both male and female participants. The findings point to the importance of critical thinking in language learning and teaching. The results make an implications avenue for policy makers, materials writers, teachers and learners.

Keywords: *Critical Thinking, Listening Comprehension, Gender, Bloom's Taxonomy, EFL Learners*

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1. Introduction

Critical thinking (CT) has been identified as one of the most important skills in education, individuals' personal and social lives (Guiller, Durndell & Ross, 2008; Hashemi and Ghanizadeh, 2012). It is also used to define how well different skills or competency in these skills is learned or mastered. The reason for the necessity of critical thinking in language education [for example, listening skill] is success in the contemporary world where the rate at which new knowledge is created is rapidly accelerating (Marin and Halpern, 2011). Furthermore, cultivation of critical thinking as an important goal of English language education (Lun et al., 2010) leads to individual differences in student learning. It also helps individuals to think and analyze critically about their own learning, and to strive and develop expertise in their areas of professionalism (Phan, 2010). A substantial

theoretical and empirical base now exists in the literature to demonstrate the association of critical thinking with learners' academic success (Lee & Loughran, 2000). Bloom (1956) in his taxonomy as his contributions to introducing critical thinking categorizes abilities of analysis, evaluation, and recognizing unstated assumptions as elements of critical thinking (Watson & Glaser, 2002). Bers (2005: 16-17) claimed that "because critical thinking takes place when learners operate in the analysis, synthesis, and evaluation phases, Bloom's taxonomy can be considered as an assessment of critical thinking".

Many studies have so far investigated different aspects of critical thinking and its relation to skills such as speaking (Soodmand & Rahimi, 2014), reading comprehension (Barjesteh & Vaseghi, 2012; Fahim & Haghighi, 2014),

and vocabulary learning (Purfallah & Gholami, 2014). Yet, the relationship between critical thinking as a pedagogical practice among different genders, learners and EFL listening comprehension has not so far obviously been investigated, especially in Iranian language institutes. In other words, although critical thinking has recently drawn attention in the literature on ELT, in which order Iranian EFL female and male learners are placed based on Bloom's taxonomy in their performance in language institutes' listening comprehension texts is still a niche in research literature.

The present study, therefore, filled in this gap on the necessity of including critical thinking in Iran's English language institutes for boosting listening skill among different genders to enable them to read, analyze and response the global challenges in education which has recently garnered attention. For this purpose, the current study focused on elementary-level Iranian EFL learners who are at the beginning of language socialization in their society to investigate whether the critical thinking may be equally observed for both genders.

2. Bloomian Taxonomy & Critical Thinking

In this study, Bloom's Taxonomy of educational objectives (Bloom et al., 1956) is selected as a theoretical framework to define critical thinking and analyze data because it is widely accepted among educators as an outline for socio-cognitive presence in classrooms. It also clearly describes the characteristics of higher order thinking skills, which many educational systems in different countries such as Iran are scaled and evaluated.

Specifically, teachers will be using Bloom's taxonomy as they explore concepts related to higher-order thinking and the relationship between language and cognition. It serves as a model that assists educators in presenting ideas and concepts at varying levels of thought. It outlines six types of cognitive thinking skills, ordered from the least to the most complex: knowledge, comprehension, application, analysis, synthesis, and evaluation (Bissell & Lemons, 2006).

Although the model is hierarchical, subsequent levels of the cognitive skills may include some, but not necessarily all, of the mastery required in the previous level. It is important for developing questions aimed at higher-order thinking. Critical thinking is most likely to take place when educational system goes for the six levels. "If teachers

are going to help learners develop problem-solving and reasoning skills, they must use activities and tasks that require higher-order thinking skills. In doing so, they also do a much better job of coaching children in their development and acquisition of academic language" (Himmele, 2009:83). Therefore, to empirically investigate such claims, it would be more practical to explore the efficiency of many educational systems through the higher levels on Bloom's Taxonomy (1956).

2.1. Lower-Order Thinking Skills

The first three levels of understanding (Knowledge, Comprehension and application) of the Bloom's taxonomy involve lower-order thinking skills. At the lowest level of the taxonomy is 'knowledge', followed by the next level "comprehension" that requires one to go beyond knowledge. At the next higher level is 'application', which is a level higher yet in that, the individual must also be able to apply what he or she has comprehended.

Knowledge: To Remember Facts and Recall Ideas

Bloom (1956:62) describes knowledge as the lowest level of abstraction. It involves remembering, either by recognition or recall, of ideas, material, or phenomena. In EFL listening classes, knowledge questions are often used during and after listening to encourage EFL classes to recall the content of the passage.

Comprehension: To Understand Text for Summarizing or Retelling What Was Taught

Comprehension is when learners can demonstrate a limited understanding of what was taught or listened but not evidence of a deep grasp of the topic or the implications of certain concepts on other aspects of life. Learners do not need to show that they understand connections between new concepts and other concepts learned or listened. Summarizing and retelling stories are common examples of activities that require comprehension.

Application: To Apply an Abstract Concept in a Concrete Situation

Bloom (1956) refers to application as "the use of abstractions in particular and concrete situations" (p. 205). Application is often confused with synthesis. Whereas synthesis requires learners to consolidate what they have learned/listened into something new that had not existed before, application often requires learners to simply apply as they have been instructed to do. Application does not involve the creativity that synthesis requires. The teacher, not the



student, provides the abstractions. Application questioning before listening encourages learners to anticipate what is possible; questioning during the listening helps the learners to focus on the function of the topic and questioning after listening helps the learners to apply the concept in a new situation.

2.2. Higher-Order Thinking Skills

The last three levels of understanding (Analysis, Synthesis, and Evaluation) of Bloom's taxonomy of Educational objectives entail higher order thinking skills. Analysis, which requires one to appraise critically what one comprehends and applies. A level higher up is 'synthesis', which requires putting together in a somewhat creative way the knowledge one has analyzed. Finally, the highest level is 'evaluation', which is a broad and critical appraisal of the knowledge one has analyzed and synthesized.

Analysis: To Breakdown the Internal Components of Learned Material to Understand How They Fit Together or Affect One Another

Bloom(1956:205) describes analysis as “ the breakdown of a communication into its constituent elements or parts such that the relative hierarchy of ideas is made clear and/or the relations between the ideas expressed are made explicit”.When learners are analyzing, they are examining different components of what is being learned, looking at more than merely definitions.

Synthesis: To Consolidate and Connect Learned Material to Create Something New

Bloom (1956:206) defines “synthesis as the putting together of elements and parts so as to form a whole. This involves the process of working with pieces, parts, elements, etc., and arranging and combining them in such a way as to constitute a pattern or structure not clearly there before” .As already noted, synthesis is commonly confused with application. Himmele (2009:84) described the distinct difference between the two is that with application, learners apply abstract concepts to defined situations. Results for all learners usually look the same. With synthesis, learners take what they have learned and create something that is new to them.

Evaluation: To Evaluate something based on What has been Learned

Evaluation seems to be one of the most misunderstood levels on Bloom's taxonomy. It is not simply asking a student to give his or her opinion. Instead, using

evaluation, learners realize that their opinion must be based on learned information. Bloom defines evaluation as “quantitative and qualitative judgments about the extent to which material and methods satisfy criteria” (Bloom 1956:207). The criteria would be the concepts learned.

3. Empirical Studies on Bloom's Taxonomy & Critical Thinking

The researchers, in the following section, provide some studies relevant to the Bloom's Taxonomy in order to highlight the novelty of the research and construct a base for later justifications and implications.

In 2017, Morton & Colbert-Getz explored the influence of the flipped classroom for first year medical students at the University Of Utah School Of Medicine based on Bloom's taxonomy. The aim of this study was to determine if the discrepancy in results of previous research is because of cognition level (low or high) needed to perform well on the outcome, or course assessment. In this study, items were categorized as requiring knowledge (low cognition), application, or analysis (high cognition). Mann Whitney tests indicated flipped classroom students performed better than lecture classroom students on analysis items, but there were no differences in performance between two group students for knowledge or application items.

Sadeghi and Mahdipour's analysis in 2015 on Iranian Language Institute textbooks indicated that these textbooks prevalently employ the lower order cognitive skills rather than the higher order ones. On the whole, they could not observe any considerable difference among the series in terms of cognitive categories.

In the same year, Zamani and Rezvani (2015) examined such SAMT English textbooks as linguistics, methodology, and language testing. The findings revealed that all textbooks attempts to represent lower order thinking skills while higher order thinking skills in some cases are manifested. However, it seems that language testing textbook compared to other textbooks seems a considerable difference in the language testing among the three textbooks in terms of its manifestation of higher order thinking skills.

In 2014, Askaripour analyzed the new version of Top Notch series and results indicated that in these textbooks, lower order thinking skills are considered as more prevalent skills. He found a considerable difference among the textbooks in their

inclusion of different levels of learning objectives. Finally, the study revealed the weak presence of metacognitive knowledge.

Igbaria's (2013) study in the Horizons textbook indicated that the analysis level more than the other two levels of synthesis and evaluation among the higher levels of thinking. Assaly and Igbaria (2014) examined Master Class textbook and findings revealed that almost one third of the total number of activities in the six units promoted learners to make use of analysis, synthesis, and evaluation.

Using Bloom's taxonomy, Barjesteh and Vaseghi (2012) probed the role of critical thinking skills in EFL learners' reading comprehension performance. Their results showed that critical thinking could positively affect EFL learners' reading comprehension.

Gordani (2010) examined various types of learning objectives embedded in Iranian secondary English textbooks in terms of Bloom's taxonomy. He found that the textbooks promote the first three levels of Bloom's taxonomy as the lower levels of cognitive skills. However, there is an important difference in the application of various levels of cognitive skills among the textbooks. This study can increase educational syllabus designers, and textbook developers' awareness to modify their practice and materials in such a way as to achieve higher levels of learning objectives.

In terms of Bloom's taxonomy, Ali (2010) analyzed the reading texts in series of student book (SB) and (WB) of English for Palestine which are taught in Grade 9 Palestinian. In fact, the main objective was to identify the areas of weaknesses in these reading texts and exercises. For the study purpose, the researcher collected the needed data through a content analysis card and a structured interview. As the results represented, throughout the textbooks, the same types of questions were repeated; 2 reading question texts belonging to the application category, and none in the categories of analysis, synthesis, and evaluation. Therefore, this concentration of questions in the two lowest levels of thinking indicated very little stimulation of the higher thinking processes in the textbooks used in the colleges.

In the other study, Injeong et.al (2009) examined the type of questions embedded in geography textbooks. The findings showed that textbook questions focus on low – level spatial concepts more frequent than high – level spatial concepts; few questions entail

learners to generate different kinds of spatial representations and promote higher – order cognitive skills.

khorsand, in 2009, examined the cognitive levels of reading comprehension tests used by Iranian EFL teachers. According to this analysis only 4.19% Iranian EFL teachers-made questions were directed toward the highest three levels of Bloom's taxonomy, and 95.81% questions were aimed at the three lowest levels of Bloom's taxonomy.

In 2008, Stokes analyzed verbs and questions extracted from 24 accounting textbooks i.e. Financial Accounting, Intermediate Financial Accounting, Advanced Financial Accounting, Managerial Accounting, Cost Accounting, and Auditing. Results of the study was similar to Gordani (2010)'s findings. In fact, the verbs in the textbooks were positioned at the lower learning levels of the cognitive domain.

In this study, Errol Thompson, et.al (2008) examined assessment tasks in terms of Bloom taxonomy. They explained each of the Bloom classification categories and provided an interpretation with concrete exemplars for computer science educators in programming assessment. In fact, they suggested that Bloom's taxonomy contribute to designing examinations with the high quality.

Similarly, in the study of Rahman (2004) the reading syllabus and reading materials used at the intermediate level in Bangladesh were examined. Therefore, the research attempted to discuss the new trends in reading pedagogy and then by an empirical study investigated to which extent it represented higher thinking skills in the reading syllabus. The study triangulated findings taken from learners and teachers' interview, learners' and teachers' questionnaire survey, administering reading tests and classroom observation; further, the reading materials were also evaluated. This study highlighted the point that learners have faced with some problems in most sub skills of reading since reading teaching and learning approaches were still backdated and the higher skills, in general, were neglected.

furthermore, in order to find out the question levels included in third – grade social textbooks, Risner (2000) explored the two series textbooks i.e. "communities: Harcourt Brace Social Studies" and "Communities: Macmillan – McGraw Social Studies". Based on the results, these textbooks provide opportunities with elementary learners to comprehend apply,



synthesize, and evaluate critically social studies concepts.

For evaluating the higher thinking skills according to Bloom's taxonomy, Alul (2000) evaluated the reading questions in the Eighth Grade English Textbooks taught in Palestine (1999-2000) to examine whether both higher and lower level questions were covered in the intended textbook. It is worth noting that lower and higher level question groups were calculated, frequencies and percentages were tabulated and represented by bar graphs to facilitate the analysis of the results. He found out the similar results i.e. the predominance of lower level questions in the textbook.

As reviewed above, to the researchers' best knowledge, the role of critical thinking based on bloom's taxonomy has been examined mostly in various textbooks such as language, geography, social studies, and science textbooks; in reading and its relationship with cognitive and affective variables was examined more than other variables. There is a paucity research empirically focusing on critical thinking and listening comprehension as mediated by gender especially in EFL contexts like Iran.

3.1 Research Questions & Hypotheses

This study attempts to provide answers for the following research questions and hypotheses:

1. Is there any significant relationship between listening comprehension and critical thinking as mediated by gender?
2. Is there any significant relationship between listening comprehension performance of Iranian female EFL learners and their critical thinking?
3. Is there any significant relationship between listening comprehension performance of Iranian male EFL learners and their critical thinking?

The following null hypotheses were formulated.

1. There is no significant relationship between gender, listening comprehension and critical thinking.
2. There is no significant relationship between listening comprehension performance of Iranian female EFL learners and their critical thinking.
3. There is no significant relationship between listening comprehension performance of Iranian female EFL learners and their critical thinking.

4. Research Methodology

4.1 Participants

40 male and 40 female elementary-level Iranian EFL learners participated in this study. In fact, they were selected based on convenience sampling method from a few language institutes in Gorgan, Golestan including Gap, Ofogh and Iran Language Institute. The level of the learners was determined by the results of Oxford Quick Placement Test (2004). The first language of the learners was Persian.

4.2 Instruments

In the present study, at first, Oxford Quick Placement test (see appendix A) was administered to determine the language proficiency level of the participants and classify them into lower-intermediate and upper-intermediate levels. Then, the researchers used the test designed by Dikha Wijanarko (2010) (see appendix B) to examine the listening comprehension ability of EFL learners based on Bloom's Taxonomy (1956). This test has 30 items (each sub-skill has 5 items) and its reliability has been reported to be 0.82 (Stapleton, 2011). It tries to find the listening comprehension by testing the test taker's ability in 6 sub-skills of critical thinking which are named and described below:

A. Remembering

- Recalling information (recognizing, listing, describing, retrieving, naming, finding)
- Retrieve knowledge from long-term memory.
- Locating knowledge in long-term memory that is consistent with presented material.
- Retrieving relevant knowledge from long-term memory.

B. Understanding

- Explaining ideas or concepts (interpreting, summarizing, paraphrasing, classifying, explaining)
- Construct meaning from instructional messaging, including oral, written, or graphic communication
- Changing from one form of representation to another
- Finding a specific example or illustration of a concept or principles
- Determining that something belongs to a category
- Abstracting a general theme or major point(s)
- Drawing a logical conclusion from presented information
- Detecting correspondences between two ideas, objects, and the like Constructing a cause and effect model of system

C. Applying

- Using information in another familiar situation (implementing, carrying out, using, executing)
- Applying a procedure to a familiar task
- Applying a procedure to an unfamiliar task

D. Analyzing

- Breaking information into parts to explore understandings and relationships (comparing, organizing, deconstructing, interrogating, finding)
- Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose
- Distinguishing relevant from irrelevant parts or information from unimportant parts of presented material
- Determining how elements fit or function within structure
- Determine a point of view, bias, values, or intent underlying presented materials.

E. Evaluating

- Justifying a decision of course of action
- Make judgment based on criteria and standards
- Detecting inconsistencies or fallacies, within process or product, determining whether a process or product has internal consistency; detecting the effectiveness of a procedure as it is being implemented
- Detecting inconsistencies between a product has external consistency; detecting the appropriateness of a procedure for a given problem.

F. Creating

- Generating new ideas, products, or ways of viewing things (designing, constructing, planning, producing, inventing)
- Put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure
- Coming up with alternative hypotheses based on criteria
- Devising a procedure for accomplishing some task
- Inventing a product

Last but not least, the researcher used the California Critical Thinking Skills Test including 34 multiple choice questions with one correct answer in five different areas of critical thinking skills, including evaluation, inference, analysis, inductive reasoning and deductive reasoning. The final score is 34 and the achieved score in each section of the test varies from 0 to 16. In the evaluation section, the maximum point is 14, in analysis section 9, in inference section 11, in inductive reasoning 16 and in deductive reasoning the maximum point was 14. So

there were 6 scores for each participant, which included a critical thinking total score and 5 scores for critical thinking skills. The reliability of this test using KR20 has been reported to be .78 to .80 (Fasione, 1990). Khodamorady et al. (2006) have translated this test into Persian and have reported satisfactory construct validity for the scale. They reported reliability of .73 for the whole test and .71 for analysis, .77 for evaluation, .77 for inference, .71 for deductive reasoning, and .71 for inductive reasoning respectively.

4.3 Data Collection Procedure

To collect the data necessary for this study, several steps were taken. First, the Oxford Quick Placement Test was administered to the learners to determine their level of proficiency and homogenize the groups. The learners had 40 minutes to complete the test. Next, the listening comprehension test was administered during a 30-minute session to find the listening ability of the learners. Finally, the California Critical Thinking Skills Test was administered to the participants to examine their critical thinking ability. The time allotted was 45 minutes. Exact scoring method was used for all the tests used in this study.

5. Research Findings

Descriptive and inferential statistics were used for the purpose of this study i.e. the role of gender was examined to find how the relationship between critical thinking and listening comprehension may be different for male and female test takers. As for the relationship between critical thinking, gender and listening comprehension (RQ 1), a two-way ANOVA was used. To find the relationship between the listening comprehension of female learners and their critical thinking ability (RQ2), Pearson Correlation was used. In addition, linear regression was used to find the predictive power of the test takers' critical thinking in listening comprehension. Finally, as for the relationship between the listening comprehension of male learners and their critical thinking ability (RQ 3), Pearson Correlation and linear regression analyses were run.

5.1. Checking the Normality of the Data

Before running the statistical tests to answer the research questions, the normality of the data was checked. Table 1 shows the descriptive statistics for critical thinking and listening comprehension tests.

Table 1: Descriptive Statistics for each test

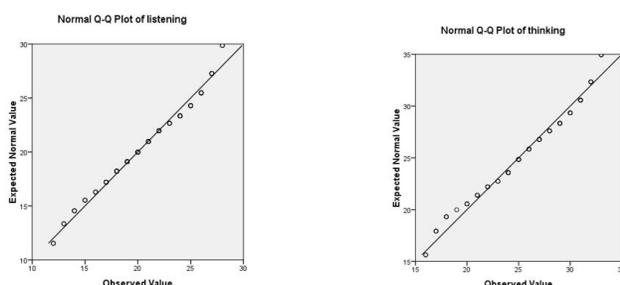


Test	N	MPS	Range	Mean	Std. Deviation	Variance	Skewness	Kurtosis
CT	80	30	16	20.70	4.17	17.40	-.15	-.79
LC	80	34	17	33.00	4.54	20.69	-.32	-.68

CT = critical thinking; LC = listening comprehension; MPS = maximum possible score

The above table indicates that the amount of Skewness coefficient and Kurtosis coefficient was less than 1. Therefore, the assumption of normality has been satisfied. Consequently, we could use the mean as an indicator of central tendency index, besides using the parametric statistics models. In addition, the graphic representation of the data indicated that the data were normally distributed. The following normal Q-Q plot curve clearly shows this.

Figure 1: Normal Q-Q Plot for the scores of post-test



The above curves show that the scores of the critical thinking and listening comprehension tests were normally distributed and thus we can use parametric statistics for our data analysis. In the next section, the results of parametric statistical analyses are reported.

5.2 Results for the First Research Question

The first research question of this study addressed the relationship and interaction between critical thinking, gender and listening comprehension. In this case, we have two independent variables (critical thinking, gender) and one dependent variable (listening comprehension). A two-way ANOVA was thus run to answer this research question. Table 2 shows the results of Levene’s test of equality.

Table: 2 Levene’s Test of Equality of Error Variances.

F	df1	df2	Sig.
.738	34	45	.821

Design: Intercept + thinking + gender

Levene’s test was used to assess the homogeneity of variances and whether the assumption of equal variances has been met or not. As shown in Table 2, the result is not significant ($p > .05$), so it indicates that the

differences between group variances is not significant and the assumption of homogeneity of variances has been met. The main output of ANOVA is shown and reported in Table 3.

Table 3: Tests of Between Subjects Effects

Source	df	F	Sig.
Corrected model	18	65.542	.000*
Intercept	1	2.078	.000*
Thinking	17	68.877	.000*
Gender	1	.976	.327
Error	61		
Total	80		
Corrected total	79		

*: Significant at the .01 level

The results of Table 3 show that there is a significant main effect of critical thinking. The F-ratio is highly significant showing that the score of the learners on critical thinking significantly affected their listening comprehension, $F(17, 61) = 68.88, p < .01$. This means that when we ignore whether the participant was male or female, critical thinking influenced the level of listening comprehension. The next part of the table indicates the main effect of gender. This time the F-ratio is not significant which means there was a non-significant role of gender in the listening comprehension of the participants, $F(1, 61) = .976, p > .05$. This means that when we ignore the role of critical thinking, the gender of the test takers did not influence their listening comprehension ability. The overall findings of this part show that the null hypothesis predicting no significant relationship between genders, critical thinking and listening comprehension should be confirmed.

5.3. Results for the Second Research Question

The second research question of this study intended to examine the relationship between the listening comprehension performance of Iranian female EFL learners and their critical thinking ability. For this purpose, Pearson correlation was run. In addition, linear regression was used to find the predictive power of critical thinking in test takers’ listening comprehension. Table 4 shows the results of correlation analysis.

Table 4: Pearson Correlation for critical thinking and listening comprehension (female group)

Test	Info	LC
Critical thinking	Pearson correlation	.831*
	Sig (2-tailed)	.000
N		40

*: Significant at the .01 level

As indicated in the table, the correlation between the critical thinking ability of female EFL learners and their listening comprehension was found to be highly significant ($p < .01$). The following table shows the predictive power of critical thinking in listening comprehension using linear regression.

Table 5: Linear Regression Analysis for Critical Thinking and Listening Comprehension (female group)

Dependent	Model	F	t	Sig	β
Listening	Constant	816.04	-3.983	.000 ^a	
	CT		28.567	.000	.81*

CT = critical thinking; * = significant at the .01 level

a. Predictor: (Constant), critical thinking

Table 5 also displays critical thinking could significantly predict the listening comprehension performance of female EFL learners. It was able to predict 81% of the variance in listening comprehension which was statistically significant ($\beta = .81$, $p < .01$). The results of regression analysis, thus, confirmed the results of correlation analysis and led to the rejection of the second null hypothesis predicting no significant relationship between the critical thinking ability and listening comprehension of elementary female EFL learners.

5.4. Results for the Third Research Question

The third research question tried to examine the relationship between the listening comprehension performance of Iranian male EFL learners and their critical thinking ability. The same statistical procedures were used to answer this question and check the null hypothesis. Table 6 shows the results of correlation analysis.

Table 6: Pearson Correlation for critical thinking and listening comprehension (male group)

Test	Info	LC
Critical thinking	Pearson correlation	.894*
	Sig (2-tailed)	.000
N		40

*: Significant at the .01 level

As shown in the table, the correlation between the critical thinking ability of male EFL learners and their listening comprehension was found to be highly significant ($p < .01$). Linear regression was also run to find the predictive power of critical thinking in listening comprehension. The following table shows the results of this analysis.

Table 7: Linear regression analysis for critical thinking in listening comprehension (male group)

Dependent	Model	F	t	Sig	β
Listening	Constant	454.37	-.656	.000 ^a	
	CT		21.316	.000	.87*

CT = critical thinking; * = significant at the .01 level

a. Predictor: (Constant), critical thinking

As indicated in Table 7, critical thinking could significantly predict the listening comprehension performance of male EFL learners. It could predict 87% of the performance on listening comprehension and this prediction was statistically significant ($\beta = .87$, $p < .01$). Consequently, the total results of correlation and regression analyses rejected the third null hypothesis of this study which predicted no significant relationship between the critical thinking ability and listening comprehension of elementary male EFL learners.

6. Discussion & Conclusions

The results of two-way ANOVA for the first research question indicated that while critical thinking had a significant relationship with the listening comprehension of the EFL learners, gender did not influence this relationship. In other words, when the role of critical thinking is ignored, being male or female could not affect the listening comprehension of the learners and there was no significant interaction between critical thinking, gender and listening comprehension. The findings of Pearson correlation and linear regression analyses for the second research question indicated that there was a highly significant relationship between the critical thinking ability of female EFL learners and their listening comprehension performance. Similarly, the same statistical procedures were run for the third research question and the results provided evidence for a significant positive relationship between the critical thinking ability of the male EFL learners and their listening comprehension. The overall findings led to the rejection of the second and third null hypotheses while the first null hypothesis was confirmed and retained.



The findings of this study are in line with the findings of other studies which found a positive relationship between the critical thinking ability of EFL learners and their language competence and performance (see e.g. Barjesteh & Vaseghi, 2012; Hashemi & Ghanizadeh, 2012; Nour Mohammadi et al., 2012; Talebinejad & Matou, 2012; Alizamani et al., 2013; Soodmand Afshar & Rahimi, 2014). This means that critical thinking should be paid more attention as a crucial skill to be practiced in EFL classes. In Iran, as found by Atai and Mazlum (2013), higher cognitive abilities like critical thinking and inferencing strategies are not instructed and practiced. The findings of this study proved that critical thinking instruction can be beneficial for improving the listening comprehension of Iranian elementary EFL learners.

As Talebinejad and Matou (2012) for the use of critical thinking reading strategies in EFL classes, used observations and questionnaires to find how frequently critical thinking reading strategies and questions are used in Iran. They found that most teachers devote time to questions other than critical thinking reading questions and learners had serious problems with such questions. This means that critical thinking is not practiced well in Iranian ELT classes while the results of this study showed that it can positively correlate with the learners' listening comprehension.

Therefore, critical thinking (CT) has been identified as one of the most important skills in education, individuals' personal and social lives (Guiller et al., 2008; Hashemi and Ghanizadeh, 2012). The reason for this is that to think critically is essential for success in the contemporary world where the rate at which new knowledge is created is rapidly accelerating (Marin and Halpern, 2011). Consequently, in line with previous studies which acknowledged the significance of critical thinking in education, the results of study also point to the importance of improving the learners' critical thinking in their listening comprehension. This attention should be paid to both male and female learners as the findings of this study showed that gender did not influence the relationship between critical thinking and listening comprehension.

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