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Teachers' use of Bloom's higher order questions in class to augment EFL learners' listening comprehension and critical thinking ability

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Abstract

The current emphasis on questioning techniques has inspired many EFL teachers to explore the impact of applying different pedagogical teaching strategies on the enhancement of thinking skills. Therefore, the present study aims to investigate the influence of using higher order questioning technique on the listening comprehension achievement and critical thinking ability of Iranian intermediate EFL learners. To reach this end, 40 participants in 4 intact classes in Kish Air Language institute in Mashhad were selected and divided in two groups to be assigned into experimental and control group. The experimental group received higher order questions based on Bloom's Taxonomy classification for 12 sessions. A pretest and a posttest of English listening comprehension test of TOEFL (TOEFL PBT) and California Critical Thinking Skill Test (CCTST) were administrated in both groups. 2 Independent sample t-tests were utilized to examine the data. Sample t-tests were run to compare the experimental and the control group means on the pretest and posttest of listening comprehension and critical thinking tests. The results surmised that there was a statistically significant difference between the pretest and posttest scores regarding listening comprehension and critical thinking in the experimental group. The results imply that using higher order questions as an instructional technique can enhance learners' listening comprehension achievement and critical thinking ability.

Keywords: Bloom's taxonomy, critical thinking, higher order questioning technique, listening comprehension ability

Introduction

One of the significant 21st century skills is critical thinking (CT), which is a term defined by many educators and researchers. Ennis (1985) gave a simple and intangible definition of CT as "reflective and reasonable thinking that is focused on deciding what to believe or do" (p. 45). Facione (1998) defined CT in a slightly more complex way and stated that critical thinking includes purposeful thinking while doing some tasks, for examples, when someone is proving a fact or idea,

interpreting what something means or solving a problem. However, Halpern (2007) substantiates the belief that CT is further than one's own thinking or making conclusions and solving problems by pointing out that it refers to the use of skills and strategies that will make desirable outcomes. Halpern (2007) considered critical thinking skills the same as higher order thinking skills.

That critical thinking regulates the learning process is not a new issue in language learning and skills. In fact, it has extensively been addressed by old theorists and educators. For example, Piaget (1971) and Vygotsky (1962) confirmed there are close associations between language and thinking skills (as cited in Faravani & Atai, 2015a). CT has been noticed for some decades, and more recently, it has reached a high position in foreign language teaching (FLT) settings (Birjandi & Bagherkazemi, 2010; Faravani, & Atai, 2015a; Faravani, A., & Atai, M. R. 2015b). In fact, educators have pondered the weight of critical thinking skills as an outcome of student learning (Ennis, 2011). Consequently, developing students' critical thinking has become a noteworthy notice in language education and educators from all over the world have regarded them as an essential part of learning (Birjandi & Bagherkazemi, 2010; Ennis, 2011). Consequently, by teaching students how to judge better or solve problems by reasoning, teachers can support students' promotion of skills and strategies, which in due course result in superior achievements (Faravani, & Atai, 2015a). Hence, critical thinking has influential effects on enhancing four language learning skills (Gaskaree, Mashhady, & Dousti, 2010). The results of some recent studies have unfolded a strong positive connection between critical thinking and listening comprehension ability (Nour Mohammadi, & Zare, 2015; Zare, Behjat, Abdollahimzadeh, & Izadi, 2013). Therefore, it seems that learners' critical thinking ability can be enhanced by improving listening comprehension ability (Birjandi & Rahimi, 2012).

Listening comprehension can be regarded as a basic ability in first language acquisition and important language skill to develop (Rost, 2002). Listening is also considered to have an important role when a learner is learning English as a foreign language (EFL). Regarding the vitality of listening in EFL classes, Nation and Newton (2008) stated that more than 50 percent of the students' time spend on functioning in a foreign language is dedicated to listening comprehension. Chastain (1988) highlighted the importance of this skill in second language learning by defining listening as the ability to understand the spoken second language which governs the use and learning of the second language. Listening also considerably regulates our daily communication and ushers in second/foreign language learning (Nunan, 2002). As Rost (2002) spotlighted, listening provides students with input in the classroom, which facilitates language learning.

Consequently, more notice has been on this skill recently, and it has gained more FL teachers' and researchers' attention. In view of the fact that listening

significantly inhibits the second language learning (Chastain, 1988; Richards, 2005), language teachers should make more effort to improve their students' listening comprehension to help them have more confidence and participation. According to Browne and Keeley (2007), listening critically, which is reacting with logical evaluation to what you have heard, requires a set of skills which are assembled around a series of relevant critical questions. As Browne and Keeley (2007) stated, critical questions asked by the teacher enhance motivation and provide direction for critical thinking; they make students advance towards a continuing progress for better opinions, decisions, or conclusions. Consequently, the role of the teacher's questions to meliorate the students' listening and thinking should be highlighted in language teaching courses and programs.

As Cotton (2001) pointed out, learners' critical thinking skills can be developed by teacher's questions in class. Teacher's questions are defined as instructional stimuli which express the content to be learned to students, and they provide instructions for what they should do as well as how they should do it (Cotton, 2001). In fact, one of the main purposes of teacher's questions is to eulogize students to be actively engaged in lessons (Cotton, 2001). Cotton (2001) declared that teachers' use of higher-level questions into the classroom may considerably and effectively develop students' critical thinking skills. Similarly, according to Wilen (1991), asking higher level of cognitive questions motivates students to use higher order thinking skills while low cognitive level questions entails understanding factual information to be memorized through rote learning (as cited in Shen & Yodkhumlue, 2012).

Employing higher cognitive levels of questions based on Blooms Taxonomy (BT) is one of the most common hierarchies which could be applied in the class. It was introduced by Bloom, Englehart, Furst, Hill, and Krathwohl (1956) as a model of relegating thinking pursuant to six cognitive levels of complexity. The three lowermost levels are nominated knowledge, comprehension, and application and the three supreme levels are called analysis, synthesis, and evaluation, respectively (Forehand, 2010). Kennedy, Fisher and Ennis (1991) claimed that the questions of higher order levels of Bloom's taxonomy (analysis, synthesis, and evaluation) represent critical thinking (as cited in Lai, 2011). Hence, if the teacher focuses to help students develop their critical thinking ability, he/she should mostly ask the higher-order levels questions.

To address the objectives of this study, following research questions are posed:

1. Does teacher's employing higher order questioning technique have any significant effects on Iranian EFL learners' listening comprehension ability?
2. Does teacher's employing higher order questioning technique have any significant effects on Iranian EFL learners' critical thinking ability?

2. Methodology

Participants and setting, instrumentation, instructional materials, procedure and study design and analysis are discussed.

2.1 Participants and setting

The study was conducted on a total of 40 Iranian intermediate EFL learners selected from Kish Air, an English Language Institute in Mashhad, Iran. The participants, who had enrolled for a general English course, were only female and aged 18- 42. They were university students in different majors or university graduates having different university degrees. Four intact classes served as experimental and control groups (2 classes for each group). The classes of participants in the experimental group classes were held on Saturdays and Wednesdays at 4-6 and 6-8 while the control group classes were held on Mondays and Thursdays at 4-6 and 6-8. Totally, the number of learners in both control and experimental group classes were the same. All the participants' first language was Persian, and English was their foreign language. In this institute, each term lasts about 2 months and consists of 15 sessions. The classes are held twice a week and each session lasts for 110 minutes.

2.2 Instrumentation

To conduct the study, 2 instruments including a listening comprehension test of TOEFL (TOEFL PBT) and California critical thinking skill test by Facione (1990) were employed.

2.2.1 Listening Comprehension Test

An English listening comprehension test of TOEFL (TOEFL PBT) consisting of 50 multiple-choice questions was administered twice, as pre-test and post-test. The test, which took the participants 45 minutes, was selected from a book named TOEFL Actual Tests administrated in the past by ETS (educational testing service) (2005). The book includes the answer key as well as the CD. The book has 7 tests including 3 sections each test (part A, B, C). Test 5 was selected in this study and 3 sections were played in the class. The mentioned book was selected for 2 main reasons. First, TOFEL tests are considered as standard tests and have been used in various studies. The second reason is that the researcher assumed the learners could not have had easy access to the test.

The reliability coefficient of this test was calculated after piloting it in 2 classes of intermediate level in the morning classes of Kish Air Institute in Mashhad.

Cronbach's Alpha	N of Items
.807	50

Tab. 1: Reliability Statistics; Piloting Pretest of listening comprehension

The Cronbach's alpha reliability index for the pretest piloted on a group of 27 participants as displayed in Table 3.1 was 0.80.

Cronbach's Alpha	N of Items
.827	50

Tab. 2: Reliability Statistics; Piloting Posttest of listening comprehension

As it is shown in Table 3.2, the Cronbach's alpha reliability index for the posttest piloted on the same participants was 0.82 (Table 3.2).

2.2.2 California Critical Thinking Skill Test (CCTST)

The CCTST- form B is used to measure students' critical thinking ability. According to Facione (1990), for testing critical thinking of adults at levels above high school, form B of CCTST is appropriate. CCTST includes five areas of evaluation, inference, analysis, inductive reasoning and deductive reasoning. The reliability of CCTST after applying as stated by Facione (1990) was equal to 0.78 to 0.80. The CCTST- form B was translated into Persian and was edited by Persian and English language experts and was back translated to ensure the validity of the translation (Soodmand Afshar, & Rahimi, 2014). In 2003, the translated CCTST Form B (Persian version) was given to 405 BSN nursing students of Nursing Faculties of Shahid Beheshti University located in Tehran, Iran (Khalili, & Hosseinzadeh, 2003). Khalili and Hossein Zadeh (2003) found this test and its subscales enjoyed acceptable reliability (calculated through KR-20), validity (measured through factor analysis and KMO and Bartlett's Test of Sphericity), and normality indices in Iranian context (as cited in Soodmand Afshar, Rahimi & Rahimi, 2014).

In order for all participants (both good and poor learners) to have an easier understanding of the questionnaire, the Persian version was administered as pre-test and post-test. The test contains 34 multiple choice questions, each with one correct answer. The highest score of this test is 34 (1 score for each correct answer), and the time for taking the test is 45 minutes.

2.3 Procedure

On May, 2017, 40 Iranian intermediate learners who had enrolled in an English course in Kish language institute were chosen for this study. The participants, who were in 4 different classes, were assigned to 2 groups of experimental and control with a total of 20 subjects in each group. The data collection procedure lasted the Institute term, which usually runs for 2 months including 15 sessions. The classes were held twice a week and each session lasted 110 minutes. Before starting the procedure, all the participants were called, informed about the importance of

being present from the beginning of the term to the end, and asked not to be absent during the term.

On the first stage, which started in the first session, 2 groups were given the English listening test of TOEFL (TOFEL PBT), consisting of 50 multiple choice questions selected from the book named TOEFL to measure their listening proficiency. The CD of listening comprehension test was played once in the class. The estimated time for taking the test was 40 minutes but actually it took more, about 45 minutes. Before administrating the test, it had been piloted with 27 students who had participated in 2 morning intermediate classes in the same institute twice to calculate the acceptable reliability. The reliability coefficient of the test calculated was .80, which was considered acceptable for the study. Next, it was given to 2 groups in the afternoon to answer the test at the beginning of each class. In the second session, the teacher introduced and clarified the Persian version of CCTST- form B to the all students. Then, the test including 34 items was administered to measure students' critical thinking skills as pre-test in both experimental and control groups at the beginning of the classes. The time allocated for answering to the test questions was 45 minutes. Cronbach' alpha showed the reliability of 0.62 (Khalili, & Hossein, 2003) . The second stage was applying the treatment in the experimental group, which was asking the students higher order thinking questions based on Blooms Cognitive Taxonomy. The employing of the treatment started in the second session. The book named Basic Tactics for listening, the second edition (2011), was worked on in both groups. The determined time for working on the book was 20 minutes for 12 sessions in both groups, and the textbook named Insight Out was worked on as the suggested book by the institute in the rest of the classes. The same determined parts of 12 units selected from the listening book were played in all classes (each unit in one session). First, the teacher introduced the topic and asked students same questions related to the topic as a warm-up in both groups. Then, the audio was played twice for all participants in both groups, and the questions were asked by the teacher after the second time of playing. The participants were not given the book because the book includes a mixture of different levels of questions. However, they were allowed to take their own notes. The number of questions asked by the teacher was the same both groups but the levels of questions were different based on Bloom's taxonomy. In the control group, those questions were in low order levels of Bloom' cognitive Taxonomy including knowledge, comprehension and application. In the experimental group, the students were asked some questions of high order levels of Bloom's cognitive taxonomy classified as analysis, synthesis and evaluation based on sample verbs listed by Huitt (2004), (see Appendix I). The final stage included giving the post-tests in both groups. In session 14, students of both groups were given the listening comprehension test of TOEFL test, (TOFEL

PBT). The time allocated was 45 minutes. Then, the Persian version of CCTST- form B again was given as post-test.

3.4 Instructional materials

The material used during the course was a book named *Tactics for listening*, second edition (2011) by Jack C. Richards. It is a comprehensive, three-level listening series classified in basic, developing and expanding levels. For this research, *Basic Tactics for Listening* (the first volume) was selected because it matched the level of intermediate English learners.

3.5 Study design and analysis

This study followed cause and effect research and the selected design quantitative. The data gathered from the two tests was quantitatively analyzed through SPSS 25 (2018) software. A factor analysis was run to probe the construct validity of the pretest and post-test of LC and CT. Two independent T-Tests were run to compare the two groups' means on the pre and post-tests of LC and CT to see if there was any effectiveness of the treatment in learners' LC and CT.

In this research, the independent variable is higher order questioning techniques and the dependent variables are listening comprehension and critical thinking ability. The study aimed to investigate the significant effect of higher order questioning technique on enhancing students' listening comprehension and critical thinking ability to see if there was any significant difference between the experimental and control groups.

4. Results

In this part, the data is analyzed and the hypotheses are discussed statistically.

4.1 Descriptive Analysis of the Data

The mentioned research questions in this study were analyzed using independent-samples t-test which has two main assumptions; normality of the data and homogeneity of variances of the groups. A normality test was run to determine if the data set was well-modeled by a normal distribution and to compute how likely it is for a random variable underlying the data set to be normally distributed. Table 4 shows the skewness and kurtosis indices and their ratios over the standard errors.

Field (2013) clearly stated that the ratios of skewness and kurtosis over their standard errors should be computed and compared against the value of 1.96 (Field, 2013). Since the absolute values of the computed ratios were lower than 1.96, it can be concluded that the present data met the normality assumption.

Group		N	Skewness			Kurtosis		
		Statistic	Statistic	Std. Error	Ratio	Statistic	Std. Error	Ratio
Experimental	Pre-LC	20	.260	.512	0.51	-.756	.992	-0.76
	Post-LC	20	-.578	.512	-1.13	-.480	.992	-0.48
	Pre-CT	20	-.648	.512	-1.27	1.013	.992	1.02
	Post-CT	20	.364	.512	0.71	-.568	.992	-0.57
Control	Pre-LC	20	.567	.512	1.11	-.543	.992	-0.55
	Post-LC	20	-.074	.512	-0.14	-.915	.992	-0.92
	Pre-CT	20	-.180	.512	-0.35	-.003	.992	0.00
	Post-CT	20	-.978	.512	-1.91	.858	.992	0.86

Tab. 4: Descriptive Statistics; Testing Normality Assumption

An independent-sample t-test was also run to compare the experimental and control groups' means on the pretest of listening comprehension in order to prove that the two groups were homogenous in terms of their listening ability prior to the administration of the treatments.

Table 5 presents the means of the experimental and control group on the pretest of listening comprehension.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pretest	Experimental	20	22.90	7.643	1.709
Listening	Control	20	20.20	6.879	1.538

Tab. 5: Descriptive Statistics; Pretest of Listening Comprehension by Groups

As displayed in Table 5, the experimental ($M = 22.90$, $SD = 7.64$) and the control ($M = 20.20$, $SD = 6.78$) groups had fairly close means on the pretest of listening comprehension. The results of the independent-samples t-test; Pretest of listening comprehension by Groups is displayed in Table 6.

As it is shown in Table 6, ($t(38) = 1.17$, $p = .248$, 95 % CI [-1.95, 7.35], $r = .216$ represents a weak effect size) indicated that there was not any significant difference between the two groups' means on the pretest of listening comprehension (Field, 2013). Thus it can be claimed that the two groups were homogenous in terms of their listening ability prior to the main study.

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.502	.483	1.174	38	.248	2.700	2.299	-1.955	7.355
Equal variances not assumed			1.174	37.587	.248	2.700	2.299	-1.956	7.356

Tab. 6: Independent-Samples t-test; Pretest of Listening Comprehension by Groups

Another independent-samples t-test was run to compare the experimental and control groups' means on the pretest of critical thinking in order to prove that the two groups were homogenous in terms of their critical thinking ability prior to the administration of the treatments. Table 7 presents the control and the experimental means on pretest of critical thinking.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Pretest Critical Thinking	Experimental	20	11.85	3.031	.678
	Control	20	12.20	2.783	.622

Tab. 7: Descriptive Statistics; Pretest of Critical Thinking by Groups

As displayed in Table 7, the experimental ($M = 11.85$, $SD = 3.03$) and the control ($M = 12.20$, $SD = 2.78$) groups had fairly close means on the pretest of critical thinking. The results of the independent-samples t-test, as displayed in Table 4.5, ($t(38) = .380$, $p = .706$, 95 % CI [-1.51, 2.21], $r = .062$ representing a weak effect size) indicated that there was not any significant difference between the two groups' means on the pretest of critical thinking (Field, 2013). Thus it can be claimed that the two groups were homogenous in terms of their critical thinking ability prior to the main study.

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.072	.790	.380	38	.706	.350	.920	-1.513	2.213
Equal variances not assumed			.380	37.727	.706	.350	.920	-1.513	2.213

Tab. 8: Independent-Samples t-test; Pretest of Critical Thinking by Groups

It should also be noted that the assumption of homogeneity of variances was retained. The results of the Levene's test ($F = .072$, $p = .790$) were non-significant. That is why the first row of Table 8, i.e. "Equal variances assumed" was reported

4.2 Results and discussion for the first research question

An independent-samples t-test was run to compare the experimental and control groups' means on the posttest of listening comprehension in order to probe the first null-hypothesis.

	Group	N	Mean	Std. Deviation	Std. Error Mean
Posttest Listening	Experimental	20	29.25	5.476	1.224
	Control	20	20.70	4.473	1.000

Tab. 9: Descriptive Statistics; Posttest of Listening Comprehension by Groups

As displayed in Table 4.6, the experimental ($M = 29.25$, $SD = 5.47$) had higher mean than the control group ($M = 20.70$, $SD = 4.47$) on the posttest of listening comprehension.

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.916	.345	5.408	38	.000	8.550	1.581	5.349	11.751
Equal variances not assumed			5.408	36.545	.000	8.550	1.581	5.345	11.755

Tab. 10: Independent-Samples t-test; Posttest of Listening Comprehension by Groups

The results of the independent-samples t-test, as displayed in Table 10, ($t(38) = 5.40$, $p = .000$, 95 % CI [5.34, 11.75], $r = .659$) representing a large effect size) indicated that the experimental group significantly outperformed the control group on the posttest of listening comprehension (Field, 2013). Thus the first null-hypothesis was rejected.

As the results of data analysis showed, there was a statistically significant difference between students' performance in listening comprehension in pretest and posttest. Therefore, we concluded teachers questioning techniques and types of questions could play a significant role in enhancing EFL learners' listening comprehension ability. The result of this study can be a support to the study done by Birjandi and Rahimi (2012) in this regard. They examined the effect of metacognitive strategy instructions on the listening performance of EFL university students. The experimental group received the strategy training, while the control group received no instruction. The results revealed that experimental group significantly performed better on the posttest measure. Therefore, it could be confirmed that listening could be enhanced in different strategies employed in the class by the teacher. One of these strategies could be posing types of questions to encourage students think deeply and analyze the audio. Employing higher order cognitive questions in the class help students understand the speakers' feelings, attitudes from the context. The result of this study is also similar to what Coskun (2010) did in a similar way to prove the role of teacher's instructions and

questions. He investigated the effect of metacognitive listening strategy training on the listening performance of a group of beginners at a university in Turkey. The experimental group received metacognitive strategy training embedded into a listening course book during 5 weeks, while the other group did not no strategy training. At the end of the training, a listening test from the teacher's manual of the same course book was taken to both groups. The analysis of the test scores revealed that the experimental group did statistically better in the test.

4.3. Results and discussion for the second research question

An independent-samples t-test was run to compare the experimental and control groups' means on the posttest of critical thinking in order to probe the second null-hypothesis as "employing higher order questions did not have any significant effects on Iranian EFL learners' critical thinking". As displayed in Table 11, the experimental ($M = 18.30$, $SD = 3.31$) group had a higher mean on the posttest of critical thinking than the control group ($M = 13.15$, $SD = 3.18$).

	Group	N	Mean	Std. Deviation	Std. Error Mean
Posttest Critical Thinking	Experimental	20	18.30	3.310	.740
	Control	20	13.15	3.183	.712

Tab. 11: Descriptive Statistics; Posttest of Critical Thinking by Groups

The results of the independent-samples t-test, as displayed in Table 12 ($t(38) = 5.01$, $p = .000$, 95 % CI [3.07, 7.22], $r = .631$ representing a large effect size) indicated that the experimental group significantly outperformed the control group on the posttest of critical thinking (Field, 2013). Thus the second null-hypothesis was rejected.

It should also be noted that the assumption of homogeneity of variances was retained. The results of the Levene's test ($F = .248$, $p = .621$) were non-significant. That is why the first row of Table 12, i.e. "Equal variances assumed" was reported. Research question number one attempted to answer the question of whether there is any significant effect of teacher's employing higher order questions on learners' listening comprehension ability.

Research question number two aimed to answer the question of whether there is any significant effect of teacher's employing higher order questions on learners' critical thinking ability. Similarly, the learners' critical thinking was influenced by the treatment, and students' performance showed that the experimental group had a higher mean on the posttest of critical thinking than the control group. It indicates that listeners should be able to scrutinize the speaker and the setting in order to discern the interlocutor's meaning. Hence, as some researchers have

claimed that there is a positive correlation between critical thinking and listening comprehension ability (Nour Mohammadi, & Zare, 2015; Zare, Behjat, Abdollahimzadeh, & Izadi, 2013), it seems that improving listening comprehension (LC) could result in learners' enhancement of critical thinking ability.

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.248	.621	5.015	38	.000	5.150	1.027	3.071	7.229
Equal variances not assumed			5.015	37.942	.000	5.150	1.027	3.071	7.229

Tab. 12: Independent-Samples t-test; Posttest of Critical Thinking by Groups

According to Browne and Keeley (2007), listening critically, which is reacting with logical evaluation to what you have heard, requires a set of skills. These skills are assembled around a series of relevant critical questions.

As Browne and Keeley (2007) pointed out, critical questions asked by the teacher provide motivation and direction for critical thinking; they make students advance toward a persistent, continuing progress for better opinions, decisions, or conclusions. Consequently, this study confirmed the role of teacher's questions to promote students' critical thinking. Discussions regarding the importance of fostering higher-order thinking skills and its positive effect on learners' achievement in EFL Iranian contexts have dominated research in recent years. For example, Fahim and Saeepor's (2011), inspected the impact of teaching critical thinking skills on reading comprehension skill of 60 Iranian EFL learners. The analysis of the collected data revealed that teaching critical thinking skills in EFL context can improve reading comprehension.

6. Conclusion and Implications

The analysis of the gathered data led to the following conclusions: First, the teacher's employing higher order questions has a positive impact on learners' listening comprehension ability. Second, there is also a positive effect of teacher's employing higher order questions on learners' critical thinking. The important difference in mean scores of pre-tests and post-tests in both control and experimental groups provides the evidence.

In this study, lower cognitive level questions were employed in the control group. Interestingly enough, students used lower levels of cognition because they were not required to reflect profoundly to find the answers to the questions. Consequently, those types of questions did not encourage students' critical thinking ability. On the other hand, asking higher order questions not only makes students remember factual knowledge but also gives confidence to students to use their knowledge to solve the problems and analyze the audio they receive. Based on the yielded results, it can be admitted that the level of cognitive growth in students is low when low cognitive level questions are asked. On the other hand, Bloom (1956) purported that students develop their cognition when practicing high cognitive questions and making connections between their previous knowledge and new unfamiliar information. Therefore, knowledge construction occurs through the process of thinking in learning (as cited in Dumteeb, 2009). Furthermore, the results unveiled the significant outperformance of students in the experimental group regarding critical thinking ability and their listening comprehension. That is, learners with better listening comprehension ability can develop their critical thinking. Moreover, the obtained results can vouch the results of numerous prior studies that investigated the connection between critical thinking and language learning achievement.

Therefore, findings of the study recommend teachers to use higher order questions more than lower order questions in classes. As a result, if the academic community extensively explores the content and focus of the lessons in textbooks and modify them or trains teachers to ask different high cognitive levels of questions, students may considerably advance in thinking and language learning. Training future teachers with awareness of various cognitive levels of questions seems to be necessary in TTC programs. Teacher trainers should make the future teachers aware of the necessity of classes which provide chances for students to go beyond textbook-knowledge absorption. In addition, asking high level questions possibly help students to have a better understanding of speakers' intentions as they can have more successful communication in the target language. In other words, this will also prepare them to be life-long critical thinkers in their society. As Ku (2009) believes, the purpose of modern education is teaching the elements of critical thinking since it enables the students to deal quickly and effectively with changes of the new world. In addition, critical thinking is essential

for students to perform well in school, future workplaces, and social and interpersonal contexts, (as cited in Birjandi & Bagherkazemi, 2010)

Finally, this study might encourage syllabus designers to apply various cognitive types of questions for listening activities in textbooks as such valuable activities in textbooks enable students not only remember factual knowledge but also think critically and expands their knowledge to solve problems, to analyze, and to evaluate. As a result, the findings of the study play a positive role in inhibiting educational settings regarding the cognitive levels of questions the teachers utilize in classes. To encapsulate, syllabus designers and material developers are advocated to prepare educated citizens with analytical abilities through making course books that mull over critical thinking as one of the efficient elements for learners' success.

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Appendix I: Sample Verbs of Bloom's Taxonomy

Citation: Huitt, W. (2004). Bloom et al.'s taxonomy of the cognitive domain. Educational Psychology Interactive. Valdosta, GA: Valdosta State University. Retrieved [date], from <http://chiron.valdosta.edu/whuitt/col/cogsys/bloom.html>.

Bloom et al.'s: Taxonomy of the Cognitive Domain

LEVEL	DEFINITION	SAMPLE VERBS	SAMPLE BEHAVIORS
KNOWLEDGE	Student recalls or recognizes information, ideas, and principles in the approximate form in which they were learned.	Write List Label Name State Define	The student will define the 6 levels of Bloom's taxonomy of the cognitive domain.
COMPREHENSION	Student translates, comprehends, or interprets information based on prior learning.	Explain Summarize Paraphrase Describe Illustrate	The student will explain the purpose of Bloom's taxonomy of the cognitive domain.
APPLICATION	Student selects, transfers, and uses data and principles to complete a problem or task with a minimum of direction.	Use Compute Solve Demonstrate Apply Construct	The student will write an instructional objective for each level of Bloom's taxonomy.
ANALYSIS	Student distinguishes, classifies, and relates the assumptions, hypotheses, evidence, or structure of a statement or question.	Analyze Categorize Compare Contrast Separate	The student will compare and contrast the cognitive and affective domains.
SYNTHESIS	Student originates, integrates, and combines ideas into a product, plan or proposal that is new to him or her.	Create Design Hypothesize Invent Develop	The student will design a classification scheme for writing educational objectives that combines the cognitive, affective, and psychomotor domains.
EVALUATION	Student appraises, assesses, or critiques on a basis of specific standards and criteria.	Judge Recommend Critique Justify	The student will judge the effectiveness of writing objectives using Bloom's taxonomy.

Text book: Tactics for Listening page: 44 Topic: prices
Level: Intermediate
Number of Participants: 21 Date: 9.6.2017 Approximate Time: 20 mins

Time	Teacher's activities	Learners' activities
5 minutes	Pre listening (warm-up): asking questions about prices of different issues in Iran like cars, clothes air travel ticket, etc.	Answering teachers questions
15 minutes	While and post listening activities : playing the audio twice and asking students 2 lower order questions about each numbers	Listening to the audio twice for each numbers and then answering the teacher's questions after listening to the audio
	Questions for number 1: why do people of speaker's country have problems buying a new car? In which country, people can afford a new car easier? Questions for number 2: how much does renting an apartment cost in speaker's country? What problems does the speaker mention about living in the U.S.A Questions for umber 3: in which country can he get cheaper clothes? Did people tell him the right fact about prices of clothes in the U.S.A? Questions for number 4: where does he come from? Why the are the prices of travel low in the U.S.A? Questions for number 5: do people spend a lot of money for public in speaker's country? Questions for number 6: do you need to have health insurance in the U.S.A? Does it cost to see a doctor a lot in his speaker?	Answering the teacher's questions

Appendix III: A Sample of Lesson Plan for Experimental Group

Text book: Tactics for Listening page: 44 Topic: prices

Level: Intermediate

Number of Participants: 21 Date: 8.6.2017 Approximate Time: 20 mins

[illegible]