

Does teaching critical thinking affect students' L2 attitudes?

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Received: 16 July, 2011

Accepted: 20 December, 2011

Abstract

The idea is growing among educators that thinking skill needs to be given a direct attention. On one hand, critical thinking is supposed to broaden students' thinking in all regards (Schafersman, 1991); and on the other hand learners' attitudes towards the second language can affect both their performance in the class and their final accomplishment. To this end, the present study started with the question of whether the application of critical thinking ability to English classes could affect learners' second language attitudes. The study was designed and conducted at an English language Institute. 4 classes were selected randomly (2 female and 2 male classes). They were divided into two experimental and control groups. In experimental classes learners practiced critical thinking skills, which was absent in the control group. Critical thinking principles were applied through 21 strategies developed by Ennis (2011). FLAGS (Foreign Language Attitudes and Goals Survey) questionnaire (Eva Cid, Gisela Gran~ena, Elsa Tragant, 2009) was given to students, both at the beginning and at the end of the semester, which were considered as the pre and post-tests for statistical computations. The results revealed a significantly higher second language attitude in participants who went through critical thinking instruction. In addition, applying critical thinking skills in the class affected students' level of goal orientation in terms of learning a second language. The research encourages English language teachers to incorporate critical thinking skills into their instructions.

Keywords: critical thinking, L2 attitudes, critical thinking instruction, goal survey

Introduction

In traditional classes, teachers are only to transfer information to students through didactic instruction. Such instruction is a teacher-centered one (Jensen, 2000). Students, here, passively receive the information while little interaction happens between them and their teachers. Freire (1970) uses the term "banking" education to describe such classes. In this system, teachers teach and students are taught. Teachers are all-knowing, while students know nothing. Teachers talk, while students listen. Therefore, in the "banking" education system there is an unequal relationship which challenges any attempt to have an

atmosphere of inquiry and genuine interaction, since students are considered to be mere receivers, and teachers assess them in terms of how the receiving phase was done perfectly.

Didactic instruction has been questioned in recent years. Many scholars believe that didactic instruction is harmful to students' learning process, since it does not push learners to think critically and does not involve them actively in class (Apol, 1998; Shannon, 1995). Since the traditional education system deliberately infuses some values into students, through which students are to find correct answers and interpretations. Accordingly, being deep in a set of ideologies, students are unlikely to turn into critical thinkers

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(Scheffer, 1973).

There is a growing agreement coming up among educationalists to pay a direct attention to thinking skill. Since, thinking is felt to be a skill that can be improved by paying attention and practice of some basic skills. There is an old idea saying that thinking skill is developed as the by product of such subjects as geography and history, etc. but the idea is no longer plausible. Some thinking skills concerned with the sorting of information may be taught in this way (while this is not the whole picture), but this is not true for all thinking skills. It is widely believed that critical thinking is to be taught to learners.

On the other hand, language attitude plays a critical role in teaching and learning a second language. Students' future actions are affected by their attitudes toward the language they are going to learn and toward the people who speak that language.

Since critical thinking is supposed to widen the scope of students' thinking and since it is described as the scientific method applied by ordinary people to the ordinary world (Schafersman, 1991), it is expected that critical thinking (through its ability to widen students' views) gives rise to learners' attitudes toward a second language, since learners in this way can approach the second language as a source of information which can open to numerous doors.

In view of all these, the article intended to investigate if students revise their views toward English language (as their second language) through the critical thinking viewpoint which they practiced during a semester.

Critical Thinking

Martin Luther King once said that the function of any education is to teach people to think critically (Hobbs, 2010). Critical thinking is now being in vogue in educational reform. A large number of educators have pointed to the significance of critical thinking in education, they are pointing out that "how to think" is as important as "what to think" in such contexts (Schafersman, 1991). Critical thinking might be considered as one of the keys in educational success for students and teachers. Critical thinking research focuses on how to develop this skill in learners (e.g., Dantas-Whitney, 2002).

A great number of definitions of critical thinking can be found in the literature. Siegel (1988) defines critical thinking as "the educational cog

nate of rationality, and a critical thinker as one who is "appropriately moved by reasons" (p.32). And Paul (1985, p. 37) defines it as "learning how to ask and answer questions of analysis, synthesis and evaluation". Characteristics of critical thinking, as Paul (1990) puts, are the ability to discipline and control thinking to process information more easily, effectively and efficiently (cited in Longman, Atkinson & Breeden, 1997).

Critical thinking is considered as an exercise in higher order thinking skills, and the ability to think logically based on appraised information according to certain criteria (Puthikanon, 2009). But all in all, it has been argued that people in Asian cultures are less proficient in critical thinking "because they are socialized to be adopted and to conform" (Atkinson, 1997).

The American Philosophical Association's (APA's) Delphi Report (1990) believes that critical thinking has six core elements: interpretation, analysis, evaluation, inference, explanation, and self-regulation. That is, students should know how to comprehend and express meaning or significance. They should know how to identify implicit and explicit relationship and to give logical assessment. Moreover, after interpretation, analysis, and evaluation, learners are to know how to monitor their cognitive process, draw reasonable and logical conclusions, and illustrate the results. Based on APA's definition (1990), ideal critical thinkers should be inquisitive, well-informed, logical, and open-minded. Besides, they should be honest in facing their biases and be careful in making judgments.

In the field of English as a second language (ESL), it is believed that critical thinking is a concept illusive to teaching in L2 classrooms and it is expected that learners learn it through their upbringing; accordingly in this view, critical thinking is considered to be a "social practice" (Atkinson, 1997).

Many scholars have written some characteristics of critical thinkers. According to Ennis (1997a) a critical thinker:

1. Is open-minded and mindful of alternatives
2. Desires to be, and is, well-informed
3. Judges well the credibility of sources
4. Identifies reasons, assumptions, and conclusions
5. Asks appropriate clarifying questions
6. Judges well the quality of an argument, including its reasons, assumptions, evidence, and their degree of support for the conclusion

7. Can well develop and defend a reasonable position regarding a belief or an action, doing justice to challenges
8. Formulates plausible hypotheses
9. Plans and conducts experiments well
10. Defines terms in a way appropriate for the context
11. Draws conclusions when warranted – but with caution
12. Integrates all of the above aspects of critical thinking

When thinking critically, we assess the results of our thought processes—how good a decision is or how well a problem is solved (Halpern, 1996, 1998). The definition covers a wide area and encompasses a variety of standpoints, so critical thinking can be taught as argument analysis (Kahane, 1997), problem solving (Mayer, 1992), decision making (Dawes, 1988), or cognitive process (Rabinowitz, 1993). Regardless of the academic background of the instructor or the language used to describe critical thinking, all of these approaches share a set of common assumptions: there are identifiable critical thinking skills that can be taught and learned, and when students learn these skills and apply them appropriately, they become better thinkers.

But, is critical thinking best taught in a separate course or infused within existing courses? The question assumes that it will not be both. Actually, it would be best to do both if conditions permit to incorporating Critical Thinking in a curriculum (Ennis, 1997b).

It has been argued, from another perspective, that there are two types of embedding critical thinking into a course: infusion and immersion. Infusion takes place when critical thinking principles are somehow made explicit, while immersion the principles are not made explicit, although the treatment of the subject matter might be very deep and involving. These two are two ends of a continuum, and in between we can have the ranging mixture (Ennis, 1997b).

Critical thinking courses can have two goals: first to help learners think critically in their everyday lives (vocational, social and personal) and second to help learners think critically in the subject of their courses (Ennis, 1997b).

There are studies which have dug in the effect of critical thinking on different aspect of learners' cognition. Khodabakhsh et al. (2013) came up with the results saying that using critical thinking tasks could improve the paragraph writing ability

of EFL learners. Birjandi and Bagherkazemi (2010), focused on EFL teachers, and found that there was a significant positive relationship between Iranian EFL teacher's critical thinking ability and their pedagogical success. Helsdingen, et al. (2010) carried out a research on the effect of critical thinking on decision making. The findings showed that teaching critical thinking through story building, self-explanation and reflection could benefit training and transfer of tactical decision-making for relative novice decision makers.

Ushida (2005) investigated the role of students' motivation and attitudes in second language (L2) study within an online language course context (LOL). In the study Students' learning behaviors and learning outcomes were used as predictor and criterion variables. The findings provided some evidence that motivated students studied regularly and productively to take every opportunity to perfect their language skills. The findings reinforced the importance of students' attitudes in L2 study.

Attitude

Attitudinal factors are deep in students' minds; accordingly it is very difficult to provide a holistic understanding of them. But this did not limit the endeavor to find out if these factors can affect L2 learning. Various studies conducted in the area of learners' attitudes tried to shed light on the effects of students' attitudes toward learning an L2, mostly the studies focused on the learners' perceptions of English as an L2 and their opinions about it.

Attitude is also recognized as an important concept to understand human behavior and is considered as a mental state that includes beliefs and feelings (Latchanna & Dagnew, 2009). Beliefs are one of the essential points correlating with learning a second language (Ajzen, 1988). Students' beliefs can hinder their learning, if they are turning a negative view toward their ability to learn a new language (Lennartsson, 2008). Ellis also states that negative attitudes can impede learning a language (1994). But the good news is that students' negative attitudes can change into positive, leading in turn to positive results (Lennartsson, 2008). Holding positive attitudes towards learning a language is surely a good start for learning a language. As Kramsch (2006) indicates language learners are the whole persons with hearts, bodies, and minds, backgrounds, etc.,

not only communicators and problem-solvers, and the whole needs to be taken into considerations.

Lambert (1963) proposed a "social psychological model" to put emphasis on the cognitive factors like language aptitudes and intelligence as well as affective factors such as attitudes and motivation. In the model, he articulates that degree of individuals' successful acquiring of a second language depends upon ethnocentric tendencies, attitudes towards the other community, orientation towards language learning and motivation.

The relationship between students' background (cultural or the like) and the one added by a L2 culture often has an effect on students' attitudes toward the second language. That's why some researchers (e.g. Lambert, 1990) speak of two major types of bilingualism: 'additive' and 'subtractive'. In the former, the learners think they are adding something new to their repertoire by learning a new language, while nothing is taken away in return. In the latter, they think learning a new language threatens their prior knowledge. Successful language learners are considered to be in the former category. But this is only one aspect of second language attitude not the whole story. Some other aspects are also involved in succeeding in learning a second language.

It is generally accepted that knowing English language is a key to success in academic or professional life. A student's attitude toward learning the language is one of the important factors affecting success in learning English. So, teachers and educators should consider attitudinal factors (as one of the factors) in designing English language courses or developing instructional contents (Hall, 2009).

Ellis (2000) mentions that positive attitudes towards the L2 and its speakers can be expected to enhance learning while negative attitudes impede it. There are ways to improve students' attitudes toward a second language.

In the literature there are some studies which have targeted learners' attitudes. In a research study of the effect of critical thinking on learners attitudes towards English literature, Fahim and Khatib (2013) found that critical thinking could increase learners' attitude toward literature significantly. Truitt (1995), in a study regarding the attitude of language learners towards language learning, found that their attitudes and beliefs may vary based on their cultural background

and prior experiences. Malallah (2000) investigated the attitudes of Arab learners towards English language and discovered that they had positive attitudes towards the English language; it was also found that their proficiency levels were positively correlated with their attitude towards English.

The study aimed to find out if teaching critical thinking skills can affect learners' attitudes toward English as their second language. The study was conducted at Navid Institute of Marvdasht city, Fars Province. Four classes were selected randomly out of six classes which were available to the researcher. Two out of four classes were females and the other two were males.

By flipping a coin, two classes (one male and one female) were chosen as control groups and the other two as experimental groups. A total of 58 learners participated in the study. 31 in the experimental group (14 males and 17 females) and 27 in the control group (12 males and 15 females).

Based on the classes participants were attending, and based on the institute's educational report, participants were low intermediate English learners. They were studying English in level 4 (from 12) (in the range level 1 was considered as the beginner and 12 as high advance). Thus, homogeneity was assured. Participants' ages ranged from 12 to 17.

Just as implied in definitions of critical thinking across subject areas and levels, there are several generally recognized "hallmarks" of teaching for critical thinking (see, for example, Beyer, 1985; Costa, 1985). These include:

- Promoting interaction among students as they learn; learning in a group setting often helps each member achieve more.
- Asking open-ended questions that do not assume the "one right answer" - Critical thinking is often exemplified best when the problems are inherently ill-defined and do not have a "right" answer. Open-ended questions also encourage students to think and respond creatively, without fear of giving the "wrong" answer.
- Allowing sufficient time for students to reflect on the questions asked or problems posed; critical thinking seldom involves snap judgments; therefore, posing questions and allowing ad

equate time before soliciting responses helps students understand that they are expected to deliberate and to ponder, and that the immediate response is not always the best response.

- Teaching for transfer; the skills for critical thinking should "travel well." They generally will do so only if teachers provide opportunities for students to see how a newly acquired skill can apply to other situations and to the student's own experience (in Bonnie, 1994).

The above points were all considered and practiced in the context of this study. The researcher tried to apply all the points in every single session of the classroom.

In the experimental groups, the researchers took some texts (The texts were taken from "Teaching Thinking Skills with Picture Books, K-3", published by *teacher ideas press*, London, 2007), besides the course book, and tried to implement the above mentioned points, when teaching both the course book, and the supplementary texts.

In the control classes, the learners' course book was taught along with the same texts which were used in experimental classes as supplementary material. The only difference was that in control classes the texts were taught as reading comprehension and no further critical thinking activities were carried out.

The book, from which the extra texts were taken, covers the following topics for teaching high order thinking: Analogy, Analysis, Associative Thinking, Attribute Listing, Brain storm, Classification, Comparing, Comprehension, Decision Making, Deductive Thinking, Elaboration, Evaluation, Flexibility, Fluency, Forecasting, Generalizing, Hypothesizing, Imagination, Infering, Interpret, Judging, Knowledge, Language Development, Originality, Patterning, Phonemic Awareness, Planning, Predicting, Problem Solving, Questioning: Higher Order, Research For Beginners, Reversible Thinking and Sequencing.

Instruments

Since the study was going to investigate the effects of teaching critical thinking English classes on the students' attitudes towards English as their second language, it was necessary to provide a basis for further comparison between learners' attitudes before and after receiving critical thinking instruction. So FLAGS (Foreign Language

Attitudes and Goals Survey) questionnaire (Eva Cid, Gisela Gran~ena, Elsa Tragant, 2009) was given to students of both classes at the beginning of the semester. The same questionnaire was given to learners at the end of the term to see if teaching critical thinking principles could change their attitudes toward their second language (English). The statistical analysis of the questionnaires was conducted using SPSS 16.0 software. Using Cronbach's alpha, the internal reliability of the FLAGS questionnaire was 0.89. Regarding validity, the questionnaire was examined by 4 PhD students of TEFL at Allameh Tabataba'i University, concluding that the questionnaire was content valid.

FLAGS (Foreign Language Attitudes and Goals Survey) (Eva Cid, et.al. 2009), included 59 items (in English) and it was divided into two sections. Section I included 40 items (half of them negatively worded), 34 statements referring to attitudes and six negatively worded statements referring to goal orientations. Students were asked to show their level of agreement with the statements out of four options ('very much agree', 'moderately agree', 'slightly disagree' and 'totally disagree'). Section II included 18 positively worded goal orientations. Students were asked to show the level of importance they attributed to the items, which were preceded by one of these two prompts 'I would like to learn English. . .'/'I am interested in learning English. . .'. Students could choose among four options: 'very important', 'moderately important', 'not very important' and 'not important at all'. Need to mention that the researcher was available in the class, as learners were taking the questionnaire, to obviate any potential language problems.

Teaching critical thinking principles was done based on 21 strategies developed by Ennis gleaned through years of experience, research, and others' suggestions (Ennis, 2011). He says these strategies are guidelines and need to be adjusted to fit the actual situation. The list of these strategies is presented in appendix no. 1.

Result and Discussion

The study intended to explore the effects of incorporation of critical thinking skills into English class on students' second language attitudes. To this end, the same attitude questionnaire was given to the students both at the beginning and at the end of the semester to both experimental and control group. The question

naire was in fact given to experimental group both before and after incorporation of critical thinking into their classrooms. The results showed that incorporation of critical thinking skills into experimental classes brings positive effects on students' second language attitudes. The results of hypothesis testing are described below.

H0: There is no relationship between incorporating critical thinking skills into English classes and students' second language attitudes.

To test the Hypothesis, the results of both attitude questionnaires as pre-test (at the beginning of the term) and post-test (at the end of the term) for both experimental and control groups were compared through paired sample t-test. The results of comparison between the pre and post-tests of experimental groups are presented in table no. 1. And the results of comparison between pre and post-tests of control groups appear in table no.2.

Table 1.
Paired Samples Test; experimental group

Paired Samples Test, Experimental group		Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
	Pre-test attitude								
Pair 1	– post-test attitude	35.452	17.504	3.144	41.872	29.031	11.277	30	.000

As shown in table no. 1, the sig. level .000 implies that the difference between pre and post-tests of experimental classes is significant at the level of $P=0.01$. It means that there is a significant difference between the mean scores of the

pre and post-tests of experimental group. In other words, applying critical thinking skills to experimental classes helped learners to improve their second language attitudes significantly.

Table 2.
Paired Samples Test; control group

		Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Pair 1	Pre-test attitude – post-test attitude	6.037	11.254	2.166	10.489	1.585	2.787	26	.010

Table no. 2 shows the results for the comparison between pre and post-tests of control classes. As shown in the table, the significance level is 0.010 which is smaller than the assumed significance (0.05), meaning that the differences between the students' mean scores on pre-test questionnaire and the post-test one is significant. In other words, significant changes in students' attitudes happened at the end of the semester compared to the beginning of the semester. Since after

a semester of studying General English, learners' attitudes changed significantly in both classes, we were to find out if the changes in both groups are the same. Here another computation is needed to find out if the differences between the experimental and control group in their pre- and post-tests are significant. To this end, two independent t-tests were run between pre-tests of the both experimental and control groups and the post-tests of the experimental and control groups.

Table 3.**Independent Samples Test between experimental and control groups for both pre- and post-test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Differ- ence	Std. Error Dif- feren- ce	95% Confidence Interval of the Difference	
									Lower	Upper
Pre-test attitude question- naire	Equal vari- ances assumed	13.565	.001	.170	56	.866	1.324	7.799	16.946	14.299
	Equal vari- ances not as- sumed			.175	51.744	.862	1.324	7.574	16.524	13.876
Post-test attitude question- naire	Equal vari- ances assumed	2.941	.092	5.085	56	.000	28.091	5.525	17.024	39.158
	Equal vari- ances not as- sumed			5.107	55.653	.000	28.091	5.501	17.070	39.111

Table no. 3 pays attention to the comparisons of pre-test of experimental group with pre-test of control group on one hand and post-test of experimental group with post-test of control group on the other hand. It can be observed from the table that the significance value for pre-tests of both control and experimental groups is 0.001 which is much less than 0.05, so we should refer to the second row of the same shelf which says "equal variances not assumed". The 0.862 (Sig. 2-tailed) says that the two groups can be considered as homogeneous regarding their attitudes towards the second language in their pre-tests.

The bottom shelf of the above table (no.3) shows a sig. of .092, since it is greater than the assumed significance 0.05, we are to go to the first row of the shelf meaning that the equal variances should be assumed. The 2-tailed Sig. (.000) reveals that the two groups (experimental and control) are no longer homogeneous in their post-tests, and that there is a significant difference between the two groups. In other words it can be said that the application of critical thinking made

a significant change in students' attitudes towards their second language, English.

As seen from the tables 1 and 2 both are significant, meaning that the differences between pre and post-tests of experimental group was significant and the same was true for those of control group. But a look at the mean difference between pre and post-tests of experimental group, which is 35.4 (table 1), and the mean difference between pre and post-tests of control group, which is 6.03 (table 2) speaks loud enough of a difference between the post-tests of the experimental and control groups, since table no. 3 showed that the groups were homogeneous in their performances on the pre-tests. To put it in another way, it can be said that the critical thinking application in experimental group created a significant difference between the post tests of experimental and control groups.

The means of both pre- and post-tests for both experimental and control groups, their standard deviations, along with the number of participants for each group are presented in table no.4.

Table 4.**Group Statistics**

	group	N	Mean	Std. Deviation	Std. Error Mean
Pre-test attitude questionnaire	experimental	31	142.94	34.743	6.240
	control	27	144.26	22.307	4.293
Post-test attitude questionnaire	experimental	31	178.39	21.577	3.875
	control	27	148.81	11.787	2.268

The study here investigated whether the incorporation of critical thinking skills into the English classes can boost their L2 attitudes. The research results revealed that the students who went through critical thinking instruction showed to grow a significantly higher and more positive attitudes towards their second language (English). In addition, after applying the critical thinking skills in the class, students in the experimental group attained a higher level of goal orientation in terms of learning a second language; this was inferred from the results of the questionnaire, since the questionnaire FLAGS paid attention to both Foreign Language Attitudes and Goals Survey.

Critical thinking, through its numerous merits which are reiterated in the literature and which also can be implied from the definitions of the term, is capable of improving learners' abilities to see from different eyes, to help them sit on the fence and learn without impeding presuppositions, and to provide learners with more and more opportunities to enter the realms of unknown. On the other hand, learners' attitudes toward a second language or the people who use that language are a key to their success in learning the second language. One of the goals of English teachers in their classes is to enhance learners' second language attitudes in order to accelerate students' learning.

The usual education system favors students as passive learners in which knowledge is expected to be transmitted in one-way direction, from the teacher to the student (Krasue & O'Brien, 2001). Also, the education institutions, instead of raising students' critical thinking abilities, tend to get the students into the dominant ideology by promoting a specific set of values. However, in the critical thinking learning environment, students are empowered to influence the learning process both inside and outside of the classroom. They are encouraged to bring their own voices and questions, and likes and dislikes to the class. Teachers are not the sole authorities any more, and learners are not to accept the second language in the way their teachers believe, they can see the language in line with their own system of beliefs and values. The goal of critical thinking in English class is to help learners be open-minded to different viewpoints and arguments through dialogical interactions and ultimately change their negative attitudes toward their second language. Hence, it is required that both teachers and students be

open and willing to listen to alternative views, which can present learners with open horizons which suit their standards.

In the critical thinking English class, teachers are always to remember that their authorities are not to dominate the class and they are to behave in a way to allow students take the responsibilities of their learning. The power is to be shared with students and let them bring up their opinions and values. Moreover, critical thinking encourages students to reflect on issues from multiple perspectives.

The application of critical thinking to English classes intends to create a comfortable English learning environment in which students are willing to participate in class interaction, and accept language as an alternative which can help them in many regards, not only as something which is to be learnt because their teachers or parents want. In order to let students feel comfortable and secured, the class should be turned into a non-competitive one which ensures the psychological and emotional safety for students, this all happen when learners are to utter their voices freely in the class.

As known, some learners are discouraged by their negative attitudes towards the second language they are learning. Incorporating critical thinking into English classrooms can be a good way to kill two birds with one stone; on one hand learners' critical thinking can be improved which is a key to their educational and personal lives' success, and on the other hand, it can give rise to learners' second language attitudes which in its own turn is a powerful determinant of learners' success. Findings of the study were in line with the study carried out by Fahim and Khatib (2013), as they found that critical thinking could raise learners' attitude significantly. Regarding the fact that a positive attitude can bring about higher motivation and openness to what learners are exposed to in or out of the class (Ajzen, 1988; Lennartsson, 2008; Ellis, 1994), the study's findings were also in line with Malallah's (2000) findings as they discovered that participants' proficiency levels were positively correlated with their attitude towards English.

Conclusion

Incorporating critical thinking instruction in the second language curricula can bring about significant changes in some aspects, one of which is language learners' attitudes. As reiterated in the

relevant literature language learners' attitudes can play a critical role in their rate of success in learning a second language. On the other hand mainline research of second language acquisition has adopted critical thinking to find the implication for second language learning. Second language research on critical thinking has mostly paid attention to enhancing learning and skills development. The study focused on the effect of critical thinking instruction on second language learners' attitudes towards learning a second language. These findings may have implications for language educators, for incorporating critical thinking activities in the course books and curricula can provide language learners' with a more positive attitude towards language and language learning. The implications can be equally valid for language teachers, since they can help learners in this regard by applying those activities in their classes and as a result of raising attitudes learners can gain a better mastery over the language. Stakeholders can also benefit from incorporating critical thinking activities in textbooks and classes. Investment to this potential leverage can bring about better results compared to what learners already had.

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