



The Impact of Using Blogs on the Development of Critical Thinking Skills among Learners of the Faculty of Education: An Arabic Language Course Case Study at Middle East University

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Abstract

The study investigates the impact of using blogs on the development of critical thinking skills among learners of the faculty of education who are enrolled in an Arabic language course. The study has been applied to 90 male and female learners from the Faculty of Education at the Middle East University. The researcher has used a semi-experimental approach and the equivalent set method, since it fits the purposes of the study. Watson-Glaser™ Critical Thinking Appraisal has been used in developing a test to measure learners' level of critical thinking skills. The study revealed statistically significant differences at the significance level of (0.01) in favor of the experimental group regarding Inference, Deduction, Recognition of Assumptions, and Interpretation dimensions. The results also revealed statistically significant differences at the level of significance (0.05) in favor of the experimental groups regarding the Recognition of the Assumptions dimension. Moreover, the study unveiled statistically significant differences at the level of significance (0.01) between the experimental group and control group that can be attributed to critical thinking skills in favor of the experimental group. There are also statistically significant differences at the level (0.01) of significance, between the pre and post evaluation regarding argument evaluation, interpretation, and inference skills in favor of the post-evaluation. Differences were significant in identifying the hypotheses and deviations at the level of (0.05) in favor of the post-evaluation. Finally, it became clear that statistically significant differences at a level of significance less than (0.05) exist between the pre and post evaluations in favor of the post-evaluation of critical thinking skills.

Keywords: Blogging; Critical thinking skills (Inference; Recognition of assumptions; Deduction; Interpretation; And evaluation of arguments) Watson/glaser Test; Arabic language teaching and learning.



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1. Introduction

One of the most important manifestations of the information revolution is the Internet and its crucial uses in education. At present, all developed countries have adopted the Internet in education. And the most used applications of the internet in education, other than email, are blogs. The reason behind its popularity is the interaction it allows among the beneficiaries and the direct access to data and resources (Al-Melihi, 2010; Farraj, 2006). It is also flexible educational tool; as it allows learners to learn outside classrooms, especially in higher education (Al-Khalifa, 2008; Mansour, 2009). Efimova and Fiedler (2003), attributed its increasing spread to the fact that it supports lecturers in publishing their e-courses and tracking learning process. It also provides effective features in terms of participation, interactivity, direct access, support multimedia and can easily be connected to social media tools. Moreover, it is easy to use and update. It is also credible source of information. Bonnie *et al.* (2003), pointed out main motivations for users to use blogs, such as: documenting individual activities, commenting and presenting opinions, expressing feelings, exchanging ideas and socialize.

Due to the information and communication explosion, learners need be aware how to judge knowledge and choose what suits them best and meets their needs. Bear in mind the freedom of research and enormous learning opportunities technology offers. This requires educators to use problem solving method in order to increase the interaction between learners' sensory side (emotions, behavior and social interaction) and the mental side (mental skills and processes) (Abu Riash and Qutait, 2008). Based on that, an increased attention has been paid, in recent years, to develop learners' thinking skills and its impact on their academic achievements and future (Al-Utoom *et al.*, 2007; Qatami N., 2001). This requires them to think critically beyond the results and use reflection in order to be able to take the right decisions when needed (Hynes and Bennett, 2004; Qatami N., 2004).

Critical thinking skills include a number of sub-skills. One of the most famous classifications of these critical thinking skills is the Watson and Glaser classification, which divides these skills into the following sub-skills (Al-Otaibi, 2007):

1. Inference: is a conclusion that a person can draw from certain observed or supposed facts.
2. Recognition of Assumptions: An assumption is something presupposed or taken for granted.
3. Deduction: refers to the ability of the individual to determine some of the consequences of introductions or prior information

4. Interpretation: refers to the ability to judge that the conclusions logically follows beyond a reasonable doubt from the given information;
5. Evaluation of Arguments: to be able to distinguish between strong arguments and weak arguments.

The development of thinking, in general, and critical thinking, in particular, is an essential goal of most educational policies in the world. So it is very important to integrate these skills in educators' professional development programs and in educational programs offered in schools and universities (Qatami Y. and Qatami, 2000; Saadeh, 2006).

Blogs, among other educational technology, have proved its feasibility in developing learners' thinking skills (Mynard, 2007; Wang and Woo, 2010); as it is considered to be the learners' new window to participate effectively in the learning environment. As well as it is very important tool for educators. Where they are able to report and collect various news and sources on the Internet, add short comments and external links and interact with bloggers (Cameron, 2004).

The above mentioned among the various educational uses of blogs have contributed in developing learners' critical thinking (Amin and Nabil, 2009; Farmer *et al.*, 2008).

Blogs consist of the following components (Al-Khalifa, 2008):

1. Header: Contains the title and description of the blog, and may include a logo and a welcome message.
2. Content area: This is one of the most important parts of the blog, since the content of the blog is displayed in a reverse chronological order.
3. Sidebar: It is located next to the content area, and may include addresses for some blogs, a search engine, an archive, and so on.
4. The footer: It is located at the bottom of the blog, displaying some basic information about the page and copyright.

The traditional teaching methods flow the one direction of interaction; from educators to learners. In this method, in which the educator is the primary source of knowledge, and the learner is the receiver of the information, who has no opportunity to interact with the content he is learning. However, due to the increasing amount of information provided to learners as a result of modern scientific developments and the rapid knowledge explosion, more efforts were focused on promoting learners' thinking skills, by giving them the freedom of search and discover knowledge rather than presenting it to them on a silver plates. This requires presenting the scientific material in the form of "problem and questions" in order to increase the learners' interaction, developing their observation, experience, and mental skills (Abu Riash and Qutait, 2008; Al-Harithy, 2002).

Many researchers and scholars in the field of psychology have given attention to the subject of thinking, because of its important impact on learners' cognitive development. This subject can enable learners to face the problems and difficulties related to the academic aspects and everyday life situations, whether social, educational, ethical, or otherwise (Qatami N., 2001).

Al-Utoom *et al.* (2007), believe that thinking is a mental activity used by the individual to give meaning and significance to the situations and experiences that he/she faces based on the knowledge structure available to him/her. This process helps the individual to adapt and interact with the situations they face.

Hynes and Bennett (2004), pointed out that critical thinking involves clearly looking beyond the results for meaningful decisions. Qatami N. (2004), states that critical thinking is a reasonable contemplative thinking that focuses on what an individual believes or performs.

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1. Recognition of Assumptions: refers to the ability to distinguish between the degree of truthfulness or lack of truthfulness of information, the distinction between truth and opinion, and the purpose of information given; Interpretation: refers to the ability to identify a problem and the logical explanations, and determine whether the generalizations and results based on certain information are acceptable;
2. Derivation: refers to the ability of the individual to determine some of the consequences of introductions or prior information;
3. Conclusion: It refers to an individual's ability to draw a result from certain observed or presumed facts, and the ability to recognize the validity or invalidity of results in the light of the given facts;
4. Evaluation of Arguments: refers to the ability of an individual to evaluate, accept, or reject an idea, distinguish between primary and secondary sources and strong and weak arguments, and judge the adequacy of information.

Therefore, the educators and the learner together must pay attention to the components and elements of critical thinking, including focusing on and identifying problems, questions and related topics and issues, accessing relevant data and information and judging its credibility, using rational thinking rather than the one based on self, desires, and hopes, analyzing various controversies, avoiding fallacies in logical matters, and understanding both the skill of induction and conclusion (Saadeh, 2006).

The development of thinking, in general, and critical thinking, in particular, is an essential goal of most educational policies in the world. It is also the main goal of curricula, because it consists of a set of thinking abilities that help individuals direct their thinking, think rationally, and analyze their knowledge; be able to think flexibly and objectively. Critical thinking helps individuals to know what, how and when to ask. Furthermore, it helps them to analyze logically to reach to rational judgments (Qatami Y. and Qatami, 2000).

Based on the above, the development of critical thinking skills among learners requires that they learn to contemplate and reflect on viewpoints in a critical way, and understand and compare between the implicit discussions in each presentation, away from negative listening. This process enables learners to develop self-reliance in their analysis of both literature and media (Ibrahim, 2005). Therefore, the current study sought to display the effect of using blogs in the developing the critical thinking skills of the students of the Faculty of Education in the Arabic language.

2. Literature Review

Al-Najjar (2016), has conducted a study to identify the impact of using blogs on learners' academic achievement at Al-Aqsa University in Gaza, who were enrolled in curriculum and teaching techniques course. The study sample consisted of 80 (female and male) learners, who were equally distributed to an experimental group that studied using the blog and a control group that studied using the traditional way. The results unveiled a statistically significant difference in the pre and post applications in favor of the post-application. The learners of the experimental group surpassed the learners of the control group in academic achievement and the direction. The blog has positively affected learners' academic achievement.

Al-Asasleh and Al-Bishara (2012), conducted a study to reveal the impact of a "training program on critical thinking skills" on the development of contemplative thinking among 10th grade female learners in Jordan. The study sample consisted of (80) learners, randomly distributed to a control group and an experimental group. The researchers prepared a training program on critical thinking skills and applied it to the experimental group. The results showed a statistically significant effect of the training program on the development of the thinking and its sub dimensions in favor of the learners of the experimental group. However, there was no statistically significant effect of the interaction between the training program and the academic level on the development of the critical thinking and its sub dimensions. Finally, the study recommended the conduction of further studies to discover the effect of training on developing other thinking patterns.

Al-Hadabi and Ashuol (2012), conducted a study to identify gifted high school learners' critical thinking skills in Sana'a and Taiz cities, in Yemen. The study also attempted to reveal the relationship between gender and academic achievement, and the level of critical skills. The sample consisted of (121) male and female learners. To achieve the studies objectives, the researchers used the Watson / Glaser Scale to measure critical thinking skills. The results revealed that the respondents have weak critical thinking skills level. Also, the study did not reach statistically significant differences between the average scores of male and female on the test of critical thinking skills as a whole. Instead, some statistically significant differences were found in the inference skill with the male group and in the recognition of assumptions skill with the female group. There was also no statistically significant correlation between the scores of the sample on the test of critical thinking skills and academic achievement. Finally, the study recommended providing more learning opportunities to gifted learners, in order to develop their critical thinking skills. It also recommended integrating critical thinking skills in educational program.

Churchill (2009), attempted to demonstrate the impact of blogs on the academic achievement of graduate learners at the University of Hong Kong. The results revealed a statistically significant effect on the use of blogs in raising learner achievement. The blog has facilitated learning and created a positive trend when used in education. The study sample consisted of (24) graduate learners at the University of Hong Kong, faculty of Education, and addressing the use of information technology in education through blogs.

Al-Otaibi (2007), conducted a study to discover the effect of using CoRT program in developing critical thinking skills and improving the level of academic achievement among a sample of secondary school learners in Riyadh. The sample consisted of (40) randomly selected 11th grade learners from Riyadh who were divided into an experimental group and a control group. The study followed an experimental approach, as well as CoRT Program (Cognitive Research Trust; Interaction) prepared by de bono. The results showed statistically significant differences between the experimental group and the control group in terms of critical thinking skills, in favor of the experimental group. The results showed statistically significant differences between pre - and post tests in critical thinking skills in favor of the post test. The results also revealed no statistically significant differences between the experimental group and the control group in the level of academic achievement.

2.1. Problem of the Study

The researchers noticed during some interviews with Arabic language lecturers that they did not care about the development of creativity, and only chose traditional subjects that lack authenticity. They merely focused on grammatical and spelling errors neglecting the intellectual aspects of the subject. The researchers also viewed the written compositions of some learners and noticed the extent to which most of these writings lack intellectual aspects. Bear in mind, that each learner can learn how to think critically if he/she has opportunities for training and actual practice (Jarwan, 2002). This can be done through the use of remote training to develop critical thinking through computer programs that include cognitive logic-simulation programs that help develop critical thinking.

Language is very important tool in developing critical thinking, since it allow learners to choose the words and vocabulary, select structures and methods, organize ideas, and form coherent sentences. Based on that language and critical thinking should be embodied effectively in school curricula, to enable learners to generate meaningful knowledge, engage in discussions, and plan to establish instant and accurate decisions that help them shape future decisions.

From this point, the idea of employing technology, including blogs, was born. Recent studies, like (Bonnie *et al.*, 2003), have pointed to the effective role of blogs in teaching, in general. And in teaching Arabic language and

developing learners' skills. Al-Fadda and Al-Yahya (2010), confirmed that electronic blogs enable learner to document their literary works, which preserves these works and reflects its development, therefore learners can exercise critical thinking skills on the Internet, especially if the lecturer commented on their writings through these blogs.

In light of the above, the problem of the current study aimed uncovering the impact of using blogs in developing the critical thinking skills of the learners of the Faculty of Education undertaking the Arabic language, by answering the following questions:

Question. Are there any statistically significant differences between the experimental group and the control group with regard to critical thinking skills in post-evaluation for the learners of the Faculty of Education undertaking the Arabic language?

Question. Are there statistically significant differences between the pre and post evaluations of the critical thinking skills of the experimental group among the learners of the Faculty of Education undertaking the Arabic language?

2.2. Study Methodology

The study uses a semi-experimental approach with two groups (control group, experimental group, pre-test and post-test) to determine the use of blogs in developing the critical thinking skills of the learners of the Faculty of Education undertaking the Arabic language in Jordan.

2.3. Study Limits

The current study limits are as follows:

- 1- Human limits: Female and male students of the Faculty of Education at the Middle East University.
- 2- Objective limits: The impact of using blogs on the development of critical thinking. Skills among students of the Faculty of Education undertaking the Arabic language.
- 3- Spatial limits: The Hashemite Kingdom of Jordan - Middle East University.
- 4- Time limits: 2016/2017 year.

2.4. Study Variables

- Independent variable: blogs.
- Dependent variable: critical thinking skills.

2.5. Study Sample and Population

The study population consists of all learners of the Faculty of Education at the University of the Middle East, as presented in Table (1):

Table-1. Distribution of the Study population

Gender	Quantity	Percentage %
Female	526	47%
Male	594	53%
Total	1120	100%

The researchers applied the study tools after verifying their validity and credibility on the actual study sample, which is composed of (80) learners, and then deliberately divided and equally distributed into two groups. The first group (control group) was taught traditionally to compare the learning results of its learners to those of the experimental group's, where the learners used blogs extensively. The second group (experimental group) consists of 40 learners, where teaching relied on the use of blogs. The purpose of this group is to know the impact of using blogs on the development of critical thinking skills.

Table-2. Distribution of the study sample by gender and group

Group	Gender		Total
	Male	Female	
Control	22	18	40
Experimental	21	19	40
Total	43	37	80

2.6. Study Tool

2.6.1. Critical Thinking Skills Test

To achieve the objective of the study, the researchers prepared a test to measure the critical thinking skills of the learners of the Faculty of Education, who are undertaking Arabic language. The test included (30) items in a multiple choice format, with (6) item for every dimension of critical thinking skills, by relying on Glasser & Wotson test to measure critical thinking skills and prepare the performance test to measure the level critical thinking skills (Inference, Recognition of Assumptions, Deduction, Interpretation, and Evaluation of Arguments). This test enjoys a high degree of validity in all its sub-tests truth. Regarding Criterion-related Validity, the test refers to the 7th indicator of Glasser & Wotson. The correlation coefficients ranged between (0.20-0.81).

The researcher designed the test by following the steps below

1. Reviewing the theoretical frameworks of programs designed for thinking development. The cognitive theory was adopted for constructing the program; as it focuses on the mental skills in which the learner is preoccupied with alongside the given knowledge experience, which enables him/her to develop advanced thinking patterns;
2. Define the objectives of the program and the skills that will be included in the training program. Learners are familiarized with critical thinking by introducing and training them on the following thinking skills. Prepare the learners to practice blogging, through the presentation of various cognitive experiences according to the components of the given blog, and based on five critical thinking skills.
3. Determine and present the method of presenting the educational content of the course via the blog through behavioral objectives. These behavioral objectives were distributed to cover 12 subjects. The researchers relied on WordPress during the preparation of the blog, which contained the following components: Title; Right Sidebar; Left Sidebar; Content area and Appendix.
4. Review and test the blog by presenting it to a group of lecturers, experts, educators specialized in education technology. Amendments were made in the light of the provided feedback.
5. After the blog under test is prepared, the study sample was randomly distributed into two groups (experimental group & control group).
6. Prepare and present the program's lessons.
7. Prepare the training room in the university, while focusing on providing an atmosphere that facilitates the implementation of the training program;
8. implement the program on the experimental group, with three 45-minute lectures a week for a period of (6) weeks, according to the following steps:
 - Presenting example or a story that demonstrates the thinking skill required to master each lecture;
 - Grouping learners (five learners in each group), taking into consideration appointing a spokesman or leader for each group periodically; to increase learners' motivation, and asking them to discuss the presented subjects and record their ideas
 - Exchanging feedback among the groups, by commenting on the groups' lists of ideas;
 - Regrouping learners to implement the second part in the training;
 - Providing feedback;
 - Discussing the principles of thinking process, as well as the principles derived from the lecture.
9. Post-measure the critical thinking skills of the experimental and control groups was also carried out to determine the direct impact of the training program;
10. Obtain the results of the academic achievement of the study sample by the end of the second semester tests;
11. Data collection and statistical processing at the end.

2.6.2. Tool Validity

The researchers verified the validity of the test by presenting it to a group of professors, from the Faculty of Education, who are specialized in curricula and psychology. They were asked to present their views on the appropriateness of the test's language and items in terms of its representation and suitability for the category of the study sample of the study. And based on the observations of the arbitrators, the wording of the items has been modified and become final.

As to the validity of internal consistency (i.e. the correlation between the scores of each level of the objectives and the total test score), table (3) shows the correlation coefficients of each level of cognitive objectives to the total test score:

Table-3. Correlation coefficients between each dimension of critical thinking skills and the total score of test

Dimensions	Correlation coefficient and the total score	Significance level
Inference	0.66	Significant at 0.01
Recognition of Assumptions	0.61	Significant at 0.01
Deduction	0.63	Significant at 0.01
Interpretation	0.72	Significant at 0.01
Evaluation of Arguments	0.80	Significant at 0.01
Overall critical thinking skills	0.68	Significant at 0.01

It is clear from Table (3) that all correlation coefficients between each dimension of critical thinking skills and the total test score are statistically significant.

2.7. Tool Reliability

The reliability of the tool has been verified by:

2.7.1. Parallel-Forms Reliability Method

The correlation coefficient between the answers the study sample provided was calculated using the Pearson equation. The stability coefficient was (0.81), and the correction using the Spearman-Brown equation, the total reliability coefficient rose to (0.87). These values indicate that the test is highly reliable.

2.7.2. Cronbach's Alpha Method

Reliability coefficients were calculated to test critical thinking skills using the Cronbach's alpha method. Table (4) illustrates this.

Table-4. Reliability coefficients for the critical thinking skills test using the Cronbach's alpha method

Dimensions	Reliability coefficient using Cronbach's alpha method
Inference	0.61
Recognition of Assumptions	0.65
Deduction	0.64
Interpretation	0.76
Evaluation of Arguments	0.82
Overall critical thinking skills	0.70

It is clear from Table (4) that the value of the stability coefficients is acceptable, so the validity and reliability of critical thinking skills can be generally assured.

2.8. Equivalence of the Two Groups in the Critical Thinking Skills Test

To ensure this, the critical thinking skills test of was applied on the experimental and control groups. The T test was used for two independent samples and Table 5 shows that:

Table-5. T-test results for two independent samples to confirm the equivalence of experimental and control groups in the critical thinking skills test

Dimensions	Group	#	Arithmetic mean	Standard deviation	(T) Value	Statistical function
Inference	Control	40	10.61	2.97	-.575	.567
	Experimental	40	10.95	2.95		
Recognition of Assumptions	Control	40	3.93	1.88	-.693	.490
	Experimental	40	4.20	1.94		
Deduction	Control	40	3.30	1.53	-1.187	.238
	Experimental	40	3.70	1.79		
Interpretation	Control	40	3.85	1.86	-.645	.369
	Experimental	40	4.13	1.98		
Evaluation of Arguments	Control	40	3.87	1.76	-.612	.435
	Experimental	40	4.56	1.67		
Overall critical thinking skills	Control	40	17.85	4.38	-1.040	301
	Experimental	40	18.87	5.22		

Table (5) shows that the calculated values (T) are smaller than the tabular T value, and that the value of the statistical function is greater than (0.05) at the overall level of the critical thinking skills test, and for each of its dimensions. This means that there are no statistically significant differences between the average scores of the learners of the experimental and control groups in the Faculty of Education who undertook the critical thinking skills test, i.e. the two groups are equal.

3. Results and Discussion

Question 1: Are there any statistically significant differences between the experimental group and the control group with regard to critical thinking skills in post-evaluation for the learners of the Faculty of Education undertaking the Arabic language?

To investigate this question, the researchers used test-t, as demonstrated in table (6).

Table-6. Differences between the averages of the experimental and control groups in the post-evaluation of the critical thinking skills test

Dimensions	Group	#	Arithmetic mean	Standard deviation	(T) Value	Differences direction
Inference	Control	40	7.10	2.04	2.11*	There are difference in favor of the experimental group
	Experimental	40	8.20	1.10		
Recognition of Assumptions	Control	40	8.55	1.50	2.04*	There are difference in favor of the experimental group
	Experimental	40	9.45	1.27		
Deduction	Control	40	7.90	1.57	2,10*	There are difference in favor of the experimental group
	Experimental	40	8.75	1.33		
Interpretation	Control	40	8.70	1.59	2.08*	There are difference in favor of the experimental group
	Experimental	40	9.60	1.09		
Evaluation of Arguments	Control	40	7.95	1.62	3.29**	There are difference in favor of the experimental group
	Experimental	40	9.25	1.04		
Overall critical thinking skills	Control	40	40.65	3.96	4.46**	There are difference in favor of the experimental group
	Experimental	40	45.65	2.45		

* At significance level 0.05 **At significance level 0.01

It is clear from the results of Table (6) that there are statistically significant differences at the level of significance (0.01) in favor of the experimental group for the 4 dimensions: (Inference, Recognition of Assumptions, Deduction, and Interpretation). There are also statistically significant differences at the level of significance (0.05) in favor of the experimental group for the dimension (Evaluation of Arguments). Finally, there were statistically significant differences at the level of significance (0.01) between the experimental group and the control group for critical thinking skills in favor of the experimental group.

In view of the results of the first hypothesis, we notice that there are statistically significant differences between the experimental and control groups (in favor of the experimental group) in the post-evaluation of critical thinking skills immediately after the end of the training, which indicates the impact of the training program. The improvement in the performance of the experimental group's can be attributed to the fact that they were affected by the skills connected to blogs, which mainly aim at teaching learners specific skills and achieve a general improvement in the level of thinking. This program encourages learners to practice thinking and even expand and organize their ideas, as it present them situations in which they have to think.

The significant results of the experimental group may be due to the degree of interest they showed during the test. It was noted that the Inference and Deduction skills came last, indicating the weakness of the learners in the objectively judging the validity of certain results based on data and information given in advance, and in analyzing situations and problems to reach certain conclusions. The study is consistent with the study of [Al-Mihdhar \(2013\)](#), [Al-Asasleh and Al-Bishara \(2012\)](#), and. However, the study differed with the study of [Al-Hadabi and Ashuol \(2012\)](#) and [Al-Otaibi \(2007\)](#).

Question #2: Are there statistically significant differences between the pre and post evaluations of the critical thinking skills of the experimental group among the learners of the Faculty of Education undertaking the Arabic language?

To investigate this question, the researchers used the test-t, as Table 7 shows:

Table-7. Differences between the pre and post evaluation averages studying the critical thinking skills of the experimental group

Dimensions	Group	#	Arithmetic mean	Standard deviation	(T) Value	Differences direction
Inference	Control	40	5.65	1.89	5.39**	There are difference in favor of the experimental group
	Experimental	40	9.45	1.27		
Recognition of Assumptions	Control	40	8.10	1.34	3.35*	There are difference in favor of the experimental group
	Experimental	40	9.45	1.27		
Deduction	Control	40	6.85	1.89	4.04*	There are difference in favor of the experimental group
	Experimental	40	8.75	1.81		
Interpretation	Control	40	8.60	1.63	2.69**	There are difference in favor of the experimental group
	Experimental	40	9.60	1.98		
Evaluation of Arguments	Control	40	8.35	1.59	2.03**	There are difference in favor of the experimental group
	Experimental	40	9.25	1.89		
Overall critical thinking skills	Control	40	37.60	4.98	6.31*	There are difference in favor of the experimental group
	Experimental	40	45.30	5.45		

* At significance level 0.05 **At significance level 0.01

It is clear from the results of Table (7) that there are statistically significant differences at the level of significance (0.01) between the pre and post evaluations of 3 skills (Evaluation of Arguments, Interpretation, and Inference) in favor of the post evaluation. Also, there are statistically significant differences at the level of significance (0.05) between the pre and post evaluations of 2 skills (identifications of assumptions and deviations) in favor of the post evaluation. Upon the examination of the results of the differences in the overall critical thinking test score, it was found that there were statistically significant differences at a level of significance less than 0.05 between the pre-evaluation and the post-evaluation in favor of post-evaluation of the overall critical thinking skills, which indicates the influential impact of blogs.

The results of the second hypothesis revealed statistically significant differences between the pre and post evaluations of critical thinking skills in favor of the post evaluation, which highlights the impact of the training program on the development of critical thinking skills. The effectiveness of blogs can be explained in the development of critical thinking in the experimental group by comparing the post and pre evaluations. As the blogs use helped them to store data and retrieve it when needed, which enhanced their abilities and contributed to think critically.

The previous result also explains the experimental group's positive attitudes towards blogs. Learning the vocabulary related to critical thinking skills through using blogs have motivated and increased their confidence, helped them express their opinions and ideas without restrictions of classrooms, and increase their interaction with the courses' topics (Churchill, 2009). Moreover, learners were fascinated by this technology, which increased their tendency to use it more in learning.

The current study coincides with the studies of Churchill (2009), Al-Asasleh and Al-Bishara (2012), Al-Najjar (2016), Al-Mihdhar (2013) and Al-Otaibi (2007).

4. Conclusion

The effectiveness of the proposed program (blogs) in the development of critical thinking may be attributed several factors, including:

1. Blogs provide opportunities for equality and justice among students. The topics are displayed all the time, so students learn whenever and wherever they want. This leads to a state of satisfaction between students and help them construct their knowledge structures again and produce more effective experiences and more stimulating value without copying or repeating others'. This was evident in the students' participation in the blog and their response to the test;
2. Blogs has changed roles in the educational process, as learners are the center of focus in the educational process; where they search, experience and discover. Blogs also focus on the need to provide opportunities for learners to practice various scientific processes, and to develop their critical thinking by contemplating the largest number of solutions possible to one problem using his own abilities. By respecting the character, wishes, and tendencies of the learners, blogs are in line with the modern principles of learning and education, and thus drive learners towards the active participation in the educational process, increase their motivation to learn, and generate the desires and powers of curiosity to solve the problem and the use of different skills to reach a scientific approach;
3. The training included a series of training activities that are rich in knowledge of different subjects help learners to effectively interact with the real world. The activities were modern, thus aroused the learners' interest in working on the training tasks, which in turn improved the critical thinking skills of the experimental group learners. Learners of

the control group did not have the opportunity to experience such simulation. They are the product of an educational system that answers the question (why think?) much more than (how do we think?)

4. The learners of the experimental group showed active participation in the training material and the thinking questions. They also showed deep motivation, thinking, and pleasure that were visible through the diversity of their answers during the training sessions. Such passion enabled them to develop their knowledge structures and modify them while dealing with the training situations.

Recommendations and Future Research Opportunities

1. Enriching university plans with materials that encourage thinking, in general, and critical thinking, in particular;
2. Encouraging educational institutions to exploit the services provided by blogs, in teaching and learning and developing learners' critical thinking skills;
3. Developing training program on blogs using to increase learners' opportunities to practice critical thinking;
4. Conduct an analytical study to uncover the critical thinking skills that can be included in different subjects.

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