

Do Multiple Intelligences Improve EFL Students' Critical Reading Skills?

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Abstract

This study examines the potential effect of a program based on multiple intelligences on improving the Jordanian tenth grade English as a Foreign Language (EFL) students' critical reading skills in English. The researcher claims that multiple intelligences strategies have the potential to provide a suitable resource to empower the quality of TEFL in Jordan. The study follows a quasi- experimental design in which an experimental group and a control group were purposefully chosen from AzZarqa First Directorate of Education (Jordan). In the experimental group, 30 students were taught by multiple intelligences strategies and 29 students of control group were taught by the conventional teaching method as outlined in the teacher's book. A pre-post achievement test was utilized. The findings reveal statistically significant differences at ($\alpha \leq 0.05$) between the two mean scores of experimental and control groups in the post- test in favor of experimental group. The study recommends to examine the effect of using multiple intelligences on EFL students' achievement in other language skills and sub skills. A number of implications are put forth to enhance the students' critical reading ability.

Key words: critical reading, EFL students, multiple intelligences

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Introduction and Background

Reading in general and critical reading in particular are considered among the most significant language skills (El-Maleh, 2006). Critical reading has taken much attention from researchers and educational practitioners (e.g., Andrews, 2006; Okeke, 2010) to cope with the expansion of knowledge and information which requires a critical reader not a naïve reader. Moreover, critical reading skills help in being competent in the technological revolution.

Although critical reading skills are necessary for all learners, the literature has a plethora of research (see, for example, AbdKadir, Nsubki, Jamal & Juhaiada, 2014; Al Balushi, & Osman 2013; Al-Oqaili, 2007; El-Maleh, 2013) which show that the learners lack the ability to use the critical reading skills adequately. However, critical reading skills help students to analyze, synthesize and evaluate what is read. They also give the students the ability to be critical thinkers, see the cause and the effect, compare between ideas and be fully aware of reasons of reading (AbdKadir, et al 2014). Tashman, Alkhrash, Almasaeed & Almqasqas (2012) state that there is a general consensus among educational practitioners and researchers that developing thinking is considered one of the vital aims to improve students' learning. Moreover, the Ministry of Education has recommended the inclusion and the development of learners' thinking ability. (Ministry of Education, 2006).

Varied definitions have been given to critical reading. While Harris and Hodges (1981,p.74) state that critical reading is the “process of making judgment in reading; evaluating relevancy and adequacy of what is readand inferences are used to judge the worth of what is read according to established standard?”, Collins (1993) points out that critical reading is the learner’s ability to draw inferences, reach to conclusions, make decisions, solve problems, develop reasoning, compare ideas, formulate hypothesis, and evaluate ideas, events, characters and situations. Freeley and Steinberg (2000) add that critical thinking is "the ability to analyze, criticize, and advocate ideas; to reason inductively and deductively; and to reach realistic or judgmental conclusions based on sound inferences drawn from unambiguous statements of knowledge or belief" (p. 2).

Moreover, AbdKadir, et al. (2014) pinpoint that critical reading skills develop learners’ ability to be critical thinkers by looking at reading as a process rather than a product. Critical thinking skills help learners to succeed and become competent in learning the language since they can as Jawarneh, Iyadat, Al-Shudaifat, and Khasawneh (2008, p. 83) state "organize and evaluate the information they receive from reading books and by attending school". A need for new effective strategies to teach critical reading skills will have beneficial effects on students' reading ability in comprehending the reading texts.

Thus, looking for effective reading strategies may help learners to be avid readers and improve their reading abilities. Many researchers believe that multiple intelligences theory has proved their significance in helping learners succeed in their academic achievement and they played an essential role in the process of improving reading ability (cf., among many others, Hashemi, 2007; Abdulkader, Gundogdu & Eissa, 2009; Haboush, 2010; Hajhashemi, Akef & Anderson, 2012). Gardner, (1999) defines the multiple intelligences theory as “a bio-psychological potential to process information in certain ways, in order to solve problems or fashion products that are valued in a culture or community.” (p.33-34).

Intelligence was considered to be a static and single construct but that was a traditional and narrow definition of intelligence (Berman, 2005). However, Gardner (2004) states that intelligence is multiple abilities rather than single ability. It is also a set of skills which allow people to master learning in various ways. Moreover, Gardner introduces three different uses of the term intelligence; it is a property of all people, there are no two people have exactly the same profile of intelligences and the way in which the individual performs a task. He pinpoints eight different intelligences which are, linguistic intelligence, spatial intelligence, logical intelligence, kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence and natural intelligence.

Furthermore, Nolen (2003) stresses that EFL teachers should select their lessons and activities which meet all the students' intelligences. They have to look into the EFL students' needs to encourage them to be active and successful students. In addition, most of the students who get the appropriate encouragement and instruction will be able to develop the eight multiple intelligences. According to Armstrong (2000) multiple intelligences are gates for a great number of teaching strategies which might be easily applied in the classroom. Moreover, multiple intelligences assist teachers to use modern teaching strategies through using various activities and exercises.

Chapman (1993) suggests a great number of implications to Gardner's theory of multiple intelligences which meet the students' levels. Some of these implications are while at least one intelligence is strengthened in each person, other intelligences are weaker which may cause distress. He also claims that the weaknesses can be strengthened with reinforcement and practice. Moreover, Modirkhamene and Azhiri (2012) points out that multiple intelligences theory which is based on reading tasks has a positive effect on students' reading ability. Students who used activities based on multiple intelligence have opportunities to overcome their problems in the process of reading. In line with Modirkhamene and Azhiri, Solmundaardottir (2008) concludes on her project that multiple intelligences can be applied in EFL classrooms by providing teachers with theme – based series of English language lesson plans based on multiple intelligence theory as well as designing various numbers of activities that meet students' levels.

Thus, the study investigates the potential effect a program based on multiple intelligences on improving the Jordanian tenth grade students' critical reading skills in English

Purpose and Question of the Study

The researcher claims that multiple intelligences strategies have the potential to provide a suitable resource to empower the quality of TEFL in Jordan. Thus, the purpose of this research is examine the effect of multiple intelligences instructional Program on improving Jordanian tenth grade students' critical reading skills in English.

More specifically, the study aims to find answers for the following question:
Are there any statistically significant differences at ($\alpha \leq 0.05$) between the means scores of the students' performance of on the critical reading test due to the teaching strategy; conventional teaching and multiple intelligences?

Significance of the Study

To the researcher's best knowledge, few studies have investigated the effect of multiple intelligences on reading comprehension (e.g., Boudraf, 2012; Haboush, 2010). It is hoped that this study will shed light on the expected effects that the multiple intelligences strategies may have on improving students' critical reading skills. Thus, the English language curriculum designers, policy makers and teachers may find in this study some practical implications or insights for developing students' reading skills.

Literature Review

Shifting the focus from the teacher-centered model to the learner-centered one has been witnessed during the last century. This focus helps the learners to have the communicative competence. The theory of multiple intelligences was one of theories that affected the learning environment and increasing the value of language performance. (Kezar, 2001).

Gardner (1983) define human intelligence as multiple abilities which can be achieved and identified at an early age and then one can develop and expand these intelligences to the maximum. Gardner also pinpoints that IQ test alone does not show the real abilities of learners. Accordingly, multiple intelligences came to give emphasis to all of the learners' abilities.

Moreover, multiple intelligences theory allows teachers to have a close look at the students' learning in a meaningful and beneficial method. It proved to have many benefits to the students by empowering them with various activities to learn by using their strong intelligences or through enhancing their weak intelligences. (Koura & Al-Hebaishi, 2014). Eksi (2009) pinpoints that teachers are responsible for implementing the activities with different multiple intelligence strategies in order to reach all students in the classroom and to provide the opportunity for all students to learn. Barrington (2004) and Emig (1997) stated that multiple intelligences help students to be more engaged in the learning process and motivated. therefore, they will increase their confidence and their performance on standardized tests.

For each intelligence, various activities and strategies can be implemented and developed. Armstrong (2000, p.104 - 106) suggests the following activities for each intelligence as follow:

1. Verbal/ linguistic: describes the ability to use words spoken and written language. The activities include reading books, word building games, student speech, storytelling, debates, writing essays, letters, stories, poetries or emails, giving presentations, using technology to write and conducting an interview.
2. Logical/ mathematical: involves the ability to use the analysis, numbers and logical reasoning. This can be seen through scoring sheets, puzzles, games, translating mathematics into a formula, create a story problem, problem solving activities, logical sequential presentation, categorize facts and information, graphing activities, design and conduct an experiment and use deductive and inductive reasoning.
3. Musical intelligence: deals with music, rhythm and hearing that include write lyrics, compose music, explore sounds, present a short class musical, make an instrument and demonstrate it and create a musical game.

4. Bodily/ kinesthetic: refers to the ability of doing and moving things that includes mime, role plays, exercise in seats, marching, do a reader's theatre, interactive spelling, design a product and make a model.
5. Spatial/ visual: refers to visual and spatial images such as mind maps, art work, visualize, make a film, invent a card game, illustrate, draw, paint, use technology, charts, and imaginative story.
6. Intrapersonal: is the ability to understand or be aware of oneself and that can be achieved through reflective journal, self-assessment activities, describe one of your personal value, process emotions and learner diaries.
7. Interpersonal: is the ability to deals with others successfully. The activities include peer review, cooperative learning, board games, pair work, group problem solving, teaching others and debate teams.
8. Naturalistic intelligence: deals with natural environment and nurture. Describing changes, drawing natural objects, planting a garden, going to the beach or mountain, dissecting animals, listening to the rain or wind and identifying plants or animals are very useful activities for this type of intelligence.

Tyler (2011) insists that students will gain much benefit if they are given a choice of activities that matches their strengths. Gardner (2004) argued that intelligences can be strengthened or weakened. Therefore, he urged schools to develop students' intelligences. In the multiple intelligences, the role of the teacher is different in which multiple intelligences encourage teachers to know their students very well by fulfilling their needs and involve them in the learning process. Teachers should be involved as well in designing activities that contain various intelligences in one class period. Students can act out, draw or write down what they read in order to activate the kinesthetic intelligence, for example. (Haboush, 2010).

Some of the empirical evidence about multiple intelligences contribute to the improvement of reading comprehension. Lowe, Nelson, O'Donnel & Walker (2001) develop a program for improving pre- reading and reading skills. The target population consists of first and fourth classes. The fourth grade students of the target school indicated lack of critical thinking, comprehension and vocabulary. The multiple intelligences strategies were selected through daily lessons and the units of the study. The results indicate improvement in pre-reading and reading skills, listening skills, and writing abilities. An increased interest in books and reading was also developed.

Gaines & Lehmann (2002) lead a project for improving reading comprehension through the use of multiple intelligences. The sample of the study consists of fourth grade students. The instruments of the study are surveys, Illinois Standard Achievement Tests and anecdotal records. The results show that the use of multiple intelligences strategies improved reading comprehension and enhanced the students' performance in academic area.

Dale (2004) investigates the relationship between multiple intelligences and academic achievement in reading among a sample of 288 fourth grade students. Teele list for multiple intelligences and achievement test are administered. The findings of the study reveal that there was a correlational relationship between multiple intelligences and the level of academic achievement in reading.

Albalhan (2006) identifies the effectiveness of the methods of multiple intelligences among middle school students in Kuwait in predicting better reading skills through academic performance. The sample consists of 210 students who suffer from reading difficulty. The results show that there are significant differences between the experimental and the control groups in favor of the experimental group which is taught by multiple intelligences.

Hashemi (2007) investigates the relationship between reading ability and undergraduate English major students' multiple intelligences profiles in Islamic Azad University. The sample consists of 122 senior students from English department. IELTS test and McKenzie's questionnaire to identify the students' intelligences profile are used. The result show that the verbal linguistic intelligence is found to be a predictor of reading ability and there is a high correlation with between reading ability and existential intelligence.

Abdulkader (2009) investigates the effectiveness of multiple intelligences instructional program on improving fifth grade learning disabled students' reading comprehension in word recognition. The sample consists of 30 students. Two instruments are administered word recognition test and reading comprehension test. The results show that the program affects the students positively in the experimental group on improving their reading and word recognition skills.

Haboush (2010) examines the effectiveness of instructional program based on multiple intelligences theory on eighth graders' English reading comprehension skills. The sample consists of 65 EFL male students studying at Az-Zaitoun Preparatory 'A' Boys' School in the Gaza Strip. An achievement test and weekly quizzes are administered. The result show that there are significant differences in favor of experimental group in skimming, scanning and knowing the meaning of words through context but not for making inferences and sequencing skills.

Boudraf (2012) examines the relationship between the students' multiple intelligences and reading comprehension. The sample of the study is fifty-two English major students at Mohamed Boudiaf in Mislia in Algeria. The instruments of the study are McKenzie survey and TOEFL reading comprehension test. The results of the study reveal that there is a significant relationship between multiple intelligence profile and the reading ability. In addition, the results show that naturalistic intelligences and interpersonal intelligence as the predictors of the reading ability.

Hajhashemi (2012) investigates the relationship between multiple intelligence and reading proficiency of Iranian EFL pre-university students. The sample of the study consisted of 128 pre university students. Three instruments were used: 1) a demographic questionnaire; 2) the Persian version of Mckenzie's multiple intelligences Inventory; and 3) a standardized reading proficiency test retrieved from paper-based TOEFL® tests. The study findings show that statistically significant difference in the mean of musical-rhythmic intelligence scores of the low

achievers and the high achievers, which is positive and stronger among the low achievers. But there is no significant difference was found between the male and female students in their reading proficiency scores.

Iyitoglu & Yildiz (2015) explore the integrated impact of multiple intelligences and reading strategies on EFL learners' reading performance. Multiple intelligence profile, achievement test and observation checklist were administered in the study in which 60 high school EFL learners from one of the Anatolian high schools in Istanbul, Turkey participated in this study. The results of the study reveal that females are more successful than their males' counterpart in EFL reading. Moreover, the results show that those successful readers in EFL tended to use musical and intrapersonal intelligences.

There are a variety of studies that aimed to investigate the effectiveness of a proposed program based on multiple intelligences on students' reading comprehension (for example, Abdulkader, 2002; Lowe, et al 2001; Gaines & Lehmann, 2002; Haboush, 2010). All of the studies showed that multiple intelligences strategies have a positive effect on the experimental group in reading comprehension in particular and language achievement in general (for example, Hajhashemi, 2012; Hashemi, 2007).

Subjects, Instrumentation and Data Collection and Analysis

Ninety-five tenth grade male students' who were purposefully chosen from AzZarqa First Directorate of Education schools during the second academic year 2014-2015. One school was selected purposefully Jabal Tareq Basic School for boys. A simple toss of a coin was used to assign the two sections into an experimental group (n= 30), taught by the multiple intelligences Program and a control group (n= 29) students and taught by the conventional method as described by teacher's book. After deciding the critical reading skills, the researcher designed different reading activities based on the multiple intelligences strategies in order to achieve the objective of the Program.

This study adopts the quasi-experimental design to investigate the effect of multiple intelligences Program on improving Jordanian tenth grade students' critical reading skills in English due to the relevance and the nature of this study. A quantitative data is collected by using pre- and posttest.

Validity and Reliability of the Instruments

To achieve the purpose of the study, the researcher designed an instructional Program based on multiple intelligences strategies which was taught to the experimental group, to improve the students' critical reading skills and creative reading skills. After deciding the critical reading skills, the researcher designed different reading activities in order to achieve the objectives of the Program.

Moreover, the instructional Program focused on the teaching strategies that are included in the four intelligences; verbal linguistic intelligence (word game, and discussion), logical mathematical intelligence (compare and contrast, classification, problem solving and questioning), intrapersonal intelligence (personal connection, one-minute reflection) and interpersonal intelligence (group work, pair work and board game). The researcher made use of

the pre and post critical reading test instrument. The critical reading test included two reading passages with 16 multiple choice questions.

The validity of the instrument was gained by giving the test and the Program to a group of university professors, supervisors, and experienced teachers to express their views and give their suggestions. Modifications were done according to their recommendations. To achieve the reliability of the pre-/posttest, it was administered to an outside sample of 15 tenth-grade students. Two weeks later, the same test was administered to the same sample. The correlation between the first and the second administrations amounted to 0.81 which was deemed appropriate for the purpose of the research.

Data Collection

The data were collected from one school (viz., Jabal Tareq Basic for Boys) in AzZarqa First Directorate of Education. The experiment started on the 15th of March and lasted for two months (24 class sessions). At the end of the experiment, the test was re-administered to gauge any potential gain in achievement and provides grounds for comparison.

Findings and Discussion

To answer the question of the study, are there any statistically significant differences at ($\alpha \leq 0.05$) between the means scores of the students' performance on the critical reading test due to the teaching strategy, conventional teaching, multiple intelligences? the means and standard deviations were calculated for the students' overall scores on the pre- and post-tests, as shown in Table 1: *Means and Standard Deviations of the Students' Scores of the Pre and Post-Tests*

Teaching method	N	Critical Reading Skills Pretest (Covariate)		Critical Reading Skills	
		Mean	Std. Dev.	Mean	Std. Dev.
Conventional	29	4.62	2.09	5.55	1.86
Multiple intelligences	30	5.67	2.78	8.93	4.48

Table 1 shows the differences in the means of the students' performance in the critical reading on the post-test. ANCOVA was calculated on the students' performance in the critical reading post-test, as presented in Table 2.

Table 2: *ANCOVA Results of Students' Performance of the Pre-and Post- Tests*

Source of Variance	Sum of Squares	df	Mean Square	F	Sig.	Partial η^2
Critical Reading Skills Pretest (Covariate)	80.47	1	80.47	6.46	0.01	7.22%
Instructional Program	192.36	2	96.18	7.72	0.00	15.68%
Error	1034.28	83	12.46			
Total	1360.44	86				

Table 2 shows that there were statistically significant differences at ($\alpha \leq 0.05$) between the means of students' performance in the post- test critical reading to the Program. To determine which group has the significant differences, the adjusted means and the standard errors of the students' performance on the post- test critical reading, were calculated as presented in Table3.

Table 3: *Adjusted Means of the Students' Performance of the Post-Test*

Teaching method	Mean	Std. Error
Conventional	5.80	0.66
Multiple Intelligences	8.75	0.65

Table 3 shows the adjusted means and standard errors for the students' performance in post- test on critical reading based on the program. Moreover, since the program has multi-level, Bonferroni test for post comparisons was used to determine the significant differences between the adjusted means for the students' performance on the post-test critical reading based on the program. The results are presented in the Table 4.

Table 4: *Bonferroni Results of Post Hoc Test for the Students' Performance in the critical reading*

Teaching method		Conventional	Multiple intelligences
Bonferroni	Adj. Mean	5.80	8.75
Conventional	5.80		
Multiple Intelligences	8.75	2.94	

Table 4 shows a significant difference in favor of experimental group who was taught using multiple intelligences Program compared to the control group who was taught by the conventional method. Moreover, it can be seen that the effect of the Program has reached (15.68%).

The results of the question showed that there were statistically significant differences at ($\alpha \leq 0.05$) in the critical reading test between the students' post-test scores among control group and experimental group in favor of the experimental group.

The experimental group has also benefited from the instructional program and affected the students positively in their critical reading skills due to the activities and strategies that have been used. The results of this study came in line with the results of Gaines & Lehmann (2002) and Lowe, et al (2001) who report that multiple intelligences improved students' achievement in reading.

The researcher believes that multiple intelligences activities designed in a proper method in which they help students move gradually from the easiest to the most difficult tasks since they

were also asked to compare and contrast, complete the tables, and fill in the box. Such activities are interesting for students and attractive to pay their attention which also meet their needs and break the routine of studying the reading texts.

Conclusion and Pedagogical Implications

Although the literature reveals an emphasis on the role of the multiple intelligences in the educational process and its significant effects on student's achievement or reading comprehension, no studies were found on the effect of a program based on multiple intelligences on improving the critical reading skills. Thus, since this study may be insufficient to provide adequate insights into the potential effect of the multiple intelligences in Jordan, further research using more variables and additional instruments may prove valuable towards this end.

Since the critical reading skills are deemed necessary for students, it is assumed that more responsibility from teachers, textbook designers and policy makers to provide to enhance the quality of teaching and learning. As the scope of this research is limited to certain basic stage level, it is recommended that it be extended into other stages as well.

The findings of the study have given rise to the following pedagogical implications:

1. When designing any instructional program, students' needs should be taken into consideration in order to guarantee their effectiveness, success and continuity.
2. EFL teachers should be encouraged to integrate multiple intelligences strategies in their instructions to enhance their students' critical reading ability.

Note: This article is an extract from the author's doctoral dissertation per regulation of Yarmouk University.

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