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The Impact of Using Multiple Intelligences Activities for Teaching Reading Skills for 11th Grade EFL Students at Public Schools in Jordan

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Abstract

The aim of this study was to investigate the impact of the use of a teaching strategy based on the theory of multiple intelligences to teach reading skills to 11th grade students by answering two main questions:

1. Does the achievement of 11th grade students in reading skill differ according to the strategy (the teaching strategy based on multiple intelligences theory, the ordinary strategy)?

2. Is there an impact on the reading skill of 11th grade students due to the interaction between the teaching strategy based on multiple intelligences theory and gender?

The study population was composed of all the students of the 11th grade in the schools of Amman city 2013/2014. The sample of the study was deliberately chosen from two schools (254) divided into four groups; experimental males, experimental females, control males, and control females. In order to carry out this study, the researcher prepared a reading test and verified the validity of its content by arbitration and its reliability by calculating the coefficient of internal consistency of its paragraphs using the equation Kronbach Alpha (0.81). The results of the study showed the following:

- The presence of a statistically significant difference ($\alpha = 0.05$) in reading among 11th grade students is due to the teaching strategy and in favor of the teaching strategy based on the theory of multiple intelligences.
- The absence of an effect on reading skills among 11th grade students is due to the interaction between the teaching strategy based on the theory of multiple intelligences and gender.

In the light of the results, the study recommended the training of teachers on the strategies of teaching based on the theory of multiple intelligences, and include the English language programs activities that take into account multiple intelligences, and recommended further studies to examine the impact of this strategy in the ability critical thinking, and creative thinking, and problem solving of the students.

Key words: Teaching strategy based on the theory of multiple intelligences, reading skills, the prevailing pattern of intelligence, teaching English.

Introduction

The study of the concept of intelligence in the 20th century occupied a great place in psychology, both in terms of tracing its origins, grasping its origins, or trying to design tools to measure it. There were skirmishes among the scholars of intelligence, the most prominent of which were those who saw among those who saw in the intelligence one general ability of one, if it was intelligent in the aspects of various mental activities, whether conscious, or observation, or reminders, or knowledge of language, or arithmetic, and those who have seen that intelligence has differing abilities, one may have separate destinies (Gardner, 2004).

The concept of intelligence has been discussed over the years. It was the belief of many psychologists that intelligence is one general ability which is unchanging and is traditionally defined as IQ, which measures a narrow range of linguistic and mathematical abilities. Early in childhood excellence or lack of distinction at all, which is genetic and fixed (Gardner, 2004) One of the most famous theories in this field Spearman theory about the general intelligence called the theory of one worker which was based on the notion that intelligence is inherited through genes and chromosomes (Nofal, 2007).

According to this theory, intelligence can be measured by one's ability to record an adequate sum in a mental test. Spearman began with a very simple idea: if an individual has a general and comprehensive mental capacity to infer, solve problems and perform well in the mental field in general, It is possible to create a large number of different issues of varying difficulty to test this ability, and this general ability is called one factor (Q) (Eisenk and Leon, 1983). One of the most common tests used in this field is the Stanford- (IQ).

This traditional concept of intelligence has been prevalent for a long time, and all educational systems have been built on an intuitive concept of intelligence, and tests that have characterized students for life. From a traditional point of view, all students are taught in the same way without considering differences in students' abilities and ways of learning.

In contrast to the determinations of the single-minded view of intelligence, Gardner in 1983 presented the theory of multiple intelligences through his book "The Frameworks of the Mind", the theory suggests that there are a number of separate systems of adaptive capacities called Gardner's "human intelligences" and that each individual possesses one or more of these intelligences in varying proportions. This theory defines intelligence as the ability to solve problems, and to create valuable outputs in one or more cultural contexts (Gardner, 1993).

Gardner identified seven types of intelligences at first: linguistic, mathematical, musical, spatial, social, subjective, and physical. Gardner pointed out that there are other types, including spiritual intelligence and existential intelligence. According to his theory, there are many ways to be smart, in addition to the linguistic and mathematical aspects that are a criterion for intelligence tests (Armstrong 2000) (Gardner, 2004). A certain ideology requires a set of problem-solving skills, enabling the individual to solve the problems or difficulties that stand in his way, and facilitate the process of acquiring new knowledge (Hussein, 2003).

In the light of the above, from Gardner's point of view, it appears that it includes a set of terms, including the term capacity, which refers to the individual's ability to perform an action. This ability is the result of the experiences experienced or acquired by the individual as a result of his interaction with the environment; that is, these experiences are the result of the process of teaching and learning acquired by the individual in different environments.

Statement of the Problem

Using new strategies in teaching help teachers to reach best results with their students, recently, many scholars called for using new strategies among which is multiple intelligences theory which focus on each student differently from his colleagues, the researcher here tried to investigate the effect of using this strategy on the students' achievement.

Questions of the study

This study attempted to answer the following questions:

1. Does the achievement of 11^{th} grade students in reading skill differ according to the strategy (the teaching strategy based on multiple intelligences theory, the ordinary strategy)?
2. Is there an impact on the reading skill of 11^{th} grade students due to the interaction between the teaching strategy based on multiple intelligences theory and gender?

Limitations of the study

This study was limited to 11^{th} grade students enrolling in public schools in Amman during the academic year 2013/2014.

Previous Studies

The aim of Koksal (2007) study was to investigate the impact of biology education using the multiple intelligences theory on students' academic achievement, on student attitudes towards biology, and on teacher performance compared to traditional methods. Such as the Respiratory Systems Test to measure academic achievement, the Intelligence Inventory Multiple tool to identify students' intelligence, and the Biology Attitude Scale to measure trends toward matter. The data were analyzed using SPSS. The statistical analysis was performed using (MANCOVA and t-test) at a level of significance (0.05). The study was conducted in nine weeks on groups of students studying English in two different classes during the 2004/2005 school year at the Ataturk Anatolian High School. The two classes were randomly selected as experimental and control groups, and each class consisted of 25 students.

The study showed that the teaching based on the theory of multiple intelligences had a clear positive effect on the academic achievement of students, and students were able to express their knowledge through reflection activities and public discussions, which had a positive impact on their academic achievement compared to students of the control group. On the other hand, there was no clear impact on students' attitudes, and according to the views of students and teachers, some factors may have influenced the outcome of trends. These factors include: summer heat, context or conditions of classes and the impact of other lessons and other teachers. The study recommended taking into account the developmental level of students when using the theory of multiple intelligences, especially for students in adolescence as it is a sensitive stage in terms of trends, emotions, love and hate. And interest in the activities of the biology related to the scents such as gardens, animals and birds in that they affect the construction of an effective learning environment. The study recommended reducing the number of students in each class by about 20 students only, where control of observations and feedback is easier, and the assessment of students must be consistent with the theory if evaluation is inappropriate, it is difficult to determine the impact of theory-based activities.

In the study of Bilgin (2006) which aimed mainly at comparing the effect of the application of teaching based on the theory of multiple intelligences and the traditional methods of teaching science on achievement and attitudes towards chemistry for the ninth grade students, the study sample consisted of (50) students divided into two divisions A school in Ankara, Turkey; The teacher himself taught the two divisions, and the study was carried out in May 2005. A chemistry test consisting of (25) multi-choice questions was used. The researcher also used a 15-point approach to chemistry on the Likert scale, which consists of five levels.

The stability of this instrument was 0.83. The researcher used these tools in both tribal and post-test tests. The researcher also tested the skills of the science processes to verify the relationship between the skills of the science processes and the achievements of the students, a test consists of 36 questions of the type of multiple choice, and the value of stability of this tool (0.85). Statistical analysis has been conducted

The results of the study showed that the educational achievement of the students in the experimental group was better than that in the control group. The study also showed significant differences in the attitudes of students who were taught using the theory of multiple intelligences compared to the attitudes of students in the control group in relation to chemistry. There were no clear differences in educational attainment and trends between male and female students, and the skills of science processes did not contribute significantly to students' successes. The study recommended the possibility of conducting similar research in the classroom and other materials, and conducting studies to verify the effect of the student's gender on the application of the theory of multiple intelligences. The study also recommended the use of collaborative learning in science teaching, as well as holding workshops for teachers and parents to raise awareness of the impact of the theory of multiple intelligences on the achievement of scientific students, in addition to training teachers to apply teaching based on the theory of multiple intelligences.

The study of Ozdemir (2006) aimed to verify the impact of the theory of multiple intelligences on the level of understanding of the fourth grade students of some concepts of science the study dealt with the following issues:

- To verify the impact of the learning strategies used for the principles of the theory of multiple intelligences in understanding the unity of "diversity of lifestyles."
- Check whether multiple intelligences strategies lead students to long-term, meaningful learning in which students retain information gained from the concepts of the unit.
- Study the expected differences between the students of the control and experimental groups in terms of their results on the list of multiple intelligences before and after the study. The results of

the study showed that there is an effect of teaching in a manner of multiple intelligences on the students' achievement and their ability to retain information. The study also showed changes in the types of intelligence prevalent among students before and after the study in the experimental and control groups.

Design and Methodology

Population of the Study

The study population was composed of all the students of the 11th grade in the schools of Amman city 2013/2014.

Sample of the Study

The sample of the study was deliberately chosen from two schools (254) divided into four groups; experimental males, experimental females, control male, control female.

Variables of the Study

Teaching strategy (strategy based on multiple intelligence theory, ordinary strategy

Instrument of the Study

The researcher designed an achievement test based on the instructional material of the 11th grade English textbook to collect the data. Validity and reliability were ensured.

Reliability of the Instrument

To ensure the test reliability, the researcher followed test/retest technique. The researcher applied it to a pilot sample of (20) subjects excluded from the study sample in the same schools from which the subjects were chosen with a two-week period between the pre-test and the post-test. The reliability of the test was calculated using correlation coefficient that was (0.83) which is considered appropriate for conducting such a study.

Validity of the Instrument

The researcher validated the instrument by submitting it to a jury of two EFL professors teaching at Princess Alia University College, two supervisors of English language working at Amman 1st Directorate of Education, the Jury were asked to add, omit or make any changes on the items of the instrument. The test consisted of (30) items in its first draft, and it became (25) items in its final version.

Instructional Material

The instructional material was the 11th grade English textbook which consists of 8 units, each unit includes Modules for teaching reading skill

Procedures of the study

To implement the study, the following procedures were followed:

- Identifying the population and sample of the study
- Constructing the instruments of the study.
- Conducting the pilot study
-Ensuring the validity and reliability of the instrument of the study.
-Applying the instrument of the study.
- Use SPSS to analyze the collected data.
- Presenting the findings and the discussions of the study

Statistical analyses

Descriptive methods (means and standard deviation) were used for pre and post tests for the achievement test of the experimental and control groups.

Comparison statistical method (Two-Way ANOVA) was used to make a comparison between the control and the experimental groups of achievement in reading skill and gender.

Results of the Study

This study attempted to answer the following questions:

1. Does the achievement of 11th grade students in reading skill differ according to the strategy (the teaching strategy based on multiple intelligences theory, the ordinary strategy)?
2. Is there an impact on the reading skill of 11th grade students due to the interaction between the teaching strategy based on multiple intelligences theory and gender?

To answer these questions, the arithmetical averages and standard deviations of student scores were extracted on pre and post-test of reading skill according to the variables of teaching strategy (teaching strategy based on multiple intelligences theory, regular strategy) and gender (male, female). The results were as shown in table (1).

Table (1): Means and standard deviations of the students' scores in the experimental and control groups on the pre/post achievement tests according to the teaching strategy variable

Gender	Descriptive statistics	Pre-test			Post-test		
		Control	Experimental	Total	Control	Experimental	Total
Males		7.39	8.53	7.96	21.03	28.29	24.66
		2.61	2.45	2.57	5.83	3.25	5.95
		38	38	76	38	38	76
Females		9.44	8.33	8.92	19.04	26.04	22.33
		3.12	2.73	2.97	4.57	4.89	5.86
		27	24	51	27	24	51
Total		8.25	8.45	8.35	20.20	27.42	23.72
		2.98	2.54	2.77	5.39	4.08	6.00
		65	62	127	65	62	127

Table (1) shows that there is a difference between the average of the students' scores on the pre-test of reading skill in the experimental and control groups, the mean of the control group scores was (8.25) and the mean of the experimental group scores reached (8.45), i.e. there is apparent difference in the arithmetic average between the two groups by (0.20). There was an apparent difference between the average male and female scores on the pre-test of reading skill, where the mean for male scores was (7.96) and the mean for female scores was (8.92), i.e., there was an apparent difference in the arithmetic mean between males and females by (0.96). These differences were statistically determined using the (2-Way ANCOVA) analysis.

Table (1) also shows that there is a difference between the average of the students' scores on the reading post- test in the experimental and control groups. The results show that the mean of the control group scores on the post-test (20.20) and the standard deviation (5.39), for the experimental group scores was (27.42) and by standard deviation of (4.08), i.e, there was a difference (apparent) in the arithmetic mean between the two groups of (7.22). The same table shows a difference between the average male and female scores on the reading post-test, the mean of males scores was (24.66) and by standard deviation of (5.95) while the mean for female scores was (22.33) and by a standard deviation (5.86), meaning that there was a difference between the two sexes of about (2.33).

To determine the statistical significance level of the differences between the mathematical averages of the students' scores on the reading post- test according to the teaching strategy variable and the interaction between the teaching strategy and the gender and in order to isolate the differences in the performance of the students on the pre- test, (2-Way ANCOVA) has been used, results were shown in table (2).

Table (2): Results of the Two-Way Analysis of Variance (ANCOVA) of the students' scores on the post-reading test according to the teaching strategy and gender variables and the interaction between them

Source of variance	Sum of squares	Df	Mean of squares	Calculated "F"	Sig
	1.614	1	1.614	0.072	0.789
	1549.806	1	1549.806	68.978	*0.000
	137.791	1	137.791	6.133	0.015
	0.195	1	0.195	0.009	0.926
	2741.097	122	22.468		
	4533.354	126			

The results in Table (2) show that there is a statistically significant difference at the level of ($\alpha = 0.05$) between the arithmetic mean of the students' scores on the post-test in the experimental and control groups. The value of calculated (F) was (68,978), this value is statistically significant at ($0.05 = \alpha$), while the results show that there is no statistically significant difference between the arithmetic mean of the students' scores on the reading post- test according to the interaction between the teaching strategy and gender.

To determine the value of the differences in the mean scores of the students in the experimental and control groups on the post-test in reading, the modified arithmetic averages were extracted to isolate the effect of the performance of the two groups in the pre-test on their performance in the post-test. Table (3) shows the results

Table (3): The mean averages of students' scores in the experimental and control groups on the reading post/test, after isolating the effect of performance in the pre/test

Study Group	Adjusted mean	Standard error
Experimental	27.16	0.62
Control	20.03	0.60

The results in table (3) show that the differences were in favor of the experimental group. It obtained an average of (27.16), which is higher than the modified average of the control group that studied using the ordinary strategy (20.03), i.e. teaching based on Multiple intelligences theory improve student's achievement in reading compared to teaching using the ordinary strategy.

Discussion of the Results of the Study

Discuss the results related to the first question: Does the achievement of 11th grade students in reading skill differ according to the strategy (the teaching strategy based on multiple intelligences theory, the ordinary strategy)?

The results of the first question analysis showed that there was a statistically significant difference at the level of $\alpha = 0.05$ between the arithmetic mean of the students in the experimental group who studied reading skills through a teaching strategy based on the theory of multiple intelligences and the arithmetic mean of the students in the control group who studied according to the ordinary strategy, for the benefit of the experimental group, that is, teaching based on the theory of multiple intelligences is a better practicing of reading skill . This finding is consistent with the results of similar studies that attempted to test the impact of using a multiple-intelligences-based teaching strategy in learning the reading skills among the students.

Discuss the results related to the second question: Is there an impact on the reading skill of 11th grade students due to the interaction between the teaching strategy based on multiple intelligences theory and gender?

The results of the second question showed that there were no statistically significant differences between the performance of male students in the experimental group who learned reading skills through a teaching strategy based on the theory of multiple intelligences and the performance of female students in the experimental group Who studied the same subject through the same strategy. Which means that there is no interaction between strategy and sex, and this emphasizes the strengths in the strategy of teaching based on multiple intelligences theory, which means that it benefit both males and females, regardless of their nationality, and this result is consistent with the conclusion reached by (Bador, 2004).

Recommendations

The results of the study showed that teaching based on the theory of multiple intelligences increases the proficiency of students to the skill of reading, so it is appropriate to make the following recommendations based on the results of the study and its conclusions:

1. To train teachers on the theory of multiple intelligences and teaching strategies appropriate for each type of intelligences, and how to diagnose the types of intelligence prevailing in their students, and help them to develop their intelligence, so that teachers build their lessons according to multiple intelligences strategies to achieve meaningful learning.
2. The study recommends that curriculum designers take into account the theory of multiple intelligences in designing English language curricula, taking into account the interests and tendencies of students and their prevailing intelligence patterns.
3. The study recommends that researchers conduct more similar studies on different classes and different studies, and carry out other similar studies that test the effect of teaching based on the theory of multiple intelligences on the scientific and creative thinking of students, and the ability to solve problems.

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