

The Effect of Using Electronic Mind Map as a Medium of Instruction on Fourth Graders' Arabic Reading Comprehension at Jordan

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Abstract:- The purpose of this study was to investigate the use of Electronic mind mapping in Arabic language instruction and determine its effect on the development of reading comprehension. The sample of the study consisted of 67 pupils was chosen from registered fourth-grade students in two schools in northern Jordan. One class consisted of (30) students received reading comprehension instructions using the Electronic Mind Maps, where the other class (35) students represented the control group. An achievement test with a reliability coefficient of (0.87) was given to both groups before and after treatment. After the statistical analysis, the results showed There was a statistically significant difference ($0.05 = \alpha$) among the average scores of participants in favor of those used the Electronic Mind Map. The results also indicated that the volume of the impact of the use of electronic mind maps in reading comprehension was high. Based on these results, a number of appropriate recommendations, including the presentation of training workshops for teachers of Arabic language and for teachers, in general, to train them in the preparation of Electronic Mind Map and their employment in teaching.

Keywords:- *Electronic Mind Maps; Reading Comprehension in the Arabic language; Teaching Arabic*

I. INTRODUCTION

One of the most valuable skills for the learner is the reading, and the purpose of reading is understanding and is the basis of full reading processes. Reading comprehension is, therefore, the key to controlling all language skills (Ortlieb, 2013). It is associated with the brain, the place where understanding occurs (Moore & Lo, 2008; Lipson & Wixton's, 2009); learners develop links between their learning activities, experiences, and knowledge to form text meanings (Neptune, 2018). This approach calls for the construction of a teaching design that deals with learners as the constructors of knowledge, where he can focus on the main idea and sub-ideas of a text and recall his previous knowledge and connect it with his experiences to construct new knowledge.

Boznan (2000) stated that the Mind Map represented a robust approach that simulated the potential of the brain, and Zaki (2003) expressed that understanding reading needs the formulation of mental pictures and perception of symbols and written words, whereas Bozan (1993) explained that the operation of the mortal mind to imagine, that the mind map is taken into account a visible technology helps to recall the previous knowledge stored in memory and use throughout the process of learning to develop more information. Bozan and Bozan (2015) emphasized that the use of mind mapping was an appropriate technique to stimulate all other functions of the brain, including memory, creativity, and learning. According to Wen Cheng, Chung-Chieh & Ying-Chin (2010) Using the Mind Map represent a unique way to practice many elements, like disassembly Sense, attention, coordination, thinking, hearing, sense of movement, implementation skills, visualization of numbers, letters, reading and analysis, all link to each other in the Mind Map. Mind Map represents an effective method which will facilitate students develops a theoretical understanding of content and enhances accomplishment. (Anglesey & Khalick, 2008)

In the past, Mind Maps were created using paper, pen and typically implement. This methodology was boring because once the map requires changes, we've to continue writing and continuation over and once again, it's additionally problematic to handle pictures, colors, and sounds. Currently, Mind Maps are created using computer software package that known as Electronic Mind Map (EMM); it's straightforward to instantly produce; branches are repeatedly drawn clearly, simply erased and moved from place to different, we will take advantage of the PC once drawing pictures, animation, colors and attach videos. Chen (2008, p. 1034) explicit that the adoption of colors, images, symbols, and flat approaches to assist human memory so that one can focus the mind on one's own mind.

Mind Maps are thought of an effective method that might be employed in constructive language lessons, we do tend to approach to design an Electronic Mind Map, then text must be analyzed, concepts must be generated then the most idea of the text is often conferred within the variety of drawn image in the center of computer screen that represents the most idea of the contents. Branches-like arrows drawing from

the key image and represent the sub-ideas. You can also paste a picture, word or symbol, include colors and images to represent the sub-ideas and act as a secondary center for an association to enrich learning (Buzan & Buzan, 2015; Buzan, Dottino & Israel, 2012). Electronic Mind Map can be presented via data show or interactive whiteboards during classroom instruction. It can be prepared individually or groups. The Map can be saved on computers and used inside and outside the classroom, it can be distributed with other students through social media and easily manipulated when needed, and if there are at ease, it can be utilized as a medium of instruction in teaching the Arabic language

Literature review indicates that there have been several research provided evidence of the adequacy of Mind Maps as a tool for learning English language (Williams, 1999; Brinkmann, 2003; Ling, 2004; Amma, 2005; Treviño, 2005; Mohaidat, 2018), others indicate that Mind Map facilitates meaningful learning (Akinoglu & Yasar, 2007, Buzan, 1993, Erdogan, 2008), they develop creativity and promote individual learning (Mento, Martinell & Jones, 1999) and promote active-learning of language learning among students (Ellozy & Mostafa, 2010; Al-Jarf, 2009). Previous studies have looked at visual presentations as a necessary technique for understanding new knowledge, as they facilitate learners' recall of knowledge by using the visual elements present through Mind Maps. Since memorizing knowledge and connecting it to other concepts are skills necessary to understand new knowledge (Poznan and Poznan, 1995; Poznan, 2002; Bozan, 2005), Mind Maps can be used as a medium of instruction to aid students to become active participants in their lesson.

A. Purpose of the study:

Many investigations are conducted to investigate the impact of Mind Maps on reading comprehension in English (Stankovic, Besic, Papic & Aleksic, 2011; Peng, 2011; Mhaidat, 2018), Most of those studies have shown a direct impact on reading comprehension. In Jordan, there found one studies conducted by Mohaidat (2018) addressed the teaching of English to non-native speakers Showed moderate effectiveness of the impact of the Electronic Mind Maps in the pedagogy of reading comprehension, however consistent with the researchers there's no investigation examined the role of the Electronic Mind Maps as a medium of instruction on young Arabic language learners. Additionally, the researchers touched on the weakness of the fourth grader of reading comprehension in Arabic, they complain concerning the use of traditional teaching strategies, despite the provision of technology in schools. Consequently, the aim of this study is to look at the result of activating the drawing Mind Maps on the Arabic reading comprehension of fourth-grade Jordanian students exploitation Electronic Mind Maps as a medium of Instruction. The question developed for this study become as follow:

- Is there any statistically significant difference in reading and comprehension in the Arabic language achievement between Students taught via the utilization of Electronic Mind Maps and students taught via the traditional method?

B. significance of the Study:

This research is in line with recent trends in the field of educational technology. Since the Electronic Mind Map fall within the scope of computer education, teachers in Jordan can benefit from the results of this study in their teaching. It is also expected that the results will provide an effective learning model for Arabic language teachers most of whom still use the traditional lecture method.

II. METHOD

A. Subjects of the Study:

Two fourth grade sections, one consisted of (30) male students and one consisted of (34) male students were selected from two nearby schools. The selection was based on the agreement of both schools to conduct this study. One of the selected sections was randomly assigned to an experimental group, while the other section was designated the control group.

B. Study Design:

This study employed a quasi-experimental design with control and experimental groups, each was tested before treatment and post-tested after treatment. The treatment group received instruction using electronic mind mapping while the control group received the same texts but, they utilized the traditional teaching method.

C. Instruments

Based on the table specification for the unit, an achievement test was developed by the researcher. The test consisted of 30 multiple choice items with a coefficient of discrimination values ranging from 0.27 to 0.74 and difficulty coefficients ranged from 0.49-0.82. The test was validated with a stability coefficient of 0.87. Each test item was given a single point, and this would make a total test result = 30 points.

D. Electronic Mind Mapping

class plan: In order to investigate the achievement of fourth-grade students in reading comprehension in the Arabic language in a normal classroom environment, this study used the second unit of the Arabic language text-book prescribed by the Ministry of Education for all fourth-grade students in Jordan. For each lesson, under the supervision of the researcher and the help of the teacher, students identified the main idea of the lesson content placing it inside a drawn box in the center of the computer screen using I Mind Map software, Then, students identified the sub-ideas and place them on the branches that were emanated from the box. Other ideas that were emanated from the sub-ideas were identified

and placed on the branches emerging from the other branches. Images, colors, and symbols were added as needed. After they complete their drawn Electronic Mind Maps and ensuring its correction, they saved their Mind maps in their own files so they could review them at the time they needed.

E. Data collocation and analysis

The empirical data were carefully collected in two investigative stages: Before developed treatment, the empirical researchers properly administered the pretest to selected participants, then completed answer sheets were graded and scores were carefully analyzed using Spss. Means and Standard Deviations were calculated and an Independent Sample T-Test was applied to examine the significant difference between group means. After treatment, the post-

test was administered to participants, scores then were determined and One-way analysis of conversance was applied to find the significant difference between treatment and control group means.

III. RESULT

To accurately ascertain the equivalence of the two study groups, one of the investigative researchers carefully distributed the Pre Test to the willing participants. Next, grades were collected and objectively analyzed, the means and standard deviations were extracted then an independent t-test was applied. Results are shown in table 1.

Groups	The pre-test					
	N	Means	S.D	df	t	p
control	34	11.96	6.07	63	0.504	0.61
Experiment	31	12.64	4.74			

Table 1:- Means, Standard Deviations and (T) of the Pre-Test by Groups (Mind Map and Control)

Results in table 1. Demonstrate no statistically significant difference($t=0.504$, $P\leq 0.05$) between the groups before treatment. These satisfactory results sufficiently indicate that both willing groups (Mind Map and Control) were equivalent before the empirical treatment.

Table 2. show the means, standard deviations of the post-test scores for the control and experimental groups. Results show there is a difference between the mean scores in favor of the treatment group.

Groups	The post-test		
	N	Means	S, D
Control	34	15.93	5.35
Experiment	31	20.76	4.85

Table 2:- Means and Standard Deviations of the Post-Test by the Groups (Mind Map and Control.)

Table 3. shows the results of ANCOVA ($F = 21.381$, $p = .000$) . These results indicate that there is a statistically significant difference between the groups (the experimental and control)in favor of the experimental group.

Source	S.S	df	M.S	F	Sig	Eta ²
The pre-test	730.181	1	730.181	49.869	0.00	0.44
Group	313.059	1	313.059	21.381	0.00	0.25
Error	907.808	62	14.642			
Corrected total	2016.154	64				

Table 3:- ANCOVA Results

IV. DISCUSITION

This study was carried out to investigate the effect of Electronic Mind Mapping as a medium of instruction on fourth-grade students' achievement in Understanding the reading of Arabic texts. The results showed that the use of

Electronic Mind maps in teaching fourth-grade students the Arabic language helped them improving reading comprehension skills. This was evident by the difference between the average scores of the experimental group and the control group on the post-test scores. In other words, students who use the map will have better reading comprehension

than students who learned the same texts in traditional ways. This improvement can be traced to a range of characteristics related to the Electronic Mind Map technology. One of these features is the use of multimedia that aided students to add images, shapes, and symbols and place them on the branches. These tools represent the texts to be delivered from the ideas and helped to develop colors to distinguish the branches and ideas in a flexible, easy and fast computing environment, without manual paper restrictions. Another reason can be attributed to the result of this study that the preparation of the map of mind requires the analysis of texts to identify, classify, organize ideas and link with the branches of the text, which helped the student to concentrate and engage in the study effectively and thus has had positive attitudes towards understanding the text and storing it in their memory for subsequent recall.

The impact on the development of reading comprehension in the experimental group may be attributed to the fact that the use of Min Maps enhanced student's ability to remember, understand and analyze. The produce knowledge by constructing a conceptual framework for the material contained in the map in the form of layers connected to each other. The student's imagination makes the learning process centered around the student with the philosophy of the constructivist approach. Another important thing in the success of students in learning through Electronic Mind Map is the different opportunities by which learners can prepare their own maps, which may have improved the opportunities for knowledge communication and use to implement many skills.

Literature review did not find any studies that support the findings of the present study regarding the effect of Electronic Mind Map on the development of Students' achievement and reading comprehension skills in Arabic language, while several studies showed that Mind Mapping technique had positive impact on reading comprehensions in English language (Siriphanich & Laohawiriyanon, 2010; Liu, Chen & Chang, 2010; Kim & Kim, 2012; Hofland, 2007; & Malekzadeh & Bayat, 2015; Gomez & King, 2014; Bidarra, Kommers & Guimarães, 2000; Al-Awidi & Jaradat, 2015), making the results of this study an important addition of educational literature, because using Electronic Mind Maps, fourth grade students in Jordan were more successful in their academic achievement and reading comprehension.

V. CONCLUSION

This study sought to determine the effectiveness of the Computerized Mind Map as an educational technique in the teaching of fourth-grade students Arabic reading comprehension in Jordanian schools. The results revealed that using Electronic Mind Map increases students' achievement level, and it can motivate them to continue utilizing the new method for learning reading

comprehension. It is very effective for memorization and retention and helped the students think better and in a more enjoyable way. The results were very positive and encouraging for Jordanian students because of the ability of the Electronic Mind Map to develop students' comprehension skills, focusing on the basic idea and sub-ideas of the text, make use of their own experiences and coming up with their own ideas and drawing it on their map, adding shapes, images and colors that fit their desires within their individual abilities and intellectual framework, and then connect these ideas and arranged them in a manner that is adjustable within their intellectual framework, which means transforming the classroom into a more joyful and colorful environment, while supporting the ability to understand reading. Teachers must employ this strategy to teach Arabic literacy because it is more effective than traditional teaching methods.

Based on the result of this study, the following relevant suggestions and recommendations are made:

- utilize Electronic Mind Maps to improve the reading comprehension skills in the Arabic language for fourth-grade students in Jordan.
- teachers should be given pre-service training courses in the use of the Electronic Mind Mapping technique, this would be beneficial to both teachers and students.
- Focus on electronic mental maps technology in the curriculum and holding workshops to train teachers and supervisors.
- Conduct further studies to examine the impact of Electronic Mind maps in other subjects.

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