International Journal of Educational Research and Technology
P-ISSN 0976-4089; E-ISSN 2277-1557
IJERT: Volume 7 [2] June 2016: 25-32

Website: www.soeagra.com/ijert.html
ICDS : 3.699[University of Barcelona, Barcelona]
Global Impact Factor: 0.765 Scientific Journal Impact Factor: 3.72
Journal Impact Factor (JIF) : 1.54

ORIGINAL ARTICLE

OPEN ACCESS

The Impact of a Training Program Based on the Visual Words Composition Techniques on the Development of Reading Comprehension Skills among the Students of Primary Stage

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ARTICLE HISTORY
Received:
30.01.2016
Revised
26.03.2016
Accepted
12.05.2016

ABSTRACT
The objective of this study was to investigate the impact of a training program based on the visual words composition techniques on the development of reading comprehension skills. The sample of the study consisted of (104) learning disabilities pupils. A questionnaire that was developed by the researcher was used as a measuring instrument. The results indicated that there were statistically significant differences between the mean of performance of the experimental and the control groups in the reading comprehension skills development posttest in favor of the experimental group that was taught using the training program based on the visual words composition techniques. The study concludes that visual words composition techniques should be integrated with the Arabic language curriculum to develop the language skills among people with learning disabilities.
Key words: visual words, reading comprehension skills, learning disabilities

CITATION OF THIS ARTICLE
Mohammad Khasawaneh. The Impact of a Training Program Based on the Visual Words Composition Techniques on the Development of Reading Comprehension Skills among the Students of Primary Stage. Inter. J. Edu. Res. Technol. 7[2] 2016; 25-32
DOI: 10.15515/ijert.0976 4089.7.2.2532

INTRODUCTION

Reading is a psychological mental process that entails the ability to transform written symbols into verbal symbols. It is one of the basic psychological activities requiring the use of various mental processes to be employed in the various contexts. It is also one of the basic skills in the cognitive dimension of child development, a major focus of teaching and learning in the early school stages, a significant means for acquiring knowledge. Reading represents the third level of the hierarchical model for language development containing five levels: Receptive language, expressive language, reading, writing and employing written and verbal language in daily life.

Reading comprehension is one of the most important reading skills, the main objectives of reading cannot be achieved without it. Reading comprehension has become a major characteristic of good readers who are able to be a significant contributor in the development of society. It is an activity requiring accuracy, autonomy while reading, deep understanding, comprehension speed, enjoying reading, the variation in reading purposes, being involved with the different events, giving opinions, being critical and creative (Al Khasawneh, 2015).

To facilitate reading, and to facilitate reading comprehension, children should be trained to identify and recognize words learned to the level where he/ she can visually recognize them. Visual words are common words the reader can recognize at the first glance without the need for analyzing them to syllabus of sounds they constitute. Child unable to form many visual words will never be a good reader, will have a limited capacity in combining words in basic thinking units to reach reading fluency and

comprehension. Furthermore, he/ she will face serious problems in recognizing new or uncommon words for him.

It can be noticed, then, that comprehension is the basic component of reading. Without comprehension, reading cannot be described as a mental process. Reading comprehension is not an innate ability as it is not an easy facilitated skill ending when the reader can recognize the written symbols and say them. Indeed, it is a complex process falling in variant levels, requires mental abilities and potentials, needs practice and drill and the use of several thinking, explanation, analysis, critique and contrasting skills (Jad, 2013).

The significance of the study stems from the special attention educational systems pay for developing students' reading skills to improve their reading comprehension. The current study can be described as one of the new studies examining the effect of visual words formulation on reading comprehension.

While reviewing related previous literature, Casalis, Quemart and Duncan (2015) examined the effect of language at the derived grammar use in the visual words and children's words' processing and found that some of the morphological grammar children possess may facilitate children's words recognition, limit their ability to recognize inaccurate words in both English and French. The results of the study also indicated statistically significant differences in words' morphological processing level due to language, in favor of French compared to English.

In another study, Francis, Camacho and Lara (2014) studied levels of frequency in the translated words from Spanish to English and from English to Arabic and their effect on single word comprehension. The results of study found an effect for word frequency levels on reading comprehension, that the presentation of repeated words within various reading and writing language contexts had more effect on reading comprehension compared to single words presentation.

Yi et al. (2014) investigated the potential mechanisms causing reading disorders among a sample of dyslexia students. The results of the study indicated that visual domain in the left brain hemisphere was not able to activate the visual recognition functions for the presented words to students.

In another study, Abdelhaleem, Naser, LutfAllah and Al Dughiadi (2013) examined the effect of a Mazarano Model based blended electronic instruction program on improving pictures reading skills among preparatory stage students with learning disabilities. The results of the study found statistically significant differences between students' means scores on the pictures reading skills test (recognition, description, analysis, synthesis, meaning inference), in favor of experimental group students compared to controls.

Abdelnabi (2012) studied the effect picture reading based teaching strategy on developing creative writing among 5th grade students. The results of the study indicated that there were statistically significant differences between students' means scores on the creative writing pre-posttests, in favor of posttest; confirming the effectiveness of picture reading based teaching strategy on developing creative writing among 5th grade students.

Al Zoubi and Al Hamadani (2007) sought to identify visual recognition speed for Arabic letters in light of their forms, number of points on each letter, location of points in each letter, and the location on each letter on line, and whether they are linked with other letters or being segregated from letters. The results pertaining to letters points indicated that students reported more speed in visually recognizing letters without points compared to letters with points. The results of the study showed differences in visual recognition speed for letter with two points compared to one point and three-point letters. The results also found that letters with lower points were more visually recognized by students compared to letters with upper points. Results relating to the linkage or the segregation of the letter, letter location on writing lines showed that students reported higher speed levels in segregated letters recognition compared to linked one, the letters written upper and lower the line were more recognized compared to letters on line.

Hassan (2006) investigated the effect if reciprocal teaching based program on secondary school students' reading comprehension achievement level. The results of the study showed statistically significant differences in students' reading comprehension achievement test, in favor of the experimental group students taught using the reciprocal teaching program.

Al Qatawneh (2005) examined the effect of a generative teaching instructional program on developing reading comprehension and awareness level for English reading among Jordanian secondary stage students. The study indicated that there were substantial differences on the reading comprehension total test and on the literal, inferential and critical levels, in favor of the experimental group students taught using the generative teaching model.

After reviewing Arabic and foreign educational studies investigating the use of visual words formulation techniques and their role in reading comprehension skills development among students, the researcher noticed:

- There is paucity in previous studies targeting visual words formulation techniques.
- Several studies showed low reading comprehension levels among students. This low level was attributed to several reasons such as traditional reading instruction methods common in schools, the weak reading curricula, and the absence of listening skill instruction (Al- Qatawneh, 2005).

The current study attempted to integrate the visual words formulation techniques in Arabic curricula for students with learning disabilities at Abha Region to develop their skills in reading comprehension. To the researcher's limited knowledge, this is one of the first studies integrating visual words formulation techniques in Arabic at Abha Region.

Questions of the Study

The study addressed the following questions:

1- What is the effect of visual words formulation techniques based instructional program on the development of reading comprehension skills among students with learning disabilities at Abha Region?

2- Is there an interaction between visual words formulation techniques based instructional program and gender on the development of reading comprehension skills among students with learning disabilities at Abha Region?

Significance of the Study

The significance of the study stems from the enormous attention the school pays to promoting reading skills among students with learning disabilities, particularly their reading comprehension competence. The current study can be described as one of the latest studies in the field that examines the effect of visual words formulation skills on reading comprehension. The significance of the study can be noticed in the following:

- The current study provides a teaching guide employing visual pictures technologies and this may help teachers address the weaknesses found in students with learning disabilities acquisition of reading comprehension skills.
- The current study is based on the assumptions of educational reform requirements calling the need for the use of new technologies and software to be tools for promoting students with learning disabilities competences and abilities.
- The current study provides Arabic curriculum developers an opportunity to employ visual words formulation technologies and implement them in teaching Arabic.

Definitions of Terms

- **The Teaching Program:** A combination of instructional drills and strategies based on the employment of visual words formulation technologies, which consisted of linking the written words technique, linking the verbal word technique, word recognition strategy instruction, words squares technique instruction.
- **Students with Learning Disabilities**: Students showing disorder in one or more of the basic psychological processes entailing understanding and employing written and verbal words, and affects hearing ability in the form of auditory disorders, thinking, speech, reading, spelling and mathematics. This disorder can linked with some brain functional disorder and is not related with any form of disability, whether mental, visual, hearing impairment or other (Al Waqfi, 2012). In this study, students with learning disabilities are those diagnosed using the standard test acknowledged by the educational district at Hayel Region as diagnosis tool for learning disabilities.
- **Reading Comprehension:** A mental process where the student interacts with the written text using their previous experiences in recognizing the reading text content, explaining and evaluating it. In this study, reading comprehension was measured using the reading comprehension test developed by the researcher to measure three levels of reading comprehension: literal, inferential and critical among students with learning disabilities at Abha Region.
- **Visual Words:** These are the most common words that are frequently employed and recognized by children at sight without the need for word analysis to a sequence of sound syllabus comprising this word.

Limitations of the Study

The study sample was confined to learning disabilities students in the 3rd, 4th, 5th, 6th grades enrolling in the schools at Abha Region educational district in the second semester of the school year 2015//2016.

METHODS AND PROCEDURES

Sample of the Study

The subjects of the study were 3rd, 4th, 5th, 6th basic stage graders enrolled at the resourcerooms in the schools affiliated to Abha educational district in the first semester of the school year 2015/2016.
Table (1) shows the distribution of the sample according to their gender and teaching method

Table (1): The distribution of the sample according to their gender and teaching method

Gender / Group	Gender		Total
	Male	Female	
Experimental	26	26	52
Control	26	26	52
Total	52	52	104

Instruments of the Study

To achieve the objectives of the study, the following instruments were employed: An achievement test measuring reading comprehension among students with learning disabilities, the suggested instructional program based on the visual words formulation techniques suggested to improve reading comprehension skills.

First Instrument: Reading Comprehension Achievement Test

The researcher developed the reading comprehension achievement test based on a thorough review of related literature to identify the differences between the pretest/posttest performance of students with learning disabilities to develop their reading comprehension skills. In the development of the achievement test, the researcher employed a list of reading comprehension skills based on a review of related previous literature. The achievement reading comprehension test consisted of (30) items, as (10) of these items measure one of the reading comprehension levels (literal, inferential and critical). The main objective of the achievement test was to measure the subjects' achievement and mastery of reading comprehension skills before the implementation of the instructional program. The reading comprehension skills list was the key for the development of the achievement test items (appendices 2,3).

Validity of the Achievement Test

The achievement test was given in the preliminary format before implementation to experts of faculty members as they were asked to give their opinions about the items of the achievement test in terms of the following:

1. Content validity.
2. The ability of the items to measure reading comprehension skills that should be mastered by learning disability students.
3. Language structure and items clarity.

The experts agreed that the items of the achievement test were written according to students' writing expression levels, appropriate for learning disabilities students with respect to their abilities and skills. But, they recommended the need for unifying the pre- posttests items as there were some variance in items between the two achievement tests. The content validity of the achievement test was (90%) noting that the researcher took the remarks of the experts into consideration to increase the content validity of the achievement test to be in the final format as shown in appendix (2).

Difficulty and Discrimination

Difficulty and discrimination coefficients for the test items were calculated as shown in the following table

Table (2) Difficulty and discrimination coefficients for the test items

Item	Difficulty	Discrimination
1	0.667	0.667
2	0.548	0.556
3	0.563	0.556
4	0.667	0.444
5	0.618	0.444
6	0.686	0.556

7	0.639	0.667
8	0.676	0.556
9	0.816	0.444
10	0.692	0.556
11	0.550	0.667
12	0.634	0.444
13	0.833	0.667
14	0.674	0.778
15	0.591	0.556
16	0.711	0.556
17	0.783	0.444
18	0.766	0.444
19	0.667	0.778
20	0.673	0.333
21	0.780	0.556
22	0.824	0.333
23	0.654	0.556
24	0.755	0.889
25	0.796	0.556
26	0.836	0.778
27	0.804	0.556
28	0.825	0.667
29	0.759	0.556
30	0.831	0.778

As seen in the previous table, item discrimination coefficients ranged between (0.333-0.889) and all of these values are acceptable, indicating that the discriminative ability of these items was adequate. This statistical procedure measure item characteristics, its discriminative ability between examinees from high and low levels. The item reporting an average of (0.30) discrimination coefficient value is acceptable. The difficulty coefficients values was between (0.548) and (0.836) and all of these values are acceptable as the item is accepted if reporting a difficulty coefficient ranging between (0.150) and (0.850).

Reliability of the Achievement Test

To check the reliability of the achievement test, Cronbach alpha and split half reliability for the test items were calculated as seen in the following table:

Table (3)
Cronbach alpha and split half reliability for the test items

Cronbach alpha coefficient	Split half coefficient
0.825	0.895

Table (3) shows that Cronbach alpha and split half reliability coefficients values were high and this ensures high reliability levels.

Second Instrument: The proposed training program for developing reading comprehension skills

The objectives of the program

The program aims to develop reading comprehension skills among students with learning disabilities and to achieve the following:

1- Develop expression and reading comprehension skills among elementary stage students with learning disabilities.

2- Increase students with learning disabilities achievement level in reading comprehension skills.

The conceptual framework for the program

The starting point for the development of this model is the low reading comprehension skills among average students in the elementary stage in general, and students with learning disabilities in particular.

There is also a need for developing programs that can promote reading comprehension skills among this students population. The current model is based on the following rationales:

- Students report low reading comprehension levels in the different school stags in general and among students with learning disabilities in particular. This was documented in several previous studies examining students reading comprehension level in Arabic, the results of reported studies in Arabic indicating that students report low achievement levels in Arabic skills acquisition.
- The information developments and the changes in the Saudi society dictates the need for developing performance in Arabic teaching so as Arabic becomes a viable and developed languages in the minds and hearts of society members.
- Reading comprehension skills are not limited to only Arabic as student's comprehension ability is the key for success in other school subjects and low levels of this ability may means failing other school subjects (appendix 1).

Program implementation

The researcher implemented the program on the students in the experimental group at King Abdel Aziz Elementary School at Abha. The program contained (30) session, each lasting for (25) minutes during the first chapter of the school year 2015/2016.

RESULTS

To answer the first and second questions of the study, means and standard deviations for the two study groups performance on the reading comprehension pre-posttests performance in light of the instructional program and gender. The following table shows this:

Table (4): Means and standard deviations for the two study groups performance on the reading comprehension pre-posttests performance in light of the instructional program and gender.

Program	Gender	N.	Language reading comprehension skills pretest		Language reading comprehension skills posttest	
			M*	SD	M*	SD
Language instruction	Male	26	11.77	2.566	25.75	2.219
	Female	26	12.23	3.253	25.71	2.920
	Total	52	12.00	2.910	25.73	2.568
Control	Male	26	11.85	2.796	19.23	2.471
	Female	26	12.81	2.800	18.62	2.351
	Total	52	12.33	2.813	18.92	2.408

Maximum grade= 30.

As seen in the previous table, there were substantial differences in the means scores of the two study groups in the reading comprehension pre-posttests in light of the instructional program and gender. To identify the significance of the differences between the means cores of the two groups in light of instructional program and gender at the significance level ($\alpha \leq 0.05$), Two way ANCOVA analysis was employed. The results of the Two way ANCOVA are shown in table (5).

Table (5): Two way ANCOVA for the study groups performance on reading comprehension pretest in light of instructional program and gender

Source of variance	Total squares	Degrees of freedom	Total squares average	*F* value	Sig.
Reading comprehension pretest	19.040	1	19.040	3.100	0.081
instructional program	1183.391	1	1183.391	192.703	0.000
Gender	1.017	1	1.017	0.166	0.685
Program*gender	1.886	1	1.886	0.307	0.581
Error	607.960	99	6.141		
Total	53680.000	104			

The previous table shows that ***F*** value for the instructional program was (192.703), with a significance level of (0.000); indicating that there was a statistically significant difference between the means scores of the two study groups performance on the reading comprehension achievement posttest. This means that the first null hypothesis stating:" there is no statistically significant differences at the significance level ($\alpha \leq 0.05$) between the means scores of students with learning disabilities grades on the reading comprehension skills at Abha Region due to the instructional program (language instructional program, traditional instructional program) is rejected.

Moreover, the previous table shows that ***F*** value for the interaction between the instructional program and gender was (0.307), with a significance level of (0.581); indicating that there was no difference in the effect of the instructional program due to the subjects' gender. that the second null hypothesis stating: there are no statistically significant differences at the significance level ($\alpha \leq 0.05$) between the means scores between the means scores of reading comprehension skills development level among students with learning disabilities due to the interaction between the instructional program and gender. The modified means were calculated as shown in the following table:

Table (6): Modified means and standard deviations for the two study groups performance on the reading comprehension skills test due to instructional program and gender

Program	gender	N.	Modified Means*	Standard error
Language program	Male	26	25.67	0.487
	Female	26	25.74	0.486
	Total	52	25.71	0.486
Traditional	Male	26	19.18	0.487
	Female	26	18.71	0.489
	Total	52	18.95	0.488

Maximum grade= 30.

It can be seen from the previous table that the modified means scores for the experimental group taught using the language instructional program was (M=25.71), and this value is higher than the one reported among control group students as the modified means scores for the this group was (M=18.95). This indicates that the difference between the two study groups was in favor of the experimental group aught using the language instructional program in the reading comprehension skills development.

DISCUSSION

The results of the current study may be explained from the fact that the instructional program developed based on the visual words formulation techniques motivated students with learning disabilities and they were driven to learning when they encountered a new instructional method respecting their abilities, affirming their self- concept and the need for their interaction while working on the assigned learning task. This led to higher self- confidence when engaging in the learning task. Moreover, the new methods employed in the instructional process, addressing the problems from different and various perspectives resulted in broaden students' horizons and helping them regulate their information in new ways different from the traditional thinking styles. Students were able to formulate visual pictures for words, use them in promoting their reading abilities and adopt various alternative solutions. The results of the current study were consistent to Al Faouri (2006) study, Murdad (2006) study which all indicated that the employment of CURT software in presenting reading texts was able to promote students' reading abilities.

Also, the current study results are consistent with the findings reported in Casalis, Quemart and Duncan (2015), Francis, Camacho and Lara (2014) study, Abdelhaleem, Nasr LutfAllah and Dhogaidi (2013) study, Abdelnabi and Al Hamadani (2007) study, Hasan (2006) study and Al-Qatawneh (2005) study.

The fact that there was no interaction between the instructional program and gender can be explained from various perspectives. The instructional program may be have taken into consideration students learning styles and their development level. The presented reading texts and exercises conformed to their cognitive experiences and backgrounds; the reading content was very close to students' and appropriate to their age group. In addition, the use of visual pictures techniques in presenting the words may have played a role in motivating students, encouraging them to engage in the learning tasks. It was also a driver for students for more effort and progress.

Students with learning disabilities in the current study were given organized and ordered learning task and assignments as the instructional program was based on visual pictures techniques in presenting the targeted words. In addition, the instructional program included well-defined and achievable objectives, learning activities, teaching tolls and instruments and evaluation tools taking into consideration students' ability levels and had the same effect on students from both genders.

RECOMMENDATIONS

In light of the results found in the current study, the following recommendations were developed:

- To employ the instructional language program based on visual pictures techniques in presenting words in teaching students with learning disabilities at Abha Region reading comprehension skills.
- Train teachers to use the instructional language program based on visual pictures techniques in teaching students with learning disabilities.
- To capitalize the developed reading comprehension skills list proposed in the current study.

CONCLUSION

The study concludes that visual words composition techniques should be integrated with the Arabic language curriculum to develop the language skills among people with learning disabilities.

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