The Effectiveness of Programmed Education in Developing Writing Skills of Children with Learning Difficulties in Primary Education: A Case Study of Northern Border Areas of Saudi Arabia

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Abstract

The present research aimed at recognizing the effect of Programmed Education (PE, hereafter) in developing writing skills for children of learning difficulties in primary education in Saudi Arabia. This empirical study is a case study of primary level students from the learning difficulties centers in KSA. The study sample is chosen randomly consisting of two groups: controlled (50 students), and experimental (50 students), wherein the study instruments have been applied after checking its validity and reliability. The results of the study shows that there is a difference of statistical significance at ($\alpha = 0.05$) between the controlled and experimental groups related to the effect of programmed education in developing writing skills of children with learning difficulties in primary education in the Northern Border area of the Kingdom of Saudi Arabia.

Keywords: Programmed Education, primary education, learning difficulties, writing skills

1. Introduction

The twenty first century is witnessing fast and immense changes which have a clear impact on social, economic, educational, cultural, scientific, and technological life systems. In front of these immense transformations, a mutual response is a must between these systems, in order to benefit from it for the advantage of promoting and advancing life. Educational system response forms central importance among these responses for it represents the comprehensive entry for uplifting other systems inside the social entity. In order to make education to be contemporary and capable of these transformations, it is necessary to identify technological issues in shaping its goals. It is also necessary to develop various innovative methods and means so that they can prove to be able instruments to perform their functions in this changing world (Al Teeti et al., 2008).

Educational technology theories took its roots from old and new education principles; from Pronze and James and their theories for knowledge structure (Anderson, 2004). Crowder (1960) developed what is called *Branched Programmed Education*, in which programmed education is branched into channels, furnishing learners with the right knowledge for its wrong answer during the learning process. This step led to imparting programmed education flexibility in usage, richness in knowledge and uniqueness in education, i.e., the learner depends on himself during the learning process (Ornestein, 2011).

Kinzie (2002) sees the need to prepare students toward computerized educational technology. *Computerized Educational Programs* are found to be highly effective in enhancing the learners' competence toward educational subjects. Richard (1997) understands that directing students toward using computer programs and its applications and realizing its advantages, forms a necessity because of the effect of its use in benefiting the potential learners. The interaction takes place among pupils through these computerized programs during their learning experience generates positive direction to the pupils which increases their drive to learn.

Education uses multiple mediums by using computers to attract more students (Schilling, 2009), wherein, the computer is considered the newest technology of most used and most developed. Computers entered various human fields, and influenced it directly and became a necessity for scientific and practical lives, and an essential

factor of human production. Its use is not monopolized and rather has been widely expanded to all areas of research, applications in human lives (Kensarah, 2009).

1.1 Significance of the Research

Special education literature describes learning disabilities as puzzling hidden deficiency for children suffering from these difficulties that hide their weak sides in their performance. Children tell wonderful stories despite not being able to write. They could succeed in performing very complicated skills, although they may fail in following simple instructions. And they may seem completely normal and intelligent not only in their appearance, rather there is nothing that reveals that they are different from the other ordinary children, yet they suffer immense difficulties in learning some skills in school. Some of them cannot learn to read, some are incapable of uttering some letters as a result of defects, and some are incapable of learning writing. The theoretical and practical significance of the current study explains the following:

a. Verifying the effectiveness of programmed education on developing writing skills for children with learning difficulties in the primary stage at the Northern Border District in the Kingdom of Saudi Arabia.

b. There is a lack of studies in Arabic regarding programmed education in developing writing skills for children with learning difficulties in the primary stage at the Northern Border District in the Kingdom of Saudi Arabia.

c. The need of children with learning difficulties is to live independently in fulfilling their needs, integrate in the society, interact with their peers, and social conformity with the others through developing their writing skills, and overcoming their writing problems.

1.2 Research Problem

Talking about learning difficulties is not easy since it is a new term that needs a refined definition because it is associated with other categories of special needs. Sometimes it is mixed with education for the mentally retarded, for those with language and speech disorders, or with behavioral disorders. These difficulties are not uniform as far as their symptoms are concerned as learning difficulties in an individual may not necessarily be the same of the others (Qahtan, 2008). Hence the present study aims to address the following research questions:

a. Is there an effect for programmed education on developing writing skills (putting together letters for words) for children with learning difficulties in the primary stage in the northern borders district in the Kingdom of Saudi Arabia?

b. Is there an effect for programmed education on developing writing skills (sectioning words into letters) for children with learning difficulties in the primary stage in the northern borders district in the Kingdom of Saudi Arabia?

1.3 Research Hypotheses

a. There are differences between both controlled and experimental groups to assess the effect of programmed education on developing writing skills (putting letters together to form words) for children with learning difficulties in the primary level.

b. There are differences between both controlled and experimental groups to assess the effect of programmed education on developing writing skills (segmenting words into letters) for children with learning difficulties in the primary level.

It is a self-education in which learners seeks to control the learning process, and there by controlling the fields of educational experience and determines its sequence skillfully and accurately. It helps the student educate by themselves, discover their mistakes, and correct them until learning is accomplished and reach an appropriate level of performance. The student goes through these steps before he passes another test after the completion of this program so that he can find out how far he has achieved the objectives of the lesson and the level of his performance particularly (2004, p. 35).

Rousan (2001) defined it as the growth of mental abilities in an irregular manner, also focuses on aspects of academic deficits of the child, which represent the inability to learn the language; reading, writing and spelling, which do not belong to mental or sensational causes, and finally the definition focuses on the contrast between academic achievement and mental ability of the individual.

Procedural definition of the learning difficulties means the students in this study are aged between 7-10 years who attend primary school. It has been noticed that they have a disorder in writing but the difficulty is not due to a sensory impairment, mental disorders, or environmental problems.

2. Literature Review

Writing is a human heritage which bestows upon the human being to mark his humanism since history and civilization. Since early times, people taught their children reading and writing. Writing includes the sub-activities: *hand writing*, *spelling*, and *linguistic expression*. Writing plays a major role in study activities of practical life tasks. Difficulties in learning writing is a common problem with children in primary level and could continue when they are older, therefore, the problem should be realized at the start before it becomes serious by assessing the factors causing this difficulty. The term "*learning difficulties*" was first used by Kirk in the early sixties of the last century to distinguish between mental retardation, slow learning, and educational difficulties that some students suffer from as a result of internal or developmental factors; despite having normal intelligence, he cannot achieve in the level that is consistent with his mental abilities (Adel Abdallah, 2006).

Some consider that programmed instruction is a modern technological method, while others argue that its roots extend to the era of the philosophers of the ancient Greece. Socrates used the method of dialogue and discussion in his education. The give and take method with the student help them taking advantage of his answer to give a new questions —it's a way to lead the learner to the desired goals.

But Plato has pointed to the need of the effective answer and small steps principle to avoid coercive methods in education. While Koantylian mentioned that the learner depends on the principle of small steps during his learning, asking a lot of questions in order to have positive reinforcement. In the seventeenth century, Komenus described a kind of learning characterized by effectiveness, increases learning, and reduces the impact of the teacher. The psychology and scientists in the nineteenth century and the twentieth century were closely related to the programmed science which is now known as in the *programmed instruction*, or as the *principle of reinforcement*.

In 1925, the American psychologist, Sidney Pressed invented the first learning machine, a small machine to self-correct tests: it contains multiple answers and enables the learner to discover his mistakes and work on its corrections. Percy didn't mean what is known as programming prior to the discovery of this machine. It marked the beginning of interest point in the programmed learning (Kurbanoglu et al., 2006).

In the fifties programmed instruction philosophy has emerged the way we see it now, as a result of the experiments and research of American psychologist, Skinner carried out on pigeons and rats, and found the relation between those results and the human learning. When he conducted his experiments on his daughter and as a result of that the extent her mathematical skills improved and concluded with programmed instruction principles. After that he held several conferences related to programmed education and its principles. Afterwards many conferences have been held to evaluate its viability (Fathima, 2013).

Computerized curriculum is considered one of the novelties of technology which goes back to the ideas of Skinner in mid-fifties. Since then, computerized programs in general and computerized educational programs in particular, witnessed a notable development and advancement. Computerized Educational Programs have proved its effectiveness in various educational situations. Looking at various literatures, the advantages of *Computerized Educational Programs* in education were categorized with a strategic objective that the school administration should perform the following elements; instruction, presentation, practicing, examination, maintenance, and transferring (Abu Khatwah et al., 2009). Computer has occupied a prominent place among the modern techniques because of its high capability, and the possibility of the use of educational programs to help students learn different subjects in different patterns such as languages and others, where information is displayed in a different and exciting ways that help learners to repeat what they have learned, and also to consolidate information in their minds to seek remedy of the shortage happening in absorption of the concepts. The applications that are related to the development of school curricula with the help of computer will be heavily depended on computer usage for the analysis of lessons/material and their respective units, either for the teacher or the learner (Simona, 1997). Fernand's *direction criterion* has been used in teaching spelling and writing, which is considered a gateway to the child's linguistic experience and an introduction to teach the entire word. Fernand believes that overcoming the emotional issues that are related to reading, faced by the students, would be easier if the material provided boost an interest in them. Moreover the stories written by students with assistance from the teacher whenever needed, serve as the basis for them to read it afterwards and select the words they want to learn. Repetition of its pronunciation helps them write another story on their own, using the words saved in a special file. These words act as the database they can always refer whenever needed. Fernand never supported the idea of cramming words, but focused on reading and writing the word as a whole (Elhanan Kaufman, 2007).

Cardinal and Smith (1994) conducted a study aimed to investigate the effect of educational computer in students' achievement in different educational areas including language. The study sample consisted of 60 students from the students of a University in Virginia. The study sample were distributed to two groups; an experimental group studied using computer-based learning strategy which focused on understanding and memorization, and a control group also studied using the computer but without learning strategy. The results of the study favored experimental group to the control group which studied the Arabic language and skills by computerized program. Mines and Brandes (1995) aimed to check how a group of school teachers and professors of US universities in the field of teachers' education encourage students to interact and participate in learning. The information and data has been collected through weekly meetings, interviews. It has confirmed the importance of active learning in teacher training raise the impact on increasing students' participation and interaction through educational learning process.

Bones and Thompson (2000) conducted study in order to investigate the relationship between the use of a computer by the teacher and the motivation and integration in terms of training, and curriculum designing, collaborative learning, self-direct learning, and active learning. The researcher has used the Mann-Whitney Test to determine the relationship between motivation and teaching strategies. The study sample consisted of 445 teachers who are teaching grade nine through twelve in the public schools of the province of North Louisiana in the US. The results of that indicated the existence of statistically significant relationship between the degree of computer application and the frequency of the use of his teacher, the extent of training on the process of completion of the curriculum, and the extent of support to that completion. Jallad (2000) conducted a study aimed at knowing the effect of programmed education in students' achievement in Islamic Education subject compared to traditional education. To achieve the goal of the study the researcher put the following two questions:

a. Are there significant differences between the achievement of tenth grade students in Islamic Education course followed by the programmed instruction and the traditional education?

b. Is there a statistically significant difference at the level of significance (0.05) due to the gender and age of the student? The study sample consisted of 109 male and female students in the tenth grade. The sample was divided into two groups; 32 male students and 24 female students in the two experimental groups, followed by two controlling groups of 22 male and female students. The researcher designed programmed text for the curriculum and the collective test grades on the two groups; the controlled and the experimental both.

Dunn (2002) aimed to investigate the effect of learning by computer, and compared the same with traditional methods. The study sample consisted of 141 students from the primary ninth grade, were chosen based on their prior achievements in the eighth grade. Then they are divided into two groups: control group studied the traditional way, experimental studied using computer. The results of the study showed an improvement on the performance of the control and experimental groups in the post-test compared to the pre-test. The improvement was greater in the experimental group, also appeared there superiority in favor of females to males, and the results indicated that teaching reading using a computer improves the performance of students in standardized examinations.

Mottalag (2002) studied the impact of programmed instruction on the third grade students' usage in their achievement of general science and further compared it to the traditional way. It aims to investigate the effect of the method and style of programmed education compared to the usual way of education in raising the level of achievement in science. The researcher used the descriptive analytical curriculum for all students of the desired grade in the schools in Jordan. The most important result of the study is that programmed instructions reduce the learning time so that the remaining time can be used in other educational activities for the benefit of the learner. There is a marked increase in the level of educational attainment and achievement of the learners. The study recommended further studies on the programmed self-learning in other various materials, and also the importance of providing facilities, materials and devices that are commensurate with programmed instruction method. Souse (2003) also held a study aimed to investigate the impact of educational program administrated by the computer in the development of creative writing skill. The study was conducted on the basic ninth grade students at the Ibn Abbas Secondary School for Boys. The researcher built a test for the creative writing, and designed two programs for the development of creative writing skill such as articles, stories, dialogues. One group was supervised by the computer and the other without a computer. The study sample consisted of three groups; an experimental group of computer composed of 28 students, and an experimental group without

computer of 30 students, and a control group consisting of 27 students. The results indicated the presence of statistically significant differences in creative writing skill.

Aw'd Allah (2003) also conducted a study aimed at recognition of the effect of programmed education method and compares the same with traditional method of education. Mohammed Al-Khair (2002) conducted a similar study on the views and trends of college professors on the use of programmed self-education. Hayek (2005) also conducted a study aimed at building a computerized teaching model based on the use of multimedia and tests its impact on the development of creative reading skills at the primary stage students in Jordan. Around 110 students were selected from two public schools; a school for boys and the other for girls. The results showed statistically significant differences in the performance of students.

Ali (2006) made a study aimed to identify the use of method of programmed instruction instead of traditional methods in various educational stages. His study addressed the programmed instruction in different grades in general, and middle grade in particular. His studies can be summarized in the following observations:

a. The programmed instruction method is considered as one of the modern and effective teaching methods for various grades. This method increases the students' achievement in scientific information subjects and prepares them for a long term benefits.

b. Programmed instruction makes the role of the student positive and effective during the learning process because the student is transmitted from easy to difficult in the form of gradual steps that makes the concentration process high, so that he does not move from one step to another before mastering the previous step. In this process the students learn thinking by himself in solving the problems, and the student's self-reliance on himself makes the understanding, comprehension, memorization, and concentration process very effective.

c. Programmed instruction method is useful in classrooms crowded with students, because they are engaged in the educational process at one time in the light of the educational program.

d. The programmed instruction takes into account the individual differences among students as well, so as to allow each student to walk through the program according to his abilities and aptitudes and at his own pace.

e. Programmed instruction takes care of the feedback step by step as the student moves through the program step by step. The students' success in these steps lead to the reinforcement and encouragement process and enhances his motive to continue the educational process.

f. The teacher role becomes the director and supervisor of the student. The teacher turns his attention to development tendencies, trends, and ways of thinking of the students, and this gives him an edge in achieving additional educational goals.

Hevens and others (2008) conducted a study on the impact of the employment of active teaching- learning strategies in Geography. The importance of these strategies to involve learners in the classroom was compared to the ways of traditional education in which the teacher dominates the educational process and does not allow the opportunity for learners to participate effectively in it. The study emphasized the importance of active teaching-learning strategies in geography, and refused the believe that benefits the difficulty of implementation of active learning strategies in a lot of educational situations, because they require that students' prior knowledge of the content of the educational content, and that the application of the majority of active learning strategies requires a significant effort by teachers and students respectively.

Saleh (2010) held a study aimed at identifying the impact of the use of computerized educational lessons programs to learn the Arabic language on the collecting of the main first-grade in Nablus municipality schools. The study sample was an intentional sample consisted of 313 students from the primary first-grade students in the public as well as private schools UNRWA (2010). The results showed that there were statistically significant differences at the significance level = 0.05α The achievements among students of the primary first-grade differ due to the school type, facilities provided by the international relief agency which marks a statistically significant differences (= 0.05α). The achievement of the primary first-grade students in Arabic language in the post-test attributed to the type of group in each school. In favor of the experimental group, there is statistically significant differences at the level $0.05 = \alpha$.

Abu Musa's (2010) study describes the features of the training programs based on the programmed instruction, a blend of different types of education facet; face to face, multimedia learning, distance learning with illustrated training module specifications, enable teachers to adapt to e-learning and technology requirements. The paper explains the role of electronic media in test preparation, and finally the paper provides statistical and qualitative

data related to the experience with the training program applied over the three years since 2007. Around 120 participants have been trained; descriptive results showed the effectiveness of the training program contributed to bridge the gap between pedagogy and technology, through the participants' self-reliance in designing and producing using educational multimedia.

Among the distinguish contributions in this area of study, Alveabat (2013) made a study aimed at investigating the effectiveness of the programmed learning that is based on the use of the both self-learning and the traditional way of collecting data from Tafila Technical University students about the teaching methods for the first classes and their attitudes towards it. The study sample was consisted of 58 students, were chosen randomly from students of the both specialization and children with learning difficulties, and from the class teacher about teaching modalities in the first classes. In this study, collective test prepared by the researcher consisted of 45 paragraph of multiple choice, the test reached the stability ratio of 86, and the results showed that there are significant differences, and the differences was in favor of the experimental group which studied using the method of programmed instruction. The researcher admitted the importance to adopt the programmed instruction method in teaching of the other courses of various specialties.

Alian, Waldibs (1999) summarized the following characteristics of Programmed Education:

a. Each student works alone.

b. Each student learns according to his own pace.

c. The course material is provided in frames' form.

d. The student responds a certain response in it to the stimulus (the question) and is often successful.

e. It allows the student to know the correct answer.

f. This enhances the learning process.

g. Continuous self-evaluation and the student feeling of success step by step.

h. The program directs the student when he makes a mistake in the answer (Fathima, 2013).

Ibrahim (2002) has summarized the following features of Programmed Education:

a. Take in account the individual Differences between the Learners.

b. Motivates the Students to study.

c. Helps on the Self-Learning.

d. Help on learning Outside the School.

e. Contributes in handling the growing numbers of students.

f. Provides the Learner by the modern advanced Sciences.

Based on the various studies carried out, the following are the four acts performed by the learners while administering Programmed Education:

a. Read the new information given in the framework.

b. Answer the questions in the frame.

c. Make sure of the answer by comparing them with the correct answer given.

d. Go to the next frame and repeat those steps, and this step is made only for the linear program Linear.

3. Methodology

Following is a description of the method and procedures followed in this research to achieve the desired objectives of the study. It includes a description of the educational community and its sample, studying tool and methods of verification of its validity and reliability, the variables of the study, and the statistical processes used by the researcher to answer questions about the study.

3.1 Data Sampling

The study consisted of children with learning difficulties in primary schools of the northern border area in Saudi Arabia. The study sample consisted of 40 male children who were selected in a deliberate manner from a Center of Learning Difficulties, Northern Border Area in Saudi Arabia. The sample was divided randomly into two

groups: 20 children in the experimental group who would be in the training program, and 20 children in the control group who would not be exposed to the training program.

3.2 Tools of the Study

The researcher designed the training program to be applied to the experimental sample to test their performance in the writing skill test.

3.2.1 The Training Program

The researcher prepared plans for writing skill in such a way that the employment of drawing, story narrative, and representation of computational strategies, and a number of diverse activities have been proposed to take into account individual differences among children by employing methods, techniques and computerized presentations. The program consisted of 12 training meetings.

3.2.2 Sincerity of the Training Program

To verify the authenticity of the training program prepared, it has been submitted to a group of arbitrators, specialists, and experts in the area of curricula, teaching methods, the Arabic language, and literature majors, and supervisor from the teaching staff of the university, where they were making their observations and suggestions to modify some of the activities or exercises or to add new exercises.

3.2.3 Tools to Measure Writing

The researcher has prepared a checklist to monitor and to observe the performance of students in writing, and the tool was formed of 30 items distributed on two dimensions; structure of letters in words, cutting words into the letters, sub-paragraphs was reached through whole skill analysis to specific sub-skills.

3.2.4 Authenticity of the Writing Tool

To check the authencity of the tool, it was presented to a committee of arbitrators, specialists, and experts from the university faculty members in the area of special curricula and methods of teaching the Arabic language. Their observations and suggestions were taken by and necessary suggestions and modifications were made to the tool.

3.2.5 The Stability of the Writing Measurement Tool

To check the stability of writing measuring tool, the stability coefficient was extracted in two ways; the first is application and re-application on an exploratory sample of the study. The children's Coefficient Pearson Correlation between the results of the two applications is checked. The agreement between observers was used during an exploratory test sample with the help of two examiners and the degree of agreement between their estimates was established by using Cooper Equation.

Table 1. Stability study tool

Cooper	Replay stability	Internal consistency	Areas
0.89	0.76	0.78	Construction of letters into words
0.90	0.79	0.81	Cutting words into letters
0.90	0.82	0.87	Tool as a whole

3.3 The Approach of Study

The semi-experimental approach was used in this study because it is the most appropriate, where the study sample was distributed into two groups; one of them randomly for the training program, and the other left as a control group not exposed to this program.

3.3.1 Statistical Treatment

To answer the study questions and check its hypotheses, the averages and standard deviations was extracted for the degrees of experimental and control groups on the checklist prepared for constructing letters into words and cutting words into letters. Paired Samples Test is conducted to identify the differences between the pre and post measurement for the experimental group and the control one and Analysis of Variance Associated (ANOVA) is administered to detect the effect of the training program on the development of this skill.

4. Discussion on Results

The first question: *Is there an effect for programmed education on developing writing skills (putting together letters for words) for children with learning difficulties in the primary stage in the northern borders district in the Kingdom of Saudi Arabia*?

Arithmetic means and standard deviations for the measurement of telemetric of two groups; experimental and control were extracted. There has also been a test application (Independent sample T Test and Paired Sample t. Test) for independent samples to detect differences between the two groups on the telemetric. Double samples have been used to identify the differences between the *mean* of pre and post measurement for each group on writing skills.

Equal groups on writing skills (fixing letters words):

Table 2. Test (Independent sample T Test) to learn about the equality of the two groups in writing skills (fixing letters words) on the measurement (N = 40)

Statistical significance	Degrees of freedom	Value (t)	Standard deviation	Average Arithmetic	Group
0.12	38	1.581	2.00	21.00	**Control**
			2.00	22.00	**Experimental**

* Total score of (75)

The Table 2 shows that the values of (t) is weak and is not statistically significant at the significance level ($\alpha \leq 0.05$) on the measurement. This shows the parity between the two groups (control and experimental) in the measurement.

Table 3. Test results (Independent sample T Test) to learn about the differences between the two groups in writing skills (fixing letters words) on the telemetric (N = 40)

Statistical significance	Degrees of freedom	Value(t)	Standard deviation	Average Arithmetic	Group
0.00	38	5.207	2.87	43.40	**Control**
			4.69	49.80	**Experimental**

* Total score of (75)

The Table 3 shows that the value of (t) statistically significant at the significance level ($\alpha \leq 0.05$) between the two groups (experimental and control) in the dimensional measurement. The difference is in favor of the experimental group where the performance of students is the better in the dimensional measurement than the control group.

Table 4. Test (Paired Samples t. Test) double samples to identify the differences between the measurement of pre and post experimental group and control group in writing skills (fixing letters words)

Statistical significance	Degrees of freedom	Value(t)	Standard deviation	Average Arithmetic	Level	Group
0.00	19	23.177	2.00	21.00	**pre**	**Control**
			2.87	43.40	**post**	
0.00	19	23.338	2.00	22.00	**pre**	**Experimental**
			4.69	49.80	**post**	

The Table 4 above shows the presence of statistically significant differences between the measurement of pre and post to both groups in writing skills (fixing letters words), as the value of (t) in experimental group (23.338) and statistical terms (0.00) and the differences in favor of telemetric. The value of (t) for the control group (23.117) and statistical terms (0.00) and the differences in favor of telemetric, but note that the level of development in the experimental group is better than the control group.

To identify the effectiveness of a training program in the development of writing skills (fixing letters words) for children with learning difficulties in primary school in the northern border region of Saudi Arabia and the same has been associated with the application of variation analysis (ANOVA).

Table 5. Variability associated with the analysis of test results (ANOVA) to learn about the differences between the two groups in writing skills (fixing letters words) on the telemetric

Statistical significance	Value (f)	Average squares	Degrees of freedom	Sum of squares	
0.00	31.936	454.411	1	454.411	**Group**
0.076	3.341	47.533	1	47.533	**Measurement (Pre)**
		14.299	37	526.467	**Error**
			39	983.66	**Total debugger**

The Table 5 above shows the presence of statistically significant differences at the level of significance (0.05). Depending on the variable group and the differences were in favor of the experimental group, the results showed no difference in the writing skills (fixing letters words) on the pre-program measurement, and this confirms the parity between the two groups.

Second Question: *Is there an effect for programmed education on developing writing skills (sectioning words into letters) for children with learning difficulties in the primary stage in the northern borders district in the Kingdom of Saudi Arabia?*

To answer this question, arithmetic means and standard deviations for the measurement of telemetric of two experimental control was extracted and it has also been a test application (Independent sample T. Test) for independent samples, to detect differences between the two groups on the telemetric. The application of the test (Paired Sample t. Test) for samples is to identify the differences between the *mean* of pre and post measurement for each group to test writing skills (cutting words to characters).

Equal groups on writing skills (cutting words to the letters):

Table 6. Test (Independent sample T Test) to learn about the equality of the two groups in writing skills (cutting words to characters) on pre-program measurement (N = 40)

Statistical significance	Degrees of freedom	Value(t)	Standard deviation	Average Arithmetic	Group
0.08	38	1.749	2.21	23.05	**Control**
			2.81	21.65	**Experimental**

* Total score of (75)

The Table 6 shows that the values of (t) is weak and is not statistically significant at the significance level ($\alpha \leq 0.05$) on the measurement, this shows the parity between the two groups (control and experimental) on the pre-program measurement.

Table 7. Test results (Independent sample T. Test) to learn about the differences between the two groups in writing skills (cutting words to characters) on the telemetric (N= 40)

Statistical significance	Degrees of freedom	Value(t)	Standard deviation	Average Arithmetic	Group

| 0.00 | 38 | 5.805 | 4.20 | 44.40 | **Control** |
| | | | 4.30 | 52.20 | **Experimental** |

* Total score of(75)

The Table 7 shows that the value of (t) statistically significant at the significance level (α≤0.05) between the two groups (experimental and control) on the dimensional measurement, and the difference is in favor of the experimental group, where the performance of students in this group is better than the control group.

Table 8. Test double the samples (Paired Samples Test) to identify the differences between the measurement of pre and post experimental group and control group in writing skills (cutting words to the characters)

Statistical Significance	Degrees of freedom	Value (t)	Standard deviation	Average Arithmetic	Level	Group
0.000	19	21.918	2.21	23.05	pre	**Control**
			4.20	44.40	post	
0.000	19	28.296	2.81	21.65	pre	**Experimental**
			4.30	52.20	post	

The Table 8 shows the presence of statistically significant differences between the measurement (pre and post) for both groups in writing skills (cutting words to the letters). The value of (t) (28.296) and statistical terms (0.000) for experimental group are better than the value of (t) (21.918) and statistical terms (0.000) for the control group. It shows that the level of development in the experimental group is better than the control group.

To learn about the effectiveness of the training program for the development of writing skills of children with learning difficulties in primary school in the northern border region of Saudi Arabia has been associated with the application of variation analysis (ANOVA). Variability associated with the analysis of test results (ANOVA) to learn about the differences between the two groups in writing skills (cutting words to characters) prior to the test.

Table 9. Statistically significant differences at the level of significance in their writing skills

Statistical significance	Value (f)	Average squares	Degrees of freedom	Sum of squares	
0.000	43.066	616.587	1	616.59	**Group**
0.349	0.901	16.300	1	16.30	**Measurement (Triple)**
		18.100	37	669.70	**Error**
			39	1294.40	**Total debugger**

The Table 9 shows the presence of statistically significant differences at the level of significance (0.05) depending on the variable group and the differences were in favor of the experimental group, as results showed no difference in the writing skills (cutting words to characters) on the measurement scale, and this confirms the parity between the two groups. The present study conforms to the findings of the previous studies and supports the effectiveness of Programmed Education for pupils with learning difficulties. Though the study is limited to the difficulties related to writing skills, but further research in other areas of skills development will further enrich the area of study.

5. Conclusion

Although this is only one study of a convenient sample of primary students, the findings do suggest that PE measures of writing skill shows very promising results. It proves its suitability to be incorporated in the regular

curriculum. Further work should be done to develop standardized norms for PE and should be implemented on the representative primary school students with learning difficulties. It would be even more encouraging to carry out similar case studies in the other parts of the Kingdom as well to have more authentic and valid grounds to implement PE for all the students to meet the educational objectives in a real sense.

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