

# The Effectiveness of a Training Program based on Digital Stories to Develop Writing Skills for Students with Learning Difficulties

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## Abstract

The current research aims to identify the effectiveness of a training program based on digital stories to develop writing skills for students with learning difficulties. The research sample consisted of (12) students with learning difficulties in the fifth and sixth grades, who were chosen intentionally. The results showed the effectiveness of the program and the maintenance of this improvement over time as results showed that there were statistically significant differences at the level ( $\alpha = 0.05$ ) between the two measurements, before and after, in favor of the post-measurement. The results also showed that there were no statistically significant differences at the level ( $\alpha = 0.05$ ) between the post and follow-up measurements on the writing skills scale. This indicates the long-term impact of the program. The researchers recommend the need to expand educational programs' adoption of digital stories to develop the skills of students with learning difficulties.

## Keywords:

*digital stories, writing skills, learning difficulties*

## 1. Introduction

Academic difficulties are learning difficulties that are evident at school age, including difficulties in reading, writing, spelling, written expression, and arithmetic. Abu Nyan [3] also mentioned that students with learning difficulties notice a decline in academic achievement compared to their peers of the same age, as they have normal intelligence, but they appear to have problems in reading, writing, spelling, and arithmetic, and some of them are good readers, but spell poorly. Writing difficulties are also complex and exacerbate as students move to a higher stage of study [24]. Abunayyan [2] pointed out that the most common manifestations of writing difficulties among primary school students are difficulty connecting letters to form a word, unsteady spaces between letters, large and small different sizes in writing, poor handwriting, and inability to write on the line, and lack of fluency in writing. Expressive writing, continuous writing, as well as reverse writing. One of the methods of reducing the manifestations of academic learning difficulties is the use of technology, where Mahmoud [29] indicated that the use of technology effectively affects the education of students with learning difficulties. Balous [6] stated that the techniques are adapted according to the type of student's needs, to support the

principle of individual differences, and reduce dependence on others. Wei et al. [34] consider digital storytelling as one of the multimedia supports for teaching and choosing stories that interest them and motivate them to learn. Othman and Shukri [20] see digital stories as one of the strategies used in teaching students with learning difficulties, and they have an impact on students, as they are one of the most important methods, because of their impact on the soul, where the impact of learning remains and for a longer period. Hence, the researchers seek, through the current research, to verify the effectiveness of a training program based on digital stories to develop writing skills for students with learning difficulties.

Theoretical literature and previous studies indicated the necessity of using digital stories in teaching students with learning difficulties, as their different learning styles varied, in addition to promoting mental development and creating an interactive learning environment, as it became available for use in the classroom, such as the following studies [1][8][10][19][22][11][35][32].

Writing is one of the most important skills, as it is a bridge connected to other knowledge, and through it, students can follow their lessons, and the level of their academic achievement depends on it. From this point of view, the importance of teaching writing to students with learning difficulties stems [21]. Therefore, employing digital stories, especially for students with difficulties in learning to write, enables them to acquire the skill of writing correctly, keep pace with the modern era, and contribute to their development. Digital stories have an important role in solving some practical educational problems and are an effective educational method [27].

The researchers noticed, through their experience in the field of education, the lack of female teachers' use of educational programs based on digital stories in developing writing skills for students with learning difficulties. According to her knowledge, the researchers also noted a lack of Arabic studies that dealt with a training program based on digital stories in developing writing skills. For students with learning difficulties. Accordingly, the current research position was selected. Therefore, the research problem was represented in the following question:

*“What is the effectiveness of a training program based on the use of digital stories to develop writing skills for students with learning difficulties?”*

And hypothesis:

*“There are statistically significant differences at the significance level ( $\alpha = 0.05$ ) for applying a training program based on digital stories for female students with learning difficulties in the post-measurement.”*

*“There are statistically significant differences at the significance level ( $\alpha = 0.05$ ) for the application of a training program based on digital stories for students with learning difficulties in follow-up.”*

## 2. Literature review

The justifications for the current research come from the lack of Arabic studies - according to the researchers' knowledge - which dealt with the use of digital stories to develop writing for students with learning disabilities, and the lack of use by teachers of learning difficulties of digital stories in developing writing skills for students with learning difficulties, and through studies and literature studies. The previous ones noted the importance and usefulness of digital stories in education.

There are multiple procedural definitions used, first is digital stories which are narrative stories derived from reading texts using multimedia [9]. It is defined procedurally as a collection of stories prepared and included according to a training program that contains audio and animation to develop writing skills and is produced using adobe after effects. Employing digital stories: (a) help students connect words and their meanings through multimedia, (b) teachers may use them to solve problems such as content abundance and teach difficult spelling, and (c) mix instruction Traditional and electronic using digital stories and helping them to correct mistakes [13]. Ahmed [4] pointed out the importance of digital stories: (a) saving time and effort by re-hearing, the story and thus consolidating the information, and (b) raising the level of academic achievement in all fields, Al-Masoud and others [30] added (c) that the educational materials provided through the computer represent the real life that students live, and (d) the development of language skills It improves the skill of listening and speaking, whether written or oral. The digital story also aims at several goals to serve the teacher and students as follows: (a) satisfying students' multiple needs and dealing with students' multiple intelligences, and (b) presenting knowledge content in a vivid, visual image that puts abstracts and concepts tangibly, and (c) presenting information in a form Interesting, which stimulates learning, (d) addressing the problems of students with learning difficulties in various subjects, and (e) providing students with Islamic, social and moral values away from indoctrination and in realistic situations [15]. The digital story has several justifications for adopting it in

the education process in schools, and the most important of these justifications are: (A) The story has an important role in meeting the mental development needs of students, as it enriches their imagination, provides them with a lot of information about their environment, helps them identify its features, and accustoms them to thinking. In a sound scientific manner, it provides him with information, facts, and various concepts in a simplified manner, and (b) that the story is one of the most effective means in forming the students' personality because it matches their characteristics, satisfies their desires, and needs, satisfies their motives and helps them interestingly learn about life and develop their mental and linguistic abilities [17].

Second is writing skills which are linguistic performance using mental and linguistic abilities, whereby communicating and expressing ideas with others is done employing written words [18]. It is defined procedurally as the students' written performance and their ability to correctly draw words in their writing. The basis for diagnosing writing difficulties is knowing the preferred hand in the writing process, evaluating writing errors in re-copying sentences, drawing geometric shapes, writing samples of numbers and letters, knowing the position of the body, the method of holding the pen, writing straight or zigzag, and the spaces between letters and words [14]. It includes writing difficulties, difficulties with calligraphy, spelling, and expression. The difficulties of learning to write appear in different forms, such as inaccuracy in drawing, poor spelling, deletion of letters and syllables, writing sentences and a meaningful paragraph, and ending the sentence with a punctuation mark. Most writing difficulties lie in handwriting, spelling, and expressive writing [7].

Third and last is learning disability which is a neurological disorder in the brain that makes it unable to receive and store information, and it appears in reading, writing, mathematical operations, thinking, and speaking [31]. Female students with procedural learning difficulties are defined as students who have been officially diagnosed with learning (writing) difficulties and enrolled in resource rooms in general education schools in the upper grades of the basic school stage in grades (fifth, and sixth). Learning disabilities according to Al-qabbali [26] are defined as disturbances in one or more of the basic psychological processes involved in understanding and using spoken or written language, and these disorders may manifest in the impairment of the ability to listen, think, speak, read, write, spell, or calculate The disorder includes conditions such as cognitive disturbances, mild brain damage, mild brain dysfunction, dysphasia, and developmental aphasia, and this term does not include people with disabilities [26]. The distinguishing characteristics of students with learning difficulties vary to a large extent, as the learning difficulties community is a heterogeneous community, due to the multiplicity of definitions used to describe them [5].

A set of studies were reviewed, from the latest to the oldest, which dealt with the issue of the use of digital stories among students with learning difficulties and dealt with it from different angles.

Noor & Rong [33] conducted a study that aimed to determine whether there was a significant difference in students' writing skills after using a digital narration tool. The study sample consisted of (15) students in a secondary school in Malaysia. The pre-experimental approach was used, and the results of the study concluded that there is a clear improvement in the student's written performance in telling digital stories after the four tests by using the Story Bird site to share picture stories. The study found that students' written performance improved after using the digital storytelling tool and that the elements included in the digital storytelling tool contributed to this improvement, except for the "dramatic questions" component.

Quiring's study [32] aimed to implement digital storytelling and consider how to improve these strategies to develop writing skills for students with specific learning disabilities. The sample consisted of (6) male and female students, and the semi-structured interview tool was applied to collect participant data. And the use of the qualitative research method for the study. The results showed a clear development and improvement in the students because of implementing the digital stories strategy for students with specific learning disabilities, and that digital storytelling was an attractive way for students to tell their stories in the digital age, and the results also indicated that the production of digital stories had a clear impact on the quality of students' written output.

The study by Al-Hadidi [12] also aimed to verify the effectiveness of a story program in developing some reading and writing skills for third and fourth-graders with learning difficulties. King Abdul Aziz Residential. The study followed the quasi-experimental approach, and the results showed that there were differences in favor of the post-application group.

### 3. Method

The current research aims to identify a training program based on the use of digital stories to develop writing skills for students with learning difficulties and to reveal the presence of statistically significant differences for the application of the program in the post-measurement, and follow-up.

This research sought to enlighten teachers of learning difficulties with a program based on digital stories and its role in developing writing skills. Digital stories that suit their different needs and learning styles. It is expected that the research will be an addition for researchers to carry out other research and studies in this field. The research also provides the Arabic library with a training program based

on digital stories to develop writing for students with learning difficulties.

The results of the current research were limited to objective limits on studying the effectiveness of a training program based on digital stories to develop writing skills for students with learning difficulties. As for human limits, the results of the current research were limited to a sample of students with learning difficulties in writing from the upper classes in the basic school stage (fifth and sixth grades). In terms of spatial boundaries, the results of the current research were limited to a government school in the Khulais Governorate in the Makkah region. As for the temporal limits, the results of the current research were limited to the third semester of the academic year 1443 AH / 2022 AD.

The current research relied on the quasi-experimental one-group approach to measure the effectiveness of a training program based on digital stories in developing the writing skills of students with learning difficulties, where it relied on the design of one group with a measurement: (pre-post-sequential), and the following table shows the experimental design:

#### G 01 X 02 03

The research community consisted of all students with learning difficulties in the fifth and sixth grades in the public education schools in Khulais Governorate, who numbered (27) students, in the third semester of the academic year 1443 AH. The research sample consisted of (12) female students with learning difficulties in the fifth and sixth grades who were chosen by the intentional method.

Table (1): Distribution of the research sample students according to their characteristics

<i>Deviant</i>	<i>Category</i>	<i>No.</i>	<i>Percentage</i>
Grade	Fifth	4	33.33
	Sixth	8	66.67
	Total	12	100

The data in Table 1 indicate that the highest percentage of the distribution of female students in the research sample according to the grade variable reached (66.67%) in the sixth grade, while the lowest percentage was (33.33%) in the fifth grade.

To measure the effectiveness of a training program based on digital stories in developing the writing skills of students with learning difficulties, the researchers applied the scale developed by [25] which consisted of (32) words, and the scale was designed with a two-step gradation: (True, False), and numerical scores were given, respectively: (0.1). It is divided into four axes, namely: The first axis (the open ta' skill), and it consists of (5) words. And the second axis (the skill of the ta' marbouta), consists of (11) words. And the third axis (the skill of the hamzat al-qat'), consists of (11)

hamza. And the fourth axis (the skill of Hamzat al-Wasl), consists of (5) Hamzat.

The content validity of the scale was adopted by the researcher [25] where the scale was presented to (7) arbitrators specialized in guidance and direction, and it was decided that the test items should remain the same without modifications.

As for the scale correction, one point was given for each alternative to which the student responded, the total score is 32 degrees. The following are the words that were adopted in the measurement of the current research.

come closer in a word, time, you fell, you, silence, passed, kindness.

The effectiveness of a training program based on digital stories in developing writing skills for students with learning disabilities

The educational philosophy of this program emerged, and the researchers developed it, and they trained students with learning difficulties to apply it. The students lack basic skills to write correctly and are free from spelling errors, where the program measures the following skills: (a) Open Taa. (B) Taa Marbootah. (C) Hamzat Al Wasl. (D) The cutting edge. The program is also based on what is known of the role of technology in the education process to attract the learner, it presents the information in an interesting and useful way at the same time, the skills included in the program were based on the diagnostic test for my language for the primary stage. Each stage has different skills and objectives. Diversity in receiving information for students of a different nature is of particular importance for those who suffer from learning difficulties.

As for the program goals, the student writes words that contain linguistic phenomena (the open taa) in a clear 80% line. And that the student writes words that contain linguistic phenomena (the ta' al-marbootah) in a clear 80% line and that the student writes words with hamzat al-wasl in a readable font of 80%. The student should also write words with the hamzat al-qat' in a line that is readable by 80%.

The program was applied to fifth and sixth graders enrolled in the Learning Difficulties Program at the Second Primary School in Khulais, and their ages ranged between (11-12) years.

The two researchers chose the story from the first unit in the first semester (Layla and the red carpet) from my language book for the fifth-grade students, then it was presented to a group of arbitrators, then the researchers chose the story, and they agreed on it, and the story (Laila and the red carpet) was determined according to the following considerations: ( a) The story is appropriate for the level of the students. (B) The story contains skills. (C) Defining (32) standard words that included the necessary skills.

Coming to the steps to apply the digital story, the researchers presented an electronic story with audio and video and interacted with the student through the events of the story to attract the student's attention. Then, during the presentation, the student was asked about the events of the story to know the extent to which the student followed up on its events. Then explain and clarify the spelling skill. Then at the end of the lesson, the student will be evaluated and reinforced financially and morally before the end of the lesson. Means and strategies used in the program

The researchers used several means that would achieve the program's goals, including (the blackboard, pens, papers, and a computer to display the story) to increase the suspense and reach the desired goal. They also used several strategies: issuing instructions, individual and group instruction, reinforcement, and feedback.

The program was made using Adobe After Effects, for image processing and graphic designs, Adobe Premiere Pro, for video processing and editing, and Adobe Audition, which was referred to the study [12][22][23].

The validity and reliability of the program

The validity of the program was verified by presenting it to (5) arbitrators in the field of special education, and it was decided to take their recommendations and modify the number of sessions in the program, and the procedures in clarifying the role of the researchers, in line with the nature of the research.

Before applying the program, the scale of using digital stories to develop writing skills in its final form was applied to the group students in stages (before), and (after) after applying the program and following up on the target on the specified date. Then, after a week of post-application, the scale was re-applied to the sample (sequential) to ascertain the extent to which the sample retained the effect of training. The application of the program took five (five) sessions, and the duration of the session was (45) minutes for a full share. Where the students are trained to acquire the following skills: Welcome session and acquaintance: one session, introducing the students to the skills. Then write the open taa: a week with one session of training on what you have learned and testing them about skill. Then write the ta' al-marbouta: a week with one session of training on what is taught and testing them about skill. Then write the hamzat al-wasl: a week with one session of training on what is taught and testing them about skill. Then write the hamzat al-qat': a week with one session of training on what is taught and testing them about skill.

The research includes the following variables: First, the independent variable: is a training program based on the use of digital stories. Second: The dependent variable: the writing skills of female students with learning difficulties, and it includes the skills: (a) open t. (B) Ta' Marbootah. (C) Hamzat Al-Wasl. (D) The cutting edge.

Based on the nature of the research and the objectives that were sought to be achieved, the data were analyzed

using the Statistical Package for Social Sciences (SPSS) programs, and the results were extracted according to the following statistical methods: Pearson's correlation coefficient and Cronbach's alpha coefficient: to calculate the stability of the research tool, frequencies, and percentages of personal variables, t-test for the effect of program effectiveness, and Wilcoxon's test for two correlated samples.

#### 4. Study Results and discussion

This chapter deals with a presentation of the results of the research, which aimed to reveal the effectiveness of a training program based on digital stories in developing writing skills for students with learning difficulties, and the results were as follows

**The first question: "What is the effectiveness of a training program based on the use of digital stories in developing the writing skills of students with learning difficulties?"**

To answer the first question, a t-test was used to find out the differences between the pre and post-measurements of the scale of using digital stories to develop writing skills.

Table (2) shows the (t) test to find out the differences between the pre and post-measurements of the scale of using digital stories to develop writing skills

Effect size	Statistical significance	T value	degrees of freedom	Standard deviation	arithmetic mean	No.	Category
0.846	0.000	15.495	11	5.08	9.75	12	Pre measurement
				3.48	26.50	12	Post measurement

It was found from Table (2) that there were statistically significant differences at the level of  $\alpha = 0.05$  between the grades of the group students in the tribal and remote measurements on the use of digital stories to develop post-writing skills after applying the program and in favor of the post-measurement, where the arithmetic average for the pre-measurement was (9.75), and for the post-measurement was (26.50). The effect size was (84.6%), which indicates the existence of the program's effectiveness. **"The first hypothesis: There are statistically significant differences at the significance level ( $\alpha \leq 0.05$ ) for the application of a training program based on digital stories for female students with learning difficulties in the post-measurement."**

To answer the first research hypothesis, and to measure the validity of this hypothesis, the arithmetic averages and standard deviations of the responses of the research sample members in the pre and post-measurements were calculated on the use of digital stories to develop writing skills.

Table (3) shows the arithmetic averages and standard deviations of the responses of the research sample students on the use of digital stories to develop writing skills in pre and post measurement

Standard deviation	arithmetic mean	No.	Category
5.08	9.75	12	Pre measurement
3.48	26.50	12	Post measurement

We notice from Table (3) an increase in the average responses of the group students in the dimensional measurement on the scale of using digital stories to develop writing skills, the arithmetic mean of the pre-measurement was (9.75), and the arithmetic mean of the post-measurement was (26.50).

To determine the significance of the differences, the Wilcoxon Test was used for two correlated samples to indicate the differences between the mean ranks of the student's scores in the pre and post-measurements on the scale of using digital stories to develop writing skills.

In table (4), the results of the Wilcoxon Test for two correlated samples to indicate the differences between the mean scores of the sample students in the pre and post-measurement on the scale of using digital stories to develop writing skills

Statistical significance	Z	Ranks total	Rank average	Sample	Ranks
0.002	-3.069	0	0	0	Negative ranks
		78.00	6.50	12	Positive ranks
				12	Total

Table (4) shows that there are statistically significant differences at the level of  $\alpha = 0.05$  between the grades of the students of the group in the tribal and remote measurements on the scale of using digital stories to develop writing skills in the post-measurement after applying the program, and the value of (z) (-3.069), and its significance level is (0.002), and this result confirms the

validity of this hypothesis and in favor of the dimensional measurement, where the arithmetic mean of the pre-measurement was (9.75), and the arithmetic mean of the post-measurement was (26.50).

***“The second hypothesis: There are statistically significant differences at the significance level ( $\alpha \leq 0.05$ ) for the implementation of a training program based on digital stories for students with learning difficulties in follow-up.”***

To answer the second research hypothesis, and to measure the validity of this hypothesis, the arithmetic averages, and standard deviations of the responses of the research sample members were calculated in the post and follow-up measurements on the scale of using digital stories to develop writing skills.

Table 5 shows Arithmetic averages and standard deviations of the responses of the female students of the research sample on the scale of using digital stories to develop writing skills in the post and follow-up measurement

Standard deviation	Arithmetic mean	No.	Category
3.48	26.50	11	Post measurement
2.54	26.58	11	Follow-up measurement

We note from Table (5) that the arithmetic mean of the dimensional measurement was (26.50), and the arithmetic mean of the follow-up measurement was (26.58).

To determine the significance of these differences, the Wilcoxon Test was used for two correlated samples to indicate the differences between the mean ranks of the students of the experimental sample in the post- and follow-up measurement on the scale of using digital stories to develop writing skills in follow-up measurement as in Table (6), the results of the Wilcoxon Test for two correlated samples to indicate the differences between the mean ranks of the students of the experimental sample in the post- and follow-up measurement on the scale of using digital stories to develop writing skills

Statistical significance	Z	Ranks total	Rank average	Sample	Ranks
0.471	-2.638	16.00	6.00	3 <sup>a</sup>	Negative ranks
		18.00	3.60	5	Positive ranks
				4 <sup>c</sup>	Equality whose

					grades remain the same
				12	Total

It is noticed from Table (6) that there are no statistically significant differences at the level of  $\alpha = 0.05$  between the grades of the group students in the post and follow-up measurements on the scale of using digital stories to develop writing skills in the follow-up measurement, and the value of (z) is (-2.638), and its significance level (0.471), low scores (3), and high (5) are noted, as for those whose grades remained the same, they are (4), and this result indicates that the long-term effect of a training program based on digital stories for students with learning difficulties continues in follow-up.

**Discussing the results related to the first question: “What is the effectiveness of a training program based on the use of digital stories to develop writing skills for students with learning difficulties?”**

The results related to the first question of the current research indicated that there are statistically significant differences between the tribal and remote measurements, in favor of the post-measurement. This indicates the existence of the program’s effectiveness in developing the writing skills of students with learning difficulties, and the high level of writing skills after applying the program. Students with learning difficulties in preparing the program have contributed to increasing its effectiveness and adapting the types of digital stories from various movements and activities such as (text, images, graphics, video, sound), and merging visual images with the written text at the same time enhanced the speed of students' absorption of the events of the digital story. This finding agrees with the findings of Noor & Rong [33] which indicated that the written performance of students with learning disabilities improved after using the digital storytelling tool. It also agreed with Quiring's study [32] which indicated that there is a clear development and improvement in students, which is the result of implementing the digital stories strategy for students with learning disabilities.

**Discussing the results related to the first hypothesis: “There are statistically significant differences at the significance level ( $\alpha = 0.05$ ) for the application of a training program based on digital stories for female students with learning difficulties in the post-measurement.”**

The results related to the first hypothesis indicated that there were statistically significant differences in the application of a training program based on digital stories for students with learning difficulties in dimensional measurement, and this may be because the various stories that were used in the program have improved the level of written skills, as they are commensurate with the stage of

Students with learning difficulties, in terms of their content, text, image, and sound. The researchers also attribute this result to the fact that the digital story has a role in improving the writing skill of students with learning difficulties, as the information was presented in the simplest form and presented in an easy way, and the possibility of repeating the story more than once, in addition to the feedback accompanying the exercises and positive interaction. This result agreed with the findings of the Al-Hadidi study [12] that there are differences in favor of the post-application group in verifying the effectiveness of a story program in developing some reading and writing skills for third and fourth-grade students with learning difficulties.

**Discussing the results related to the second hypothesis: “There are statistically significant differences at the significance level ( $\alpha = 0.05$ ) for the application of a training program based on digital stories for students with learning difficulties in follow-up.”**

The results related to the second hypothesis showed that there were no statistically significant differences between the two post-measurements and follow-up, and this indicates the effectiveness of the program and the persistence of the learning effect for some time after the application of the program, and this result indicates that the long-term impact of the training program is based on digital stories for the development of writing skills among Students with learning difficulties. The researchers explain this result that the improvement achieved because of the training program continued even after the program was discontinued, which means that the students, through the training they received, contributed to the consolidation of the effect and its continuity of improvement, as well as the positive impact that the program had on students with learning difficulties in terms of writing skills through what it provided of digital elements of text, image, and sound, and provided fun and education at the same time. And linking words and their meanings through multimedia helped in the process of communication and interaction with friends and teachers and remembering the contents of the story. This result agrees with Quiring's study [32], which results indicated that the production of digital stories has a clear impact on the quality of written output for students with learning disabilities.

## 5. Conclusion

Considering the findings of the current research, the researchers recommend the following: the need to expand educational programs' adoption of digital stories to develop the skills of students with learning difficulties. And holding training courses for teachers of students with learning difficulties on the use of digital stories in the educational process of their students. There must also be concerted efforts and cooperation between teachers of learning difficulties and educational technology experts in preparing,

implementing, and designing the digital story in line with educational and scientific standards.

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