
THE IMPACT OF USING DIGITAL EDUCATIONAL STORIES TO IMPROVE THE IMMEDIATE AND LONG-TERM ACHIEVEMENT

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ABSTRACT: *This research aims at inquiring the impact of the teaching social subject using digital educational stories to improve the immediate and long-term achievement among fourth grade students in Jordan. The research used the quasi-experimental design. To achieve the purposes of the study, a test consisted of (20) items was used to measure immediate and long-term achievement of the study sample. The study was applied on (56) students from first University school in Amman governorate, distributed randomly into two groups, the experimental group which consisted of (28) students, and control group which consisted of (28) students. The study showed that there is a significant effect of teaching social subject using digital educational stories in developing the immediate and long-term achievement in favor of the experimental group.*

KEYWORDS: digital stories, immediate achievement, long-term achievement.

INTRODUCTION

Social studies contribute to a large extent in shaping students' behavior. This is due to its social nature that contributes to the development of the student's sense of his social role. Also, it helps him to realize the reality of what is happening in the community politically, economically, socially and culturally. In addition to its role in the development of scientific thinking, their problem-solving skills, and the formation of the moral value system that is consistent with the mentality of the local and global community. Due to the great role of social studies, attention and keenness must be given to teaching methods in line with the multiple variables of the age, and the technological ones in particular.

Technology plays an important role in the educational learning process. It works to develop students' cognitive, psychological, social, emotional and kinetic skills. This is through the provided tools, techniques and applications that stimulate students and increase their motivation towards learning (Helah, 2017). Digital educational stories are considered one of the teaching strategies related to technological innovations in the educational field (Darwish and Abdel Alim, 2017). Tetri (2016) defines it as stories to which a mixture of multimedia has been added, including images, sound, texts, and kinetic effects. While Abdel Basit (2016) defined it as the process of the systematic combination of traditional stories and the employment of digital technology.

Theoretical framework

Using the narrative style is not new, nor is it the original novelty. Rather, it is an old method, which increases the meaning of strength, gives it an impact, speaks to the hearts, and attracts people (Jorf,

2014). As for digital stories, in the eighties of the last century a new type of stories appeared; The Center of Digital Storytelling (CDS) was established by Jo Lambert and Dana Atchley in California, USA, and was at that time referring to a short personal story that is being told in a period of time do not exceed three minutes (Mahdi, Darwish and Jorf, 2016).

Digital stories have many characteristics, including (Chris and Padraig, 2002; Norhayat and Siew, 2004; Tomin and Liu, 2009):

- Non-linear flexibility: as digital stories are produced in separate units, the narrator has the option to choose its units, and to amend the story based on the interaction of the students.

- Multiple participation and interaction: it can include sending and dumping through the availability of multiple devices, such as computers and Internet, and the user can interact with the virtual characters in the story.

- Renewal: The digital story can be updated by entering video clips, images or audio.

- Depth: The student can delve into the story in several ways, the main goal is to preserve the excitement in the rich in elements virtual environment.

- Freedom: it provides students with the possibility to freely explore the world of the story.

Ereenan (2015) adds that the digital story has features and qualities, including that it is programmed in a framework of fun and excitement with movement, sound, dialogue, colors and good direction. It also includes situations and ideas that attract the student's attention, and the story dialogue is easy so that the student can understand it and follow its events. It is short, and not Includes frightening and disturbing events, and to suit the student's chronological and mental age, and be meaningful, in addition to being easy to operate and use by the student.

Robin and Fasi (2011) classify digital stories according to the goal for which they are designed into the following:

- 1- Personal stories: They are stories that contain important events in the life of a particular person, and the whole story revolves around this character. This type of stories has an effect on the personality of others through suggestion, impersonation or sympathy.

- 2- Directed stories: They are stories designed to direct the behavior of others towards desirable behavioral patterns, specific trends, or desired values.

- 3- Historical stories: They are stories that deal with historical events, which enhance understanding of the past and its events.

- 4- Descriptive stories: They present social, cultural and religious issues by passing over the place, time and stages that the story passed through.

It is possible to combine more than one type of stories in order to achieve lofty educational goals, such as merging between historical and directed stories to understand the events of the Battle of Dignity and the social values related to it.

The digital story has elements, and educational literature agrees that there are main elements that the story must include, and they can be summarized as follows (Mahdi, 2018; Robin, 2008; Lambert, 2007):

- Point of view: It is the main point addressed by the story, or the idea that the events of the story address.

- The exciting or dramatic question: It is a main question presented at the beginning of the story events, and its purpose is to attract the attention of the audience throughout the story presentation. Emotional content: It is represented by the emotions and feelings contained in the story, and its aim is to influence the audience and attract their attention, and encourage them to live the story events and imitate its characters.

The narrator's voice: he is the person entrusted with telling the story, and his voice must be in harmony with the events of the story and its characters, so he will be sad in dramatic events, and happy in happy situations.

- Music: as it works to support the story and make it exciting to the audience. It works to transfer them from one emotional state to another, so it must be chosen well to fit the context of the story and its positions.

Abbreviation: This means staying away from excessive stuffing, so there is no need for every word or sentence in the story to have a picture, sound or video, so that the story is not boring and heavy for the audience. Thus, a large number of events or information must be expressed in a word or image, while leaving a space for the audience to infer and anticipate some implicit event.

Rhythm: It means the speed of the story, so that it is appropriate for the audience's age and mental abilities, as it moves them from one scene to another in a logical sequence and an appropriate speed.

Gable (2011) adds other elements: the main and minor characters in the story, the node or story problem, the events of the story, the climax, and the end of the story or conclusion. Accordingly, the process of designing and producing digital stories is not a simple or easy task, it is a planned process based on specific foundations and elements and in order for the story to be good, meaningful and expressive, the production process must pass the following stages (Chung, 2008; Jakes and Bernnan, 2006):

1. The stage of defining the field of the story and its general direction: Is it cultural, historical, religious, or fictional, and so on.
2. Writing the text of the story: After defining the area of the story, the writer writes and rewrites the story until it reaches the final version.
3. Script writing and preparation: in which the general shape of the story and the multimedia elements that will be used are determined.
4. Refer to and obtain sources: The multiple media elements previously selected are obtained here.
5. Production: In this step, the digital story is produced using the appropriate software or application, and there are a large number of applications available for the production of digital stories, and in the current study the free application of Photo Story 3 was chosen.
6. Participation: In this step, the story is published, after being tested and evaluated, through sharing media such as the Internet or CDs.

The educational literature agrees on the abundance of advantages that well-prepared and produced digital stories provide to students in the learning and teaching process. It helps them learn and

understand difficult topics, and helps them to retain knowledge for a longer period. It provides the elements of pleasure, attraction and suspense, develops their skills of criticism, prediction, analysis and interpretation, increases their interaction in the education process, and is an effective way to change their unacceptable behaviors, and develop social skills, values and attitudes. They have (Mehirat, 2019; Jamhawi, 2018; Sonbati, 2015; Syed, 2014). Digital stories, with the elements of imagery, movement, color and sound they provide can enrich students' mastery of the diverse subject matter. Through the lessons and units, both teachers and students can use simple animation techniques to create a vision and represent many concepts, and it also helps students consolidate their understanding of abstract ideas (Bancroft, 2006).

It is also useful for embodying abstract concepts, as it gives a broader clarification of abstract processes and concepts, and provides alternative experience to real experience. The presentation of the movement is complete in the form of pictures and videos that explain realistic concepts and complex choices and explain them in a simple way (Nassa, 2009). Digital stories with animated and colorful pictures also attract the student's attention, through the diversity of methods of presenting concepts, which dispels his boredom and deepening his learned knowledge; It affects their cognitive development as it greatly contributes to raising and enhancing cognitive skills, and it helps students in the process of discovering latent meanings during the learning process. It helps the student to overcome some of the problems that traditional methods cannot solve during the teaching process (Muhammad, 2002). The use of visual materials in educational situations also greatly affects the understanding of abstract concepts, and the clarification of facts, a clearer visual clarification of mental perception than words do. Therefore, the current study came to investigate the effectiveness of using digital educational stories to teach social studies in improving the immediate and delayed achievement of fourth-grade students.

Study Problem

The problem of the study comes from the methods used in presenting educational content and books of social studies and their usual methods of teaching by teachers, and what some previous studies have indicated, confirms this. The study of each of (Saeed, 2018; Salhi, 2004; Hammuz, 2004; and Abdul-Raouf, 2003) stated, that the subject of social studies still focuses on the cognitive aspect only, and it obliges students to memorize it, with neglecting the emotional aspects such as tendencies, trends and values. One of the reasons behind the students' low level of achievement in the subject of social studies is that teachers do not use modern methods and means, and that they depend on the usual methods of teaching. All of this prompted the researchers to conduct the current study, whose problem is determined in answering the following main question: "What is the effect of using digital educational stories to teach the subject of social science in improving the immediate and delayed achievement of the fourth-grade students in Jordan?" Two sub-questions emerge from this question:

1. What is the effect of using digital educational stories to teach social studies on improving the immediate achievement of fourth-grade students in Jordan?
2. What is the effect of using digital educational stories to teach social studies on improving deferred achievement of fourth-grade students in Jordan?

Study importance

The current study has a theoretical importance that is reflected in the demonstration of the effectiveness of digital stories in improving students' achievement. Its importance also lies in the fact that the results of this research can be applied for the benefit of curriculum authors and educational supervisors, and for the benefit of sociology teachers in how to teach social studies according to this method.

Study limits and determinants

The limits of the study and its determinants are represented as follows:

- Human limits: Students of the fourth grade.
- Spatial limits: first University school school in the Jordanian capital, Amman.
- Time limits: the first semester of the 2020/2021 academic year.
- The results of the study can be generalized in light of the validity and reliability of the study tool, and the objectivity of the respondents.

Procedural definitions:

This study included a number of terms that were defined procedurally, as follows:

Digital stories: Porter (2005) defines it as the technique that deals with ancient art in the narration of the spoken story and integrates it with a set of technical elements such as images, music, movement, graphics and sounds that mix with the voice of the storyteller and weave meaningful stories. In the current study, it was introduced to combining multimedia elements of images, drawings, texts, and musical and sound effects to produce educational stories in the social subject matter for fourth grade using the Photo Story 3 app.

Achievement: Khayyat (2010) defined it as the extent to which the learning objectives were achieved in a subject or course that the student had previously studied or trained in with specific work or tasks. In the current study, it is defined as the amount of knowledge acquired in a unit of trip in my home country from the book of social studies for the fourth grade, and it is measured by the degree achieved on the achievement test prepared for the purposes of the current study. Deferred achievement is measured by the score the student receives on the same test after a four-week period from the end of the trial.

Previous studies

Mehirat (2019) conducted a study aimed at uncovering the effect of the digital story on the achievement of history among sixth-grade students in Jordan. The study members consisted of (44) male and female students. The results of the study showed that there was an effect of using digital stories in improving achievement of the study members in the experimental group. Jamhawi (2018) conducted a study aimed at identifying the effect of using digital stories on the achievement of fourth-grade female students in the subject of art education. The study members consist of (82) female students in Saudi Arabia. The results of the study showed that students of the experimental group (using digital stories) outperformed the control group (the usual method) in achievement. Sonbati (2015) conducted a study aimed to investigating the effectiveness of interactive digital stories in acquiring geographical concepts among fourth-grade students in Egypt. The study sample consisted of (68) students. The results showed the superiority of the digital stories strategy

in improving the level of comprehension, understanding and application of the study members in the experimental group.

Sayed (2014) conducted a study aimed at uncovering the difference in the design of educational digital storytelling environments (two / three dimensions) to develop visual thinking skills and achievement among first-grade middle school students in geography. The sample of the study consisted of (60) students. The results of the study revealed a fundamental difference between the two arithmetic averages of students' performance on the tests of visual reasoning and achievement in favor of the second experimental group members. Abu Mughnam's study (2013) aimed at identifying the effect of participatory digital stories on the social studies teaching on achievement and development of moral values among middle school students in Egypt. The study was applied to a sample of 66 students. The results showed the superiority of the digital stories strategy in the achievement and development of moral values among the study individuals in the experimental group. The study of Yang and Wu (2012) aimed to identify the effectiveness of digital stories on academic achievement, critical thinking and learning motivation among high school students who are learning English as a foreign language in Tainan, Taiwan. The study members consisted of (110) eleventh grade students. The results showed the effect of digital stories on increasing motivation towards learning, academic achievement, and critical thinking.

As for Ahmed's study (2011), it aimed at knowing the effectiveness of computer use and the narrative method in the collection and retention of information for female students of the first intermediate grade in the history subject in Iraq. The study members consisted of (90) students. The results showed that there are statistically significant differences between the performance of female students in the study groups in immediate and delayed achievement, and in favor of the experimental groups. The study of Figg and McCartney (Figg and McCartney, 2010) aimed at examining the effect of using digital stories on the development of achievement among middle school students and improving the performance of trainees (pre-service) teachers and identifying their attitudes towards it. The sample consisted of a mixed group of middle school students (45) students and trainee teachers. The results of the study showed improved student achievement, development of trainee teachers' attitudes, and improved teaching practices.

A review of previous studies shows that it confirmed the positive impact of digital stories on the learning and teaching process. It has benefited from previous studies in determining the size of the study sample, the appropriate methodology for this type of studies, and in determining some dimensions of the measures, as it has been reported in the knowledge of the appropriate statistical average, through which the results can be obtained. The present study is distinguished from previous studies in the temporal and spatial dimensions.

METHOD AND PROCEDURES

Study Approach:

The study adopted the semi-experimental approach with two groups (a control group, an experimental group, and a pre- and post-test), due to its suitability for the purposes of the study.

Study members

The study members consisted of the fourth grade students in first University school affiliated to the Amman Education Directorate, which were intentionally chosen. Their number reached (56) students, distributed in two divisions, and they were randomly assigned, one of which represents the experimental group (28) male and female students, and (28) male and female students representing the control group.

Study tool:

In order to achieve the objectives of the study, the following study tool was prepared:

Achievement test:

To achieve the goal of the study, a test was prepared to measure the achievement of fourth-grade students with the subject of social; the third unit entitled (A Journey to My Home). The test consists of (20) items, by the following steps:

1. Defining the study material, analyzing it and enumerating the concepts contained in it: The third unit of the book on social studies was chosen for the fourth grade - the first part, and it is divided into two lessons (tourist sites in my country, desert castles and palaces). The two researchers enumerated the main concepts contained in the unit, and it was given Relative importance of each lesson based on the number of concepts and lessons. The purpose of the content analysis is to extract the relative importance of the unit objectives, in order to help in preparing the test items.

2. Determination of outcomes and their levels: The test aims to measure the degree of achievement of the fourth grade students. Achievement was measured at the levels of cognitive goals according to Bloom's classification, which are (remembering, understanding, and application), for their relevance for the purpose of the study.

3. Creating a test specification table: Prepare a table of specifications for the achievement test, as shown in Table (1).

Table (1): Table of specifications for the achievement test items

application % 15	understanding % 30	remembering %55	Relative importance	Paragraphs No.	Content
2	4	6	%60	12	Tourist sites in my home country
1	2	5	%40	8	Desert castles and palaces
3	6	11	%100	20	Total

4. The initial image of the test: the test paragraphs were built and formulated, the test instructions were drawn up, and the test was prepared in its initial form, so that it included (20) paragraphs in a multiple-choice format. It was presented in its initial form to a group of specialized arbitrators. They indicated that we need to amend the wording of some paragraphs, and their recommendations has been taken into consideration recommended.

5. Experimenting the test: The test was applied to an exploratory sample consisting of (18) male and female students, selected from outside the study members, in order to calculate the test time and stability parameters.

6. Analyzing the results of the pilot test: After applying the achievement test to the pilot sample students, the results of the students' answers to the test questions were analyzed, with the aim of identifying:

- The ease factor for the test items: it ranged between (0.41-0.73), and accordingly, all the items are acceptable.
- The coefficient of discrimination for the test items: ranged between (0.45-0.80), and therefore all the items are acceptable.
- Determining the test time: The time of students taking the test was calculated by calculating the arithmetic average for the time of the first and last student's response, so the average time that the members of the pilot sample took was (25) minutes.

Validity of the test: Verifying the validity of the test by presenting it to a group of referees from social teachers. Based on the comments of the arbitrators, the wording of (3) paragraphs was amended, and the tool became its final form.

Stability of the test: The stability of the tool was verified in two ways:

- Half-segmentation method: The test was divided into two halves (single paragraphs and plural paragraphs). The correlation coefficient between the scores of the two halves was calculated using the Pearson equation, and the reliability coefficient was (0.93). After correcting by using the Spearman-Brown equation, the overall stability factor was (0.89). These values indicate that the test is characterized by high stability.

- Cronbach alpha method: The test reliability coefficient was calculated using the internal consistency method of the alpha Cronbach formula, where the overall stability coefficient reached (0.88), meaning that the test is characterized by high stability.

Study variables

The study dealt with the following variables:

1- Independent variable: the teaching method, and it has two levels: the regular method and digital stories.

2- Dependent variables: It included immediate and deferred collection.

Statistical process

To answer the study questions, arithmetic average, standard deviations, and covariance analysis were extracted.

Study results and discussion

The first question: "What is the effect of using digital educational stories to teach social studies on improving the real-time achievement of fourth-grade students in Jordan?"

To answer the study's first question, the pre, post and modified arithmetic averages and standard deviations were extracted, as shown in Table (2).

Table (2): Pre, post, and modified arithmetic averages, deviations and standard errors of the study individuals' performance on the achievement test for the experimental and control groups

Modified		Post		Pre		
standard error	SMA	SD	M	SD	M	Group
0.52	11.82	2.51	12.83	1.94	7.93	control
0.47	15.54	1.82	16.17	2.01	8.41	Experimental

It becomes clear from Table (2) that there are apparent differences between the modified arithmetic averages of the experimental and control groups. The modified arithmetic average of the post achievement test for the control group is (11.82) and the standard error (0.52), while the modified arithmetic average of the experimental group reached (15.54) and the standard error (0.47).

In order to verify the statistical significance of the differences between the arithmetic averages of the study sample individuals, an analysis of common variance (ANCOVA) test between the averages was performed as shown in Table (3).

Table (3): Results of the co-variance analysis for the individuals study performance on achievement test

Eta square (η^2)	level of significance	F value	Squares averages	Freedom levels	Squares No.	Source of variation
	0.72	0.15	65.84	1	65.84	Pre-test
0.18	*0.000	45.58	424.38	1	424.38	group
			9.31	54	514.67	error
				56	837.27	total

* Statistically significant at $\alpha = 0.05$

Table (3) shows that there are statistically significant differences between the arithmetic average of the experimental group students' performance, and the arithmetic average of the control group students' performance in the achievement test, where the value of F (45.58) corresponds to a significant level (0.000). These differences came in favor of the experimental group which was studied according to digital stories, as shown in Table (2). The value of the effect size using the ETA square reached (0.18), which is a significant value, and indicates that the differences are attributed to the method of teaching using digital stories, and this means that the teaching method has a positive effect on improving students' immediate achievement, if compared to the regular method.

The researchers believe that the use of digital stories worked to attract students, stimulate their interest, and increase their willingness to learn due to the multiple elements it provides, such as sound, image, movement, and colors, which, when combined together, are elements that stimulate the students' interest and motivation, and this was confirmed by Lowe (2003). He indicated that the components of motion images can be relied upon to attract students' interest, compared to the usual methods.

Also, representing knowledge and simulating it with the multiple elements provided by digital stories, takes into account the mental development of students. It works to help them to store and retrieve knowledge in a better way, because recalling knowledge associated with visual memory is easier than knowledge acquired in a habitual way based on auditory memory. As the principle that said the greater number of senses that are used in teaching and learning, the better knowledge retrieval and memory will be. Perhaps all of this reflected positively on the students' achievement. Perhaps the presentation of knowledge of the steps that digital stories take in an organized and clear manner according to the sequence of the story and its course of events contributed to enhancing students' understanding of those topics, which helped them to better understand those academic topics, which was also reflected positively on their academic achievement.

The second question: "What is the effect of using digital educational stories to teach social studies on improving deferred achievement among fourth-grade students in Jordan?"

To answer the second study's question, the pre, post and modified arithmetic averages and standard deviation of the study sample individuals were extracted, as shown in Table (4).

Table (4): Pre, post, and modified arithmetic averages, deviations, and standard errors of the study individuals' performance on the deferred achievement test.

Delayed Achievement Test		group
SD	SMA	
3.14	9.94	control
2.98	15.16	Experimental

Table (4) shows that there are apparent differences between the arithmetic averages of the experimental and control groups. The arithmetic average of the delayed achievement test for the control group is (9.94) and the standard deviation (3.14), while the arithmetic average of the experimental group reached (16.15) and the standard deviation (2.98).

In order to verify the statistical significance of the differences between the arithmetic averages of the study sample individuals, an analysis of common variance (ANCOVA) test between the averages was performed as shown in Table (5).

Table (5): Results of covariance analysis of the study individual's performance on delayed achievement test

Eta square (η^2)	level of significance	F value	Squares averages	Freedom levels	Squares No.	Source of variation
	0.1	0.72	174.84	1	174.84	Pre-test
0.24	*0.00	10.29	243.73	1	243.73	group
			23.68	54	759.21	error
				56	1035.91	total

* Statistically significant at $\alpha = 0.05$

Table (5) shows that there are statistically significant differences at the level of significance ($\alpha = 0.05$) between the arithmetic average of the performance of the experimental group students and the arithmetic average of the performance of the control group students in the delayed achievement test, as the value of F (10.29) corresponds to the level of significance (0.00). These differences came in favor of the experimental group that studied according to digital stories, as shown in Table (4). The value of the effect size using ETA square reached (0.24), which is a significant value, and indicates that the differences are due to the method of teaching, and this means that teaching using digital stories has a positive effect in improving delayed achievement, if compared to the usual method.

The researchers believe that the students' involvement in dialogue and discussion on the topics presented in the digital stories greatly contributed to the students' retention of knowledge. The presentation of the stories was accompanied by a dialogue with the students about their characters, events, and expectations for their end. All of this made the students engage in the learning sessions in an enjoyable way, which reflected on their positive role in accessing knowledge, and perhaps all of this contributed to improving their postponed achievement.

This result can also be justified by the importance and usefulness of the knowledge that was presented to the student in the form of stories that touch the student's life, and perhaps the students' sense of the importance of that knowledge, as it relates to his lived experiences, increased their interest in it, and their effective interest in learning and understanding it, which has to do with the retention of learning. On the basis that meaningful educational experiences for the student remain for a longer period in his cognitive structure, and perhaps all of this contributed to the positive effect of digital stories in improving postponed achievement.

This result in terms of the effectiveness of using digital stories in delayed achievement was consistent with the result of Ahmed (2011) study.

Recommendations and proposals

In light of the current study findings, the researchers present the following recommendations and proposals:

- Encouraging and training social educators to use digital stories in classroom situations, as they have a positive impact on improving students' achievement and knowledge retention.
- Including social studies curricula and books with models for lessons based on the style of stories, so that teachers can benefit from them in teaching them with this strategy.
- Conducting other studies to investigate the impact of using digital stories in light of other dependent variables such as critical and systemic thinking.

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