Impact of the Digital Science Story Strategy on The Achievement of Middle Grade II Students in Biology

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Abstract

The goal of the research is to identify the effect of the digital scientific story strategy on the achievement of second-year intermediate school students in Biology. A quasi-experimental research design was adopted, with two experimental and control groups with a post-test. The size of the research sample was (66) female students from the second intermediate year, distributed into (33) female students for the experimental group and (33) female students for the control group. To achieve the goal of the research, the two researchers prepared the research requirements and built a Biology achievement test consisting of (40) items. By applying the test to the two research groups, the researchers conducted an analysis of the results, and it was found that the students of the experimental group were superior to the students of the control group in achieving Biology subject, and that the size of the impact of the digital scientific story strategy is very large in achieving the Biology subject, and it was reached to the conclusion that the digital scientific story strategy is an opportunity for the students' interaction. With the study material by discussing among themselves the events of the story related to the lessons.

Keywords: *Digital scientific story, Achievement, Second intermediate Grade*

FIRST: RESEARCH PROBLEM

The reality of teaching in Iraq, and in particular the teaching of biology, is still clear: it is based on giving, receiving, preserving and consulting students. This has led to the loss of the element of excitement and suspense of the learning process, as a result of which the attainment of students in biology has decreased. One of the most important reasons for poor attainment is the adoption of teaching methods in which the teacher is central to the educational process and the student is only a negative non-participating recipient.

And now we are in an era where the pace of modern technology is accelerating day by day. at the same pace as new generations are rapidly acquiring these new technologies, such as laptops, smartphones and other tablets, so that they can't imagine life without them. Adapting and integrating these techniques into the educational process has become a modern necessity learning ", which helps increase the learning process and increases their attainment, as it simulates their reality and conforms to their requirements. The parties are provided with what has not been available to them in traditional educational methods before. Several innovative educational strategies and methods have emerged based on the use of that diverse technique in the educational process.

To verify the problem of research, the two researchers prepared a questionnaire to survey a random sample of female biology teachers for the second grade. (10) Female teachers, after the replies were muzzled, the picture became clear that Iraq's learning reality lacked modern technological strategies, as:

90% did not use modern techniques to teach biology to the second grade average.

100% have no prior knowledge of the digital practical story strategy.

90% think that I have equal attainment of the second student average in the subject of biology is acceptable.

The two researchers therefore identified the research problem as follows:

What is the impact of the digital science story strategy on the achievement of middle grade II students in science?

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SECOND: THE IMPORTANCE OF RESEARCH

Changes in today's era have brought many challenges to education and teachers. In the light of cognitive advances, technological and information development, education cannot be aimed solely at the transfer of knowledge or the acquisition of information, The educational process will only achieve its objectives through a qualified teacher who has an effective and positive contribution to the formation of a beneficial learner capable of self-learning and continuous (Abdul Qawi 2017:9).

Education is a humanitarian process designed to help learners at all levels of education acquire knowledge and skills to achieve growth in physical and mental aspects (Abbood, 2023b: 50)

In the light of contemporary changes and the escalation of its cognitive pace, it has become necessary for education to go beyond the traditional perspective of the learner and provide learners with information to the level at which the individual is able to know himself and develop the ability to acquire advanced skills in a stable and safe manner (Yousif, 2019:2002).

Science education has received widespread attention from the learning systems of all countries of the world. Therefore, this subject is a fundamental basis for other scientific disciplines such as life sciences, applied sciences and engineering sciences. In this sense, science teaching is not only a means to impart information and knowledge to learners but also to increase all the knowledge, feelings and skills of the learner (Ahmed, 2020:306).

The school environment has a significant impact on students' learning, so a safe and free environment should be provided in school by accepting students' questions and views through appropriate teaching strategies (Yousif & Mahmood, 2020:550).

Therefore, modern and diverse teaching methods and strategies should be relied upon by teachers, including the digital science story strategy, in order to achieve educational goals that go beyond preserving and receiving information for learners and that enrich learners with knowledge and skills well, as they make science lessons interesting for learners by using activities that increase the motivation of learners to learn new concepts by linking previous information to the new educational attitude.

Digital science stories are one of the best and most appropriate methods in teaching science, especially biology, because they contain science books on multiple subjects. And these stories contribute to linking the scientific material that the subjects join to the human dimensions, helping the student to achieve a greater understanding of his scientific material, Digital stories also develop creativity, innovation, communication and collaboration, research and fluency information skills, thinking skills, problem solving, decision-making, and effective visual and audio learning development (2010:11 Frazei).

Many studies have emphasized the need to use digital science story in education in order to improve the level of learning education not only at the level of remembrance but also at the level of understanding, interpretation and composition, Asking questions by the teacher to learners before the story is delivered or after listening to it improves their level of understanding and retrieval Education of different kinds of scientific knowledge, such as scientific facts and concepts. This is based on the reasonable and rational generation of scientific imaginations. The story is a loving way for learners, despite their different age and educational levels, to be born with pleasure and develop the functional assimilation of information (Rahimi & Yadollahi, 2017).

Achievement enjoys a great deal of interest from educators as it is an essential way out to measure the success of the educational process as well as a prerequisite for admission to higher studies as well as for achievement of great importance in recruitment and functioning. (Al-Shamri 2011:14). Students' attainment problems and inability to transmit the impact of learning in new situations, their growing numbers and the growth of scientific knowledge on educational and educational institutions to meet the complexities of the present era have emerged, so the need to use unusual educational strategies and methods to produce the best results with material and human potential has arisen. education can be systematically designed to adapt the learning-learning process to the needs, mental abilities and tendencies of learners (Almashhadani 2010:37)

The Importance of Research Is Summarized as Follows

1- The importance of using modern teaching methods and strategies, including the Digital Science Story Strategy, to teach biology, which may contribute to improving the level of female students by motivating them and motivating them towards learning, making learning interesting as it is linked to students' lives.

2- Enriching the educational library with a study on the digital science story strategy.

THIRD: RESEARCH OBJECTIVE

The research aims to identify the impact of the digital science story strategy on the attainment of middle second grade students in biology.

FOURTH: RESEARCH HYPOTHESIS

To achieve the research objective, the two researchers formulated the hypothesis: "There is no statistically significant difference at the level of (0,05) between the average grades of the pilot group students who studied in accordance with the digital story strategy and the grades of the control group students who studied in accordance with the usual method of biology achievement test".

FIFTH: LIMITS OF RESEARCH:

1- Human frontiers: second-grade students average in secondary and middle schools in Baghdad governorate Al-Rasaf/II.

2- Spatial boundaries: Directorate General of Second Pavement Education.

3- Time limits: first semester for the academic year (2023-2024).

4- Cognitive boundaries: Biology subjects in chapters (1, 2, 3, 4) of the Biology Book of Grade II averaged 2023 by Daudhsin Abdel Monim and others.

SIXTH: DEFINITION OF TERMS:

1- Strategy: Ahmed and Aziz (2018) defined a set of practical measures taken by the teacher in the light of the principles and hypotheses in line with the structure of the teaching material and students' needs for achieving the desired educational goals at a specific time (Ahmed and Aziz, 2018:504).

2- The digital science story strategy defined by Norman (2011) is a multimedia integration strategy to enrich written and spoken texts with sound effects and images, and storytelling skills aimed at an educational goal full of excitement and suspense. (Norman2011 :21)

The two researchers know it procedurally: the process of integrating biology content for the second grade medium with sound and image is prepared by the researchers with Photoshop and power point and presented by a scientific digital story body to the students presented by Datashow.

3- Attainment: Abbood (2023) is the estimated level of information, experience, knowledge or skills obtained by the student in the preparation of the test and in such a way as to measure the other levels specified (Abbood, 2023a: 25).

Procedurally known to both researchers: It is the result of the research sample students obtained from scientific information after teaching them the digital science story strategy and the usual method, represented by the grades obtained by that sample in the final collection test after the completion of the researchers' preparation.

Review References

Digital Science Story Strategy

Mehdi ans others., 2016) notes that the digital story emerged in the 1980s, where a Center of Digital Storytelling CDS was founded by Jo Lambert and Dana Atchley in the United States of America, the digital story at the

time referred to a personal story told by her stomach over a period of time ranging from tow to three minutes (mahdi and others, 2016)

Digital Story Ratings:

Hilary 2006 presented a classification of the digital story by usage, as follows:

1- Personal Story: People have been coming back for ages and times to have stories to tell. Modern media has provided them with new ways of telling, sharing and preserving their stories using digital story. We can bring back to life stories hiding behind images on family albums.

2- Archival digital story is a form of digital story that includes on a number of websites that include links (Blogs) in which people share their stories in many ideas and themes.

3- Educational story: Many educators realized that digital story, as it helps to upgrade skills such as digital culture, participation and mastery of technology, which are important skills in modern times (76-3 2006, Hilary).

Ohler (2006) referred to the classification of the digital story with respect to content

Presentation Patterns as Follows

1- Audible style of digital story: Audible style confirms the oldest digital story presentation patterns In spite of the advancement of technology, the audible pattern provides a new model for effective learning and communication to suit educational communities, It contributes to the formation of educational experiences through the understanding of the educational message and the composition of the mental images of the words heard in the content of the digital story, thus the recipient has a link between the sound and the mental images.

2- The flexible pattern of the digital story provides images, still and animated graphics, audiovisual effects, and other elements that attract learners' attention, and offer a variety of opportunities in the presentation of content, so many studies recommend the use of this pattern.

The written style of the digital story is the main learning tool for learners throughout the different educational stages. The concept of the story is always linked to the 3-3- written pattern, and the importance of this pattern is that it effectively contributes to the development of learners' ability to think and to derive the content of the written text and thus understand and accommodate the concepts and information contained therein, But there is a dearth of research on this pattern, that there is a clear disregard in research and literature in this area. (Ohler 2006: 44-46)

Digital Story Elements

Summarized (Madkour 2002, 185) in three elements:

1- The style is the bowl that contains the idea, the more simple and consistent the story phrases are with the ideas and sequence of events, the more the story is good.

2- A good story is a story whose subject is suited to the interest and characteristics of the learner at the different stages of their life.

3. Presentation means the grounds to be considered when choosing a story:

The introduction is a prelude to the topic, and must be a mediator between redundancy and brevity.

Theme: Facts, ideas, directions and values of the story.

The characters are the focus of events in the story

Knot: It is a story problem that needs to be solved. (Shehta, 2014, 249)

Digital Story Production Stages: After learning about the production, design and development of digital stories. The production stages of the digital story can be derived in the following steps:

Phase 1 defines the area of the story: The area of the story must first be determined whether it is scientific, religious or fiction, geographical or historical, or heritage.

Phase II Writing Story Text: In this step determines the main idea of the story, and the writer of the story is allowed to rewrite it more than once until it reaches the final version.

Phase III Story Script: The script contributes to determining the basic form of the story, and the multimedia elements that will be used in its presentation, in an effort to make the story more interesting to the public.

Phase IV. Preparation of the illustrated scenario: In this step, the text and the multimedia to be used in the specific locations of the story, with precise details that contribute to facilitating the implementation of the step.

Stage 5 Source acquisition: Here the multimedia required to produce the story is obtained, whether through the Internet or through PC, or through auxiliaries such as scanner, digital camera, etc.

Stage 6 Production: In this step, the digital story is produced using appropriate programs, such as Movie Maker, PhotoStory and other programs.

Phase VII Sharing: The digital story is shared by making it available to the public on the Internet, on an enterprise's internal network, or on CD CDs.

(Chung, 2008: 38-40) (Jakes & Brennan, 2006:6

Digital Story Criteria: The Story Criteria Are Generally

1- The story should be commensurate with the learner's age.

2- Give the characters included in the story sound, colors and backgrounds.

3- Simplify knowledge, a learner in the earliest stages of his life tends to have a fictitious belief.

4- Supporting stories with colors and holograms.

5- Engaging more than one sense of the learner's senses. When he sees his eyes and hears his ears, these boosters increase his integration into what he offers. (Almashrefi, 2013, 60, 61)

Digital Story Design Software

Many diverse software have emerged specializing in digital story design, including:

1-photo story3: A free online program, ideally for learners at all levels of study to design and develop digital stories from images and drawings, featuring the addition of text, motion effects and ready music backgrounds, or the creation of them from within the program itself, and the addition of audio commentary for the story holder.

2. movie marker: One of the best software that edits videos very dramatically as the muffy maker works simple and easy the software is there with the regular windows version, but there are sometimes you need to download the software alone.

3. Apple Movie Software: This program is used under the Apple Macintosh operating system environment only, and is obtained free of charge, which is an ideal program for primary school children, and other school stages to design and develop digital stories. (Ahmed, 2010:203)

4. ProgramAdobe premiere: This program uses the operating system environment of Windoz and the operating system environment of Apple Macintosh, but its use requires skills at the professional level, which is difficult to use with teachers and students.

5. Power Point Software: This software is used under Windoz environment, Apple McIntosh environment, and enables the design and development of digital stories of photos and still graphics, animated footage. (Hilmi, 2016, 164)

Procedural steps for teaching in accordance with the Digital Stories Strategy:

Step 1: Divide learners into groups with (4-6) not stirring enthusiasm.

The second step is to write a question on the board that includes the content of the subject matter to excite students.

Step 3: View pre-prepared digital stories related to the lesson theme.

Step 4 Calendar The teacher asks calendar questions to see how the lesson is absorbed. (Abdelbaset 2015:47)

RESEARCH METHODOLOGY

First: Experimental design of the research: The experimental design is the researcher's plan for the implementation of the experiment, as the current research includes one independent variable (digital educational story strategy) and a subordinate variant (attainment), so the two researchers used the partially tuned experimental design of two equivalent groups, one experimental and the other a female officer of the post-test to collect the biology material as in the scheme (1).

Group   Parity variables   Independent Variable   Affiliate Variable Measurement of the dependent variable

Chart 1. Experimental design for research.

Measurement of the dependent variable	Dependent variables	Independent variables	Parity variables	Group
Biology Material Collection Test	Acquisition of biology material	Digital Science Story Strategy Normal Method	Lifespan (months) Raven's test of intelligence. Test previous information	Experimental Control

Second: The research community and its appointment: The current research community consisted of all female students in the middle and secondary schools of the General Directorate of Second Pavement Education in Baghdad governorate.

Sample research: Ma 'ali Girls Secondary was chosen intentionally for several reasons:

Cooperation and understanding of the Department of Secondary Education and the fact that secondary students from one geographical area are socially and economically equitable, facilitating the researchers' parity between the two research groups, as well as the median containment of four divisions (bcd) One was randomly selected as Division (d) Pilot Group and Division (b) the control group and the two research groups comprised (66) female students distributed to division (d) (33) female students and division (b) (33) female students.

Third: Control Procedures:

Despite the random selection of the individuals of the sample of the experimental and control groups, the two researchers adjusted the extraneous variables that would affect the subordinate variables, thereby affecting the search results, and the adjustment procedures were done through the following:

Internal Safety: In order to ensure the integrity of experimental research and to interpret its results, extraneous variables that may affect the dependent variable must be adjusted, and to ensure internal safety. Therefore, the two researchers conducted a parity between the experimental and control groups in the variables of time life, intelligence and previous information.

2- External safety of the research: Factors affecting external safety have been addressed: duration, confidentiality of the experiment, loss of experience, maturity, location of the experiment, measurement tools and trial conditions.

Fourth: Preparation of research requirements

1- Determination of educational material: The educational material taught by the two researchers to the two research groups during the duration of the experiment (first semester) of the academic year (2023-2024). The educational material included four chapters (Chapter I: Classification Science - Chapter II: How to Classify Living Beings - Chapter III: Simple Living Beings - Chapter IV: Kingdom of Plants) of Biology Book for the Second Middle Grade, Edition, 2023, by the authors of Dawoud, Hussein Abdulmenim and others.

2- Formulation of behavioural purposes: The two researchers analysed the content of the chapters to be taught in the duration of the experiment, with (160) formulating a behavioural purpose at a rate of (32) a behavioural purpose for chapters I and (32) a behavioural purpose for chapters II and (47) a behavioural purpose for chapters III and (49) for chapters IV. Relying on the first four levels (remembrance, assimilation, application and analysis) of Bloom's classification for behavioral purposes in the defined area, as it is one of the most common, preferred and used classifications. The two researchers presented the behavioural purposes to the arbitrators for their views on the accuracy of their formulation and their suitability for their levels of knowledge and in the light of their views, proposals and observations. Based on agreement of more than (80%) arbitrators, all specific behavioural purposes were adopted with modifications in the formulation of certain purposes and (160) remained a behavioural purpose, broken down according to scientific content and the first four levels.

Writing and digitizing scientific stories: Scientific stories were written by the two researchers based on the scientific content of the biology book for the second grade medium. After using a computer design program to design the main characters in the series of scientific stories, I used the Burpoint program to design the story slides and add the sound of each character. The stories were presented to a group of arbitrators from the competence of teaching methods and fine arts from the strict competence to demonstrate the relevance of the scientific stories and their suitability to the students of the second grade medium.

Preparation of teaching plans: Since the preparation of teaching plans is an active element of successful teaching, the two researchers have prepared 18. A teaching plan for each group in accordance with the topics adopted in teaching biology during the duration of the experiment. In the light of the contents of the scheduled book and behavioral purposes, the two researchers presented a model of each plan for the two research groups to a group of arbitrators with competence to give their opinions and feedback. Appropriate observations and suggestions were taken under which the modifications to the teaching plans were made.

Fifth: Research Tools

 Current research requires the preparation of two instruments for measuring subordinate variables: biology, and the two researchers have built the research tool as follows:

1- Determining the objective of the test: The objective of the test is to measure the amount of achievement of the second-grade students average sample research in the content of the four chapters of the school revival book scheduled for the academic year (2023/2024) and according to the behavioral objectives derived therefrom.

2- Determination of scientific material: The scientific material has already been defined and included four chapters: (Chapter I: Classification Science Chapter 2: How organisms are classified - Chapter 3: Simple organisms - Chapter 4: The Kingdom of Plants) of Biology Book for the Second Grade Medium, Edition, 2023.

3- Behavioral purposes: 160 behavioral purposes were formulated according to Bloom's cognitive levels (remembrance, assimilation, application, analysis) and then determined the number of questions for each lesson based on the objectives of the educational subject.

4- Determination of the number of test paragraphs: The number of test paragraphs for biology is limited to (40) test paragraphs taking into account students' abilities at this level of age and scheduled time.

Preparation of the schedule of specifications (test map) to test the collection of biology material: The table of specifications is created from the identification of two dimensions, one representing (levels of behavioural purposes) and the second representing (subjects or content), in which the number of paragraphs (number of cells) is determined depending on the relative importance of each subject and of each table (1).

Table 1. Test Map for Biology material collection test

Total questions per topic	Analysis 11	Applying 16	Understanding 68	Remembering 65	Relative importance of content	Number of pages	Subjects
			Number of behavioral targets per level				
			Relative importance of each level of behavioural goals				
	6.88%	10.00%	42.50%	40.63%			
8	1	1	3	3	20.51%	8	Chapter 1
10	1	1	4	4	23.08%	9	Chapter 2
10	1	1	4	4	25.64%	10	Chapter 3
12	1	1	5	5	30.77%	12	Chapter 4
40	4	4	16	16	100%	39	Total

5- Determination of The Number of Biology Test Paragraphs

The total number of test paragraphs has been determined in the light of the views of a number of specialists on the methods of teaching science, taking into account the behavioural objectives to be achieved. (40) test paragraph, (36) objective paragraph (multiple selection) with four alternatives has been identified. and (4) short-answered essay paragraphs, which are appropriate to the level of female students at this age and school level and in the light of the time allotted and the nature of the subject and extracted from the textbook.

4- Formulation of Biology Collection Test Paragraphs: Test paragraphs of the choice type were formulated with four valid alternatives and the other alternatives were wrong, as well as short-answered structural paragraphs, with the total number of test paragraphs (40) being a test paragraph; (36) A substantive paragraph (multiple selection) with four alternatives and (4) short-answered article paragraphs, as well as the arbitrators' views and observations on the deletion and modification of some test paragraphs.

6- Drafting Test Instructions

Answer instructions: The two researchers prepared the instructions for answering the test, taking into account the accurate reading of each paragraph and then choosing the correct alternative out of the four alternatives to each paragraph.

Correction instructions: The test is corrected based on the correction key prepared to determine the correct answer in the substantive paragraphs, and (2-1) degrees for each correct answer and (0) degrees for the wrong answer to the article paragraphs.

7- Truthfulness of the Test

to verify the veracity of the test, the researchers adopted two types of honesty:

1- Prima facie truthfulness: In order to verify the veracity of the test, its paragraphs were presented to a number of arbitrators and specialists in the methods of teaching science, 80% of the arbitrators' opinions agreed, according to which some modifications were made to delete, amend and modify what was required, and thus all test paragraphs were considered valid to measure the purpose for which they were prepared.

2- Authenticity of content: is the main degree by which the test of what is designed to be measured in a particular content, and the adoption of the specification table (Test map) In order to verify the veracity of the test content, the specification table was used in the construction of the biology material acquisition test, which is an indicator of the test's authenticity. Thus, the test is honest with regard to its representation in the vocabulary of the teaching material and the behavioural objectives it measures (Nabhan, 2004:275).

Reconnaissance Application of Biology Collection Test: Biology Collection Test has been applied in two phases:

First exploratory application: The two researchers applied the biology subject collection test for the first time to a sample of 30 students in the Girls' Masts High School of the Directorate-General for Second Pavement Education after agreement with the Secondary Department and the Substance School and supervised by the researchers on Tuesday, 2/1/2024. To indicate and clarify its paragraphs and instructions, and for the purpose of calculating the time required for students to respond to the paragraphs, it was ascertained that the paragraphs

were clarified as well as the time required for responding to the test, calculating the (average response time) taken for the first (5) female and the other (5) female students to answer the test, which amounted to (40) minutes.

Second exploratory application: After the researchers confirmed the clarity of the test, its vertebrae, instructions and the time needed to answer, the researchers applied the biology subject collection test to a second exploratory application to a sample of 120 students in the middle second grade at the Girls' Elf High, on Sunday, agreed (7/1/2024), in cooperation with the school administration and the subject school and supervised by the researchers.

8- Identification of Test (Psychometric) Characteristics

The objective of determining the test's cykometric characteristics and analysing the effectiveness of its vertebrae is to determine the efficiency and effectiveness of its vertebrae in order to improve the test by identifying the deficiencies in its vertebrae and working to address them and exclude them from them. (Allam, 2014, 88). After correcting the students' answers to the biology test, the researchers arranged the students' grades downward, relying on the two groups. The researchers extracted the characteristics of the genuine construction and stability:

Sincerity of Biology Acquisition Building: Sincerely means construction, a set of psychological features that can be reflected or manifested in test indicators. Construction is a psychological feature, characteristic or characteristic that cannot be directly observed, but is inferred from a set of behaviors associated with it (Melhem, 2002:273). In order to verify the indicators of sincerity of construction, the two researchers verified the indicators:

Difficulty factor: The values of the substantive paragraphs' difficulty transactions ranged from (0.47-0.81) to the difficulty factors of the paragraphs (0.57-0.38).

Paragraph differentiation factor: The factor of excellence has been calculated by applying its own equivalence to all substantive test paragraphs. It has been shown to have ranged from 0.22 to 0.63. The paragraphs in question show that they range from 0.20 to 0.39.

Effectiveness of alternatives: means "its ability to attract the attention of students at the lower level for choosing an alternative that is the correct answer" (Al-Dahir et al., 2002:131). All alternatives were effective.

Second: The Biology Test: The two researchers calculated the Biology Test Firming Coefficient (Fakronbach) and the Constant Coefficient (0.75). This indicates a good Test Persistence Coefficient.

10- Final version of the Biology Collection Test: After verifying the indicators for the exploratory application of the Biology Collection Test, the final version is composed of (40) multiple selection type paragraph (36) and (4) responsive short article paragraphs, thus being ready for application. The highest test score (48) and the lowest score (0).

Sixth: Procedures for Applying the Experiment

1- Agreement with the Secondary Department and the Article School: The two researchers obtained the approval of the Secondary Department of Maaleh Girls and the Subject School to apply the experiment.

2. Direct application of the experiment: The two researchers began implementing the experiment from Wednesday (2/10/2023). The previous information test was applied on Thursday (5/10/2023) and the Raven Intelligence test on Wednesday (4/10/2023). Actual teaching of the two research groups began on Sunday (8/10/2023).

3. Teaching the two research groups: the two researchers studied the two research groups. The pilot group was taught according to the teaching plans prepared by the two researchers according to the steps of the digital science story strategy and the control group was taught according to the teaching plans prepared by the researchers according to the usual method.

4. After completing the scientific subject for the first semester and after the agreement with the students a week before the biology course was applied on Sunday (14/1/2024).

5. Completion of the experiment: the actual teaching of the experiment ended on Thursday, 18/1/2024.

6. After the correction of the responses of the students, the statistical analyses were conducted and the results of the research were extracted.

7. Completion of the experiment: the actual teaching of the experiment ended on Thursday, 18/1/2024.

SHOWING RESULTS

To verify the first hypothesis, which states that "there is no statistically significant difference at an indicative level (0.05) between the average grades of female students of the experimental group studying in accordance with the digital science story strategy, and the average grades of female students of the control group studying in accordance with the usual way in which biology is obtained". The researchers applied the test to the students of both groups and extracted the students' scores in the biology test in both groups. The calculation of average calculation and standard deviation and the extraction of calculated and tabular T value as shown in table (2) were therefore calculated.

Table 2. Computational averages, standard deviations and value for two independent samples equal to the difference between experimental group and control in the collection of biology material.

Level indicator	T value tables	T- value	Degree of freedom	Standard deviation	Arithmetic average	Sample	Group
Function	2	5.6	64	4.46	39.73	33	Experimental group

The results showed that the calculated T value and its value (5.6) were greater than the tabular value of (2) at a degree of freedom. This means that there are statistically significant differences at level 0.05 between the two groups' average achievement test scores and for the benefit of the experimental group, thereby rejecting the zero hypothesis and accepting the alternative hypothesis.

To quantify the impact of the independent variable (Digital Science Story Strategy) in the subordinate variable (Biology Material Acquisition), the two researchers used the eta-Squarede equation to ensure that the difference was a real one due to the research variable or a purely coincidental one. The ETA box of results obtained has been calculated as in table (3).

Table 3. ETA box values and impact volume calculated from T value

Effect size	ETA box	T- value	Dependent variable	Independent variable
Too big	0.33	5.6	Acquisition of biology material	Digital Science Story Strategy

Table 3 shows that the value of the Eta square was 0.33. When compared to the impact size benchmark, it appears that it was (very large), indicating that the Digital Science Story Strategy had a significant impact on raising the attainment level of pilot group students compared to control group students.

EXPLANATION OF RESULTS

 The results showed that the experimental group whose students were studied in accordance with the Digital Science Story Strategy outweighed the control group whose students were studied in accordance with the usual method of biology, and this can be explained:

1- The use of the digital science story strategy has a positive impact on the attainment of biology and is due to the fact that the strategy in the lesson is discovered, researched and criticized. This has helped to understand the study subject and has led to higher achievement.

2- The steps taken to teach scientific concepts in accordance with the digital science story strategy have a major impact in drawing students' attention to the lesson by presenting the story, making the revival lesson more active and dynamic.

3- The digital science story strategy allows students to participate, express opinion and think about the scientific story about biology topics by gradually accessing information.

CONCLUSIONS

In the light of the research findings, the following conclusions were reached:

The digital science story strategy is an opportunity for female students to interact with the subject by discussing among themselves the events of the lesson story.

The digital science story strategy is characterized by the presentation of scientific material in a modern technological manner closer to the tendencies and concerns of current generations that differ from the usual ways in which their name varies from one essence.

RECOMMENDATIONS

In light of the research results, the two researchers recommend the following:

Emphasize the need to adopt a digital science story strategy in teaching biology for the middle stage.

The Ministry of Education should pay attention to the establishment of training courses for teachers in teaching modern and technological strategies and encourage them to employ them in the classroom because it has proved its effectiveness in raising students' educational attainment.

REFERENCES

Ahmad, Husain Mohammed. (2010): The effectiveness of a proposed programme based on the use of 3 photostory software to develop the concept and skills of designing and developing the digital stories needed for pre-service geography teachers.

Hilmi, Iman Ali. (2017): The interplay between narrative patterns in the web-based digital story and its content presentation methods has affected primary school pupils' knowledge acquisition of the Education Technology Journal No. (31)

Shehata, Nashwa Rifat Mohammed. (2014): Designing a proposed online learning strategy in the light of the learning dimensions model for developing and moving towards digital educational story development skills. Education Technology - Egypt, vol. 24, No. (2), 231-292.

Aldahir, Zakaria Muhammad Waklintemurjian and Judat Izzat Abdul Hadi. (2002): Dr. Abdullah Manizel review of the principles of measurement and evaluation in education T2, International Scientific House and Culture House Publishing Amman Jordan.

Abdelbaset, Hussein Mohamed. (2010): Effectiveness of a proposed programme based on the use of photo 3 story software to develop the concept and skills of designing and developing digital stories for pre-service geography teachers - Journal of the Educational Society for Social Studies, No. 29, 194-220.

Allam, Salahuddin. (2006): Educational and psychological tests and measurements, T1, Faculty of Education, Azhar University of Egypt.

Madakur, Ali Ahmed. (2002): Teaching Arabic Language Arts, House of Arab Thought, Cairo.

Mashhadani, Hatem Ali Mohammed. (2015): The impact of SOM strategy on the achievement of high-ranking mathematics and thinking students in the third grade has an unpublished master's thesis at the University of Baghdad/Ibn al-Haitham College of Education. Iraq.

Melhem, Sami Mohammed. (2002): Research curricula in education and psychology. 2 Al Masirah Publishing and Distribution House Amman.

Mehdi, Hussein Rebhi, Al-Jarf, Reem, Darwish, Atta. (2016): Strategic Effectiveness in Digital Stories in Gaining Female Basic Ninth Grade Students in Gaza Technological Concepts, Jerusalem Open University Journal of Educational and Psychological Research and Studies, Palestine, vol. 4, No. (13), 145-180.

Nabhan, Yahya Mohammed. (2008): Teaching Skills T1 Yazuri Scientific House for Publishing and Distribution, Oman.

Almashrefi, Ishrah Ibrahim. (2013): Curricula and Methods of Children's Education, Dar Al-Zahra, Riyadh

Abbood, S. A. A. (2023a). Instructional Design According to the Repulsive Learning Model and its Impact on the Achievement of Chemistry and Lateral Thinking for Third-Grade Intermediate Students. International Journal of Emerging Technologies in Learning (Online), 18(3), 22-37.

Abbood, S. A. A. (2023b). A Training Program According to Interactive Teaching Strategies and its Impact on Achievement and Creative Problem Solving for Fourth-Grade Preparatory Students in Chemistry. International Journal of Emerging Technologies in Learning (Online), 18(4), 50-65

Ahmed, S. D. (2020). The impact of fishbone strategy in the achievement of chemistry and visual thinking among the seven grade students. Utopía y Praxis Latinoamericana, 25(1), 305-315.

Ahmed, S. D., & Aziz, M. S. (2018). The Effect of Cognitive Modeling Strategy in chemistry achievement for students. Opción: Revista de Ciencias Humanas y Sociales(17), 498-520.

Chung, S. (2008): Digital Storytelling in Integrated Arts Education, The International Journal of Arts Education,V(4),N.

Hilary, Mc. (2006): Digital Storytelling in HigherEducation.

Jakes, D& Bernnn, J. (2006): Digital Storytelling, Visual Literacy, 21 st Century Skills, Retrieved, April 26,2016.

Murphy, KR & Myors, B. (2004): "Statistical Power analysis: A Simple and General Model for Traditional and Modern Hypothesis Test", (2nd). Lawrence Erlbaum, Mahwah NJ.

Norman, A. (2011). Digital Storytelling in Second Language, Masters Thesis in Didantics for English and Foregin Languaue, Norwegian Unaveristy of Since and Tecnology: Norway.

Ohler, j. (2006): The World of Digital Storytelling, Educational Leadership

Yousif, J. F. (2019). The effectiveness of employing the molecular representation strategy in the development of information Generation skills in the chemistry of second grade students in Intermediate School. Opción: Revista de Ciencias Humanas y Sociales(89), 196.

Yousif, J. F., & Mahmood, R. I. (2020). Effect of Hot Chair Strategy on the Acquisition of Second-Grade Middle Class Students. Utopía y praxis latinoamericana: revista internacional de filosofía iberoamericana y teoría social(1), 545-564.