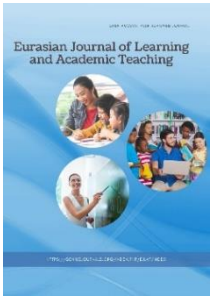

The Effectiveness of An Educational Environment Based on Some Techniques of Digital Technology on Developing the Third Grade Students' Motivation Towards Learning in Science and Life

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ABSTRACT

The study aimed to investigate the effectiveness of an Educational Environment Based on Some Techniques of Digital Technology on Developing the Third Grade Students' Motivation Towards Learning in Science and Life in Gaza. The researcher used the quasi-experimental method. The sample consisted of 40 students from third grade at the Al-Zeitoun School in Gaza. The study tool was a motivational scale towards learning. The results showed that there were statistically significant differences at the level of (0.01 = α) between the grades of students in the pre- and post-application of the motivation scale in favor of the post-application, and It was also found that the use of Learning Environment based on Hologram & Virtual reality & Augmented reality Technologies for the development of motivation toward learning of the third-grade students achieved more efficiency than (1.2) according to the rate of gain for Black, based on these results the study recommended that the learning environment should be used to develop motivation towards learning among third graders and to take care of education using the latest technologies. Such as virtual reality, Augmented reality, and Hologram technologies.

Keywords: Educational environment, digital applications, motivation

Search summary:
The current research aimed at revealing the effectiveness of an educational environment based on some digital technology techniques in the development of motivation towards learning among third graders in the subject of science and life, and the researchers used the semi-experimental curriculum, and the sample of research (40) students of the basic third grade at The Olive Elementary School in Gaza, and the study tool was a *measure of motivation towards learning, where the results showed statistically significant differences at* the level of significance *(0.01 =α)* between the grades of female students in the *tribal application The remoteness of the driving measure in favor of remote application, as it was found that the use of the educational environment based on gel learning techniques and the enhanced and virtual reality* to develop the motivation towards learning among the third-graders achieved greater effectiveness than *(1.2)* according to the rate of *earnings for Black, and based on*the results recommended that the study use the educational environment to develop the motivation for learning among the students of the third grade basic, and to pay

attention to education using the latest digital technologies as diverse as virtual*reality technology, augmented reality and learning Jelly.*

***Sent Researcher**

Introduction:

What we are witnessing today is a tremendous development in computer technology and information, and the acceleration in the rate of that development and the extent to which it affects our lives we cannot ignore it, and since the educational process is not isolated from those successive challenges in the world of informatics, especially in light of the corresponding congestion of curricula with different topics imposed by the conditions of life, we must keep up with the latest technological technologies such as gel learning technology and virtual reality and strengthened in order to keep our educational system in line with knowledge and informatics communities, which makes it imperative for our educational institutions to Review the methods and methods of teaching the curriculum to ensure that learners interact and increase their motivation tolearn.

The rapid technological revolution by means and methods has not only been important for the service and career practice of human beings, but also has an active role in increasing its information and knowledge and upgrading its capabilities, competences and skills and keeping pace with the latest developments in science and technology, so interest in education technology in the Arab world has increased due to the increase and acceleration of knowledge, the increase in the number of learners, the significant role that technology plays in developing the education process and facilitating learning and acquiring it as little as possible, and its continuity to the fullest extent possible, and universities have taught and trained their students to How to employ what technology has brought in learning learning attitudes, so it was necessary to emphasize the importance of the role that modern technology plays in the development of the learning process (Todri,2009:14)

Modern technological technologies facilitate the process of teaching, learning, skills development and the education of large numbers of learners and stimulate students and recall their previous experiences while providing realistic experiences that call for increasing the learner's activity and readiness and increasing the positive and active participation of thelearner. Olives,2001: 573)

Augmented Reality, known in short (AR), is one of the branches and types of virtualreality technology known asVR,which represents the integration of the virtual environment with the real environment, to help you feel all five senses through a virtual environment integrated with a real environment although in a virtual environment, augmented reality is one of the marginal technologies The ability to enhance real reality has gained the attention of educators, particularly specialists in education technology, curricula and teaching methods, because of its ability to enhance real reality with qualitative additions that make it more interactive, fun and useful by adding interactive components such as a video or interactive image to the printed book, where the student can use interactive images of the images, maps and illustrations provided bythetextbook. luckin& stanton,2011)

Augmented and virtual reality technology can be used in teaching and learning to help students deal with information and knowledge more easily and visually, and there are many studies that have talked about virtual reality such as the study(Al-Sharif, 2012),the study (Khaled, 2008)and thestudy (AGA, 2015).

Studies on augmented reality such as the Study (Alian, 2017), which aimed to identify the level of awareness of social studies teachers in Saudi Arabia about the concept of augmented reality technology and its applications in the education and learning of their subject, the study found that the level of awareness of teachers of social studies subjects in augmented reality programs ranges from weak to medium, and that the applications of augmented reality in the education and learning of social studies are weak, and the study (Shelton&Hedley, 2002) which noted the importance of augmented reality technology in stimulating motivation

towards learning more than traditional methods, and study (Obeid, 2018).

Studyproblem:

The use of techniques in the service of education, although it exists as an idea in the minds of teachers, has not been adequately employed in the curriculum, which led the researchers to try to study the impact of these techniques on education, which represents an urgent need to conduct numerous studies and research in this area, and from this, the researchers can monitor the **justifications that made them feel the importance of conducting this study as follows:**

The researchers noted through their practical experience in teaching for the third grade in the subject of science and life, and by the nature of their work, the lack of motivation of female students towards learning and acquiring the skills included in the subject of science, and as we know that motivation is one of the most important factors that help to acquire knowledge, understanding and skills, because of the rigidity of this subject and its lack of sensory and audiovisual means contained in the subject, where we know that the learner is better aware of the information when employing the largest number of senses, and thus the survival of the largest number of senses. The impact of learning for as long as possible, hence the researchers suggested to employ the largest number of senses by employing digital technologies including gel learning and enhanced and virtual reality, because it has a great impact in making the student the focus of the educational process by employing more than one sense and reaching information himself, which establishes knowledge and understanding.

The search problem can be identified in the following mainquestion:

What is the effectiveness of an educational environment based on gel learning techniques and enhanced and virtual reality in developing the motivation for learning among third-graders in science and life?

The Chair's question is derived from the following sub-questions:

1. **What is the overall picture of the educational environment based on some digital technology technologies in the development of motivation towards learning among the students of the third basic**
2. **Are there statistically significant differences at the indicative level**(0.05α≤) between the calculation averages of the two teachers' estimates of the motivation for science learning among **basic third-grade students due to the educational environment?**
3. **Is the educational environment based on some digital technology effective at the BlackBerry rate of gain?**

Search hypotheses:

1. **There are no statistically significant differences at the level of significance** (0.05α≤) of average female students' grades in the tribal and remote application of **the driving scale.**
2. **No, is the educational environment based on some digital technology technologies as effective as black's earnings rate?**

Study**objectives:** The study aimed to identify the following:

1- Preparing a proposed educational environment to increase the motivation for learning among third-grade students in science

2- Measuring the effectiveness of the educational environment in increasing the motivation for learning among students of the third grade in science.

The importance of thestudy: the importance of the current research was:

1- In response to the call of technological developers on the need to integrate modern technologies with education

2- Show therole of modern technologies in improving the level of motivation for learning, which reflects positively on their achievement.

3- Providing an educational environment that contains more than one modern technology, which helps to increase the motivation forlearning.

4- Achieving the principle of self-learning where the learner chooses what you want to learn at the time you want, according to her abilities and capabilities.

5- Helps the authors of science curricula to choose effective techniques in science learning and education.

Studylimits:

Objectivelimits: The study is limited to the development of motivation for learning, and on the subject of science.

HumanBoundaries: Limited to basic third-grade students

TemporalBoundaries: Implementation of the study in the second quarter of 2019

Spatialboundaries: The study was applied at The Zaytoun Elementary School in Gaza.

Studyterms:

Effectiveness: Is to know the impact of the change brought about by teaching using the educational environment on increasing the motivation of female students in the subject of science.

Educationalenvironment: **An educational environment through which several teaching techniques such as gel learning, virtual reality and augmented reality are used, and third-graders are allowed to interact and share with these technologies, breaking the barrier of boredom and increasing their motivation to learn, and this environment is designed electronically using Google sites.**

Hologram: A **learning that is done by** using a set of videos specifically designed for hologram to study animals in science in the basic third grade, and to put a transparent publication on the computer or mobile screen that displays the videos, to representthe original image in a 3D way through the division and reflection of the rays onit.

Virtualreality: A multi-use interactive environment in which the individual is more interactive with the content, as well as the user participates in the activities displayed effectively through the freedom of sailing, touring and interaction, consisting of interactive computer simulations that feel the user's place and actions, these processes are supported by artificial feedback for one or more sensesthat feel the user integrates into thescene.

Augmented**reality:** An interactive electronic technology in which the learner is more interactive with content, characterized by the possibility of scanning by mobile phone some of the contents of the science book for the third grade, and then enriching and enhancing it with virtual additions and videos that allow the learner to interact withthecontent.

LearningMotivation: The **total grades obtained by students through their answers to the paragraphs of**the driving measure of learning used to achieve the goals of this**study.**

Previousstudies:

The researchers looked at a series of previous studies that looked at the variables of the current study and presented them according to theirmodernity.

Obeid Study (2018): The study aimed to measure the effectiveness of augmented reality in the development of some skills of students with hearing disabilities at the computer decision in the **middle stage and their directions towards it, the study tools consisted of a learning test, a note card and a trend measure, the descriptive and semi-experimental curriculum was used, and the sample of the study consisted of ten students who were divided into experimental and controlled groups, and an electronic learning environment based on educational cards was designed using augmented reality technology, and the study reached the effectiveness of augmented reality in the development of educational education C and in the development of the student trend towards the computer course.**

Al-Sakka et al. Study (2018): The study aimed to identify the impact of augmented reality technology in the development of scientific concepts among students in the **tenth grade of biology, the experimental curriculum was used based on two controlled and experimental groups,** the study sample consisted of **(30)** students of the tenth grade basic, the study tools were an objective test for the development of scientific concepts, and the results found differences between the average grades of students of the experimental group and the average grades of

students of the **working group in application A for my distance to test scientific concepts for the benefit of the experimental group.**

Al-Omarji Study (2017): The study aimed to identify the effectiveness of using **augmented reality technology in teaching history for the first grade of secondary school to develop achievement and historical thinking skills and motivational thinking skills to learn using techniques in students, the semi-experimental curriculum based on** the experimental design of the control and experimental groups was used, and the study tools consisted of a learning test, a historical thinking skills scale and a learning drive scale, and the study sample consisted of **72** students, and the results found that the use of **reality technology The enhanced teaching of history has been highly effective for the motivation of learning and for the development of historical thinking skills and achievement as well.**

Al-Qahtani and Al-Mu'ayer Study (2016): The **study aimed to identify the awareness of faculty members at Princess Noura University** in**hologram**in distance education by measuring the **importance of hologram and the difficulties facing its application and their orientation towards this technique in teaching,** and the researchers followed the descriptive curriculum. The study included **100 faculty members from all colleges, and a questionnaire was distributed to the sample, and the results of the study highlighted the approval of sample members The importance of applying this technique in the teaching process, and the absence of statistically significant differences in the trends of the vocabulary of the study sample around all the axes of the study according to the variable of the degree, type of college, number of years of experience, which confirms the awareness of faculty members of the importance of applying such modern techniques in the teaching process**

Aga Study (2015): The study aimed to reveal the effectiveness of VR technology in the development of visual thinking among ninth-grade students in Gaza, the researcher used the **analytical descriptive approach, the experimental approach, and** the study was applied to a sample of **(80) ninth-graders, and the study tools included a visual thinking skills test and a program based on virtual reality technology,**and the results showed the effectiveness of VR technology in the development of visual**thinking.**

Abd Al , Hamid Study(2019): **The study aimed to develop self-regulation and achievement skills among first-grade secondary students through the use of augmented reality technology, and the experiment was conducted on a random sample of (60) A student of the first high school in Al-Raqiya governorate, the researcher used semi-experimental design with a single dimension, and the study included a cognitive achievement test, and a measure of self-regulation of learning, and showed the results Differences in favor of the trial group attributable to the use of augmented reality.**

Commenting on previousstudies:

After reviewing previous studies, the researchers believe that the studies vary in terms of variables and methodology, most studies followed the experimental approach such as the Aga study (2015), the Study of Sakka et al. (2018), some of which followed the semi-experimental approach such as the Al-Omarji study (2017) and the Abdul Hamid study (2019), and some followed the descriptive approach such as al-Qahtani and Al-Mu'afari (2017).

The current study, together with previous studies on the effectiveness of digital technology recruitment (augmented reality, virtual reality, gel learning), as in the Abdul Hamid study (2019), the Aga Study (2015), the Al-Omarji Study (2017), and the Study of Sakka et al. (2018).

The researchers noted that all recent studies were published after 2015, indicating the novelty of the techniques used and the novelty of the topic discussed by the researchers in the study.

The study distinguished from other previous studies in that it included three different techniques: hologram, virtual reality and augmented reality, as different from previous studies involving only one technique.

Theoreticalframework:

It contains two main axes,
First: Motivation for learning
Second: Educational technologies and software

First: Motivational to learn

Many workers in the field of education suffer from a lack of desire to learn among students, and this worries those working in the field, because it leads to poor achievement, and the motivation of learning is of great importance because it is a prerequisite for the success of the educational process, it helps and pushes the learner to achieve and achieve and increase the level of his classroominteraction.

The concept of learningmotivation:

Touq and Qatami (2002) defines **learning motivation as"the**internal or external psychological state of**the learner, which moves his behavior and directs him towards achieving a particular goal and maintains his continuity until that goal is achieved."**

Abu Jadu (2000) defines motivation as:"Aninternal situation that drives the student to pay attention to the educational**situation, to carry out a targeted activity, and to continue this activity until learning is achieved as a goal of the learner."**

Herbert Hermans defines it as"thetendency to excel in difficult educational situations." (Awad, 1998)

Atkinson Athinson referred to in Nashwati (2003) states that the tendency to succeed is the willingness of an acquired payer, which, in terms of its association with any behavioral activity function of three variables that determine the student's ability to achieve, is:

1. Motivation for success: It refers to the fact that the individual performs a task with great vigour and enthusiasm, in order to gain the experience of success possible, but this motive has a natural result manifested in another motive, which is the motive of **avoiding failure, where the individual tries to avoid performing a particular task for fear of failure that he can face in its performance, and the motivation of learning lies behind the differences of students in their attainment levels where the level of achievement increases with this motivation and vice versa.**
2. Probability of success: The likelihood of success of any task depends on the **self-evaluation process performed by the individual assigned to perform this task, and** the probability of success ranges from a very low level to a very high level depending on the importance of success and its value to the individual, the student who sees school success as a great value for his or her attainment motivation.
3. The value of the incentive to succeed: The more difficult the task requires the value of the incentive to succeed, the more valuable the task is to maintain a high level of **motivation, the difficult tasks associated with low-value motivations do not arouse the enthusiasm of the individual for its high motivational performance, and** it is the individual himself who appreciates the difficulty and motivation of the task.

The researchers know the motivation for learning procedurally: the**situation that interests students and leads them to engage in technical activities of teaching and learning, and to conduct behavior geared to achieve the desired goals, and infers them through the degree to which they obtain in the prepared scale.**

The importance of learning motivation:

Motivation to learn is one of the most important variables that play an active role in educating the learner, as it is important in increasing the student's attention and integration into educational activities, focusing his success and failure on internal factors, and controlling the factors influencing the completion of the learning task. It has an important role to play in raising the level of student performance and productivity in the various fields and activities it faces, and is a

reliable and consistent way to predict the student's academic behavior. (Ahmed, 2005)

Motivation for learning is one of the important factors driving students' mental activities in the learning process, revitalizing and guiding them, and because of the importance of this factor in the learning process, serious efforts are directed towards understanding the factors affecting the learning and education processes, hence the importance of factors and their study in the motivation of learning among students in classroom situations, and the driving field of learning related to school situations has received the attention of a large number of teachers and workers in the field of educational psychology and psyched pedagogical sciences.

The motivation for learning contributes to the flexibility of the learner, a set of qualities that provide individuals with the strength to face obstacles to their lives. Individuals who are flexible have the ability to manage relationships with others, are highly optimistic, active and cooperative, have a desire to love reconnaissance, be vigilant and help others, all of which are characteristics of the individual who is highly motivated, high motivation organizes the efforts of the individual and helps him to focus and get rid of the factors of dispersion, as well as the motivation of the individual To turn work into fun, it becomes a source of happiness if you reach mastery and production. (Ciarrochi, Forgas & Mayer, 2001)

Learners' learning motivation indicators:

Al-Kanani and Kandari (2005, p. 67) refer to some indicators of student motivation, through which learning motivation can be measured:

- **Pay attention to the teacher and other class situation triggers**
- **Starts work immediately and without delay or delay**
- **Requests feedback on his performance of educational tasks**
- **He perseveres in the work or the mission until he accomplishes it.**
- **He continues his work and continues it on his own.**
- **Works to complete the school tasks assigned outside school hours**
- **Interacts in harmony with other students and his teacher**
- **He returns to his duties immediately and by choosing him after any boycott.**
- **Tends to some kind of activity and accepts it.**

Axis II: Modern Teaching Techniques

The organizers of the different curricula seek to develop them in the light of the developments and rapid changes that are continuing in this era, and their main concern has become the search for the best means, and techniques to help them in this field, and technology appears as one of the key elements in this context due to the great role it has become in the process of learning and education.

Innovative technological technologies and innovations have emerged trying to address educational problems with the aim of finding non-traditional solutions, and from technological innovations that have begun to invade educational institutions and universities, and used to develop the educational process and raise its efficiency and increase its effectiveness, are virtual reality and enhanced technologies as well as gel learning, so I will highlight in this study the three techniques.

Holography Holography Holography Technology

One of the achievements of modern science is holography technology, which has a unique feature that enables it to recreate the image of the original objects in their three dimensions with a high degree of accuracy. The word holography is of Greek origin derived from the wordHolos, i.e. (all) and Grapho ,i.e. writing, i.e. full image record or stereoscopic photography. Stereoscopic imaging is mainly different from conventional imaging that recording is not only in the density of light-sensitive matter, but also in a bundle of light waves that collide with the object to be recorded, and the optical waves plan carrying

full information on the three-dimensional layout ofthebody. Stereoscopic imaging depends on the recording and development of the body's wave capacity. It is recorded in a particular board (called hologram) so that if it is exposed to light,the wave source can be reconfigured. Thus, the image is formed in 3D space and not on a sheet of paper like normal photography, and the image displayed is never distinguishable from the original object. And the product of a Holographyprocess called Hologram.

According to the Oxford Dictionary,2014: A 3D image that is formed through the intervention of laser light rays or any coherent source of light or what is known as Holography and close to this concept can be described as a 3D image re-represented by the division of lasers and their reflection on mirrors and lenses. Known as Holograms, the idea of re-enacting body image reflection, using Holographic light, dates back to 1947 when the world(DENIS GABOR) tried to devise a new method of stereoscopic imaging in an attempt to improve the magnification power of electronic microscopy devices. Because the light resources at the time were not coherent (monochrome), they contributed to the delay in the appearance of stereoscopic imaging until the time of the laser's appearance in 1960.

Augmented reality technology:

Through access to educational literature, many of the terms synonyms for extended reality, integrated reality, compact reality, augmented truth can be observed, and the term technology or augmented reality technology has been used as the most commonly used term in Arabic literature.

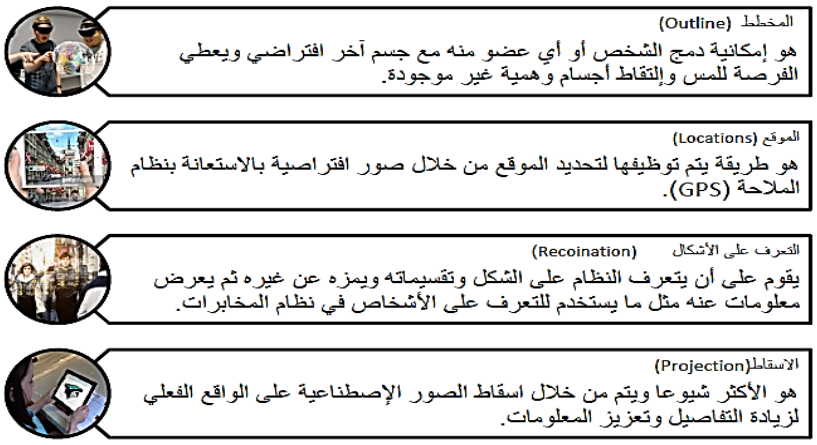
Buchaart, 2013:2,has indicated that it is one of themost important technologies that represents a link between real and virtual reality.

Azuma et al.(Azuma, 2001:34)defined itas: "A system that relies on enhancing user perception and interaction acrossthe real world by strengthening the real world with virtual3Dforms,which help it coexist in the same real information environment.

"It's a technique based on theprinciple of integrating information, or a computerized image with a video through a camera placed in front of the learner, and the results are similar to virtual reality, and every image is taken from real reality," saysYang, Chne & Jeng.

Augmented reality types:

Al-Hussaynia, 2014, listed the types of augmented reality technology as described as follows:



The researchers used the third type, namely, to identify shapes, because of its occasion for the subject of the study and for the content of the science unit, where the learner places the mobile camera on the picture book, showing him different reinforcements either in the form of images, triangular shapes or video ..... etc.

Augmented reality technology properties: (Sakka, et al., 2018)

- A combination of truth and fiction in a real environment
- Interactive in real time when used
- It's 3D.
- Provides the learner with clear and concise information

- The teacher was able to enter and communicate his information and data in an easy way
- Allows smooth interaction between teacher and learner

Virtualreality:

The term virtual reality or virtual reality was first introduced in 1989, virtual reality in its simplest definition is a man-made technological world that is handled through the computer, so that the human being can interact directly with it as he interacts with the real world, and the third dimension plays an important role in virtual reality technology where it allows the vision of 3D outputs as in concrete reality by involving the audio-visual and touch senses to reach a near-proximity experience Actually (Al-Harazi, 2013)

(Virtualreality system components)

Virtual realityconcept:

Asuma, 1997: 365defined**virtual reality as "a synchronous interactive technology that integrates real-world characteristics with the virtual world in a two- or 3D way."**

Zainaldin 2010 definedit **as:"3D programs that simulate reality and the educational environment, which can be seen and interacted with through computer screen and electronic gaming devices, and these programs allow users to interact with each other and share experiences and ideas regardless of where they are."**

Muhammad defines him (2010) as "a simplified definition as the embodiment (imaginative by advanced technological means) of real reality, but it is not real, giving us infinite possibilities for light, extension, sound, sense, vision and emotion disorder as if we were in natural physical reality."

The researchers know virtual reality procedurally**as:** an interactive multi-use environment in which the individual is more interactive with the content, as well as the user participates in the activities presented effectively through the freedom of sailing, touring and interaction with the provision of an industrial feedback to one or more senses that the user feels integrated into the scene.

VR types: (Al-Harazi, 2013)

Virtual reality is a computer-based world, and its entry requires the use of human senses to reach cognitive sense and virtual reality can be achieved through several methods and methods, either by collages of 3D shapes or by representing the tools or materials to be trained or by representing the environment or place to be examined or touring it. The use of virtual reality aims to acquire the ability to predict the accuracy of a particular behavior or system in order to prove its effectiveness, as well as to clarify the shape or characteristics of a specific environment in Different usage conditions and how the functioning of a system can affect individual capabilities within that system, and help to identify different responses and their elements on the performance of individuals at different levels of use. To understand this reality, we must distinguish between the types of virtual reality, or the environments and worlds created by this reality, and there are many classifications of vr types,

the most important of which is the classification of "Tucker", where the types of virtual reality are classified according to the degree of immersion any integration and the presence of the individual with the virtual environment and the ability to interact with all the things available in this environment into three maintypes:

1- Non-immersive virtual reality:

It is one of the most common and used types of low costs and this type depends on the computer and the participant here uses traditional methods

Known, such as using a keyboard, mouse and stick by using 3D interaction devices such as glove or space ball here is the participant's feeling of sinking into the low virtualenvironment.

2- Semi-immersive virtualreality:

The number of participants is grouped into one room and the show is seen on a large screen with curves in each direction and interaction with the environment occurs

Virtualization through a participant, and the rest of the participants are passive observers and the participant wanders through the mouse and keyboard and this type of virtual reality is characterized by the fact that it provides a sense of immersion to a mediumdegree.

-3 Virtual reality:

This type provides first-hand experience through the participant's interaction with the virtual environment and this is achieved by wearing the participant's head helmet with a dual binocular placed on the eyes and the participant feels here that it is located within the virtual environment where the participant feels full immersion and is undersuitable for its high cost and low image accuracy compared to the previous two types. Al-Suwailemy, 2013)

Interactive electronic software:

What distinguishes computers is their ability to produce programs to offer courses aimed at giving students different knowledge and skills, and with the changing role of the student as a researcher of information and not a recipient of it, which requires the need for educational software to contribute to that role in order to achieve the goals set efficiently and effectively, many educational institutions have been interested in the production of educational software, but virtual reality software was the least abundant in the institutions and companies of the design of those software, so the researchers designed This software is used in teaching.

Features of interactive electronicsoftware: (Al-Shamrani, 2004)

1. Providing information in a scientifically structured manner that takes into account individual differences between learners
2. Interacting with the learner by presenting information in a scientific and structured manner that takes into account the individual differences between learners
3. Save time and effort in understanding content
4. Make education interesting by displaying information, images, drawings, sounds and various influences that attract the attention of the learner
5. Creating the opportunity to share the greatest number of senses among the learner

Standards for designing educational VR software:

Zainaldin (2010, 3) noted that when designing educational VR software, the teacher must take into account a number of strategies such as setting goals, duties, electronic discussions, using calendar methods, feedback, training students to connect to the Internet and accessing software to practice educational tasks.

- One of the tasks that the teacher takes into account when designing vr software is to reconcile teaching strategies with the distance learning environment by identifying students'needs.
- Good software design affects students' educational output, so the following seven principles of good software design (Harbeek & Sherman, 2000)must beavailable:

– Simplicity of design

– The software should include an instant feedback with support when needed

- That individual software achieves learning and the contents of the page are graded from easy to hard
- That learning activities through software be linked to life situations
- Activities should include a variety of areas of content
- Non-linear software design to allow the learner the freedom to move within the software
- In this study, the researchers took into account these principles during the design of the virtual reality software, where the software included instant feedback and various activities while allowing the learner the freedom to roam and move within the software withease.
- Studyprocedures:

Communitystudy:

The study community consists of students in the third grade of the basic schools of the Relief Agency in Gaza Province for the academic year 2018-2019.

Samplestudy:

The study sample consisted of twosamples:

1- **Reconnaissance sample:** 40 third-grade female students selected from UNRWA schools for the 2018-2019academic year in a simple random manner, in order to ensure the validity of thestudy tools and then use them to calculate the honesty and stabilityof the drivingmeasure.

2- The sample of the actual study: (40) third-grade studentswere selected in a deliberate way, for the work of the two researchers in theschool.

Curriculum:

The researchers used the semi-experimental approach to the design of the same group with a tribal and lateral test, and the semi-experimental approach is one that examines the effect of one or more independent variables on one or more child variables, and the design in the semi-experimental curriculum is characterized by the fact that it does not require random selection of individuals in the researchsample.

Study tools and**materials:** The researchers describe the tools and materials of the study used, as follows:

First: the educational material and the way it is prepared and applied:

Educational environment (softwareused): The researchers designed an educational environment using Google sites, this environment is based on the formation of learning pages specialized in modern technologies, for example a page for the technology of **reality jelly and contains a set of special videos that can be used in explaining the animal adaptation unit of science material for the third grade, and each student has the field to express opinions and transmit information electronically, and the environment contains a software specific to virtual reality, designed by the researchers using the model of Addie's overall design, this design was chosen** to be characterized by ease, clarity, comprehensiveness and suited to the nature of the study and the clarity of its procedural steps, where the model consists of five stages are(analysis, design, development, application and evaluation),and the study was applied according to the previous steps **as follows:**

- **Analysisphase: The two researchers at this stage took the following steps:**

1- Identifying the characteristics of learners

2- Setting the overall goal of using virtual reality software and enhanced in the development of motivation among students of the third grade basic

3- Identifying the necessary needs such as (360-degree camera, aircraft, VR glasses, Captivate design program)

4- Identifying the areas to be photographed, since the lesson concerns animals, nama zoo has been identified to photograph the animals inside them

- **Design**phase: At this stage, the researchers took the following steps:

1- Formulating educational and procedural objectives

2- Selecting elements of software content

3- Nama Park photographs aerial and ground images with wandering inside

the park and photographing animals 360 degrees

4- Enter 360-degree images into Captivate Adobeandstart processing images

1. 3- Identify the necessary commands and reinforcements to be entered into the software to help learners identify zoo animals such as(information, video, voice, questions, ...)

5- Design calendar questions for the student within the software after the completion of the viewing, and the learner interacts and answers questions, providing feedback by the learner's software.

- **Developmentphase:** At this stage the researchers took the following actions:

1- Producing software based on the scenario that was designed in the previousphase.

2- Export software on the web server to be viewed using VR glasses

3- Experimenting with the educational software to ensure its validity of the application and the actual use of it and developing it by presenting it to a group of arbitrators and taking their opinions.

4- Preparing the action plan through which the technology will be used in teaching science for the third grade basic.

- **Applicationstage:**

At this stage, the experimentation was carried out on a survey sample of (40) female students, and then the actual application of the study sample began as planned in advance, where teaching using technology on the study sample.

- **Calendarstage:**

At this stage, the structural calendar was carried out by collecting observations and consulting experts at all stages of technical preparation of the software, presenting the final design to the arbitrators, and taking advantage of their opinions on the amendment in the stages of preparation andapplication.

- **Second: Scientific material**

The study dealt with the Animal Adaptation Unit for the third grade, where the researchers prepared a guide explaining the programs used in the design of virtual reality software (Adobe Captivate 2019), vsDC 2019andPhotoshop 2019, and another guide to explain how to teachthe animal adaptation unit in science using2or gellearning/ hologram, virtual reality and Z, **the evidence has included:**

- Introduction to the guide includes introducinggel/hologram learning techniques, virtual reality and augmented reality and its features
- Explain the virtual reality software and booster used in the unit
- The time plan for teaching the animal adaptation unit
- Lesson plans and worksheets attached to hologram, virtual and augced reality techniques

Educational materials (videos) were prepared using the montage programs available in this field such as vsDC,and the preparation ofaccompanying activities, as well as 3D images and a unit question bank to be entered into the software, and the programs used in the design of the software can be summarized in table 1.

Table (1): Software used in software design

The name of the program	The job.	Logo
Adobe Captivate Release 2019	For virtual reality and auger software design	
VSDC Version 2019	To design enhanced videos within the software To design and edit videos for jelly learning	

Photoshop version 2019	To edit 3D images, install them within a 360-degree image, and upload them to Captivate 2019	

Procedural steps for thestudy:

1- **Review the literature on study variables, and develop a theoretical framework for the modern techniques used (gellearning/hologram,virtual reality and augmented reality),**and how to take advantage of them**in contemporary educational reality**
2- **Identify the dimensions of motivation for learning using technologies that hologram technology and virtual reality and enhanced will develop amongstudents.**
3- **Design a master's guide on the use of these techniques in teaching science for the third grade basic unit "Adaptation in Animals".**
4- **Preparing the study's measurementtool: the driving measure of learning using techniques**
5- **Applying the driving measure in advance, i.e. before teaching the animal adaptation unit from the science course for the third grade using techniques, and then applying the scale remotely, i.e. after teaching the unit usingtechniques.**
6- **Monitoring and statistically analyzing the results of the application of measuringinstruments.**
7- **Come up with recommendations and make specialproposals.**

Second: The driving measure of learning:

After reading educational literature and previous studies related to the problem of study, and surveying a sample of specialists through interviews, where most of the measures dealing with motivation werefound.

The researchers built the primary driving measure, where the scale is 20 paragraphs, spread over four areas (educationalenvironment stimulus, peer acceptance, motivation for knowledge and learning, self-sufficiency)

Determine the goal of the drivingscale:

The motivational measure aims to measure the level of motivation (educationalenvironment, peer acceptance, motivation for knowledge and learning, self-sufficiency) among female students in the third grade, where female students were taught through an educational unit based on some applications of digital technology in science and life.

Determine the way you respond andcorrect:

Likert method was used to estimate the response of female students, and the Likert method is graded in(3) levels only to facilitate the response of female students, where the scale in its initial form consists of (02) single, and in front of each paragraph there are (3) alternatives (non-OK- neutral- OK) the student chooses one of those alternatives, so that the paragraphs are corrected as follows, as Shown in table (2):

Table (2): Correct the scale

Paragraph	Agree	neutral	I don't agree.
Positive	3	2	1
Negative	1	2	3

The scale can be corrected based on the graded correction scale of (1-3),where it gave each paragraph a graded weight which is as follows:(3) I agree, (2) neutral, (3) I do not agree, and the researchers used a key to correct the vocabulary of the scale after applying it to the reconnaissance sample, where the measure of motivation for learning was corrected among the students of the basic stage in Gaza.

Drafting scaleinstructions:

The researchers gave a simplified idea of the scale and its purpose, presented how to respond, the exact time of the scale, and provided someexamples.

Language audit of items andinstructions:

As far as possible, the researchers tried to select arabic words that were easy and clear, and each phrase was formulated in one behavioral position, and then revised the terms of the scale and revised itlinguistically.

Reconnaissanceexperiment:

The researchers applied the scale to a survey sample of 40 students, to ensure the validity of the instructions for the sample, and estimated the optimal time that takesthe scale with the sample and arrange the paragraphs in a newway.

The sequometry properties of thescale:

To identify the sequometeric characteristics of the driving measure of learning, the researchers verified these characteristics through the tools of honesty and stability of thescale.

The scale istrue:

The researchers codify the vocabulary of the scale in order to make sure that it is true asfollows:

The arbitratorsbelieved:

The researchers presented the measure to a group of 10 arbitrators in the field of study, to express an opinion on the measure in termsof:

1- The extent to which the phrases belong to the procedural definition of the scale.

2- The appropriateness of the phrases and their ability to measure the attribute according to the objective of the scale.

3- The appropriateness of the phrases in terms of language formulation and composition.

After the amendments recommended by the arbitrators, two phrases were reworked, and the number of vocabulary in its final form was (20) single.

Stability of al-Dafayyascale:

The stability of the scale was verified by applying it to a reconnaissance sample of (40) students, and the kronbach alpha coefficient was calculated after its application to the reconnaissance sample where the value of the Kronbach Alpha laboratory for the total score of the scale (0.971),and the stability of thedrive scale was calculated through the half hash using the Spearman Brown equation where the resulting stability factor was equal to (0.986),a high stability factor that reassures the researchers of the possibility of applying the scale to the application of the scale on the Search.

The final image of the motivationalscale:

After presenting the scale to the arbitrators and calculating the honesty and stability of the scale, the number of paragraphs of the scale (20) paragraphs, distributed over four axes, andthe following table shows the field and the number of paragraphs.

Table (3)

Scale areas, number of paragraphs in each area

Domain	Number of paragraphs
Educational environment thrills	3
Peer acceptance	5
Motivation for knowledge and learning	7
Self-sufficiency	5
Total	20

Search implementationmechanism:

The research was carried out in the second semester of 2019-2020,after all the necessary variables were adjusted to carry out the experiment, where the software was applied to the third grade (2),for two weeks by(12) A teaching session, which dealt with the first unit of the book of science and life, and the scale was applied tribally to the actual study sample, and then monitored the results, after which the scale was applied remotely to the same sample, and the results were introduced to compare the tribal results with the remote results and observe the differences.

Statistical methodsused:

The following statistical treatments were used by the two researchers to reach the results of thestudy:

- اختبار "T" Paired Samples Test للكشف عن الفروق لعينتين مرتبطتين.

- ETA box to calculate the magnitude of the impact of the educational η^2 environment based on some digital technology technologies in increasing motivation.

- BlackBerry's earnings factor to see the effectiveness of the educational environment based on some digital technology technologies in increasingmotivation.

Study results

To answer the study questions, the researchers tested the assumptions and the results were asfollows:

The results of the first question and itsdiscussion:

The first questionstates: "What is the overall picture of the **educational environment based on jellies, virtual reality and enhanced reality through which the motivation for learning can be developed? "**

To answer the first question, the researchers designed an educational environment based on gel learning technology, virtual reality and augmented reality, by designing a website that includes all these technologies, including a gel learning angle featuring a set of videos specifically designed to serve this type of technology, and an angle of virtual reality where virtual reality software was designed, and the researchers used the general design model(ADDIE)to produce this software, as described in the study procedures page (17), where the researchers used the general model of design (ADDIE)to produce thissoftware, as described in the study procedures page (17), where the researchers were designed This software was presented to a group of experts in curricula, teaching methods and education technology, to reach its final form, and the last corner of the educational environment includes augmented reality, where the learner is provided with a set of images and paragraphs from the textbook of the Animal Adaptation Unit in the subject of science, so that if the smartphone camera is highlighted a set of reinforcements are shown in the form of sound, video, or images, and the following form shows the general picture of the educational environment.

The results of the second question arediscussed:

The second questionstates: "

Are there statistically significant differences at the indicative level(0.05 ≥ α) between the calculations of the teachers' estimates of the motivation for science learning among basic third-grade students due to the educational environment?

To answer this question, the researchers formulated the following zeroimposition: there are no statistically significant differences atthe level of significance**(0.05 ≥ α)** between the mathematical averages of the two teachers' estimates of the motivation of science learning among **the third-grade students due to the educational environment.**

The researchers used the**Paired Samples Test** to find out the differences between tribal and remote application in the **driving scale** and here is a table **(4)** showing the results of **differences between averages** and the value of**"Z"** in the **tribal and remote measurements of**the research sample in the motivation**scale.**

Table (4)

Paired Samples Test results **for differences between average female students' grades in tribal and distance drive scale applications**

Motivational	Group	Degree of freedom	Arithmetic average	Standard deviation	قيمة(T) Calculated	السيممس الإحتمالية (Sig.)	Statistical significance
Educational environment thrills	Previous	39	1.5833	0.40474	5.435	0.000	Statistical function
	Next	39	2.267	0.51860			
Accept the peers	Previous	39	1.8150	0.7745	4.593	0.00	Statistical function
	Next	39	2.58900	0.36501			
Motivation for knowledge and learning	Previous	39	1.6094	0.67593	3.960	0.000	Statistical function
	Next	39	2.4344	0.64549			
Self-sufficiency	Previous	39	1.6551	0.59352	5.258	0.000	Statistical function
	Next	39	2.6125	0.59483			
Total degree	Previous	39	1.6657	0.58475	4.808	0.000	Statistical function
	Next	39	2.4759	0.51416			

- **The scheduling** value **(T)** at **39** freedom and **at the indication level ()** $\alpha \leq 0.05$ **is equal to 2.021.** $\pm$
- **The scheduling** value **(T)** at **39** freedom and **at the indication level ()** $\alpha \leq 0.01$ **is equal to 2.704.** $\pm$

Table 4 shows that the value(T)calculated at the total score of the scale is **9.729, which is greater than**the t table value**of 1.697 at the 39** freedom score **and the indicative level, indicating statistical differences between the average dimensions** of the tribal and remote driving measure. $\alpha = 0.01$

With regard to the size of the impact of the educational unit based on some digital technology technologies, the researchers calculated the ETA box and the size of the effect η^2 **(d)**through the**following laws (Afana 42:2000):**

Table (5): Shows levels of impact size

Degree of impact	small	Medium	big	Too big.
حجم الأثر(d)	0.2	0.5	0.8	1.0
For ETA Square () η^2	0.01	0.06	0.14	0.20

Table (6)
Impact levels according to ETA box, impact size(d)

Motivational	قيمة(T) Calculated	Eta Box () η^2	حجم الأثر (d)	Degree of impact
Educational environment thrills	5.435	431.	1.741	Too big.
Accept the peers	4.593	351.	1.471	Too big.
Motivation for knowledge and learning	3.960	.287	1.269	Too big.
Self-sufficiency	5.258	415.	1.685	Too big.
Total	4.808	372.	1.534	Too big.

Table 6 notes that the value () is (372.), and the value η^2 **(d)is (1.538), which means that the magnitude of the effect is very large, indicating that the independent variable (the instructional environment based on**

some computer applications) has an impact on the child variable which is the motivation, and the researchers attribute this to:

1- **The extent to which the educational environment is suitable for the age stage of the students in terms of the method of design and presentation.**
2- **The presence of elements that attract the attention of female students within the educational environment.**
3- **Employing techniques that bring female students closer to real reality, making the impact of learning longer.**

Results related to the third question and itsdiscussion:

The third questionstates: "

Is the educational environment based on some digital technology effective at the BlackBerry rate of gain?

To learn about the effectiveness of the educational environment based on some digital technologies, we have calculated the blackberry earning equation as follows:

Table (7)

BlackBerry earnings equation results

الدافعية	المجموعة	المتوسط الحسابي	الدرجة العظمى	معامل الكسب لبلاك
مثيرات البيئة التعليمية	قبلي	١.٥٤١	٣	١.٣
	بعدي	٢.٧٠٨		
تقبل الاقران	قبلي	١.٨١٥	٣	١.٢
	بعدي	٢.٨٤٤		
الدافعية للمعرفة والتعلم	قبلي	١.٤٨٤٣	٣	١.١٤
	بعدي	٢.٦٣٧		
الكفاية الذاتية	قبلي	١.٦١٢٥	٣	١.٨
	بعدي	٢.٨٩		
الدرجة الكلية	قبلي	١.٦١٣	٣	١.٢٢
	بعدي	٢.٧٧١		

From the previous table, we can say that the BlackBerry earnings factor was 1.22, which is very close to (1.2), so we can say that the educational environment is very effective, and the researcher attributes the effectiveness of the high educational environment for a number of reasons, including:

First, taking into account individual differences in the provision of scientific knowledge to female students has contributed significantly to the active participation of female students in the educational process.

Second: the form of the educational environment and its elements of suspense for female students and attract attention.

Third: The appropriate scientific knowledge of the educational environment for third-grade students.

Fourth: Diversity of teaching methods used within the educational environment.

Fifth: The researcher's use of various means within the teaching environment has added an atmosphere of renewal away from the routine prevailing in the usual classes.

Recommendations

1- The need to use the educational environment to develop the motivation for learning among the students of the third grade basic.

2- Interest in education using the latest digital technologies such as virtual reality, augmented reality and gel learning.

3- Holding training courses for teachers to inform them of the latest technologies and software used inteaching.

Proposals:

1- Conducting studies on the effectiveness of electronic educational environments in teaching other subjects for different stages.

2- Conducting a calendar study of the reality of the use of electronic educational environments in schools to teach science.

References:

1. Abu Jadu, Saleh (2000). ***Educational psychology.*** i2,Amman: Al-Serrah Publishing and Distribution House
2. Ahmed, Ibrahim (2005). ***Driving strategies for science and its relationship to the level of intelligence, educational climate and type among high school students,***master's thesis, Mansoura University, Egypt
3. Agha, Mona (2015). ***The effectiveness of virtual reality technology in the development of visual thinking among students***in the ninth grade inGaza. Unpublished Master's Letter, Islamic University, Gaza.
4. Al-Tudari, Awad Hussein(2009). **Education Technology Innovations and Applications,**Assiut University, Cairo: Book House Publishing
5. Touq, Mohiuddin and Qatami, Yusuf and Ades, Abdul Rahman (2002). ***The foundations of educational psychology.*** i2,Damascus: Think Tank for Printing and Publishing
6. Jawawana, Mohammed et al. (2009). The development of an educational unit in light of the principles of global education and its impact on the achievementof students in the eighth grade basic in the subject of history inJordan. Journal of Human Sciences, 7(42), 1-28.
7. Al-Harazi, Shirin (2013). Intellectual and technological dimensions of virtual reality and its effectiveness in painting and photography, ***Journal of Arts and Social Sciences,***Sultan QaboosUniversity, p.19-29
8. Khaled, Beautiful (2008). The impact of using a virtual learning environment in science education on the achievement of ***sixth grade students in UNRWA schools in Nablus governorate,***unpublished master's thesis, National University of Success, Nablus
9. Al-Zuhairi, Talal (B. t). Hologram technology applications and investments in the field of library work, Mustansiriyah University, Iraq.
10. Olives, Hassan (2001). **Teaching Skills "Visionin Teaching Implementation"** Cairo:The World of Books
11. Zainaldin, Mohammed (2010). Building standards for the ***quality of educational VR software and 3D environments. Participation introduction to the first symposium in ICT applications in education and training,***Faculty of Education Department of Education Technologies, King Saud University, Saudi Arabia.
12. Al-Sakka, Mohammed al-Madi, Mohammed, Abadla, et al. (2018). ***The impact of augmented reality technology on the development of scientific concepts among students***of the tenth grade inbiology. Published research, Directorate of Education- Khan Younis.
13. Al-Shamrani, Mohammed (2004). ***The effectiveness of the use of multimedia software in teaching vacuum engineering on achievement and the trend towards vacuum engineering among second-grade high school students,***unpublished master's thesis, Al-Azhar University, Gaza.

14. Abdelhamid, Fatima (2019). The impact of the use of augmented reality technology on the development of self-regulation and achievement skills among first-grade secondary students, ***Arab studies in education and psychology,*** p. 206-228, p. 107
15. Obeid, Mohammed (2018). The ***effectiveness of augmented reality in the development of some skills of students with hearing***with the computer decision in the middle stage and their attitudes towardsit, unpublished master's thesis, University of Banha, Egypt.
16. Alian, Ghosun (2017). The level of awareness of social studies teachers in Saudi Arabia with augmented reality technology programs and applications in the education and learning of their subject, Journal of Scientific Research in ***Education,***Taiba University, P (8), 541-571.
17. Al-Omarji, Jamal al-Din (2017). The effectiveness of using augmented reality technology in teaching history for the first grade of secondary school to develop achievement and historical and motivational thinking skills to learn using techniques in students, ***Specialized International Educational Journal,***6(4), 135-155.
18. Awad, Ahmed (1998). ***Readings in educational psychology.*** i3,Cairo: Renaissance Library.
19. Al-Qahtani, Amal and Al-Mu'ayther, Reem (2016). The extent to which the faculty at Princess Noura University is aware ofhologram technology in distance education, Journal of Arab Studies in Education and Psychology (ASEP), (71), 299-333.
20. Al-Kanani, Mamdouh and Al-Kandari, Ahmed (2005). ***The psychology of learning and teaching***patterns. Kuwait: Al Farah Publishing and Distribution Library
21. Nashwati, Abdul Majid (2003). ***Educational psychology.*** Irbid: Dar al-Furqan
22. **http://tecbytec.ahlamontada.com/t7-topic** Mohammed, Abdullah (2010).

Foreignreferences:

1. Lukin, R. and Stanton, D. (2011). Limitless or pointless? An evaluation of augmented reality technology in the school and home, International Journal of Technology Enhanced learning, 3(5), 510-524.
2. Ciarrochi, J. ; Forgas, P.& Mayer, D. (2001). **Emotional Intelligence In Every Day Life**. NC, Printed By Edwards Brothers.
3. Chen P., Liu X, Cheng W., Huang R., (2017). *A review of using Augmented Reality in Education from 2011 to 2016*. In: popescu E. et al. (eds) Innovations in smart learning lecture Notes in Educational Technology. Springer, Singapore.
4. https://link.springer.com/chapter/10.1007/978-981-10-2419-1_2

Join (1)
Driving measure

I don't agree.	neutral	Agree	Paragraph	Domain
			It's hard for me to pay attention to explaining and following up on the teacher during science class.	Educational environment thrills
			I participate a lot in the activities involved in science.	
			I like to do my science assignments myself without help, to get used to being independent atwork.	
			I'd rather do my science job as part of a group of colleagues.	Peer acceptance
			I'd rather take care of my science degree than anything else.	
			I avoid class positions that hold me responsible.	
			I do everything I'm asked to do in science.	
			I'm soon bored doing my science homework with my colleagues.	
			I enjoy the new ideas I learn in science.	Motivation for knowledge and learning
			I take on the problems and difficulties I face in science.	
			I have a strong desire to inquire about subjects related to science.	
			I ask questions during science class, wanting me to learn everything that's new.	
			I love the hard tasks of science because it's a challenge for me.	
			I sometimes feel indifferent about doing homework.	
			I feel that most of the lessons the teacher offers are exciting and interesting.	
			I'm satisfied when I develop my science information and skills.	Self-sufficiency
			I'm reading to develop my knowledge of science.	
			I'd rather the teacher give us easy questions that don't need to be thought about.	
			I'm happy with my colleagues during the lesson show.	
			I'm satisfied when I develop my science information and skills.	