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THE EFFECT OF PHOTOGRAPHY USING DIGITAL TECHNOLOGY IN DEVELOPING THE FOUNDATIONS OF ARTISTIC WORK AMONG FOURTH GRADE PRIMARY STUDENTS

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Abstract

The current research aims to:

Identifying the effect of digital photography in developing the foundations of the artistic work of fourth grade students.

To investigate the research objective, the researcher formulated the following hypotheses:

- The first hypothesis: There are no statistically significant differences between the mean of the experimental group studied using digital technology and the control group that is taught according to the traditional method at the level of (0,05) in the post-skill test.
- The second hypothesis: There are no statistically significant differences between the mean scores of the experimental group which is taught using digital technology at the level of (0,05) in the tribal and remote skills test.

The current research community may be students of the fourth grade in the General Directorate of Education Baghdad Karkh / 2 academic year (2017-2018).

The sample of the study was from the students of the fourth grade in primary school Muhanad primary.

The most important search results are:

There are statistically significant differences between the mean scores of the experimental group using digital technology and the control group that is taught according to the traditional method in the post-skill test. There were statistically significant differences between the mean of the experimental group scores at (0,05) in the tribal and remote skills test.

Introduction

Art education is one of the most important areas of the educational system, which has an effective function in the formation of the individual's personality and has an important function in relieving emotions, relieving the pressure of school materials, and the various arts. Forms. Art education curricula at the elementary level seek to provide students with broad scientific outputs to develop their artistic skills. The taste that should provide learners with the methods, strategies and methods that qualify them to deal with science and the technologies associated with it to meet the challenges of this era on the one hand, and the interest in developing values to guide science. And its applications for what benefits students and makes progress on the other hand.

Defining Research

Research problem

Some specialists in the field of education have indicated that education is an intended process that aims to prepare the individual for life in society, to contribute to building, advancing and developing society, and we believe that modern education is the process of evaluating the learner in integration. Evaluating the physical, mental and spiritual aspects without preferring one of these aspects (Oliv, 2001: 8). Since art education is an important part of the educational process, we see its importance in the life of the learner as one of the applied aspects of the scientific disciplines that include two aspects (theoretical and applied) as they contribute to raising the levels Innovative thinking for learners who are qualified and qualified for the teaching profession, and on this basis the teaching of modern art seeks to increase interest in providing learners with artistic skills, which are one of the most important areas of education, and among the most important of these skills is art. Education Hat has sought to acquire skills in the art of photography using digital technology and means Modern technology, which reflects its beauty beautifully, and on the other hand it is a pleasure for the learner and the satisfaction of his artistic desires through the use of the above, current research. A problem arose out of the prescribed curricula for teaching art education through the following questions:

Are there weaknesses in the technical skills of digital photography?

What are the reasons for the weakness in implementing technical skills?

Research importance

One of the most important objectives of teaching art education is the development of cognitive and skill skills, as it helps the growth of learners' abilities and their personalities, so acquiring a skill in any specialization in any discipline has an impact on the growth of the learner's personality. The researcher believes that the importance of the current research is summarized in the following points:

1. This research can be used to develop photographic skills in art education, with the aim of preparing and qualifying students for the teaching profession and making use of smart devices in learning a specific skill.
2. Overcoming the difficulties that students face in implementing some art education skills, including the skill of photography, by employing digital technology in the completion of artistic work.

Research goal

The current research aims to identify (the effect of photography using digital technology in developing the foundations of artistic work among fourth-grade students)

The search is assumed

To verify the goal of the research, the researcher put the following null hypotheses:

The first null hypothesis

There are no statistically significant differences between the average scores of the experimental group that study using digital technology, and the control group that is taught by the traditional method at a significance level of (0.05) in the post-skill test.

The second null hypothesis

There were no statistically significant differences between the mean scores of the experimental group that were taught using digital technology at a significance level (0, 0 5) in the post-test.

Research limits the search

The current research is determined by the following:

1. Spatial boundaries: General Directorate of Education in Baghdad Al-Karkh / 2
2. Duration: the second semester of the 2017-2018 academic years.
3. The Human Limit: Students of the fourth grade of elementary school at Al-Muhannad Elementary Mixed School.
4. The objective limit: the foundations of the artwork (colors, lines, sovereignty and rhythm, shape, volume, volume, balance, void, void)

Terminology Definition of terms

First: Photography

Al-Mubarak (1973) defined it as “the arrangement of shapes, the arrangement of each other with each other, and the difference in composition.” (Al-Mubarak, 1973: 14)

Dewey (1963) defined it as: (making something known). (Dewey, 195: 1963)

As for the procedural definition of the researcher, it is (a new formulation of the shape, embodied on the screen, to stimulate the sense of time, place, and movement resulting from the technical technology among fourth-grade students)

Second: digital technology (Laland 2008) defined it as:

A term related to anything that consists of a binary unit cipher system, and usually refers to binary symbol systems in a computer or the representation of databases in binary symbols. (Laland, 2008: 12)

Procedural definition

An organized cognitive process in which ideas are transformed from their sensory world into a physical existence, within a series of database-based computer digital processors, with the help of a digital drawing program, into an achievement that achieves

Foundations of the artwork.

Third: The foundations of the artistic work

Al-Hadithi (1997) defined it as (the elements and foundations that are linked together in order to produce a successful design work). (Hadith, 1997: 20) Al-Husayni (2008) defined it as: (the organizational rings on the basis of which the elements are placed according to which do not take a logical and correct form that serves their purpose). (Al-Husayni, 2008: 66) As for the procedural definition, it is (a series of episodes explaining the technical relationships of any design aimed at success so that it is easy for fourth graders to perceive and understand).

A theoretical framework and previous studies

Theoretical framework

The first topic: photography

The beginnings of photography

Photography began from the moment a person crossed by drawing and fixing colors from nature, such as plant sap and the remains of burnt bones, and the development of photography with the development of man, trends and schools that encourage photography in various shapes and colors appeared, and many great artists appeared such as (Picasso, Monet, Cézanne Da Vinci). And other artists who have embraced and developed art, and put on the basis of that all the laws related to photography, so that art continues from generation to generation. Photography is no longer a transmission and simulation of nature, but the artist now records in his paintings the general influence that he imprinted on himself, as the subjective element began to interfere with the artist's portrayal of nature, as he no longer depicted what others wanted. From him, he even took pictures of what he saw. (Al-Attar 2000: 9)

The meaning of photography

Photography is a term that means creativity and creativity, as this word appeared in the plastic arts clearly, so photography is the organization of colors in some way on a flat surface, and it includes a complex creative activity related to the transformations that occur not. Only in technical drawing, but for the person who performs it, the artist or photographer, must define the goal of photography, which is to transform the elements of place, form, rhythm, color and other components, and photography needs flexibility, great imagination and freedom, and it requires the photographer to test the processes of color creativity and a high ability to form Shapes, designs, and photography introduces the human sense into natural works with some truth and certainty, and not everyone can study photography unless he is qualified for it. To understand it well, because it is a science and it is the only science that can simulate all the actions of nature that are embodied through meditation, thinking and revealing the shapes represented by the sea, plants and plains. (Siwi 50: 2005)

Photography skills

A skill is an acquired ability that includes the completion of work efficiently and with high quality taking into account effort and time, and it has a useful work and this is done by employing information clearly and continuing with training that leads to the result. To acquire and improve the skill, and since photography requires students to have skills that are characterized by accuracy and quality and come through practice, continuous training, and taking notes from the teacher, and that the aspect of the skill is not isolated from the mind and the emotional side, the learning of a specific skill depends on the extent of knowledge of the mental theory of the skill, while the emotional aspect is the extent of the learner's conviction in its performance and then training and training to master it (Al-Aman, 2001: 66) The researcher believes that the skill is related to work and vice versa, and that accuracy and mastery of work is related to the use of technical devices and equipment, and this skill appears when the individual is ready and has the desire to develop it in various fields, especially those related to the arts such as photography, handicrafts, sculpture, etc.

The second topic: digital technology

The importance of digital technology in the educational process

Many technologies have been introduced into the educational process to advance it to better levels, the most important of which is the computer and the integration of digital technology in the educational process. It helps learners, teachers and researchers to achieve their goals regarding aspects of the educational process. Therefore, computers shorten the position required to complete a number of procedures and achieve the desired goal. In practical research and creating a language of dialogue between the learner and the computer. (Ismail, 1997: 185)

The rise of digital arts

The digital arts appeared at the beginning of the nineteenth century, the beginning of the industrial revolution and the departure from the traditional mode of production to digital patterns, so the human hand was replaced by different machines and machines, and there was a huge amount of human labor if dispensed with that, then the emergence of the Industrial Revolution is a sweeping and rapid stage of stages Distinguished by economic development. The use and quality of the machine in production, and was distinguished by a clear difference between the designer and artist of the machine era and his predecessor. (Al-Saeed 4: 1986)

Attributes of digital art

The subject of the artwork: One of the features of contemporary art is that the subject is characterized by freedom, because the choice base widens if the boundaries are reduced.

The method of producing the work: Some works are displayed on special screens or printed on paper or canvases, so that they become just like photographic works, and they may be in the form of 3D.

Artistic direction: that is, the production of artworks from various directions in the diversity of art schools, where the abstract, expressionist and surrealism were compared.

Material: Capabilities created by programmers and artists, which are recorded and saved on different CDs or volumes until printed.

Technological performance: using machines in production by using them in performance. The machines share the role with the artist when carrying out the works, but it goes beyond that as the connoisseur sometimes participates in his dependence on the machine to uncover and interpret the ambiguities of the works.

Color and its degrees: the emergence of computer capabilities that provide a unique opportunity that was not available to any artist or artist, as the opportunity to choose an artist is about 16 million different colors. (Al-Atabani, 1995: 97)

Types of digital art

The first type: digital painting art: The use of the computer as a tool for drawing and this movement taking a new approach to painting is a contemporary transformation of Art Nouveau.

The second type: photo editing: The art of photography is a fine and creative art, and the art of editing photos is a process of enhancements, additions and modifications that may sometimes not be realistic or fictional.

Type 3: Vector Art: This is called vector drawing, it has the advantage of being very accurate, it is often saved in the common format and knowledge of most graphics programs, and its high-resolution features.

Fourth type: pixel art: A group of colored dots arranged precisely to create an image through the computer using programs that deal with images like pixels such as Photoshop, and this kind of art takes a long time and effort.

The Fifth Type: Written Art: This type is less common in design, and the letter is used as a basic design element, and by repeating it in various ways with zoom in and out.

The sixth type: 3D art: The use of three-dimensional shapes in the design or rendering parts of the design and control of the angles of light and shadow, and we often see 3D art in children's films and there are many programs specialized in this art.

The third topic: foundations of artistic work

One of the means that are related to aesthetic and expressive values are the foundations of the artistic work, as it is one of the organizational means that share with the structural elements in bonding relations that contribute to the cohesion of the parts announcing the design unit that is the goal of artistic design, and accordingly the foundations "contribute to the process of organizing and producing the artistic work. Aesthetically, "This is what is based on the philosophy of arts and teaching it according to a scientific approach to reach the degree of creativity and innovation.(Knobler, 1987: 117)So the researcher believes that the work that the

student does from the use of digital technology in the artwork goes beyond the traditional form, by inventing new things and systems in which he uses what he possesses in terms of skill and knowledge.

1-Color: It is the physiological effect resulting from radiation on the retina of the eye, whether it is caused by the pigment material or colored light.

- First: the origin of color It is called (color noun) and it is the name of the color and its origin, as if a white ray of light passes through a glass prism, this ray will dissolve into a group of seven colors (purple, indigo, blue, green, yellow, orange, red). (These light rays travel in straight lines and in the form of light waves, including short and long waves, and the difference in the wavelength is what leads to the difference in the colors of the rays)
- Second: Color value It refers to the brightness of the color or its opacity, and the brightness of the color is affected by the amount of white and black added to it, and from this it is possible to obtain many shades of one color, and the degree of color is also affected by its proximity or distance from the light source.
- Third: Color Saturation It is the purity of the color, that is, the extent of mixing it with neutral colors, which are both white and black, and what is between them of grays (Abd al-Hadi et al., 2008: 86)

2-Fonts

It is a group of successive points, or it is the effect resulting from the movement of the point, and these points form a continuous and dashed line, and among the functions of the line is to divide spaces, define shapes, create movements and divide spaces. The lines have types, some of which express a specific subject such as humans and animals, and some express feelings such as comfort, relaxation and stillness, and what expresses comfort and fear or activity and movement.

3-Sovereignty

It is the control of one of the elements in the design structure over the rest of the elements, which achieves distinction and a difference that is not limited to form only, but includes size, color, theme, texture and idea. The center of sovereignty remains around the artwork and represents the basic nucleus, and it is not necessary for the artwork to have two centers that struggle to attract attention, because that leads to distraction and shattering the unity of the artistic work.

Among the types of sovereignty:

- A. Sovereignty through proximity.
- B. Sovereignty through isolation.
- C. Sovereignty by texture.
- D. Sovereignty through movement.
- E. Sovereignty through sharpness.

4- Shape

A group of consecutive and successive lines, which leads to the formation of a homogeneous space that differs in the appearance of the external borders according to the line composition. The difference in colors may lead to the formation of the shape or the difference in the shades of the same color or the difference in the

texture of the space from what surrounds it, and the shape consists of color, size, texture and background, and the shapes have two types:

- **Geometric shapes** :such as triangles, circle, and square and what is formed from them such as sphere, pyramid and cube.
- **Free forms**:they differ from geometric shapes and are characterized by irregularity and diversity.

5-Size

Size always appears relative, as it is one of the elements of visual language. We compare things according to our sizes, so things appear small or large according to their lineage to us. Volume has length and depth and has no weight, so the artist must pay attention to what the artwork looks like, and look at it from all its aspects.

6- Balance

It is the relationships between weights, and design is an artistic work that conveys consistency, a sense of stability and balance, and it is the feeling that a person must always experience in various fields, and it is considered the backbone of the artistic design process, without it the building of the design unit falls and can be achieved by color, value, shape, direction And the rest of the other elements(Abdelhadi, 118: 2011)

Previous studies previous studies

The first axis: Studies dealing with the concept of photography.

The second axis: Studies dealing with the concept of digital technologies.

The third axis: Studies that dealt with the concept of the foundations of artistic work.

The first axis: Studies dealing with the concept of photography:

1-The study of Muhammad (2013): (The effectiveness of an educational program in developing the skills of nature photography among students of the art education department)

The study aimed to:

1. Designing an educational program to develop the skills of nature photography for students of the Department of Art Education, according to the Kane-and-Bergs model.
2. Knowing the effectiveness of the educational program when applied to the experimental sample.

The researcher developed (6) null hypotheses to verify the goal of the research, and the research community may be from the third stage students - Department of Art Education - College of Basic Education / Al-Mustansiriya University, whose number is (94) male and female students . There are two experimental and control groups, and the researcher designed an educational program according to the Kane and Burj model that included (5) educational units, and 3 types of tests were

designed (visual perception test, achievement test, and skill test measured by the skill performance form.

As for the most important results reached by:

1. The experimental group students outperformed the control group in the post-achievement test.
2. The experimental group students shall present a dimensional visual perception test for the control group students.
3. The experimental group outperformed the control group in terms of skill.

The research recommendations are:

1. Adopting the educational program for research in the relevant educational institutions (colleges and institutes of arts and teacher training) in which the skills of pictorial creation or nature photography are studied.
2. Training art education teachers and teachers working in teaching art education in elementary schools on the skills of nature photography in order to develop the skills of their students in this field.

The second axis: Studies dealing with the concept of digital technologies

Study (Mozaan 2013): (Building a training program based on digital technology to develop the skills of students of the Art Education Department in the subject of planning and colors)

The study aimed to:

1. Building a training program based on digital technology to develop the skills of students of the Art Education Department in the subject of planning and colors.
2. Measuring the effectiveness of the training program by applying it to a sample of first-grade students, Department of Art Education / College of Basic Education, Al-Mustansiriya University.

Study population

The students of the first stage / Department of Art Education / College of Basic Education / Morning Studies are (69) male and female students. The study sample included all community members after excluding (15) male and female students, so that their number reached (54) male and female students distributed evenly over two halls. After analyzing the results statistically, it became clear that the students of the experimental group that studied using digital technology outperformed the students of the control group that studied the traditional method, and the difference was statistically significant at the level of significance (0.05). In light of the results of the study, the researcher recommended the necessity to rely on the method of teaching prepared in the research and which is taught according to digital technology in the subject of planning and colors for students of the Department of Art Education, with the aim of. To prove its effectiveness in developing technical skills.

The third axis: Studies that dealt with the foundations of the artistic work

Shati study (2011): (Development of mental photography by using the elements and foundations of the artistic design of the print product among the students of the Institute of Fine Arts)

The aim of the study: To develop the mental perception among students of the Institute of Fine Arts, using the design elements and foundations of the print product.

- Place of study: the Institute of Fine Arts / Department of Design / Baghdad.
- The study sample :limited sample study (8) Students Boys Design Phase V.
- Duration :academic year 2010- 2011

Study tools :A- The researcher prepared the teaching plans .B- The researcher prepared an objective achievement test that included (multiple choice and completion of the blanks)C- The researcher approved the design of the optional experimental group with the pre and post tests, and they were taught by the researcher.

- Statistical means :T-test.
- Results: The results showed superiority of students in grades posttest after their studies in accordance with the style of mental perception of the development of more than Kanu of it in the test tribal at the level (0.05)

Research methodology and procedures

This chapter includes a presentation of the research procedures used and their methodology, which include the experimental design of the research, the identification and sample of the research population, the statistical parity between the two research groups and the procedures for applying the experiment. Defining the scientific material and behavioral goals, preparing plans and building a research tool.

First: Research method

In order to reach the goal of the current research, the researcher used the experimental method as it is the appropriate method for the research, which aims to study the effect of the independent variable on the dependent variable. Experimental research goes beyond the limits of quantitative description of the phenomenon, and aims to treat certain variables with precise conditions to determine how they occur. Empirical research is not limited. To display past events as in the historical method, but to control and control variables in situations that affect the phenomenon to be studied. (Abdel-Rahman and Wankana, 2007: 474)

Second: Experimental design

The appropriate selection of the experimental design of the research is of great importance as it guarantees the correct structure of the research and reaching reliable results in solving the problem and verifying its hypotheses. (Al-Zobaie et al., 1981: 102)Based on the foregoing, the researcher has adopted the design of random groups (experimental and control) equivalent in some variables and after testing, as the current research aims to know the effect of photography using digital

technology in developing the foundations of art. Fourth grade students work and need two groups, the first is experimental and the other is control. Where the experimental group was studied using digital technology and control in the traditional way, and Table (1) shows that.

Table (1) Design of experimental research

Measuring the dependent variable	Dependent variable	Independent variable	Statistical parity	the group
Skill performance evaluation form	Development of the foundations of artistic work	Using digital technology	-1 Chronological age	Experimental
		traditional way	-2Previous experience	Control

Third: Research Society

Society represents all the vocabulary of the phenomenon that the researcher studies, that is, all the things and individuals that make up the research community, and the current research community consists of students of the fourth grade of primary school in the General Directorate of Education in Baghdad. Al-Karkh / 2 for the academic year (2017-2018).

Fourth: The Research Sample

Usually, researchers resort to choosing one school in the field to conduct the experiment, from which people are chosen from the target group, as it is not possible to adopt random testing of the members of the research sample from the research community directly to distribute it to the experimental. And the control groups for the nature of the educational system that does not allow random selection at the individual level in society, and this is what the researcher did when he chose one school as a field of research, which is (Al-Muhannad) Elementary.

1. The small number of students in the same class in this school, and this is what the photographic skill needs
2. The school principal's desire to cooperate and provide the independent variable for imaging tools such as mobile devices, iPads and computers.

After the researcher identified this school, he chose randomly from the fourth grade of primary school, Division (A), the experimental group, Division (B), and the control group, and the number of students in each of these two groups was (23,22) respectively. The results of the experiment, the number of students in the experimental and control group became (17,15), respectively, in order to facilitate statistical procedures. From the research, the researcher excluded two students from the control group, so that the number of students became (15) in each group, and Table (2) illustrates that.

Table (2): The size of the research sample is divided into the experimental and control groups

Number of students	Division	the group
15	a	Experimental
15	B	Control

Fifth: statistical parity between the experimental and control groups: Statistical equivalence

To ensure that the external variables are controlled, especially since the individuals' choice of the two groups was not random at the level of individuals from the community, but at the level of research for the departments, so the researcher made equivalence in some variables that may have an effect on the dependent variable that is not the independent variable, and these variables are:

1-Chronological age (in months): chronological age

The researcher obtained the chronological age of the ages of the pupils in the experimental and control groups from the school administration Appendix (5), and it was found that the average age of the experimental group is (128,266) months, the standard deviation (7,004) and the average age of the control group (128,533) month and the standard deviation (7,069) and to know the significance of the difference between these two averages using the T-test (t-test), it was found that the difference was not statistically significant at the level of (0.05) where the calculated T value (0.104) was smaller than the value of T Table (2042) and a degree of freedom (28). Table (3) shows that, and this result confirms the parity between the experimental and control groups with the variable of chronological age.

Table 3 (Equation of the research sample in the variable of chronological age

Significance level at (0.05)	T-value		Degree of freedom	standard deviation	SMA	Sample volume	the group
	Tabular	Calculated					
Not statistically significant	2,042	0,104	28	7,004	128,266	15	Experimental
				7,069	128,533	15	Control

2- Previous experience variable: Previous experience

To find out what the students of the experimental and control groups have of previous experiences about the scientific material, the researcher prepared a form for assessing the skill performance that included (10) items for students of the experimental and control groups, an appendix. (4) It was presented to a group of experts specializing in art education and its teaching methods, measurement and evaluation. Appendix (1) Based on their reviews and opinions, some paragraphs were amended and the form included (5) weights. (Scores) for evaluation are (weak, acceptable, medium, good, very good), and after applying the previous experience test on the two research groups, the researcher used the T test (t-test) to find out. The significance of the difference between them, and it became clear that there was no statistically significant difference at the level (0.05) as the calculated T value (0.060) was less than the tabular value of (2000) with a degree. ree of freedom (28), so the two research groups are statistically equal in the variable of previous experience, and Table (4) shows

Table (4)Equivalence of the research sample in the variable of previous experience

Significance level at (0.05)	T-value		Degree of freedom	standard deviation	The has been the center of the arithmetic	Sample volume	Groups
	Tabular	Calculated					
Not statistically significant	2,000	0,060	28	6,0882	22,0667	15	Experimental
				6,1698	21,9333	15	Control

Sixth: Research Requirements

1-Determining the scientific material: Based on the requirements of the experiment and the nature of the current research and the circumstances surrounding it, the researcher decided that the scientific material for the experiment should include (8) topics in the subject of art education on the basis of artistic work in the fourth grade of primary school, and the scientific material was divided into (4) weeks By (2) idea or topic per week.

2-Formulating behavioral goals: A behavioral goal is a sentence or phrase describing the end result of the teaching process. The formulation of the goal in the form of performance that can be measured and observed, and represents the attempt or approach by clarifying the changes that the student sets. Therefore, the process of setting behavioral goals helps in designing the educational program. The process and its transformation into an intended organized process, and thus the accuracy and clarity of the behavioral goals are the two main factors that lead to the student's acquisition of the intended behavior. (Atallah, 2009: 74) Based on the above, the researcher prepared a set of behavioral goals that he extracted according to the cognitive aspect of Bloom's classification and in its third level (application) for each topic because the material or experience included. A skill performance evaluation form that requires the use of certain skills that have been adopted at the level of application and the number of behavioral goals that have been reached in their final form (20) behavioral objectives as in Appendix (2)

3- Preparation of teaching plans: As the current research aims to identify the effect of photography using digital technology compared to the traditional method in art education, which requires preparing two types of teaching plans, the method of teaching using digital technology, and another type of teaching in the traditional way as the planning A lesson is a necessary measure to achieve a quality education that takes into account the nature of the learners. Therefore, the researcher prepared (8) plans for the experimental group and (8) plans for the control group distributed over the study weeks, with two plans for the experimental group and two plans for the control group each week. Teaching Appendix (1) based on their plans, and some plans were modified and agreed upon. It was suitable for teaching and for both groups. Appendix (3) shows a plan using digital technology.

Seventh: Search tool

1-Building the tool: The researcher designed a form for evaluating the skill performance prepared specifically for the purposes of the current research to be used in evaluating the work of students of the experimental and control groups before and after. This model consists of (10) items that include standards for skill performance. A five-point scale and a relative weight are determined consisting of (5) scores, as the final score that the student gets after performing the test excellently is 50 points.

2-Verification of the tool: After completing the paragraphs of the skill performance evaluation form on the subject of foundations of artistic work, the researcher presented it in its initial form to a group of experts and specialists in the field of art education and methods of teaching it. To know the validity of its paragraphs to achieve the goal for which it was set.

Based on their opinions and viewpoints, the wording of some questions and their paragraphs that contain some ambiguity or are not valid linguistically have been modified and became final as in the Appendix (4)

An exploratory sample

The researcher applied some imaging skills on (10) students from the fourth grade of elementary school in (Al-Insam) elementary school, and the results were disassembled into the frequency of each skill using the relative weight equation, where the researcher found that excellent. Performance (5) and very good performance, represented by (4). Good performance was represented by (3), average (2), and weak (1), and students did not show some skills from the questionnaire skills, and through this equation:

$$\text{Performance level} = \frac{S}{N} \times 100$$

Since x = the sum of the performances for one level, (n) = the total sum of the level of performance.

Table (5)The relative importance of photography skills

Relative importance	Weak	Average	good	very good	Excellent	Skill
1,6	5	4	1	*	*	1
1,6	5	2	2	*	*	2
1.7	5	3	2	*	*	3
1,9	5	2	2	1	*	4
1,9	5	3	*	2	*	5
1.7	4	2	3	1	*	6
1,6	5	3	2	*	*	7
1,4	3	3	3	*	1	8
1,9	2	2	4	1	1	9
1,8	3	2	3	1	1	10
	43	26	22	6	3	Total

3-Stability of the tool:To verify the stability of the skill performance evaluation form, the researcher chose a second random sample consisting of (10) students, consisting of (5) students from the experimental group and (5) students from the control group, and the researcher used a second observer from professors who hold higher degrees in the methods of teaching art education After his training and detailed explanation, and using the following equation to calculate the percentage of agreement between the observers

S.

$$\text{Agreement percentage} = \frac{Y + Q}{Y + Q} \times 100$$

Q = Number of times the agreement

Y = number of times variation

A proportion of the agreement between the first observed and the second for the performance of students in the photography skill ,, as the number of times the agreement (80) and the number of times the difference (20) and through the application of the equation obtained a researcher at the rate of agreement of up to , (%80) which is a good stability coefficient, and the table (6) Explain it.

Table (6)Percentage of agreement between observers

percentage	The number of times variation	The number of times the agreement	Renderings	No.
%80	2	8	10	1
%90	1	9	10	2
%70	3	7	10	3

%80	2	8	10	4
%70	3	7	10	5
%90	1	9	10	6
%90	1	9	10	7
%80	2	8	10	8
%70	3	7	10	9
%80	2	8	10	10
%80	20	80	10	Total

Eighth: Procedures for implementing the experiment:

The researcher started applying his experiment to the research sample starting Sunday 25/3/2018, and he took the following procedures:

1-Before applying the experiment

- A. Conduct parity between the two groups of research in the aforementioned variables.
- B. Preparing teaching plans for the two groups and presenting them to a group of experts.

2- Actual application of the experiment:To preserve the integrity of the experimental design and to achieve the objectives of the research and reach the results, the researcher carried out the following actions:

- A. Teaching the two groups of research by the researcher to avoid the difference that may occur when the teacher and his ability differ.
- B. Giving the same amount of the substance to the two groups equally.
- C. Students are not allowed to move between groups during the implementation of the experiment.

Ninth: statistical means

The statistical methods used by the researcher in his procedures or in analyzing the results are:

1. T-test (T-test) for two independent samples.
2. T-test for screwed specimen.
3. Percentage of agreement between observers.
4. Relative weight equation.

Research findings and recommendations

First: Presentation of results: View results

In this chapter, the researcher presents his findings using appropriate statistical means between the experimental and control groups according to the scores they obtained in the skill test, and discusses these results, recommendations and suggestions.

1-The first null hypothesis

There are no statistically significant differences between the average scores of the experimental group that is taught using digital technology, and the control group that is taught in the traditional way in the art education subject at a significance level (0.05) in the post-skill test to test the null hypothesis. The skill test was applied on the two research groups, the arithmetic mean of the experimental group was (31.5333), the standard deviation (79360) and the arithmetic mean of the control group. Group (23,5333) and standard deviation (5,5015) to find out the statistical significance of the differences between the arithmetic mean of the two groups, the researcher used T-test (t-test) for two independent samples, and found that the calculated T value (3209) is greater than the scheduled quantity (2000) At the level of significance (0.05) in the degree of freedom (28). Which indicates the existence of statistically significant differences in favor of students of the experimental group, and Table No. (7) Clarifies that.

Table (7) The T-value is calculated for the differences between the scores of the post-skill test of the students of the two research groups

Significance level at (0.05)	T-value		Degree of freedom	standard deviation	The has been the center of the arithmetic	Sample volume	the group
	Tabular	Calculated					
Statistical function	2,000	3,209	28	7,9360	31,5333	15	Experimental
				015 5,5	23,5333	15	Control

Based on the above, the null hypothesis is rejected and the alternative is accepted, that is, there are statistically significant differences between the average scores of the experimental group that are taught using digital technology, and the control group that is taught according to the traditional method. Method in the subject of foundations of artistic work in art education at the level of significance (0, 05) in the post-test.

2-The second hypothesis

There are no statistically significant differences between the average scores of the experimental group that were taught using digital technology in the art education subject at a significance level (0.05) in the pre and post skill test. To test the null hypothesis, the pre and post test were applied to the experimental group. The arithmetic mean of the post test was (31.5333), the standard deviation (79360) and the arithmetic mean of the pretest (22, 0667) and the standard deviation (6, 0882). The mean difference was (9,466) and standard deviation (5,578). To determine the statistical significance between the two averages, the researcher used the T-test (t-test for a coherent sample, he found that the calculated T value (6,572) was greater than the scheduled amount (1.75) for the test at the level of significance (0.05) and with the degree of freedom (14) that is, there is a significant difference. In favor of the post-test of the experimental group, and Table No. (8) Illustrates that.

Table (8) the value of T is calculated for the differences between the pre and post skill test scores of the experimental group students

Significance level at (0.05)	T-value		Degree of freedom	Standard deviation of the difference	The arithmetic mean of the difference	standard deviation	SMA	Sample volume	the group Experimental
	Tabular	Calculated							
Statistical function	1,75	6,572	14	5,578	9,466	7,9360	31,533 3	15	Post test
						6,0882	22,066 7		The pretest

Accordingly, there are statistically significant differences between the pre and post test scores of the experimental group at a significant level (0.05 levels) in the pre and post test.

Second: Conclusions

And through the researcher's results, it appeared the superiority of the experimental group over the control group.

1. Saving effort and time for the teacher through educational methods and modern techniques in photography instead of being busy explaining the lesson.
2. Breaking the deadlock in the traditional educational process that depends mainly on the teacher, and this leads to more excitement and motivation.
3. Teaching photographic skills in the educational process for the experimental group students helped in raising the efficiency of their skill performance, and this is what appeared in the observation form.
4. The process of interaction provided by digital technology, which increases students' ability to retain information and learn about it scientifically and practically.
5. The use of tools and colors focuses students' attention on the lighting areas, which facilitates their better understanding.

Third: Recommendations

Based on the results of the research, the following recommendations can be formulated:

1. Training teachers in art education in primary schools to apply photographic skills using digital technologies in order to develop their students' skills in this field, which is reflected in visual perceptions.
2. The necessity for art education teachers to pay attention to the skilled side of learning in a coherent and sequential manner to ensure that each educational unit is linked to what follows and precedes it.

3. Creating the material and human capabilities and requirements, such as providing a place for learning and equipping the technical and technical tools, supplies and modern educational aids that help to provide students with the requirements of implementing photographic skills.

Fourth: Suggestions

1. Conducting a similar study using digital technologies in secondary schools and in various school subjects
2. Building a training program using digital technology in developing the skills of middle school students in the subject of planning and colors for art education.

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Appendices

Appendix (1) Names of the experts and arbitrators whom the researcher has hired

Type of counseling			Jurisdiction	Workplace	Name of the expert	No.
C	B	a				
	*	*	Design	Al-Mustansiriya University / College of Basic Education	Prof. Maha Ismail Al-Sheikhly	1
*	*	*	Measure and straighten	Ministry of Education / Office of the Inspector General	Prof. Dr. Kamel Thamer Al-Kubaisi	2
*	*	*	T. Art Education	Al-Mustansiriya University / College of Basic Education	Prof. Dr. Amara Khalil Ibrahim	3
*		*	Pedagogical techniques	Baghdad University / College of Fine Arts	Prof. Dr. Raad Aziz Abdullah	4
*	*	*	T. Art Education.	Al-Mustansiriya University / College of Basic Education.	Prof. Dr. Firas Ali Al-Kinani	5
*	*		T. Art	University of Baghdad / College	Prof.	6

			Education	of Education for Women.	MahaMazenKamel	
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A- Study plans.

B- Observation form.

C - Behavioral goals.

Appendix (2) the opinions of the referees and experts on the validity of the behavioral goals, study plans and the observation form

Notes	Does not fit	Repair	Target level	Behavioral goal	Subject name
			Implementation	Divides the colors into four sections	1. Colors
			Implementation	It shows the similarities and differences between hot and cold colors	
			Implementation	Performs consistent gradation	
			Implementation	Performs contrast gradation	
			Implementation	Apply the colors of far and near shapes	
			Implementation	Employ one of the types of lines in the formation of art	2. Lines
			Implementation	It shows the effects of lines in the artistic formation	
			Implementation	It shows the types of sovereignty	3. Sovereignty and rhythm
			Implementation	It shows the similarities and differences between the types of rhythm	
			Implementation	It extracts how to achieve rhythm in the artwork	
			Implementation	The rhythm is broken down into sub-values	
			Implementation	The figure is used in artistic photography	4. Shape
			Implementation	It shows the similarities between form and matter	

			Implementation	Compare form and content	
			Implementation	Distinguish between types of shapes in the artwork	
			Implementation	Volume is used to create a consistent visual vocabulary	5.Size
			Implementation	Determines the amount of space the volume occupies in a space	
			Implementation	It employs one type of balance in a work of art	6.Balance
			Implementation	Distinguish between real space and non-real space	7.Space
			Implementation	It shows the importance of space in the artwork	8.Space

Appendix (3)

A daily teaching plan template for the experimental group that studies using digital technology

Grade: Fourth elementary day and date:

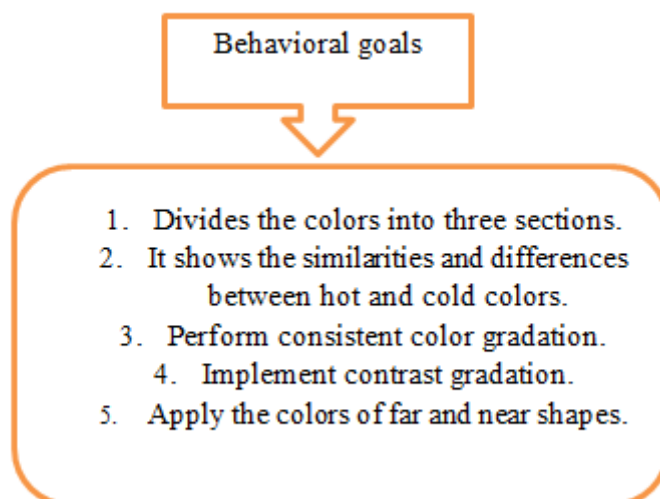
Subject: Art Education

Subject: Colors (Foundations of Artwork)

The theory: (45 minutes)

Special goal: for students to be able to identify the foundations of the artwork (colors)

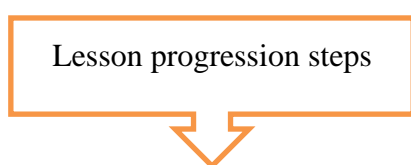
After completing the lesson, the student should be able to:



Teaching aids: iPads, computer, smart board, data show projector

Teaching method: Using digital technology in teaching (iPads, phones, smart boards.)

Introduction (5 minutes)



Article presentation (30 minutes)

Colors play a big role in our daily life and are an essential element in our surrounding environment, because without colors a person cannot interact or live because they constitute the aesthetic value of the components of the environment. Looking at trees and their greenery, the sky and their blue, earth, water and its harmonious colors have become symbols of culture and knowledge.

By looking at the color circle, we find that it consists of a group of colors:

1.Primary (primary) colors:

They are three colors (red, yellow, and blue), which cannot be obtained by mixing two basic colors.

الالوان الاساسية



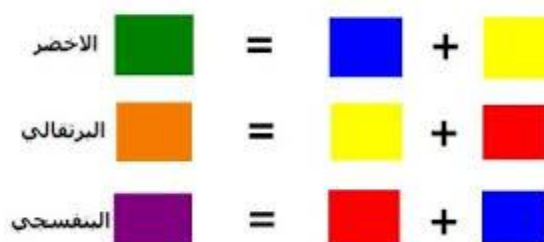
2.Secondary colors: which are produced by mixing two primary colors and they are three colors:

Red + yellow = orange

Red + Blue = Purple

Blue + yellow = green

الالوان الفرعية (الثانوية).



Triangular colors: they are the complementary and corresponding colors of the primary colors in the color circle, which are:

Green _____ Complementary to red

Orange _____ Complementary to blue

Violet _____ Complementary to yellow

Dear students, we are now talking about the types of colors

Colors are of two types:

1.Cold colors: the color of the sky, water and snow, and we feel cold, and include (indigo close to blue - blue - greenish blue - green - bluish violet).



2.Hot colors: the color of the sun and fire, and it makes us feel warm and includes (red - yellow orange - yellowish orange - reddish orange - reddish violet).



Color gamut:

It is a regular increase in the color value from light to dark and vice versa by adding white to the color in varying proportions, as the color gamut is used in the color of the sun, sea, sun, green plains and other landscapes.

Graduation of primary colors Scale of secondary colors

Color contrast:

It is the difference of colors when they are adjacent in the artwork, so this contrast turns into a contradiction if the effect between the two colors is very large.

Calendar: (10 minutes)

Dear students, during our study of the subject of color, answer this simple test through the pictures on the board

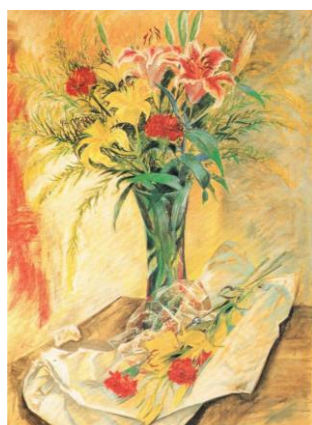
1. Extract the primary, secondary and neutral colors in the images below.



2.between the hot and cold colors in the pictures below:



3. In the picture in front of you is a group of colors required to determine the type of colors used in the implementation process?



Hot colors of colors cool neutral

Appendix (4) Observation form

Notes	Leads skill with a degree					The paragraphs	No.
	Weak	Average	good	very good	Excellent		
						Using the image to illustrate the types of colors	1
						Focuses on hot and cold colors	2
						The image expresses the color gamut	3
						Uses a type of font in the image	4
						The picture includes one of the types of rhythm	5

						The presence of a center of sovereignty in the picture	6
						The use of various artistic forms in photography	7
						The image should express a specific content	8
						The size of the items in the image is consistent	9
						Use the wipers regularly	10

Appendix (5) The age of students is equivalent in months

Control group		Experimental group	
Birthdays	No.	Birthdays	No.
128	1	128	1
128	2	128	2
132	3	128	3
128	4	128	4
132	5	128	5
128	6	128	6
128	7	128	7
108	8	132	8
128	9	144	9
128	10	132	10
128	11	108	11
128	12	128	12
128	13	128	13
132	14	128	14

144	15	128	15
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Extension (6)

Pictures from the post test

