

The effect of an educational program using educational modules with infographic technology on Elementary school skill performance

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Summary of the research

The research aims to identify the impact of an educational program using infographic educational modules on The skill performance of the primary stage through:

1- Building an educational program using educational modules with infographic technology on Elementary school skill performance.

2- Identifying the differences between the mean scores of the research sample for the tribal and remote measures in the level of skill performance.

use The researcher adopted the experimental method, due to its suitability to the nature of the research using one group through the pre-post design of the experimental group. Where the research community included (100) students from Mansoura College International School, Mansoura Educational Administration, and the number of the basic sample for the research was (30) students

and the exploratory sample was (30) students, with a total of (60%) of the research population, in Dakahlia Governorate and registered In the academic year (2021 - 2022 AD).

In light of the research results and procedures, and based on the scientific rooting of the research, the researcher draws the following conclusions:

1. program efficacy The tutorial using Educational modules with infographic technology On the skill performance of the primary stage.

2. There are statistically significant differences between the pre and post measurements of the research sample in the variable tests skill.

3. There is a statistically significant correlation at the statistical significance level (0.05),(0.01), ranged between (0.421: 0.871); which indicates that Skill tests under study With high stability coefficients.

Based on the results of the current study, the researcher recommends the following:

1- Design training programs that can be reused and shared to achieve knowledge economies.

Spreading awareness of the importance of using e-learning in the educational process by the Ministry of Education and universities

key words

The program; Educational modules; Infographic

تأثير برنامج تعليمي باستخدام المديولات التعليمية بتقنية الانفوجرافك على الأداء المهارى للمرحلة الابتدائية

مستخلص البحث

يهدف البحث للتعرف على تأثير برنامج تعليمي باستخدام المديولات التعليمية بتقنية الانفوجرافك على الأداء المهارى للمرحلة الابتدائية وذلك من خلال:

٣- بناء برنامج تعليمي باستخدام المديولات التعليمية بتقنية الانفوجرافك على الأداء المهارى للمرحلة الابتدائية.

٤- التعرف على الفروق بين متوسطات درجات عينة البحث للقياسين القبلي والبعدي في مستوى الأداء المهارى.

استخدمت الباحثة المنهج التجريبي، لملائمة لطبيعة البحث باستخدام المجموعة الواحدة عن طريق التصميم القبلي - البعدي للمجموعة التجريبية؛ حيث اشتمل مجتمع البحث على (١٠٠) تلميذ من مدرسة المنصورة كولدج الدولية بادارة المنصورة التعليمية وبلغ عدد العينة الأساسية للبحث (٣٠) تلميذ والعينه الاستطلاعية (٣٠) تلميذ باجمالى (٦٠)% من مجتمع البحث، بمحافظة الدقهلية والمسجلين بالعام الدراسى (٢٠٢١م - ٢٠٢٢م).

وفي ضوء نتائج البحث يستنتج الباحثة:

- ١- فاعلية برنامج التعليمى باستخدام الموديولات التعليمية بتقنية الانفوجرافيك على الأداء المهارى للمرحلة الابتدائية.
 - ٢- وجود فروق دالة إحصائيًا بين القياسين القبلي والبعدي لعينة البحث في متغير الاختبارات المهارية.
 - ٣- وجود ارتباط ذو دلالة إحصائية وذلك عند مستوى دلالة إحصائية (٠.٠٥)، (٠.٠١)، تراوحت ما بين (٠.٤٢١ : ٠.٨٧١)؛ مما يدل على أن الاختبارات المهارية قيد الدراسة ذات معاملات ثبات عالية. بناء على ما اسفرت عنه نتائج الدراسة الحالية توصى الباحثة بما يلي:
 - ١- تصميم برامج تدريبية يمكن إعادة إستخدامها ومشاركتها بما يحقق اقتصاديات المعرفة.
 - ٢- نشر الوعي بأهمية توظيف التعلم الالكتروني في العملية التعليمية من قبل وزارة التربية والتعليم والجامعات.
- الكلمات المفتاحية:**
برنامج؛ مديولات تعليمية؛ انفوجرافيك.

The effect of an educational program using educational models with infographic technology on Elementary school skill performance

Introduction and research problem:1/1

Modern education aims to achieve the optimal method of learning, and to be suitable for all learners' abilities, as well as taking into account individual differences. Therefore, some new strategies and methods appeared in attempts to achieve individual learning, and small educational units called (Modules) It is a method that falls within the so-called self-learning, where each unit deals with a specific topic, the subjects of the study, and each unit is independent or existing in itself, so that each unit deals with a specific study topic, which in its entirety is a course or a complete curriculum.

Infographic is characterized as one of the new and effective scientific means in presenting information, especially through social networks, in order

to combine simplicity and ease in presenting information and communicating it to learners. It is easy to publish on technological innovations(14).

Morsi (2017) emphasized that the infographic is a national and effective communication tool that empowers learners and provides them with intellectual skills in criticism and analysis, and it is one of the most used methods and methods in education. This is confirmed by Abu Zaid (2016 AD) that the infographic is an innovative and creative way to understand and perceive the content by transforming a specific text into easy shapes, drawings and shapes that facilitate the learner to understand and perceive the lesson with its relations and lead to the activation of both visual and verbal memory (2),(11).

The past ten years have witnessed a huge boom in technological innovations related to the field of education, and the elements of the education system at different levels in many countries have been affected by these innovations. levels of students, and describes to them what suits them of educational materials and guides them(12: 276).

In spite of the continuous interest witnessed by educational institutions in Egypt to introduce educational technology in the educational process, most of the educators have started teaching educational subjects.

(Delello & Mc Whorter(2014 AD) explained Technological innovations in the educational process have many benefits, including attracting learners' attention and stimulating their motivation to learn, interpreting abstract information and accurately representing skills, which was confirmed by Morsi (2017) in the need to pay attention to infographics, as it helps learners understand information in an orderly manner and improve their critical and analytical thinking skills. In addition to developing their educational design skills (2), (20).

(Shala Ghobadi(2013 AD) has been divided The infographic is divided into three styles according to the nature of its presentation, which are (fixed infographic, which is the presentation of illustrated information completely without movement or interaction, and the animated infographic, which is the presentation of the illustrated information in a sequential manner without interaction from the learner, and the interactive infographic is the design of the illustrated information in a way that allows the learner to control and interact with it. Among the studies Which focused on infographics as a new technology and tool within the tools of technological innovations and their role in the educational process **Trountner (2010)**,And the study of Al-Jariwi (2014)(9), (23), (24).

Research problem:

The use of infographics in the educational process helps to improve the brain's ability to absorb, store and process visual stimuli presented to the learner compared to the meanings and expressions that he is exposed to, stressing the mind and limiting the ability to process the information in front of him, which was confirmed by a study **Vanichvasin (2013 AD)** In using infographics as a visual communication tool that enhances understanding and retention of information for the vast majority of learners; In addition, Arab and foreign studies have indicated the impact of technological innovations on students, and then on their results during the educational process in a positive way, such as the study of **Mr. Al-Saeed (2016)**, **Hala Muhammad Abdulaziz (2015)**, **Hayam Abdel-Radi Abu Al-Majd and Lamia Mahmoud Muhammad (2012)**, **Shaima Adel (2009)**, that both the teacher and the learner need modern teaching, methods and means that depend on technology; In order to provide them with support and assistance in the case of new learning and to act as a compensating strategy when any shortcomings in concepts and information occur, as well as to develop the tendency towards the use of educational technology innovations among learners, the preparation of An educational program using educational modules with infographic technology on The skill performance of the primary stage (4), (10), (16), (18), (25).

Through the reference survey References and studies in the Arab environment and as far as the researcher knows; It was inferred on the lack of research related to e-learning, especially in the lesson of physical education, as well as the interest of scientific references in the importance of diversity in teaching the lesson of physical education because of its importance in achieving the best possible results.

Through the researcher's work in a physical education school for the preparatory stage in Mansoura College schools affiliated to the Talkha Educational Administration, and after the outbreak of the Corona virus in the country, and after stopping the educational process and resorting to the use of technological means to complete the educational process and not stop it, the researcher found to use the infographic technique within the lesson.

Based on the foregoing, the need to conduct this research was to identify the The effect of an educational program using educational modules with infographic technology on Elementary school skill performance

research aims:

The research aims to identify the Effect of an educational program using educational modules with infographic technology on Elementary school skill performance.

and that is through:

- 1- Building An educational program using educational modules with infographic technology on Elementary school skill performance.
- 2- Identifying the differences between the mean scores of the research sample for the tribal and remote measures in the level of skill performance.

Research hypotheses:

- 1.effectiveness An educational program using educational modules with infographic technology on Elementary school skill performance.
2. There are statistically significant differences between the mean scores of the research sample for the two pre-measurements in the level of skill performance in favor of the post-measurement

Scientific terms in research:**The program:**

a group of Activities Integrated and designed to achieve a general and specific goal, which is the general outline that was placed earlier on the education and teaching processes at a stage of education, and it summarizes the procedures and topics organized by the school, during a particular subject, which may be a month, six months, or a year. It also includes the educational experiences that must be acquired. The learner is arranged in an order in line with their growth years, needs and special demands. (6)

Educational modules:

It is a self-integrated educational unit that allows the learner to learn individually and independently, through a variety of educational activities, and allows the learner to self-evaluate the results of his learning (12)

Infographic:

A visual representation of information, data and knowledge that allows the presentation of information in a practical and fast manner, by employing many textual elements such as technical or professional information, and graphical information such as maps, signs, special logos, symbols, images and graphics. (13)

Associated Studies:

1- Nadia El-Sawy's study (2007 AD) entitled "Effectiveness of education using an illustrated e-book on the level of sports cultural awareness and skill performance in handball for students of the first cycle of basic education. For students of the first cycle of basic education, the researcher used the experimental method for one group, and the sample of the research was represented in (30) students, and the most important results indicated that the illustrated e-book leads to the development and improvement of cultural awareness of sports and the tendencies and attitudes of students to practice sports activities, and improve skill performance in football hand (15).

2- Study Hani Saeed Abdel Moneim (2008) the effect of the educational module using the computer on the level of performance of some basic skills in football, and the researcher used the experimental method, and the research sample included a number of (30) seventh grade students at Al-Rowad Model School in the United Arab Emirates, and one of the most important Results: There are statistically significant differences between the tribal and remote measurements of the experimental group used for the educational module method in the level of performance of basic skills (under research) in football in favor of the post measurement (18).

3- studyFrye,s(2014 AD)Entitled the effects of interactive e-books on comprehension in reading skill, the study aimed to identify the effect of the interactive features of e-books on comprehension in reading skill; The study used a mixed approach, and the sample consisted of (30) male and female students in a school in the suburbs of New Jersey, and lasted for two years. Read more.(21)

4- The study of El-Sayed and El-Sayed (2016) entitled the effectiveness of using an e-book supported by three-dimensional animation on writing exercises and calling them for the student teacher in the Faculty of Physical Education. With the student teacher, the researchers used the experimental method for two groups, one experimental and the other control, and by means of two measurements (pre—After each group, the sample included 14 students and they were divided into two groups of 7 students each, one experimental and the other a control. 2)

5- Hendawi, o study (2016 AD) With the title of the effectiveness of some variables of designing and displaying electronic books in the achievement and development of motivation towards learning among students of the Education Technology Division, the research aims to identify the effectiveness of mixing the design pattern (flexible - static) for e-books, and the pattern of supporting

the educational content (provided with direct access points to the sources of the book, or Web search engines, and the research sample consisted of (80) students of the fourth year, the Division of Education Technology, at the Faculty of Education, Al-Azhar University, and they were divided into 8 groups.0,5) between the average scores of the students of the group that used the electronic book with a flexible design pattern, and the students of the group that used the electronic book and the static design pattern in the post-measurement on the cognitive achievement test. (22)

Extent of benefit from related studies:

In light of the points of disagreement and agreement indicated by the objectives, procedures and results of the related studies, the researcher concludes the extent of benefit from them in the current research as follows:

- 1- Formulating research objectives and hypotheses in proportion to the problem and the methodology used.
- 2- Determining the appropriate procedures for the research and the steps that lead to achieving its desired objectives.
- 3- To be guided by the results of related studies in the interpretation and discussion of the results of the current research.

Search procedures:

Research Methodology:

The researcher used Experimental method, for convenience to The nature of the research using one group by pre-design - The dimension for the experimental group.

research community:

The search community included disciples Mansoura College International School, Mansoura Educational Administration, Dakahlia Governorate, who are enrolled in the academic year (2021 - 2022 AD)In the sixth grade.

Sample Search:

The research sample (60) from the Sixth grade primary school students, at a rate of (60%) of the research community research on a sample of (30) students at Mansoura College School in Dakahlia Governorate, and the research sample was chosen by stratified random method. Stratified random sample as

well as 30 students as an exploratory sample from the original community and outside the main research sample.

Table (1) The numerical and statistical description of the basic and exploratory research sample

the sample	The school	the total
Basic Research Sample	Mansoura College International Schools	30
survey sample		30
total summation search community		100

Data collection methods and tools:

- 1- Height and weight-age tests.
- 2- computer.
- 3- Data show.
- 4- a ball.
- 5- collars.
- 6- Small cone.
- 7- Rope

The researcher built an educational program Using educational modules with infographic technology The following is an explanation of the procedural steps for its design and its final characterization.

Suggested program design:

The researcher prepared a special program for the physical education lesson for the class sixth grade In preparing the program, the researcher took into account the characteristics of the student (physical, psychological, social, and mental). It also took into account that it should be in accordance with the curriculum of the Ministry of Education for the class sixth grade.

The process of preparing the general framework for the proposed program went through the following steps:

- Determine the general philosophy on which the proposed program is based.
- Determine the general objectives of the proposed program.
- Determine the procedural objectives of the proposed program.
- Determine the content of the proposed program.

- Determining the ways and methods of implementing the proposed program.
- Choosing the appropriate activities for the program.
- Adjust the program and its units to ensure its validity.

The aim of the program:

Learn about the effectiveness of the program Teaching using educational modules with infographic technology on Elementary school skill performance and that is through:

1. Positive participation of the students in the program.
2. Activities are appropriate to the current level of performance of the participated students.
3. Modification of the content of the program activities in line with the students.
4. The program level provides opportunities to gain experience of the success of the students.
5. Diversity of program activities so as to stimulate the motivation of the students to work in it with the availability of security and safety factors.

Program foundations:

- When developing the program, the researcher took into account the following principles:
- That the content fits the objectives of the program.
- Take into account the characteristics of the students.
- The program should be at the level of the capabilities of the students.
- Take into account the individual differences between the students.
- Taking into account the provision of the appropriate location and capabilities to implement the program, while paying attention to security factors in order to ensure the safety of the students.
- Observe the principle of gradation from easy to difficult and from simple to complex.
- Taking into account that it achieves a sense of suspense and pleasure.
- That the contents of the program challenge the capabilities of the students Including to stimulate their motivation to achieve educational return.
- Taking into account the satisfaction of the need of the students of movement and activity.

- The program should be characterized by simplicity and diversity. - Taking into account the provision of security and safety factors.

Suggested program content:

The content of the proposed program consists of a set of mathematical skills and activities of Basketball skills, which Aiming to develop Performance of game-specific skills (passing, dribbling, shooting)

Building the content of the program, the researcher followed the following steps:

- Reviewing some Arab and foreign references, books and previous studies that dealt with physical education programs and serve the public Technological innovations.
- Determine the characteristics of the growth of pupils at this stage.
- The researcher did Prepare a cognitive scale from During a physical education lesson.
- The use of sports tools and alternative tools that help to enrich the cognitive, emotional and skill side of these Activities, to stimulate the students performance.
- Write each exercise in scientific writing, accurate, clear, and easy to implement.

The following is an explanation of the lesson content within the program:

Preparation part for the physical education lesson:

The importance of practicing sports activity, whether at home or outside, is recognized and some healthy habits are discussed before exercising, and then some light sports activities are done.

In the warm-up part

In this part, the general goal of the lesson is translated into a variety of sports activities that achieve the goal from the parts of the lesson, where the introductory part includes activities simple To prepare the body for activity and prepare the muscles for the required work included Species different from warm up is shared by students.

In the physical preparation part:

In it, a set of exercises for the skill of the main part of the lesson is practiced in the form of stations using Tools and without using Tools To be shared with Active participation of students.

- In the main part:

The main part is based on different motor activities and skills Techniques Different teaching that includes the interaction of the students and use of infographic technique.

- In the concluding part:

They are activities that are intended to return students to their physical and psychological condition so that they can continue their school day while they are in their best state of vitality, activity and pleasure.

Program implementation time:

The researcher set (9) lessons, One lesson per week, knowing that the time of one educational lesson is estimated at (90) ninety minutes (period), where the time distribution of the proposed program content was as follows:

- number of weeks (9) weeks.
- number of lessons (9) Lessons.
- Number of lessons per week (1) lessons.
- Application time per lesson(90) Ninety minutes.

The program was presented to a group of physical education experts to express their views on the suitability of this program for the age group under study, the extent to which it achieved the objectives of the research and the suitability of the tools and hardware suitability of skills and games For the study, the experts expressed their approval of this program and its suitability for this age group, and some modifications were made in the contents of the program in its final form ready for application..

Table (2): honesty coefficient For the skill tests under investigation

(n1= n2=30)

M	The test	Featured group		Unfeatured group		T value	possibility Sig. (p.value)
		s	±	s	±		
1	Swipe test	25.70	1.66	9.652	0.000	9.652	0.000
2	Free throw test score	13.33	1.06	16,476	0.000	16,476	0.000
3	Shooting test on the basket from the front	19.60	1.58	11,368	0.000	11,368	0.000
4	Speed test for passing the ball on the wall	21.56	1.59	15,455	0.000	15,455	0.000
5	Scrolling speed test	22.10	2.09	11,302	0.000	11,302	0.000

6	Ball dribbling test	20.20	1.60	11.00	0.000	11.00	0.000
7	Peaceful shooting test	20.90	1.93	15.612	0.000	15.612	0.000

* Tabular (T) value At the level of significance (0.05) = (2.045)

** at (0.01) = (2.756)

It is clear from Table (2) There are statistically significant differences between the grades of the privileged group and the grades of the undistinguished group, as the calculated (T) value is higher of its tabular value At the statistical significance level (0.05), (0.01); which indicates that Proficiency tests in progress honest And the Distinguish between the different levels.

stability skill tests:

The test reliability coefficient was found by applying and re-applying the Test - Retest, with a time difference of fifteen days between the first and second application, on a sample of ten players who did not participate in the research sample (the pilot study sample). The test was applied and reapplied under the same conditions and with the same instructions to find the correlation coefficient between the two applications.

Table (3):Labs The stability for the skill tests under investigation

(n=30)							
M	the test	first application		second app		correlation coefficient	possibility Sig. (p.value)
		s	±	s	±		
1	Swipe test	30.20	1.93	30.40	1.56	0.480	0.018
2	Free throw test score	9.06	1.08	9.36	1.06	0.599	0.009
3	Shooting test on the basket from the front	14.56	1.83	14.93	1.72	0.816	0.00
4	Speed test for passing the ball on the wall	30.53	2.75	30.36	2.63	0.551	0.009
5	Scrolling speed	31.93	2.21	32.26	1.74	0.629	0.001

	test						
6	Ball dribbling test	16.00	1.33	15.90	1.49	0.871	0.000
7	Peaceful shooting test	14.50	1.13	14.20	1.06	0.0421	0.021

* Tabular (t) value At the level of significance (0.05) = (0.361)

** at (0.01) = (0.463)

It is clear from Table (3) There is a statistically significant correlation at the statistical significance level (0.05),(0.01), ranged between (0.421: 0.871); which indicates that Skill tests under study With high stability coefficients,

This supports the results that It can be obtained from the application skill tests.

Statistical manipulations:

the researcher Used The following statistical transactions:

correlation coefficient, T test.

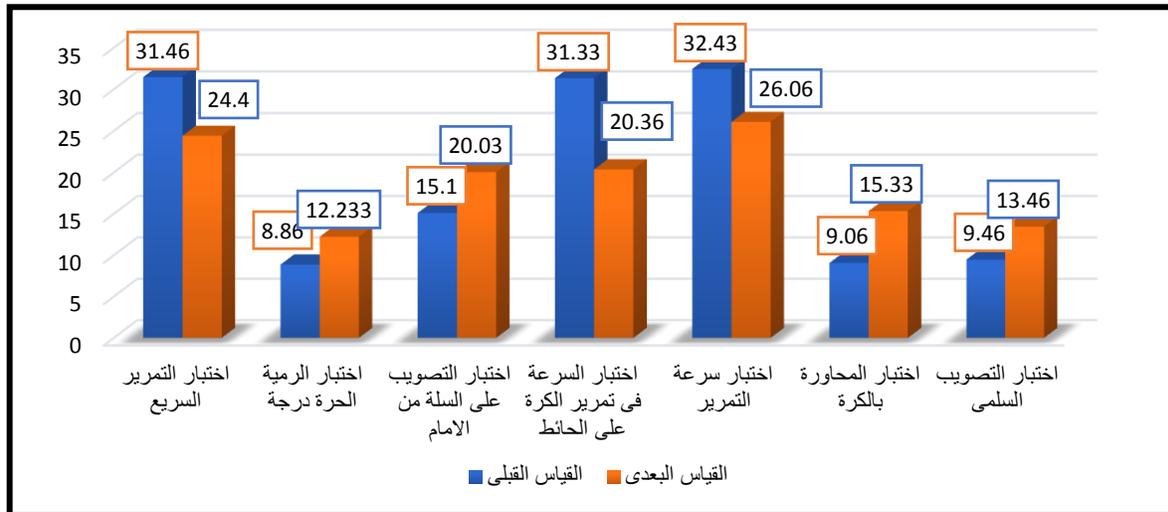
Presentation and discussion of search results:

Or not: Effectiveness of an educational program Using educational modules with infographic technology on Elementary school skill performance

**Table (4) The significance of the differences between the two measurements tribal
 And the dimension of the research sample in skill tests**

(n=30)

measure / axles	measuring unit	measurement dimensional		Tribal measurement		modified the change %	T value	possibility Sig. (p.value)	
		±	s	±	s				
1	Swipe test	w	1.10	24.40	1.47	31.46	-22.44	21.28	0.000
2	Free throw test score	Degree	1.79	12,233	1.00	8.86	38.07	9.78	0.000
3	Shooting test on the basket from the front	Degree	1.67	20.03	1.58	15.10	32.56	11.23	0.000
4	Speed test for passing the ball on the wall	w	2.88	20.36	2.05	31.33	-35.01	17.16	0.000
5	Scrolling speed test	w	2.69	26.06	1.73	32.43	-19.64	8.86	0.000
6	Ball dribbling test	Degree	1.68	15.33	0.868	9.06	69.21	19.07	0.000
7	Swipe test	w	1.10	24.40	1.47	31.46			



appearance (1): the significance of the differences between the pre and post measurements in the research sample in a variable skill tests

It is clear from Table (4) and Figure (1). There are statistically significant differences between the two measurements tribal And the distance to The research sample in skill tests in favor of the measurement dimensional; Where the calculated value of (T) ranged between (8.86,19.07), And that at the level of statistical significance (0.05), (0.01).

The researcher attributes these results To use the program infographic technology and benefit from it in presenting the knowledge and information related to basketball skills from historical development, technical and educational aspects, technical errors and ways to correct them, exercises in an attractive form of images and animations, and providing feedback through the educational program that was used on the research sample and the content of the media Contributed to the development of self-learning and purposeful scientific thinking, stimulating the senses of the learner and the progress of the educational process according to the desire, speed and ability of the learners, which increases the enthusiasm in the hearts of the learners and the speed of their learning of the basketball skills in question.

This is consistent with what Nadia Al-Sawy (2007) indicated to the importance of using educational communication media and technological innovations such as educational games and educational programs as aids in the teaching and learning process and the diversity of areas of expertise for the learner, which in turn leads to increasing lifelong learning opportunities, reducing the learner's effort and increasing the impact of the learner's impact. Teaching and learning the largest possible number in the least time and effort,

as well as improving the performance of learners through their interaction with educational devices and materials (15: 116)

This is consistent with what Salah Abu Zeid (2016) indicated that the proposed program using some infographic technology helps motivate the learner to exert effort in learning and not feel bored and provide students with a great deal of nutrition to correct mistakes (11: 83).

The researcher attributes the group's improvement in dimensional measurement to the use of educational modules with infographic technology, which led to attracting students' interest and helped them to realize the kinetic skills in an easy, clear and direct manner by engaging all the senses of students simultaneously, and also worked to arouse the interest of the emerging student and push him to more Exerting the effort and thus positively participating students in the learning process and taking into account individual differences among students, and contributed to the presence of feedback for students in more than one source, which improved the learning process perfectly and increased their motivation and attitudes towards learning the sport of basketball.

It is clear from all of the above that the infographic has a significant impact on improving the skill level of the research sample, as well as the existence of a development that appeared in the dimensional measurement, and this is considered logical.

Thus, the validity of the research hypothesis that says there are statistically significant differences between the pre and post measurements in improving the skill level of students becomes clear.

Research conclusions and recommendations:

Research conclusions:

In light of the research results and procedures, and based on the scientific rooting of the research, the researcher draws the following conclusions:

- 1- program efficacy The tutorial using Educational modules with infographic technology On the skill performance of the primary stage.
- 2- There are statistically significant differences between the pre and post measurements of the research sample in the variable tests skill.
- 3- There is a statistically significant correlation at the statistical significance level (0.05),(0.01), ranged between (0.421: 0.871); which indicates that Skill tests under study With high stability coefficients.

Search recommendations:

In light of the conclusions of the research and based on the scientific rooting of the research, the researcher recommends the following:

Based on the results of the current study, the researcher recommends the following:

- 1- Design training programs that can be reused and shared to achieve knowledge economies.
- 2- Spreading awareness of the importance of using e-learning in the educational process by the Ministry of Education and universities.
- 3- Holding training courses for male and female teachers and faculty members on how to employ technological innovations in the educational process.

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