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Original Article

Title:

The effectiveness of virtual reality technologies on the level of teaching skills for students of the Faculty of Physical Education Sadat City University

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Abstract

Through the researcher teaching the practical side of the physical education lesson (internal practical education course), he noticed that the level of student implementation of the physical education lesson does not rise to the performance it should be, despite the time and effort spent in the education process in the traditional way followed from many years of Explanation and display of a model, and on the other hand ... the researcher saw the idea of making effective some modern teaching techniques by using interactive learning at the level of teaching skills for students of the Faculty of Physical Education based on the interaction between the student and the presented means consisting of pictures, video, graphics, sound, text, movement and music, instead of From the direct method of education based on the method of orders between the teacher and the learner.

Keywords :

: virtual reality, teaching skills, Physical Education, technology

Introduction and research problem:
In the past few years, the information revolution created a big gap between the slow development of educational programs and the massive and rapid progress in information containers and methods of dissemination. Access to information became faster, easier, and more interesting than the devices and containers available outside educational institutions. Rather, education thanks to this advanced technology has become more available at home. And the office is one of the regular educational institutions, Ivan Illich and Everett Reimer predicted since 1971 that the individual can learn any skill he wants without the need to go to school and called for the

importance of establishing learning resources and networks instead of establishing schools (32: 54).

It seems that information is developing more rapidly than education and formal education, and according to Moore's law, information doubles in each computer chip approximately every two years in the late nineties, while educational and educational systems remain slow in development, lagging behind the application of electronic information technologies and learning technologies (65: 33).

Calls began to escalate and call for the importance of benefiting from information technology in the educational field as it was used in other fields, and that the educational system should not remain ignoring these developments. Research into its importance for work is no longer a focus for those conspiring to keep it or exclude it, as this is an issue that was resolved long ago... Today is a day to possess it and not a day to study the possibility of using it or not. Today is a day to plant it in the heart of every learner and in the mind of every student, not only to use it, but to cultivate it in his life for the survival of his society and the honor of his nation!? Only here can it be said that the new generation has the opportunity to enter that gate, the gate of the future (10:82).

Many seminars and conferences were held calling for the introduction of information technology in the educational system as a whole as one of the main goals of comprehensive educational reform. And some future visions consider that technology is not just the introduction or use of modern devices in education, but rather a means to provide education in a comprehensive manner in order to achieve greater effectiveness of the available resources through the employment of scientific and technological knowledge in this regard, but rather that the introduction of these tools and equipment should be part of Total change and comprehensive renewal in the educational process and in the educational structure (14:95).

It is believed that in the near future, a process of radical reshaping of the structure of the educational system, especially the university, will take place. Lessons and lectures will bring about major changes in the current educational system systems, where the professor will be able to work within a space in which there are no borders and the only link between the professor and the student will be the computer and its accessories of multimedia and e-mail. And that learning will be accessible to the learner at any time he wants, in the place he wants, in the way he chooses, and at the speed that suits his abilities. (13:67)

Recently, the perception of the teaching process has changed, and the student has become the focus of that process. Therefore, the interest of educators in using different methods and methods has increased in proportion to the student, his characteristics, and his abilities. Self-learning methods have appeared, in which the learner goes through various educational situations motivated by himself and

according to his inclinations to acquire information and skills. And trends, which leads to a shift in the focus of attention from the teacher to the learner. (4:2)
Self-learning emphasizes the individual within the educational situation; to acquire knowledge and skills in accordance with his own speed and capabilities, and interest in self-learning has increased recently as a result of numerous educational and psychological researches, which focused on the need for the student to be the center of effectiveness in the educational activity instead of the teacher, and to learn by himself according to his abilities, interests and inclinations, while the role of Guidance and counseling teacher. (2:28)
And through the researcher teaching the practical side of the physical education lesson (internal practical education course), he noticed that the level of student implementation of the physical education lesson does not rise to the performance it should be, despite the time and effort spent in the education process in the traditional way followed from many years of Explanation and display of a model, and on the other hand ... the researcher saw the idea of making effective some modern teaching techniques by using interactive learning at the level of teaching skills for students of the Faculty of Physical Education based on the interaction between the student and the presented means consisting of pictures, video, graphics, sound, text, movement and music, instead of From the direct method of education based on the method of orders between the teacher and the learner.
Second: Research objective:
This research aims to identify the impact of virtual reality technologies using interactive learning on the level of teaching skills of students of the Faculty of Physical Education.
Third: Research Hypotheses:
- There are statistically significant differences between the means of the pre and post measurements of the experimental group in the level of (teaching skills) in favor of the post measurement.
- There are statistically significant differences between the means of the pre and post measurements of the control group in the level of (teaching skills) in favor of the post measurement.
- There are statistically significant differences between the averages of the two-dimensional measurements of the control and experimental groups in the level of (teaching skills) in favor of the post-measurement of the experimental group.
Fourth: search terms:
Virtual Reality
In the virtual classroom, where the student, while in his place and with certain electronic equipment, can communicate with the teacher regardless of the distance

that separates them, and the virtual classroom can be made a two-way educational mediation with image and sound given (: 12).

Search procedures

First: Research Methodology:

To achieve the aim of the research and its hypotheses, the researcher used the experimental approach due to its suitability to the nature of the research by using the experimental design of two groups (an experimental group and a control group).

Second: Research Community and Sample:

The research community is represented by the students of the second year at the Faculty of Physical Education in Sadat - University of Sadat City for the year 2020/2021 AD, and their number is (400) students. % of the total research community, they were randomly divided into two groups "experimental and control" by (180) students for each group as follows:

- The experimental group: which follows the virtual reality method.
- The control group: which follows the traditional method of teaching (explanation and presentation).

The size of the sample of the exploratory study was (40) students (outside the actual “core” sample) for their use in calculating scientific transactions to test the level of mental abilities (intelligence), and experimenting with virtual reality techniques.

Thus, the total sample size of the basic and exploratory study was (400) students from the second year, representing 100% of the total research community.

The following table shows the division of the research sample (basic and exploratory):

Schedule (1)

Divide the basic and exploratory research sample

Percentage		Number	Research groups	the sample
90%	45%	180	experimental group	the basic
	45%	180	the control group	
10%		40		Reconnaissance
100%		400	Total	

It is clear from Table (1) that the total core sample amounted to (400) students

Third: Data collection methods:

- personal interview:

The personal interview took place with some physical education experts who are professors of curricula and teaching methods in the faculties of physical education from universities (Sadat City, Helwan, Menoufia). Accessory (1)

Content and documentation analysis:

By looking at the following:
• Associated studies, scientific research, scientific production and conferences.
• Scientific references (Arabic and foreign) related to the subject of the research.
- Data registration form: (designed by the researcher) (Annex 2)
The researcher designed forms to record the data of the research sample individuals in terms of (name - age - degree of intelligence - teaching skills).
Tools and devices used:
The researcher used the following when conducting the research steps: (computers, computer CDs for the experimental group, a video camera, and the tools that are used in the physical education lesson (a stick, a ball, hoops, cones, a Swedish seat, etc.).
- Testing the level of mental abilities: (intelligence) (Annex 3)
The verbal intelligence test was used for the secondary and university levels, which was prepared by "Jaber Abdel-Hamid Jaber, Mahmoud Ahmed Omar" (2007).
Scientific transactions for the test:
To ensure the suitability of the test for the research community, the researcher applied the test to the sample of the pilot study (PAT) as shown in Tables (3, 4).
• Honesty:
The researcher used the validity of differentiation by the terminal comparison method between the upper quartile and the lower quartile for one group, as shown in Table (3):

Schedule (2)
Significance of the differences between the upper and lower quartile of the intelligence test n = 20

The calculated "t" value	The difference between the two averages	lower spring 25% n2= 10		top spring 25%rd n1= 10		variants
		st d	x	st d	X	
3.59*	5.42	1.74	45.56	1.95	90.98	IQ test

Tabular "v" at (0.05) = 2.10
stability:
The test stability coefficient was calculated by applying and re-application of the test on the survey sample, and the interval between the two applications was 7 days, as the first application was on 9/23/2021 AD, then the test was re-tested on 9/30/2021 AD, as shown in the table (3):

Schedule (3)
Reliability correlation coefficient between the first and second application of intelligence test n = 40

correlation coefficient	The second application		The first application		variants
	±st d	x	±st d	x	
0.932*	1.92	86.96	1.89	86.05	IQ test

Tabular t at (0.05) = 0.325

It is evident from Table (3) that the computed "r" value is greater than the tabular "r", which indicates a correlation between the first and second applications, and thus the stability of the test.

Teaching skills evaluation form: (Annex 5)

The researcher designed a questionnaire for assessing teaching skills in order to identify the level (measurement) of teaching skills among the students of the basic study sample, before and after implementing the program.

The researcher followed the following steps when designing the teaching skills questionnaire:

1- Determine the purpose of the form:

2- Analyzing the academic content:

3- Determine teaching skills:

And after reviewing the aforementioned research, studies and scientific references, the number (10) teaching skills was counted, as shown in the following table:

Schedule (4)

Teaching skills that have been counted from research, studies and scientific references

Teaching skills	م
Goal setting skill	1
esson planning and preparation skill	2
The skill of preparing and preparing the place for the	3
The skill of presenting and presenting the lesson	4
Lesson continuity skill	5
The skill of diversifying stimuli and stimulating learning	6
The skill of using teaching aids	7
Class management skill and system control	8
Calendar skill	9
The skill of teaching methods and methods	10

4- Drafting the form’s vocabulary:

table (5)

The number of phrases of the teaching skills questionnaire

number of phrases	Teaching skills	م
5	Goal setting skill	1
7	lesson planning and preparation skill	2

number of phrases	Teaching skills	م
4	The skill of preparing and preparing the place for the lesson	3
20	The skill of presenting and presenting the lesson (executing the lesson)	4
4	Lesson continuity skill	5
6	The skill of diversifying stimuli and stimulating learning	6
6	The skill of using teaching aids	7
7	Class management skill and system control	8
7	Calendar skill	9
4	The skill of teaching methods and methods	10
70 phrases	Total	

5- Determine the evaluation scale:
The evaluation included a quadruple rating scale, as shown in the following table:

Schedule (6)
evaluation scale

Degree	Evaluation	م
3	The ferry is highly available	1
2	The phrase is moderately available	2
1	The phrase is sparsely available	3
0	The gateway is not available	4

It is clear from Table (6) that the assessment scale contained four levels with degrees (3, 2, 1, 0).
6- Preparing the form instructions:
The researcher prepared the instructions for the teaching skills form so that they are simple and clear to the “evaluation” arbitration committee. The form also included the data of the students, which the arbitrator will fill out in terms of (name - division - division - academic year).
7- The initial “first” image of the (experts) form:
After the researcher reached the axes of the teaching skills form and put the phrases for each axis, which amounted to (70) phrases, the researcher presented the form in its initial form (Appendix 5) to (10) experts in the faculties of Physical Education (Appendix 1) in order to express an opinion on the appropriateness of the suggested phrases below each Axis, reformulating any statement of the questionnaire, adding whatever phrases they deem appropriate, deleting what they

deem inappropriate, the appropriateness of the type of evaluation (estimation scale) included in the questionnaire, the clarity of the questionnaire instructions).

8- A copy of the questionnaire after polling the experts:

The researcher found the second picture of the teaching skills assessment form (Annex 6,Table 9), where the questionnaire in its second form (after polling experts) included (70) statements.

Schedule (7)

Description of the teaching skills questionnaire in its second form after a survey of experts

number of	Teaching skills	م
5	Goal setting skill	**1**
7	lesson planning and preparation skill	**2**
4	The skill of preparing and preparing the place for the lesson	**3**
19	The skill of presenting and presenting the lesson (executing the	**4**
4	Lesson continuity skill	**5**
6	The skill of diversifying stimuli and stimulating learning	**6**
6	The skill of using teaching aids	**7**
7	Class management skill and system control	**8**
7	Calendar skill	**9**
5	The skill of teaching methods and methods	**10**
70 phrases	**Total**	

It is clear from Table (7) that the total number of statements after polling the experts reached (70) statements, which is the form of the questionnaire that was applied to the survey sample.

9- Scientific Transactions Calculation of the Form:

The researcher calculated the scientific coefficients of the teaching skills questionnaire as follows:

Schedule (8)

Correlation coefficient of the validity of the internal consistency between each statement and the group of the axis to which it belongs

n = 40, number of statements = 70

correlation coefficient	phrase number	correlation coefficient	phrase number	correlation coefficient	phrase number	correlation coefficient	phrase number
0.728	55	0.642	37	0.647	19	0.684	**1**

correlation coefficient	phrase number	correlation coefficient	phrase number	correlation coefficient	phrase number	correlation coefficient	phrase number
0.745	56	0.673	38	0.695	20	0.631	**2**
0.839	57	0.731	39	0.642	21	0.642	**3**
0.698	58	0.647	40	0.684	22	0.673	**4**
0.816	59	0.694	41	0.631	23	0.731	**5**
0.765	60	0.478	42	0.642	24	0.791	**6**
0.587	61	0.619	43	0.673	25	0.843	**7**
0.689	62	0.486	44	0.731	26	0.674	**8**
0.574	63	0.795	45	0.647	27	0.682	**9**
0.694	64	0.854	46	0.695	28	0.624	**10**
0.478	65	0.694	47	0.642	29	0.843	**11**
0.619	66	0.642	48	0.684	30	0.566	**12**
0.486	67	0.673	49	0.631	31	0.495	**13**
0.795	68	0.731	50	0.642	32	0.812	**14**
0.584	69	0.674	51	0.673	33	0.684	**15**
0.564	70	0.682	52	0.684	34	0.631	**16**
		0.624	53	0.631	35	0.682	**17**
		0.843	54	0.682	36	0.673	**18**

Tabular t at DH (38, 0.05) = 0.325

It is clear from Table (8) that all statements have a statistical significance greater than 0.325, and thus acceptance of all statements of the questionnaire.

)9(Schedule

Correlation coefficient between each axis and the total sum of the questionnaire n = 40

correlation coefficient	the hub
0.725	the first
0.737	Second
0.746	Third
0.814	the fourth
0.823	Fifth
.748	VI
0.796	VII
0.788	VIII
0.836	Ninth
0.769	The tenth

Tabular t at DH (38, 0.05) = 0.325

It is evident from Table (9) that all statements have a statistical significance greater than 0.325, and thus acceptance of all statements of the questionnaire.

)10(Schedule

The stability coefficient of the questionnaire using the split half method n = 40

coefficient is the overall stability coefficient	The half stability	First half		Second half		the hub the first
		±st d	**X**	**±st d**	**X**	
0.812*	**0.684**	**0.09**	**2.04**	**0.06**	**2.01**	Second
0.816*	**0.689**	**1.00**	**2.59**	**0.08**	**2.55**	Third
0.833*	**0.714**	**0.04**	**1.95**	**0.05**	**1.97**	the fourth
0.841*	**0.725**	**1.89**	**6.43**	**1.98**	**6.47**	Fifth
0.822*	**0.698**	**0.09**	**2.55**	**0.07**	**2.51**	VI
0.869*	**0.768**	**1.00**	**3.52**	**1.01**	**3.54**	VII
0.834*	**0.715**	**1.03**	**3.57**	**1.00**	**3.53**	VIII
0.838*	**0.721**	**1.06**	**3.95**	**1.03**	**3.88**	ninth
0.811*	**0.682**	**1.03**	**3.90**	**1.04**	**3.92**	The tenth
0.778	**0.637**	**0.08**	**2.05**	**0.06**	**2.02**	the hub
0.826	**0.704**	**1.01**	**3.26**	**0.09**	**3.24**	**Total**

Tabular t at DH (38, 0.05) = 0.325

It is clear from Table (10) that the computed "r" value is greater than the tabular "r". This indicates that there is a correlation between the first half and the second half, and thus the stability of the form.

-A1 copy of the final form: (Annex 6)

-A2 application of the form:

After the researcher reached the final copy of the teaching skills evaluation form (Appendix 6) and table (13) (which contained “10” axes and “70” phrases), a committee of arbitrators (the evaluation committee of 7 arbitrators “Appendix 12”) applied the skills form Teaching on the basic study sample of (360) students from the second year, before and after the implementation of the program units on the experimental and control research groups on Monday 10/7/2021 AD for tribal measurements, and on 12/24/2021 AD for post measurements.

Fourth: The educational program (virtual reality technologies).

Steps to prepare the proposed program

Building a program using virtual reality techniques is of great importance as it requires great care during its design, and the researcher chose to design an educational program in virtual reality. “Issam Metwally 2021” (28)”, “Abdullah Abdel Halim 2008” (25), “Abdullah Abdel Halim, Rehab Adel 2021 (26)” .

The researcher, after completing the design of the program in its initial form, presented it to the experts, and a consensus was reached on the validity of the program. Contents of the program for students

Thus, the validity of the program was reached after presenting it to the experts and testing it on the pilot sample.

•Evaluation of the basic study sample:

After completing the implementation of the program (from 10/12/2021 AD to 12/17/2021 AD), the basic study sample was evaluated with the aim of measuring the skill aspects through a committee of arbitrators consisting of professors and practical education supervisors.

Fifth: Time Distribution:

The time to implement the program took (10) weeks, starting from 10/12/2021 AD to 12/17/2021 AD, at the rate of (2) units per week, with a total of (20) units, as shown in tables: (18,19,20)

Schedule (11)

Time distribution of program content

time distribution	Content	م
Two and a half	Program application period	**1**
10 weeks	number of weeks	**2**
two units	The number of educational units per week	**3**
20 units	Total number of program units	**4**
90 s (1 hour and a	Teaching unit time (the distribution of unit time is	**5**
1800 BC (30 hours)	Total time for educational units (total time for the	**6**

It is clear from Table (11) that the application time of the program is two and a half months, with two units per week, with a total number of (20) educational units with a time of (90) minutes per unit.

The time of one educational unit (90 s) was distributed to each of the research groups (the experimental group, the control group) as shown in the following table:

Schedule (12)

The time distribution for each educational unit for the two research groups

allotted time	parts of the educational unit	م
10 m	Preliminary procedures (from instructions, absence, and distribution of the experimental and control groups)	**1**
35 m	Watching the program (CD) (for the experimental group).	**2**
10 m	Explanation and presentation by the research assistant (for the control group).	**3**
35 m	Assembling the students to start the application:	**4**
90 m	**Total**	

Table (12) shows that the educational unit time is (90) minutes, divided as follows (10) minutes for preliminary procedures, (35) minutes (for watching the program for the experimental group, explanation and presentation for the control group), (35) minutes for practical application for the two groups.

The following table also shows the distribution of the educational content to be studied for the two research groups on the total units of the program (20 units):

Schedule (13)

Distribution of educational content to the total units of the program

Educational content	Unit number	Execution date
Pitch setting + original, derivative and special modes	**12/10 /**	**1**
The formations and formations used in the lesson of	**15/10 /**	**2**
Types of warm-up (small game warm-up +	**19/10 /**	**3**
Warm-up exercises in the form of games	**22/10 /**	**4**
Contraindications gymnastics warm-up	**26/10 /**	**5**
Free warm-up + revision of the types of warm-up	**29/10 /**	**6**
Writing physical preparation exercises + physical	**2/11 /2021**	**7**
Writing physical preparation exercises + physical	**5/11 /2021**	**8**
Appeal st d for physical preparation exercises + models	**9/11 /2021**	**9**
Appeal st d for physical preparation exercises + models	**12/11 /**	**10**
Writing technical exercises + models for rhythmic	**16/11 /**	**11**
Writing technical exercises + models for rhythmic	**19/11 /**	**12**
How to write the main part (educational activity) +	**23/11 /**	**13**
How to write the main part (applied activity) + examples	**26/11 /**	**14**
st d models for the main part (educational and applied)	**30/11 /**	**15**
st d models for the main part (educational and applied)	**3/12 /2021**	**16**
Writing the concluding part + models for the concluding	**7/12 /2021**	**17**
Models for the lesson of physical education	**10/12 /**	**18**
Models for the lesson of physical education	**14/12 /**	**19**
Models for the lesson of physical education	**17/12 /**	**20**
Conducting dimensional measurements of cognitive achievement (by the researcher)		
-Conducting dimension measurements for teaching skills (by the arbitration committee, the “Evaluation Committee”) on 12/24/2021 AD		

Sixth: the basic experience (basic study):

The researcher carried out the research experiment on the sample of the basic study, which numbered (360) students from the second year, according to the time distribution of the program, which was clarified as the researcher was supervising the experimental group, while the assistant researcher (Appendix 13) taught the control group.

The researcher took the following procedures for the basic study sample:

A- Moderation of the distribution of the research sample:

The researcher found the moderation of the distribution of the basic and exploratory research sample (360 students) in order to ensure that it falls under the normal curve and thus the moderation distribution for it in the variables: age, intelligence, teaching skills, which is shown in the following table:

)14(Schedule

Curvature coefficients for the research sample (normal distribution of the research sample) n = 400

tatistical processors				meas ruing unit	**Variants**		م
Torsion modulus	median	Deviation	mean				
-0.77	**17.00**	**0.47**	**16.88**	Year	Age		**1**
-0.03	**89.00**	**4.58**	**88.95**	Degr	Intelligence		**2**
-1.00	**5.80**	**0.91**	**5.77**	Degr ee	Degree	**Teaching skills**	**3**
-0.06	**7.70**	**1.54**	**7.67**		The second		
-0.12	**6.00**	**0.99**	**5.96**		Third axis		
-0.03	**19.70**	**4.60**	**19.65**		fourth Axis		
-0.23	**6.00**	**0.93**	**5.93**		Fifth axis		
0.21	**6.40**	**1.04**	**6.47**		Sixth axis		
-0.12	**6.80**	**1.03**	**6.76**		The seventh		
0.08	**7.70**	**1.59**	**7.74**		Eighth axis		
-0.09	**7.80**	**1.60**	**7.75**		The ninth		
0.06	**5.80**	**0.96**	**5.82**		The tenth axis		
-0.11	**8.00**	**1.36**	**7.95**		**the total**		

It is clear from Table (14) that the values of the torsion coefficient are between (±3), which gives a direct indication that the data is free from defects in non-normal distributions.

A- Equivalence (Tribal Measurements):

Schedule (15)

The equivalence of the two research groups (tribal measurements) n = 120

The calculated t value	The difference between the two averages	the total				Variants		م
		control n2=60		xperimental n1=60				
		st d	X	st d	x			
0.74	0.02	0.47	16.86	0.46	16.84	Age		1
0.76	0.03	4.59	88.97	4.55	88.94	Intelligence		2
0.81	0.04	0.92	5.79	0.90	5.75	Degree	Teaching skills	3
0.84	0.04	1.53	7.65	1.55	7.69	The second axis		
0.77	0.03	0.98	5.94	1.00	5.97	Third axis		
1.05	0.42	4.64	22.89	4.57	22.47	fourth Axis		
0.89	0.05	0.93	5.95	0.92	5.90	Fifth axis		
0.93	0.06	1.05	6.49	1.03	6.43	Sixth axis		
0.88	0.05	1.02	6.73	1.04	6.78	The seventh axis		
0.98	0.07	1.63	7.77	1.57	7.70	Eighth axis		
0.75	0.02	1.60	7.76	1.59	7.74	The ninth axis		
0.94	0.06	0.99	5.85	0.94	5.79	The tenth axis		
0.97	0.07	1.38	7.99	1.32	7.92	the total		

Tabular "v" at (118, 0.05) = 2.00 (two directions)

It is clear from Table (15) that all the values of the previous variables are not statistically significant, which indicates that there are no statistically significant differences, and thus the equivalence of the two research groups.

a- Tribal measurements:

To identify the level of the groups before starting the implementation of the basic experiment, pre-measurements were conducted for each of the teaching skills on 10/7/2021 AD and on 10/3/2021 AD, which is shown in Table (15)

b- Dimensional measurements:

After the end of the specified period for application (10 weeks), the researcher conducted dimensional measurements for the two research groups to identify the level of teaching skills, on 12/24/2021 AD, through a committee composed of professors and supervisors of practical education in the Department of Curricula, Teaching Methods, Training and Sports Movement Sciences at the Faculty of Physical Education Sadat University, and the number of arbitrators in this committee reached (7) arbitrators (Appendix 12). The post-measurement of the cognitive test was applied by the researcher on Monday 12/23/2021 AD.

Seventh: Statistical treatments:

The researcher collected, tabulated and processed the results statistically, and the following statistical coefficients were used: the arithmetic mean, the standard deviation, the median, the skewness coefficient, the ease coefficient, the difficulty coefficient, the discrimination coefficient, the "t" test, the "Pearson's" correlation coefficient, and the split half.

View and discuss results

First- Presentation and discussion of the results of the first hypothesis:

-There are statistically significant differences between the means of the pre and post measurements of the experimental group in the level of (teaching skills) in favor of the post measurement.

Schedule (16)

Significance of differences between the averages of the two measures (pre-post) in teaching skills

For the experimental group, n = 60

The calculated t value	The difference between the two averages	be after		before		variants	
		st d	x	st d	X		
11.21*	6.09	1.88	11.84	0.90	5.75	Setting goals	Teaching
12.86*	7.63	2.12	15.32	1.55	7.69	Lesson planning and preparation	

The calculated t value	The difference between the two averages	be after		before		variants
		st d	x	st d	X	
7.29*	4.08	1.18	10.05	1.00	5.97	Preparing and equipping the place for the lesson
25.82*	19.42	6.78	41.89	4.57	22.47	Presentation and presentation of the lesson
7.31*	4.20	1.20	10.10	0.92	5.90	Lesson continuity
11.66*	6.93	2.05	13.36	1.03	6.43	Variety of stimuli and stimulation for learning
11.52*	6.47	2.03	13.25	1.04	6.78	Use of educational aids
12.79*	7.59	2.17	15.29	1.57	7.70	Class management and system tuning
12.71*	7.51	2.15	15.25	1.59	7.74	Calendar
3.64*	5.75	1.82	11.54	.94	5.79	Methods and methods of teaching
12.93	7.87	2.03	15.79	1.32	7.92	**the total**

Tabular "v" at DH (0.05) = 1.68

The researcher attributes the reason for these differences to the experimental variable only represented in the proposed program, as it helped the students to learn and master the teaching skills, and it was agreed upon by the study of "Iman Qassem Krishan" (2012) (8), "Marwa Abu Al-Nasr Al-Buhi" (2014) (45), “Abdullah Abdel Halim” (2008) (25), “Rehab Adel Jabal” (2016) (60), “Ahmed Talha Hossam El Din” (2011)(2).

The researcher also attributes the reason for this progress to the advantages provided by the computer in terms of providing explanations, explanations, questions and clarifications about a specific concept, which works to consolidate the cognitive side of the student teacher (33: 639), (37: 106,105), (30: 48), (52:36)

Second- Presentation and discussion of the results of the second hypothesis:

-There are statistically significant differences between the means of the pre and post measurements of the control group in the level of (teaching skills) in favor of the post measurement.

Schedule (17)
Significance of differences between the averages of the two measurements (pre-post) in teaching skills
For the control group, n = 60

The calculated t value	The difference between	be after		before		Variants		م
		st d	x	st d	x			
5.87*	3.38	1.86	9.17	0.92	5.79	Setting goals	Teaching skills	1
8.41*	5.11	2.11	12.76	1.53	7.65	Lesson planning and preparation		
3.05*	2.18	1.15	8.12	0.98	5.94	Preparing and equipping the place for the lesson		
22.81*	14.64	6.26	37.53	4.64	22.89	Presentation and presentation of the lesson		
3.10*	2.21	1.19	8.16	0.93	5.95	Lesson continuity		
7.32*	4.09	2.02	10.58	1.05	6.49	Variety of stimuli and stimulation for learning		
6.02*	3.82	2.01	10.55	1.02	6.73	Use of educational aids		
7.50*	4.28	2.10	12.05	1.63	7.77	Class management and system tuning		
7.46*	4.27	2.09	12.03	1.60	7.76	Calendar		
5.69*	3.25	1.78	9.10	0.99	5.85	Methods and methods of teaching		
8.35*	5.06	2.26	13.05	1.38	7.99	the total		

Tabular "v" at DH (59, 0.05) = 1.68 (one way)

It is clear from Table (17) that there are statistically significant differences between the two measurements (pre-post) for the control group at a significant level of 0.05 in each of the teaching skills in favor of the post-measurement.

The researcher attributes the reason for these differences to the experimental variable only, which is represented in the traditional method of teaching by the teacher (explanation and presentation), where the verbal explanation of the motor skill to be taught to the student teacher is relied upon, in addition to the model or the practical presentation of the skill, with the student performing the skill and practicing it and what accompanies it. This is from enhancing skillful performance through the teacher or correcting mistakes.

Through the foregoing, it is clear that the traditional method (explanation and presentation) has a positive impact on the level of performance of teaching skills as

well as on the level of knowledge achievement.) (18), (Osama Ibrahim Amara 2012 AD) (5), in which the results indicated an improvement in the control group that followed the usual method when teaching (explanation and presentation.(

Third - presenting and discussing the results of the third hypothesis:

-There are statistically significant differences between the averages of the two post-measurements of the experimental and control groups in the level of (teaching skills) in favor of the experimental group.

Schedule (18)

Significance of differences in post measurements between the experimental and control groups

In teaching skills and cognitive achievement, n = 120

The calculated t value	The difference between the two averages	Dimensional measurements				Variants		م
		the total control N2=60		the totalxperimental N1=60				
		st d	x	st d	x			
3.24*	2.67	1.86	9.17	1.88	11.84	Setting goals	Teaching skills	1
3.16*	2.56	2.11	12.76	2.12	15.32	Lesson planning and preparation		
2.11*	1.93	1.15	8.12	1.18	10.05	Preparing and equipping the place for the lesson		
7.85*	4.36	6.26	37.53	6.78	41.89	Presentation and presentation of the lesson		
2.16*	1.94	1.19	8.16	1.20	10.10	Lesson continuity		
3.67*	2.78	2.02	10.58	2.05	13.36	Variety of stimuli and stimulation for learning		
3.32*	2.70	2.01	10.55	2.03	13.25	Use of educational aids		
5.44*	3.24	2.10	12.05	2.17	15.29	Class management and system tuning		
5.39*	3.22	2.09	12.03	2.15	15.25	Calendar		
3.07*	2.44	1.78	9.10	1.82	11.54	Methods and methods of teaching		
3.62*	2.74	2.26	13.05	2.34	15.79	the total		

Tabular "T" at DH (0.05) = 1.67

It is clear from Table (18), that there are statistically significant differences in the dimensional measurements at a significant level of 0.05 between the experimental

and control research groups in each of the teaching skills in favor of the experimental group.

This indicates that there are statistically significant differences between the experimental group and the control group in favor of the group

This indicates the formation of the optimal perception of students in how to implement teaching skills, such as identifying goals, how to plan a physical education lesson, how to prepare it, prepare and prepare a place for the lesson, present and present or implement the lesson, how to continue the lesson, work on the diversity of stimuli and stimulus for learning, and the optimal method in the use of each of the teaching aids and management. Class and adjust the system in it and how to evaluate and use teaching methods and methods.

The foregoing also indicates that the proposed program had a positive result and impact on the level of teaching skills of the students because of the feedback given to the students compared to the traditional group or the group that follows the usual method of performance.

This indicates that the proposed program showed a positive effect on the differences in all research axes (cognitive and skill) compared to the control group.

This also indicates that the program works to improve the teaching and learning processes and thus reach optimal performance, as it is more effective and influential at the level of each of the teaching skills.

These results are consistent with many of the studies and research that the researcher was exposed to, including (Muhammad Sobhi Abd al-Samad 2016) (39), (Salma Aladdin 2017) (16), (Khaled Emhli al-Sarheed 2018) (13), (Jamal Ahmed Salama 2011) (11), which in their entirety show that the use of technological techniques is more effective and impactful on the teaching level of students.

Conclusions:

In the light of the objectives of the research and the steps followed in it to verify the hypotheses, and in light of the method used and the results that were reached, processed, presented and discussed, and within the limits of the research sample, the researcher concluded the following:

- There are statistically significant differences between the mean of the pre and post measurement of the experimental group in the level of (teaching skills), and if this indicates that the program has a positive effect on each of the level (teaching skills) of the experimental group.
- There are statistically significant differences between the means of the pre and post measurements of the control group in the level of (teaching skills).
- There are statistically significant differences between the averages of the two post-measurements of the experimental and control groups in the level of (teaching skills).

Recommendations:

In the light of the objectives of the research, the method used in it, and the results that were drawn; The researcher recommended the following:

- Training those in charge of teaching to use modern devices for self-learning methods because of their important advantages and characteristics.

Spreading technical awareness among students and training them to use modern technologies in learning internal practical education.

The faculties of physical education, in general, should have laboratories and classrooms equipped with the latest technological methods used, such as laboratories and classrooms in the Faculty of Physical Education - Sadat City University.

References

1. Ahmed Ibrahim Qandil: Teaching with Modern Technology, Dar Alam Al-Kutub for Printing, Publishing and Distribution, 1st edition, Cairo 2006.
2. Ahmed Talha Hossam El-Din: “The effect of using the distance learning method in learning the subject of teaching methods,” an unpublished doctoral thesis - Faculty of Physical Education - Menoufia University 2011 AD.
3. Ahmed Maher Anwar, Ali Mohamed Abdel-Meguid, Eman Ahmed Maher: Teaching in Physical Education between Theory and Practice - Dar Al-Fikr Al-Arabi - Cairo 2007 AD.
4. Ahmed Mohamed Salem: Education Technology Methods, 2nd edition, Al-Rushd Library - Riyadh 2006 AD.
5. Osama Ibrahim Al-Saeed Amara: “The Impact of Using Some Active Learning Strategies on Developing Some Teaching Skills for the Student Teacher,” Journal of Physical Education Research, Volume 46, Issue 89, College of Physical Education for Boys, Zagazig University, August 2012.
6. Amin Anwar El-Khouly, Mahmoud Abdel-Fattah Annan: Mathematical Knowledge (conceptual framework - mathematical knowledge tests "the foundations of their construction and complete models of them") - Dar Al-Fikr Al-Arabi - Cairo 1999 AD.
7. Anwar Tawaf: Al-Shamel in Programming Languages, Noor Library for Downloading Books, 2010.
8. Iman Qassem Krishan: “Building an educational software computerized in the Visual Basic language, and investigating its impact on the achievement of second-grade students in science,” master’s thesis, College of Graduate Studies, Mu’tah University, 2012.
9. Bodour Al-Mutawa, Suhair Badir: Physical Education, “Its Curricula and Teaching Methods,” Al-Kitab Center - 2nd edition - Cairo 2006 AD.

10. Jaber Abdel-Hamid Jaber, Mahmoud Ahmed Omar: Verbal intelligence test for the secondary and university levels, "Questions and Instructions Booklet" - Dar Al-Nahda Al-Arabia - Cairo 2007.
11. Jamal Ahmed Salama: “Developing guidance and supervision for the student teacher in field training through web technologies and technological innovations,” a future vision, Faculty of Physical Education, Kafr El-Sheikh University, 2011.
12. Hassan Ribhi Mahdi: “The Effectiveness of Educational Software on Visual Thinking and Technology Achievement for Eleventh Grade Female Students,” Master Thesis, Islamic University Library, Gaza 2006.
13. Khaled Imhaly Mizaal Al-Sarheed: “The Effectiveness of Educational Technology in Improving the Teaching Skills of Physical Education Teachers in the State of Kuwait and its Impact on Learning Outcomes,” Ph.D. thesis, Faculty of Physical Education Building, Alexandria University, 2018.
14. Khaled Samir Eid: “The Effectiveness of Developing Visual Basic Programming Language Tools in Developing Calendar Design Skills for Students of Applied Sciences and Leveraging Technology at the Islamic University of Gaza, and the Extent to which Students Acquired It,” Master’s Thesis, Faculty of Physical Education, Islamic University of Gaza, 2009.
15. Rehab Adel Jabal: “Electronic Technical Guidance Using Synchronous Wireless Networks and Its Effect on Knowledge Achievement and Teaching Performance of Field Training Students.” Scientific Journal “Sports Science Applications,” Faculty of Physical Education for Boys, Abu Qir, University of Alexandria, 2017.
16. Salma Aladdin Ibrahim: “The effect of an educational program using free and open source software on some teaching skills of the student teacher in the Teaching Division of the Faculty of Physical Education, Minia University,” Ph.D. thesis, Faculty of Physical Education, Minia University, 2017.
17. Mrs. Hassan Al-Saeed: “The effect of blended learning on learning some motor skills in the physical education lesson for middle school students,” Master’s thesis, Faculty of Physical Education for Boys, Benha University, 2019.
18. Shorouq Ali Abu Al-Nasr: “The Effect of Using Some Learning Methods and Techniques on the Acquisition of Teaching Skills for Female Teachers in Light of Learning Styles,” Master’s Thesis, Faculty of Physical Education, Sadat City University.
19. Shawqi Hassani Mahmoud: Curriculum Development Contemporary Vision (Curriculum - Curriculum Development - Design and Models - Curriculum Software - Curriculum Quality Standards, Arab Group for Training and Publishing, 1st edition, Cairo 2009 AD.

20. Ayed Hamda Al-Harsh, Muhammad Ziban Al-Ghazzawi, Hatem Yahya Yamin: Educational Software Design and Production, and its Educational Applications, Dar Al-Masira for Publishing and Distribution, 1st edition, Amman 2003.
21. Abdel-Gawad Mohamed Abdel-Gawad: "The effectiveness of using blended learning in developing the skills of producing visual basic.net projects among secondary school students," Master's thesis, Faculty of Specific Education, Benha University, 2015.
22. Abdul Hafez Muhammad Salama, Muhammad Abu Raya: Computer in Learning, 1st edition, Amman 2002 AD.
23. Abdul Hafez Muhammad Salama: Designing and producing educational aids for people with special needs, Al-Yazuri Scientific House, Amman 2001.
24. Abdel-Aleem El-Sayed Ahmed Abdel-Ghaffar: "The effect of an electronic educational program using multiple intelligences on the teaching competencies of the student teacher, Badri, physical education," Ph.D. thesis, Faculty of Physical Education, Mansoura University, 2016.
25. Abdullah Abdel Halim Mohamed: "The Impact of the Self-Learning Program on the Teaching Skills Performance of the Student Teacher in Physical Education," Ph.D. thesis, Faculty of Physical Education, Sadat, Menoufia University, 2008.
26. Abdullah Abdel Halim Muhammad, Rehab Adel Jabal: Teaching in light of the contemporary reality of physical education (concepts - principles - applications), Dar Al-Wafaa, 4th edition, Alexandria 2019 AD.
27. Azab Muhammad Azab: Visual Basic, Dar Al-Kutub Al-Ilmiya, 2nd Edition, Cairo 2004.
28. Essam El-Din Metwally Abdullah: Methods of teaching physical education between theory and practice - Sports World Foundation and Dar Al-Wafa - Alexandria 2019.
29. Fathi Al-Kardani, Mustafa Al-Sayeh Muhammad: Practical education between theory and practice - University House - Alexandria 2002 AD.
30. Lamia Mohamed Ibrahim: "The Effectiveness of Using the Educational Bag on the Performance Efficiency of the Student Teacher in the Physical Education Lesson," an unpublished Ph.D. thesis - Faculty of Physical Education in Al-Jazeera - Helwan University 2002.
31. Magda Habashi Suleiman: "Teaching Competencies and Attitudes towards the Teaching Profession among Preparatory Stage Science Teachers who are Qualified and Unqualified Educationally," a study evaluated by the Evaluation Society for Curricula and Teaching Methods, the second scientific conference, "Teacher Preparation, Accumulations and Challenges," Alexandria 1990.
32. Michael Holfuson: Visual Basic Step by Step, 1st edition, the Arab Science House.

33.Abdallah Abdel-Halim Mohamed. An electronic program based on augmented reality and its effect on learning of the internal practical education subject for the faculty of P.E students, International Journal of Sport Science & Arts (IJSSA), Faculty of Physical Education for Girls in Gezira, 2019.
34.Abdallah Abdel-Halim Mohamed. An instructional strategy using the Internet and its effect on performance level of the teaching skills for practical education students, International Journal of Sport Science & Arts (IJSSA), ISSN: 2356–9417, WEB: WWW.IJSSA-GEZIRA.com, E–MAIL :IJSSA.GEZIRA@yahoo.com, Faculty of physical education, Helwan university, April 2018.
35.Abdallah Abdel-Halim Mohamed. Flipped Learning Strategy using the Internet and its effect on performance level of the teaching skills, The International Journal of Sport Science and Arts (IJSSA), ISSN 2356-9417, www.ijssa-gezira.com. Faculty of Physical Education for girls, Gezira Egypt, Cairo, Helwan University, Part 2 (134-175), Volume 3, October 2018
36.Eman Abdel-Halim Mohamed. Effectiveness Using of Flipped Learning Strategy on Some Skillful Learning Aspects of Physical Education Lesson, Journal of Applied Sports Science (Jass), ISSN 2357–0024, January 2018, Volume 8, No. 1, www.jass.alexu.eg, Faculty of Sport Education, Abu Qir, Alexandria University, Egypt 2018.