Effect of the Reciprocal Style by Using Computer on Performance Standard of Some Basic Skills for Foil Fencing Beginners

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Abstract : This research aims to identify the effect of the reciprocal style by using the computer on performance standard of some basic skills for foil fencing beginners, the two researchers used the experimental method to design three groups, control group and two experimental groups as it suits the type and nature of the research, the research sample has been selected randomly as 30 students from among first-grade students in Damietta Faculty of Physical Education for the academic year 2009-2010 and the two researchers calculated the scientific transactions of intelligent test and the special physical tests of basic skills "included in the research", then they check the homogeneity and equality of the sample in the growth rates by calculating the variables (age - height - weight) and the level of intelligence by high intelligence test of Ahmed Zaki Saleh and physical tests of basic skills " included in the research " ,as they were divided into three equal groups, control group which applied by the traditional method which is a method of commands and the first experimental group which applied by the reciprocal style using the computer and the second experimental group which applied by the reciprocal style and have applied the basic experiment during the period from 27/02/2009 to 21/04/2009 by 12 learning units and 4 knowledge test units, by 2 units a week, for a period of 8 weeks and the time of the lecture was 90 min. for each of the three study groups and the post measurement done by the arbitrators. The most important results reached by both researchers was that the first experimental group which used the reciprocal style by using the computer has superiority than the second experimental group, which used The reciprocal style and the as well as control group that used the traditional method, also superiority of the second experimental group than the control group.

Key words: The reciprocal style · Computer · Basic skills · Foil fencing

INTRODUCTION

Knowledge explosion, scientific advancement of scientific knowledge and the contemporary educational trends have necessitated using of modern methods of teaching take account of the learner and emphasizes his personality each according to his abilities to take into account individual differences among learners to get the experience offered by his educational situation, considering that the success of the educational process as a whole depends on the extent of what used by those involved in the process of styles and different ways to the success of the process of learning and its continuous development in away that suits emerging technological advances.

Recent years have witnessed a wide extent fundamental shift in educational look at the student. It is no longer judge his superiority according to amount of information he knows this is a look wasted abilities of the student and its potential and made the education we receive depends on the conservation without leaving the domain to students minds to think , wonder or creating which led to the adoption of new educational methods in teaching [1].

The teacher alone cannot note the direct performance of collection of students and therefore he assigned the errors correct and assistance to a colleague in a mutual and equal way and among modern educational methods which interested in learner self-learning, which has positive effect on the performance of the skill correctly

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the reciprocal style that called the exchangeable learning style [2, 3].

Many of the researches in the field of learning sport activities emphasized the importance of the relationship between the effectiveness of teaching and means of educational technology, because the skills of sport activities takes a long time of the commentary during its teaching to learners, so they can benefit from technology education through the following-up phases of teaching skills to improve the specification of performance, learning speed and access the learner to the maximum degree of proficiency in learning the skills of sport activities in a short time, which helps to save time many of studies results and researches conducted in the field of education have noted to learners success whom have been educated through the computer as one of the modern technology methods that could contribute positively in the development of the curriculum compared to the traditional way used in education, here it is possible to conclude the relationship between physical education and educational technology by saying that there is a positive correlation relationship between both of them, as the use of educational technology in physical education activities achieve the principle of calculated speed [4-6].

Fencing consider as one of sports that characterize by fast and dynamic performance as it is attack and defense sport between competitors each one of them have only two aims , first one is attack aim and it represents in achievement a touch and second one is defense aim that represents in prevent competitor from achievement a touch, according to continues change in playing situations attacking and defense, spotlighted the importance of Proficiency of fencing motor skills, which is characterized by difficulty in performance, so its learning for beginners requires using means to give them an idea about the skill while providing a true example of the performance as well as the division of the skill into serialized steps with a focus on the important points and taking into consideration the excitement factor and raise the motivation of the beginner which leads to ease of his performance and proficiency [7].

That prompted the two researchers to try to reach a learning style commensurate with the modern educational trends and combines the advantages of self-learning styles and the advantages of using education technology , which lead the learner to stand an active positive attitude in achieving educational aims, each according to his abilities as the reciprocal style using a computer which is "teaching style based on the design of an educational program using a computer commensurate with the way of

doing The reciprocal style through organization of students in the form of pairs in the educational and applied part with an exchange of roles between them in each part separately with the help of standard paper designed by the teacher in the practical part beside computer system to provide feedback " and compare it with the Traditional style and the reciprocal one which mentioned "a style that allows the student to take a series of decisions and based on the organization of the students in pairs to work together interchangeably, one who performs the skill required and the other notes and can make evolution decisions through observation and give feedback to the performer , which is responsible for teacher contact and the teacher take all planning decisions and observation of each the performer and observer " [8].

As to identify the most effective method in learning of some basic skills for foil fencing beginners to reach learners to learn the assessed foil fencing skills with required carefully , efficiency and mechanism in the performance to achieve the educational process objectives.

MATERIALS AND METHODS

Both researchers used the experimental approach as it suits the nature of this research by experimental design for the three groups a control group and two experimental groups are classified as follows: -

- The control group (Traditional method "command").
- The first experimental group (The reciprocal style using a computer).
- The second experimental group (The reciprocal style).

Research Sample: Research sample was selected through an intentionally random manner , with selection of faculty first-grade students for the Academic year 2009-2010 in the intentional way , they reached 67 students and research sample was selected randomly from among the faculty first-grade students and research sample has been classified as follows: -

- The basic research sample reached 30 students from the faculty first-grade students and was divided into three equal groups, each one included 10 students.
- Scoping studying sample reached 20 students from the Faculty of Physical Education students in Damietta, divided as follows: -

- 10 students from the faculty first-grade students from same research community and from outside the main research sample.
- 10 students from outside the research community among the fourth grade students, the Division of physical management specialty foil fencing in order to conduct scientific transactions of special physical tests.
- The number of those who were excluded from the research community reached 11 students (failed in foil fencing subject).

Homogeneity of the Sample: To ensure the homogeneity of the sample in growth rates (age, height and weight), degree of intelligence and the variables of physical tests of basic skills "included in the research", the two researchers conducted the arithmetic mean and standard deviation, median and coefficient of torsion of the research sample (Table 1) .

It is clear from Table (1) that the coefficient of torsion of the research sample confined between (- 0.50 to +0.85) and all these values are confined between (± 3) which shows moderation of frequency distribution curve for each of the basic research sample members in the variables age, height, weight, degree of intelligence and the special physical tests indicating the homogeneity of research sample members in these variables.

Equalization of Research: To ensure the equalization of research in growth rates (age, height, weight) , degree of intelligence and the variables of physical tests of basic skills "included in the research" the two researchers made kruskal Wallis test for indication of the differences between the three groups (Table 2) .

It is clear from Table 2 that the value of calculated K^2 using the Kruskal - Wallis test for significant differences in variables age, height, weight , degree of intelligence and the special physical tests between the three research groups ranged between 0.05: 0.63 and the degree of freedom (2) the level of statistical significance between 0.73 : 0.97, all non-statistically significant at the level of statistical significance (0.05), which amounted to 5.99 and this means that the differences between the three groups in the variables are not true, indicating significance of research groups in these variables.

Scientific Transactions of the Used Tests Included in the Research
Stability Coefficient of Using Tests Included in the Research: The two researchers calculate the stability coefficient in a re-application manner of the tests on a sample of 10 students from first-grade students, Faculty of Physical Education in Damietta, where the first measurement of the tests was on Saturday 13/02/2009 and then re-apply the tests after a week of the first measurement on Saturday 20/02/2009 and a correlation coefficient (R) was found between the two applications (Table 3)

It is clear from Table 3 that all the values of correlation coefficient were with statistical significance at level (0.05) for all tests included in the research, as results of the table noting that these values ranged between 0.69: 0.97, while the value of indexed(R) was 0.63 and this indicates that the correlation coefficient is strong between the first application and the second one which shows stability of the intelligent and physical tests.

Table 1: The arithmetic mean, median and standard deviation and coefficient of torsion of a basic research sample in variables age, height, weight , degree of intelligence and the special physical tests (N = 30)

M	Statistical data Variables	The unit of measure	Mean $\bar{x}$	Median M	Std.deviation Std	Skew ness SK
1	age	Years	17.47	0.51	17	0.14
2	Height	Cm	173.03	3.93	173.5	0.5
3	weight	Kg	70.9	4.02	70	0.58
4	The degree of intelligence	Degree	35.37	2.55	35.5	0.14
5	Speed of arm extents within 10 sc	Number	23.8	24	2.62	0.09
6	Speed of running 30m from a moving start	SC	4.27	4.27	0.33	0.44
7	Throwing and receiving balls	Number	14.5	14	2.35	0.12
8	Italic prostration from stand within 10 sc	Number	5.03	5	1.03	0.07
9	Accuracy of arm extent on the overlapping circles	Number	26.7	27	3.81	0.85
10	Broad jump of stability	SC	183.17	182.5	15.67	0.1
11	Throw a soft ball to the far away	M	37.74	36.18	4.48	0.56
12	Speed of arm extents within 10 sc	CM	11.33	12	3.85	0.21
13	Speed of running 30m from a moving start	CM	31	32	4.37	0.46
14	Throwing and receiving balls	SC	0.38	0.37	3.49	0.25

Standard error of the coefficient of torsion for all variables = (0.43)

Table 2: Kruskal - Wallis test for significant differences between the three groups in Variables age, height, weight , degree of intelligence and the special physical tests (N1=N2=N3 = 10)

			Average level of research groups					
M	Statistical data Variables	The unit of measure	Control	First experimental	Second experimental	K^2	df	Asymp.sig
1	Age	Years	14.5	16	16	0.26	2	0.88
2	Height	Cm	15.5	14.85	16.35	0.15	2	0.93
3	weight	Kg	13.75	16.05	16.7	0.63	2	0.73
4	The degree of intelligence	Degree	14.15	15.2	17.15	0.61	2	0.74
5	Speed of arm extents within 10 sc	Number	14.95	14.7	16.85	0.36	2	0.84
6	Speed of running 30m from a moving start	SC	14.3	15.75	16.45	0.32	2	0.85
7	Throwing and receiving balls	Number	16.15	15.15	15.2	0.09	2	0.96
8	Italic prostration from stand within 10 sc	Number	15.55	14.25	16.7	0.4	2	0.82
9	Accuracy of arm extent on the overlapping circles	Number	14.65	15.2	16.65	0.28	2	0.87
10	Broad jump of stability	SC	16.2	14.05	16.25	0.41	2	0.82
11	Throw a soft ball to the far away	M	15.95	15.05	15.5	0.05	2	0.97
12	Bend the trunk forward down from the stand	CM	16.45	15.65	14.4	0.28	2	0.87
13	The flexibility of the shoulders	CM	14.7	15	16.8	0.34	2	0.85
14	Speed of the arm extents response	SC	14.1	16.05	16.35	0.39	2	0.82

Value ($K2$) indexed at the level of statistical significance (0.05) = 5.99

Table 3: The arithmetic mean and standard deviation to calculate the correlation coefficient (R) to the intelligent test and the physical tests in a re-test application way (N = 10)

			The first application		The second application		The difference between the	
M	Statistical data Variables	The unit of measure	$\bar{x}$	Std	$\bar{x}$	Std	intermedia	R
1	The degree of intelligence	Degree	35.9	3.07	38.5	3.92	2.6	0.88
2	Speed of arm extents within 10 sc	Number	23.7	2.71	25.5	2.8	1.8	0.8
3	Speed of running 30m from a moving start	SC	4.35	0.38	4.21	0.29	0.14	0.93
4	Throwing and receiving balls	Number	14.7	2	13.9	1.66	0.8	0.76
5	Speed of arm extents within 10 sc	Number	4.9	0.99	5.1	0.99	0.2	0.69
6	Speed of running 30m from a moving start	Number	26.8	3.12	27.8	3.77	1	0.8
7	Throwing and receiving balls	SC	181.5	16.84	183	12.74	1.5	0.82
8	Italic prostration from stand within 10 sc	M	36.96	4.55	37.07	4.3	0.11	0.91
9	Accuracy of arm extent on the overlapping circles	CM	10.9	3.79	11.7	2.87	0.8	0.97
10	Broad jump of stability	CM	30	3.68	30.1	2.38	0.1	0.79
11	Throw a soft ball to the far away	SC	0.37	4.81	0.37	4.9	0	0.89

Value of indexed (R) at the level of statistical significance (0.05) = 0.63

Table 4: Mean, standard deviation and the value of calculated (T) for two groups to calculate excellence validity coefficient of intelligence and physical tests (N1=N2= 10)

			The first application		The second application				
M	Statistical data Variables	The unit of measure	$\bar{x}$	Std	$\bar{x}$	Std	T	2ETA	2 ETA↓
1	The degree of intelligence	Degree	35.9	3.07	43.7	5.4	3.97	0.68	0.83
2	Speed of arm extents within 10 sc	Number	23.7	2.71	27.8	3.62	2.87	0.56	0.75
3	Speed of running 30m from a moving start	SC	4.35	0.38	3.92	0.26	2.93	0.57	0.75
4	Throwing and receiving balls	Number	14.7	2	17.2	1.55	3.12	0.59	0.77
5	Speed of arm extents within 10 sc	Number	4.9	0.99	6	0.67	2.91	0.57	0.75
6	Speed of running 30m from a moving start	Number	26.8	3.12	31.3	3.09	3.24	0.61	0.78
7	Throwing and receiving balls	SC	181.5	16.84	197	12.52	2.34	0.48	0.69
8	Italic prostration from stand within 10 sc	M	36.96	4.55	41.71	4.05	2.47	0.5	0.71
9	Accuracy of arm extent on the overlapping circles	CM	10.9	3.79	18.1	4.2	4.03	0.69	0.83
10	Broad jump of stability	CM	30	3.68	34.7	3.89	2.78	0.55	0.74
11	Throw a soft ball to the far away	SC	0.37	4.81	0.32	2.39	3.3	0.61	0.78

Value of indexed (T) at the level of statistical significance (0.05) = 2.10

Validity of Using Tests Included in the Research:
The two researchers calculated the validity coefficient on Saturday 13/02/2009 on two groups, one of them is the specialist group in foil fencing and they numbered 10 students from fourth grade students, division of management foil fencing specialty while the other group are the same group that has been calculated stability on it which, in order to find the excellence validity (Table 4).

It is clear from Table 4 that the values of calculated (T) ranged between 2.47: 4.03, it all greater than the value of indexed (T) at a level 0.05, which amounted to 2.10 and this indicates presence of statistical significant in the used tests among members of both beginners and advanced groups as the validity coefficient ranged between 0.69: 0.83, which indicates that the validity coefficient is on high degree of honesty is high, which shows the validity of the used tests.

Research Steps: Both researchers have several steps before doing the tribal measurement of the research which are as follows:

- Survey reference for the physical elements belongs to the basic skills and special physical tests of each element.
- Account of scientific transactions for tests (validity and stability) in the period between Saturday 13/02/2009 to Saturday 20/02/2009.
- Detect the basic skills for beginners in the foil fencing "included in the research" according to the basic skills they are studying in the faculty.
- Design the educational program using computer so that it corresponds with the way of implementation the reciprocal style.
- The standard Paper associated with reciprocal style which is used in the applied part of the program.
- Using a knowledge test for the basic skills "included in the research" which is designed by both researchers and the calculated the coefficient of ease difficulty and excellence earlier then they calculated its scientific transaction and divide it into four parts inside the learning units to make sure of the extent of Proficiency students have full to the skill which they previously studied.
- Evaluation of expert opinion about post evaluated paper and calculating its scientific transactions.

Tribal Measurement: The two researchers conducting tribal measurement on the basic research sample in the period between Sunday 21/02/2009 to Tuesday 23/02/2009

homogeneity and equality have been done among the members of the three groups, control group and both first and second experimental groups in the period between Tuesday 23/02/2009 and Thursday, 25/02/2009 .

The Application of the Basic Experiment: Both researchers applied the basic experiment of the research on the three groups, control group and both first and second experimental groups during the period from Saturday 27/02/2009 to Wednesday21/04/2009 by 12 learning units and 4 units of knowledge test, at the rate of 2 units a week, for a period of 8 weeks and the time of learning unit was 90 minute for each of the three research groups.

Post Measurement: After finishing application of the learning program for the three groups (control group, the two first and second experimental group), the two researchers conducted the post measurement of the basic skills(included in the research) thus in the period from Saturday 24/04/2009 to Wednesday 28/04/2009 and that by video recording the basic sample of the experiment during there performance of basic skills included in the research through three attempts for each skill (based on the results of questionnaires to experts) and then put post evaluation in the form of a computer program to even make it easier for the evaluator to transmit easily between the research sample and then put it on CD and sent to three arbitrators in the field of fencing with the skill level evaluating paper.

RESULTS AND DISCUSSION

First: Presentation and Discussion of the First Hypothesis Results: It is clear from Table 5 that the value of K^2, calculated using the Kruskal - Wallis test to significant differences between post measurements in the level of performance of some basic skills for foil fencing beginners for each of the three research groups, control; 1st and 2nd experimental groups, is greater than the value of indexed (K) at the level of significant (0.05), which reached to 5.99 with the degree of freedom (2) which indicates that it is statistically significant this means that the differences between the post measurement for each of the three research groups are real and in favor of the first experimental group.

Both researchers return the progress of the first experimental group on the second experimental group and control one due to use a computer program commensurate with the basic structure of The reciprocal style in

Table 5: Kruskal Wallis test for significant differences between the post measurements in performance standard of some basic skills for foil fencing beginners for each of the three research groups control and first , second experimental groups(N1=N2=N3 =10)

			Average level of research groups					

	Statistical data	The unit		First	Second			
M	Variables	of measure	Control	experimental	experimental	K^2	df	Asymp.sig
1	Holding arms	Degree	8.6	21.9	16	12.38	2	0.002
2	Ready pause	Degree	8.75	22	15.75	11.89	2	0.003
3	Moving forward	Degree	7.95	23.15	15.4	15.65	2	0
4	Retreat back	Degree	7.95	22.95	15.6	15.08	2	0.001
5	Extraversion Movement	Degree	7.8	22.8	15.9	15.35	2	0
6	Fencing positions	Degree	8.15	22.9	15.45	14.75	2	0.001

Value (K) indexed at the level of statistical significance (0.05) = 5.99

Table 6: Mann-Whitney-Test for significant differences between both post measurements in performance standard of some basic skills for foil fencing beginners for each of the two groups second experimental and control one (N1=N2= 10)

			Total level		Average level			
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	Statistical data	The unit	The second	The control	The second	The control		M
	Variables	of measure	experimental group	group	experimental group	group	U	Asymp.sig
1	Holding arms	Degree	133	77	13.3	7.7	22	0.03
2	Ready pause	Degree	132	78	13.2	7.8	23	0.04
3	Moving forward	Degree	133.5	76.5	13.35	7.65	21.5	0.03
4	Retreat back	Degree	134	76	13.4	7.6	21	0.03
5	Extraversion Movement	Degree	136.5	73.5	13.65	7.35	18.5	0.02
6	Fencing position	Degree	135	75	13.5	7.5	20	0.02

Value of indexed (U) at the level of statistical significance (0.05) = 28

the learning part, which contributed to the clarity of the skill and motor duties to be implemented during the application of learning unit and a clearer understanding of the movements and ease of comprehension the following steps for the performance of basic skills and thus able learner to achieve the motor duty accurately in limited time with less effort in addition to providing feed back for both students (performer and observer) from multiple sources (photos - video - training), with sound and music effects, which contributed to the increase the motivation of students to learn without feeling bored with taking into consideration individual differences between students .

Using of computers raises the motivation of students to learn and make them feel reality of the educational situation, through animation, graphics, music, photos and give them the opportunity to learn as them levels and abilities [9].

Computer program increases the learner inducement to learn as a result of renewal in the educational process and to provide educational material in an interesting way and more clearer, which allows the learner to work According to the rate of his performance and encourage

him to continue or adjust his performance as a result of the responding to strengthening which received by the learner from the computer, that describes him correcting of or mistaken of his performance [10].

Also the two researchers attributed progression of the first experimental group on the second experimental group students and control one to the way by which the applied Part of the program using The reciprocal style is implemented and which is characterized by the existence of observer for each student next to the teacher corrects the errors and provides an associate feedback, which had received from educational program beside a standard paper, kept with the observer student and containing illustrations and instructions for the motor duties in addition to computer to be Automatic return to it to provide feedback, which helped in mixing the advantages of both The reciprocal style and using computer, leading to improved level of performance of the first experimental group students over students of second experimental group, whom learned by manner of the reciprocal only without the computer and the control group that learned by the traditional way.

The standard paper is the primary factor in the success The reciprocal style as it describes the work performed accurately and put educational dots of performance on a correct scientific base, in addition to the use of pictures or graphics, it gives the opportunity for the performer student to receives instructions from the observer precisely at the same time the teacher has the opportunity to interact with the observer student [8, 11]. This is consistent with the conclusions reached by the results of previous studies [12-14] Based on the above, the two researchers find that the first hypothesis has been achieved, which provides for: There are significant differences between the post measurements of the three groups the control; 1st and 2nd experimental groups in the level of performance of some basic .skills for foil fencing beginners in favor of the first experimental group.

Second: Presentation and Discussion of the Second Hypothesis Results: Table 6 shows that the value of (U) calculated through the application of Mann Whitney Test for significant differences between the two post measurements in the level of performance of some basic skills for foil fencing beginners for each of the two second experimental and control groups is less than the value of indexed (U) at the level of significant (0.05), which reached to 28 ,that indicates it is statistical significant which means that the differences between both post measurements of the second experimental and control group are real and in favor of the second experimental group Both researchers return the progress of the second experimental group students on the control group to the positive effect of the reciprocal style, which is characterized by the existence of observer for each student next to the teacher to correct errors and provides an associate feedback, allowing the learner to challenge this ability and to overcome the introversion to play the role of observer to be responsible for learning of his performer colleague to allow each student to learn better, in addition to working through the standard paper of the reciprocal style, which contains serialized illustrated

I mages of skill to help the student to visualize performance and special instructions for the observer help him to identify the technical points affecting the performance even able to configure the clear mentally visualization about motor performance of skill helping him to correct the mistakes of the colleague and offer him feed back, which had a positive effect on student proficiency of technical performance, while in the traditional method, the role of students to follow teacher orders without having a chance to take any decision during the practice

Which is boring in addition to the great effort done by the teacher so leaves him no chance to follow up the performance , guide the students and correct the errors very well, especially when the students numbers increase, which could affect the outcome of learning that the teacher seeks to achieve through the unit.

The standard paper is one of the most important means of positive communication between teacher and learner and consider one of the most educational means that assist in studying physical education, as well as it guides the learner to know how to perform the skill through the images and the number of its repeated times that will help him to install the performance accurately [11].

The feedback makes interaction between the teacher and the learner also makes the required changes in on the learner behavior, provide him the opportunity to know whether his required response is true or false, raise motivation of the learner, redirect his energies toward learning and installing information so raise the level of performance in later educational missions [8, 15].This is consistent with the conclusions reached by results of previous studies [3, 16-18]. Based on the above, the two researchers find that the second hypothesis has been achieved, which provides for: there are significant differences between the post measurements for the second experimental and control groups in the level of The performance of some basic skills for foil fencing beginners in favor of the second experimental group.

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