Effectiveness of using the Systems method on performance level for some skills playing by reversed bat face in field Hockey

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Introduction and Problem:

The researcher noted through teaching and training Hockey field courses for students of the third year of the Faculty of Physical Education Damietta University that most students do not know the performance of the skills playing by reversed bat face , This led the researcher to teach some skills that playing by opposite bat face for these students using learning by Systems method.

Study aims: Study aims to identify effectiveness of using the Systems method on performance level for some skills playing by reversed bat face in field Hockey

Terminology:

Systems method : Is a teaching method that gives the concept mean the relationships of elements and processes and each element also has an effect on other elements.

Methodology

Experimental approach by the pre. and post measurement for two groups, one experimental and other control.

Subject:

Table (1)
Classification of research sample

Research community	Selected sample	exploratory Sample	Basic sample	
			Experimental group	Control group
26	18	8	9	9

Homogeneity:

Moderation founded for research sample (32) in growth rates (length - age - weight - intelligence) and physical and some opposite bat face skills for field Hockey (in search).

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Table (2)
SMA, standard deviation, intermediate and convolution coefficient t for study sample in growth variables Sample = 18

Variables	Modules Measurement	Mean	SD	Median	Skewness
Age	Year	20.75	0.67	20.61	0.63
Height	meter	176.67	4.98	170.60	0.66
Weight	Kg	75.71	3.60	76.75	0.94
Intelligence	Degree	29.28	4.12	28.93	0.25

Clear from Table (2) that all the values (under study) limited between (± 3) which indicates the moderation of distribution.

Table (3)
differences between experimental and control groups in pre. measurements in growth variables Sample(1) = Sample(2) =9

Tests	Modules Measurement	Experimental group		Control group		variance
		Mean	SD	Mean	SD	
Age	year	20.63	0.50	20.60	0.61	0.36
Height	meter	176.22	3.29	177.01	3.47	0.41
Weight	Kg	75.50	2.77	76.25	2.93	0.53
Intelligence	Degree	29.00	3.02	29.60	3.56	0.38

The value of "T" table at a significant level of 0.05 = 2.120

Table (3) shows that there are no statistically significant differences between the experimental and control groups in growth variables, which indicating their equivalence in these variables.

Table (4)
Indication of differences between experimental and control groups in pre. measurements in physical and skills variables
Sample(1) = Sample(2) =9

Tests	Modules Measurement	Experimental group		Control group		(T) Value
		Mean	SD	Mean	SD	
Arms muscular capacity	Meter	3.00	0.39	3.19	0.45	0.86
Legs muscular capacity	Cm	1.70	0.10	1.75	0.05	1.25
Right fist strength	Kgm	27.50	2.15	28.00	2.11	0.47
Left fist strength	Kgm	26.00	2.31	26.75	2.29	0.65
Opposite face Pushing force	Meter	3.30	1.61	3.50	1.00	0.35
Opposite face Pushing speed	Second	18.58	1.47	18.21	1.35	0.52
Opposite face Pushing accuracy	Degree	1.44	0.90	1.56	0.98	0.13
Opposite face Hitting force	Meter	14.30	2.68	15.00	2.51	0.49
Opposite face Hitting speed	Degree	2.18	1.25	2.34	1.39	0.24
Opposite face Hitting accuracy	Degree	1.46	1.11	1.68	1.20	0.38
Lower receiving by inverted bat face, from pushing	Degree	2.24	1.03	2.50	1.11	0.48
Lower receiving by inverted bat face, from Hitting	Degree	2.00	0.99	2.15	1.02	0.29

The value of "T" table at a significant level of 0.05 = 2.120

Table (4) shows that there are no statistically significant differences between the experimental and control groups in physical and skills variables, which indicating their equivalence in these variables.

Data collection tools:

physical tests: pushing medical ball 3 kg for the farthest distance -Wide jump of stability – Right/left fist strength" **Technical skills tests:** Opposite face Pushing force - Opposite face Pushing speed - Opposite face Pushing accuracy - Opposite face Hitting force - Opposite face Hitting speed - Opposite face Hitting accuracy - Lower receiving by inverted bat face, from pushing - Lower receiving by inverted bat face, from Hitting.

Table (6)

SMA, standard deviation and value (T) between the distinguished group And the non-distinguished group in physical and skills variables Sample(1) = sample(2)

Variables	Modules Measurement	distinguished group		Non-distinguished group		(T) Value
		Mean	SD	Mean	SD	
Arms muscular capacity	Meter	3.80	0.55	3.00	0.32	3.32*
Legs muscular capacity	Cm	1.85	0.10	1.70	0.05	3.57*
Right fist strength	Kgm	31.00	2.69	27.35	1.93	3.92*
Left fist strength	Kgm	29.95	2.97	26.20	2.11	2.72*
Opposite face Pushing force	Meter	8.15	1.55	4.17	1.17	5.45*
Opposite face Pushing speed	Second	12.76	1.63	18.33	1.29	7.05*
Opposite face Pushing accuracy	Degree	3.21	1.29	1.42	0.97	3.93*
Opposite face Hitting force	Meter	23.90	4.12	14.15	2.32	5.45*

FollowTable (6)
SMA, standard deviation and value (T) between the distinguished group And the non-distinguished group in physical and skills variables Sample(1) = sample(2)

Variables	Modules Measurement	distinguished group		Non-distinguished group		(T) Value
		Mean	SD	Mean	SD	
Opposite face Hitting speed	Degree	7.74	1.99	2.18	1.25	6.25*
Opposite face Hitting accuracy	Degree	3.50	1.21	1.40	1.03	3.50*
Lower receiving by inverted bat face, from pushing	Degree	5.92	1.85	2.22	1.00	4.51*
Lower receiving by inverted bat face, from Hitting	Degree	5.66	1.92	2.00	1.03	4.44*

The value of the table "T" at a significant level of 0.05 = 2.145

Table (6) shows that there are statistically significant differences between distinguished And the non-distinguished group In all tests, which indicates the validity of these tests.

Table (7)
SMA, standard deviation and correlation coefficient value The first and second application of physical and skills variables

Variables	Modules Measurement	first application		Second application		correlation Coefficient
		Mean	SD	Mean	SD	
Arms muscular capacity	Meter	3.00	0.32	3.15	0.38	0.881*
Legs muscular capacity	Cm	1.70	0.05	1.75	0.10	0.923*
Right fist strength	Kgm	27.35	1.93	27.60	1.71	0.846*
Left fist strength	Kgm	26.20	2.11	26.55	2.34	0.819*
Opposite face Pushing force	Meter	4.17	1.17	4.25	1.15	0.864*

FollowTable (7)
SMA, standard deviation and correlation coefficient value
The first and second application of physical and skills variables

Variables	Modules Measurement	first application		Second application		correlation Coefficient
		Mean	SD	Mean	SD	
Opposite face Pushing speed	Second	18.33	1.29	18.27	1.21	0.901*
Opposite face Pushing accuracy	Degree	1.42	0.97	1.50	0.95	0.899*
Opposite face Hitting force	Meter	14.15	2.32	14.50	2.19	0.812*
Opposite face Hitting speed	Degree	2.18	1.25	2.25	1.33	0.891*
Opposite face Hitting accuracy	Degree	1.40	1.03	1.50	1.10	0.897*
Lower receiving by inverted bat face, from pushing	Degree	2.22	1.11	2.31	1.03	0.885*
Lower receiving by inverted bat face, from Hitting	Degree	2.00	1.03	2.14	1.01	0.869*

*correlation Coefficient value (r) at a level of 0.05 = 0.707

It is clear from table (7) statistically significant correlation between the first and second applications for physical variables , which indicating stability for these tests.

Appling generative strategy: Study applied generative strategy for 8 weeks with two teaching units per week, with experimental group, Control group used traditional method

Post measurements It was done in the same order and conditions of pre. measurements.

Statistical Processes: Mean– SD– Mediator– Skewness- Improvement rates -(%)- Simple correlation coefficient- (T) Test

Results:

Table (8)
Significance of differences between the results of pre.and post measurements for Experimental group in skills Performance variables Sample = 9

Variables	Modules Measurement	Pre.measurement		Post measurement		(T) Value
		Mean	SD	Mean	SD	
Opposite face Pushing force	Meter	3.30	1.16	6.00	1.02	5.97*
Opposite face Pushing speed	Second	18.58	1.47	13.99	1.51	4.62*
Opposite face Pushing accuracy	Degree	1.44	0.90	3.00	0.55	6.12*
Opposite face Hitting force	Meter	14.30	2.68	19.75	1.91	5.20*
Opposite face Hitting speed	Degree	2.18	1.25	6.12	1.33	4.99*
Opposite face Hitting accuracy	Degree	1.46	1.11	3.11	1.00	5.13*
Lower receiving by inverted bat face, from pushing	Degree	2.24	1.03	5.00	1.10	6.25*
Lower receiving by inverted bat face, from Hitting	Degree	2.00	0.99	4.33	1.16	4.91*

*The value of "T" table at a significant level of 0.05 = 2.306

Table (8) shows statistically significant differences between pre. and post measures for experimental group in favor of post measurement in all tests

Table (9)

Significance of differences between the results of pre.and post measurements for Control group in skills Performance variables

Sample = 9

Variables	Modules Measurement	Pre.measurement		Post measurement		(T) Value
		Mean	SD	Mean	SD	
Opposite face Pushing force	Meter	3.50	1.11	4.69	0.95	2.72*
Opposite face Pushing speed	Second	18.21	1.35	16.13	1.40	2.49*
Opposite face Pushing accuracy	Degree	1.56	0.98	2.12	0.50	2.66*
Opposite face Hitting force	Meter	15.00	2.51	17.28	1.83	2.38*
Opposite face Hitting speed	Degree	2.34	1.39	4.00	1.12	2.70*
Opposite face Hitting accuracy	Degree	1.68	1.20	2.12	0.75	2.35*
Lower receiving by inverted bat face, from pushing	Degree	2.50	1.11	3.48	0.94	2.57*
Lower receiving by inverted bat face, from Hitting	Degree	2.15	1.02	3.00	1.03	2.36*

*The value of "T" table at a significant level of 0.05 = 2.306

Table (8) shows statistically significant differences between pre. and post measures for experimental group in favor of post measurement in all tests.

Table (10)
Indication of the differences between the results of the two post tests for all of experimental and control group in skills Performance variables Sample(1) = sample(2) =9

Variables	Modules Measurement	Experimental group		Control group		(T) Value
		Mean	SD	Mean	SD	
Opposite face Pushing force	Meter	6.00	1.02	4.69	0.95	2.66*
Opposite face Pushing speed	Second	13.99	1.51	16.13	1.40	2.93*
Opposite face Pushing accuracy	Degree	3.00	0.55	2.12	0.50	3.38*
Opposite face Hitting force	Meter	19.75	1.91	17.28	1.83	2.63*
Opposite face Hitting speed	Degree	6.12	1.33	4.00	1.12	3.45*
Opposite face Hitting accuracy	Degree	3.11	1.00	2.12	0.75	2.25*
Lower receiving by inverted bat face, from pushing	Degree	5.00	1.10	3.48	0.94	2.98*
Lower receiving by inverted bat face, from Hitting	Degree	4.33	1.16	3.00	1.03	2.60*

*The value of "T" table at a significant level of 0.05 = 2.120

Table (10) shows statistically significant differences between the two post tests for experimental and control group in favor of experimental group in all tests.

Table (11)

The percentage of improvement between the results of the pre. And post measurement in the skills variables for experimental and control group

Variables	Experimental group			Control group		
	Pre. Test	Post Test	Improvement percentage %	Pre. Test	Post Test	Improvement percentage %
Opposite face Pushing force	3.30	6.00	81.82	3.50	4.69	34.00
Opposite face Pushing speed	18.56	13.99	32.81	18.21	16.13	12.89
Opposite face Pushing accuracy	1.44	3.00	108.33	1.56	2.12	39.74
Opposite face Hitting force	14.30	19.75	38.11	15.00	17.28	15.20
Opposite face Hitting speed	2.18	6.12	180.73	2.34	4.00	70.94
Opposite face Hitting accuracy	1.46	3.11	113.01	1.68	2.12	26.19
Lower receiving by inverted bat face, from pushing	2.24	5.00	123.21	2.50	3.48	39.20
Lower receiving by inverted bat face, from Hitting	2.00	4.33	116.50	2.15	3.00	39.53

Table (11) shows that there are improvement between pre. and post measurements in the skills variables in favor post measurement for experimental and control group**.**

Discussion:

results of Table (8) showed statistically significant differences at level 0.05 between experimental group pre. and post measurements in performance level of some skills playing by opposite bat face in favor post test , Researcher attributed this improvement using the Systems method which enabled the learner to focus on the educational process Which suits his abilities, interests, learning styles , This result is consistent with the results of **Bonnie, S, et.,al.,(2002)(1)** , **Jambor & Weeks(2002)(5), Maclean & Daniel (2003)(7)** In the important role of modern education strategies based on the generation of ideas in improving the educational process, from foregoing, it is clear that **"There are statistically significant differences between pre. and post measurement of experimental group in some offield hockey opposite bat face skills performance level (Receive ball - push ball - hit ball) for Physical Education faculty students- Damietta University in favor of post measurement".**

Results of Table (8) showed statistically significant differences at level 0.05 between experimental group pre. and post measurements in performance level of some skills playing by opposite bat face in favor post test , researcher attributed this improvement to the effectiveness of the traditional method and to provide feedback on the skills (in search) ,This result is consistent with the results of **Fayez Murad, Amin Abdel Hafeez (2003)(3), Fekri Hassan (2004)(4), Mahmoud Abdel Halim (2006)(6)**That the traditional method is a direct methods of access to information and skills acquisition

from foregoing, it is clear that **" There are statistically significant differences between pre. and post measurement of control group in some of field hockey opposite bat face skills performance level (Receive ball - push ball - hit ball) for Physical Education faculty students- Damietta University in favor of post".**

results of Table (10) showed statistically significant differences at level 0.05

between the results of the two post tests for all of experimental and control group in skills Performance**,** Also Table (11) Resulted in an improvement percentages s between pre. and post measurement for experimental and control groups in skills variables tests (in search)**,** The researcher attributed the improvement in the experimental group to the multiplicity of sources of feedback through the presentation of many educational alternatives throw the Systems method, This result is consistent with the results of **Mustafa Mohamed Nasr El Din (2010)(8), Fatima Mahmoud Abu Abdoun (2011) (2).**

from foregoing, it is clear that "There are statistically significant differences in the post measurement between the experimental and control groups in some of field hockey opposite bat face skills performance level (Receive ball - push ball - hit ball) for Physical Education faculty students- Damietta University in favor of experimental group".

Conclusion:

1- the Systems method led to improvement performance of some skills playing by opposite bat face in field Hockey for experimental group.

2- There are differences in the extent of improvement in the performance of some skills playing by opposite bat face in field Hockey between the experimental group that used the Systems method and control group, which used Traditional method in favor of the experimental group.

Recommendations:

1- Using the Systems method to teach the skills playing by opposite bat face in field Hockey.

2- Further scientific studies on generative strategy in other sports activities.

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