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A proposed Teaching Strategy and its Effect on some Body Movements Difficulties, Performance Level of Skill and Cognitive Level in Rhythmic Exercise (From the Perspective of Critical Thinking).

Neamat Salah Elsayed
Department Exercise Training, Faculty of Physical Education, Helwan University, Egypt.

Abstract

The research aim To identify the effect of a proposed teaching strategy on some body movement's difficulties, performance level and cognitive level in rhythmic exercises (from the perspective of critical thinking).The researcher used the experimental method by using pre-post measurement for two groups (experimental and control group) , The research sample was chosen intentionally from Second Grade Students in physical education faculty for girls – Helwan university :the basic sample was (30) students. The proposed teaching strategy from the perspective of critical thinking a positive effect on each of difficulties body movements (stag leap - straddle – ring jump- pivot passé)), the level of performance skills, cognitive aspect. Application of critical thinking courses in other practical because of its positive effect on the educational process strategy.

Introduction:

The different forms and types of teaching strategy is considered a communication mean for teaching and learning. Since there are various type and ways of teaching that varies according to teaching objective, therefore the teacher responsibility is to choose the appropriate strategy for his students that take into consideration their, cognitive, mental and psychomotor capabilities, and consider the learner center of learning and teaching, try to raise his motivation and make him always proactive.

Choosing the teaching strategy depend (objective of educational unit, educational environment, the learner, the type of skill, available tools). Only the teacher can choose the appropriate strategy for the teaching unit that have an effective impact an teaching the learner. (5:6)

Critical thinking is one of the strategies of the modern education strategies that require using the higher three cognitive levels in bloom classification (analysis-composition-evaluation). And is the most common form that attract the attention of researchers and used for (discover the errors and defect , analytical thinking , mediation thinking).It is also a well arranged process that use analyzing , composing, visualizing and evaluating the obtained information through observations , experiences, mediation and other resources .(9:603)(13:249)(10:3)

Bayer strategy show that there are application stages to learn critical thinking skill include (introducing the subject-explaining the subject theoretically- skill presentation-discussing the presentation-skill application-mediation thinking).(7 :250)

Hussein Abu Rewash (2009) mention that using critical thinking for students let them get better marks in their tests and became more independent on teachers, books, school curriculum , so they tend to depend on themselves in learning process.(7 : 231)

Rhythmic exercises is within the practical curriculum taught for college students, it include many routines some of them are free exercise, other are exercise with apparatus , these routines include body movement difficulties (jump and Leaps, Flexibility and Waves, balances, Pivots) In addition to connection element, performance level is considered the main measurement to recognize the student success in this practical subject .

The cognitive aspect is an important part of critical thinking strategy, where it plays an important role in the practical application, identify the difficulties performance standards, and know how to evaluate the difficulties by teacher or the student, also identify the technical aspects of the performance through the obtained and assembled information.

Research problem:

There are various learning and teaching strategy used to transport the scientific subject for students in different curriculum based on appropriate strategy for every curriculum. The most common strategies used (self learning strategy-co-operative learning-exploring and brain storming –solving problem) but other strategies have been neglected (forgotten) in application as critical thinking strategy.

The researcher observes that improving students thinking is important and necessary to prepare. Them to

get the right information , evaluate it , and apply it in different educational situations, and this need developing the critical thinking skills for the student as it characterize by important characteristic needed for facing challenge and solving problems that help students on being more effective in learning process, knowing their performance level in body movement difficulties , able to evaluate the difficulties, in addition to recognize weakness point and try correct the performance defect . It help in overcoming individual difference that inhibit achievement.

The researcher observe through her work in teaching rhythmic exercises curriculum a decrease in performance level for second year students in some body movement difficulties, free routines exercise. And this may be due to lack in understanding the difficulties and nature of skill performance , in addition to their in ability to assess their real level or realize their weakness point in performance as well as lack in knowledge and information related to the difficulties and skills they have to learn .

So the researcher think of using proposed teaching strategy that may help in improving performance level for these difficulties and skills, in addition to provide them by necessary information to visualize the correct performance, and stimulate students to use critical thinking to evaluate their performance level, recognize how to train and identify errors and correct them.

The research aim

To identify the effect of a proposed teaching strategy on some body movements difficulties, performance level and cognitive level in rhythmic exercises (from the perspective of critical thinking)

Research hypothesis :

1 -There are significant differences between pre and post measurement for experimental group in the performance of some body movements difficulties (stag leap - straddle – ring jump- pivot passé) and the performance level , and cognitive aspect in behalf of pre-test measurement for experimental group.

2 - There are significant differences between pre and post measurement for experimental group in the performance of some body movements difficulties (stag leap - straddle – ring jump- pivot passé) and the performance level , and cognitive aspect in behalf of pre-test measurement for control group.

3 - There are significant differences between the two post measurement for the experimental and control group in (body movements difficulties - the performance level - the cognitive aspect) in behalf to post measurement for experimental group.

Research procedure:

Research method: The research used the experimental method by using pre-post measurement for two groups (experimental and control group).

Research society: The research society have been chosen intentionally from second grade students in physical education faculty for girls, and they were (198) students for the year 2013/2014.

Research sample:

The research sample was chosen from the research society, they were (60) student represent 30.3% from the original society, their age range from (19-20) year, they were classified to experimental group and control group.

Table (1)

Equality between pre measurements for experimental group and the control group of the variables under consideration N=30

Variables		Exp		Control		Def	T
		M	D	M	D		
Physical Fitness	Flexibility Right Leg	4.020	.493	4.080	.342	-.060	0.387
	Flexibility Left Leg	3.933	.555	3.873	.539	.060	0.300
	Ability	26.700	4.558	28.033	3.393	-1.333	0.909
	Coordination	7.200	1.424	7.666	.975	-.466	1.047
	Balance	3.933	.703	4.333	.617	-.400	1.655
body movements Difficulties	Stag Leap	.566	.371	.433	.617	-.133	1.053
	Straddle	.733	.258	.700	.316	-.033	0.316
	Ring Jump	.633	.228	.600	.207	-..033	0.418
	Pivot Passé	.666	.308	.633	.399	-.033	0.256
Performance level		2.733	.883	2.933	.798	.200	0.650
Cognitive Aspect		33.466	3.440	32.600	3.850	-.866	0.650

Significant at 0.5 = 2.05

Table (1) Show non significant differences between the experimental group and the control group in the pre measurements indicating equality in the variables under consideration.

Data collection means:

First: measurement device:

1-medical balance for weight measurement.

2-Restameter for height measurement.

3-Graduted ruler 30 cm length.

Second: The tests used:

1-Cognitive test:

This tests aim to measure the knowledge and information related to rhythmic exercises subject for second year. The researcher has chosen some sentence from the test, that are appropriate second year curriculum. The test include (65) question, the first part consist of right and wrong questions (√), (x), the second part include choosing the wrong answer from different answers (one point for every right answer).

2-Special physical fitness tests:

They were used to confirm the adjustment of sample in physical fitness level that affect body movement difficulties and skill performance level for student:

-Flexibility test for thigh.

-Muscle power for legs whale.

-Co-ordination test for body.

-Dynamic balance test.

3-Evaluating body movement difficulties and performance level:

The body movement difficulties and performance level in free routine for second grade by (4) expert, from dept .of rhythmic exercise and gymnastic in physical education faculty of girls –Helwan university , have with a (20) year experience.

The value of ever difficulty chosen in the research (1.5) degree and this was determined (fixed) by the student evaluation forum that was put by university evaluation unit.

The value of free routine was (10) degree for performance level, and evaluated by the same preview student evaluation forum.

Research steps:

-Pre-test measurements:

The pre-test measurement was applied for experimental and control group from 3-4/11/2013 for physical fitness tests , and from 6-7/11/2013 for body movement difficulties, skill performance level and cognitive level after teaching the Free routine for second grade to have a degree for performance level in free routine and body movements difficulties .

-Applying stage:

The proposed teaching strategy have been applied on the experimental group, as for the control group they follow the teaching module used rhythmic exercise for second grade that include the following learning methods (lecture - demonstration - self-learning – co-operative learning). The research was applied from 10/11/2013 to 13/21/2013 , the teaching units were (6) units only (due to delaying the in beginning of semester because of the security conditions). Only one teaching a unit was applied every week, it outside the lecture schedule it take (go min) , Table (2.3) show the parts of the teaching unit for both the control group and the experimental group .

Table (2)
Model parts Module for the control group

Unit content		T
1	Organizational steps	(5)min
2	Warm up	(5)min
3	general and special Physical preparation	(15)min
4	Verbal explanation of the skill and performance for its model	(5)min
5	Practical application	(50)min
6	evaluation and ending	(10)min

Table (3)
Model for the proposed teaching strategy for experimental group

Unit parts	time	Unit content	The goal	Critical thinking levels
Administrative work and Warm up	(7)min	Warming up for all body parts	Stimulate blood circulation and muscle	
general and special Physical preparation	(10)min	Flexibility: the trunk, hip, knee and feet Strength : the muscles of the torso, legs and abdomen Agility: Drills to change direction Ability :various jumps forward, backward, up and to both sides	Progress elements of general and private fitness	
Educational and practical activity70 min	(10)min	Reviewing the previous free routine and a discussion about Unit teaching skills	Cognitive	(Recalling)
	(5)min	Difficulty Name (Arabic – English) difficulty rating a model for difficult Fitness associated with the elements(		(Understand)
	(5)min	A data show for the performance body difficulties and analyzing the difficulties	Behavioral and skill	(Analysis)
	(15)min	The practical application for the difficulty		(Application)
	(10)min	Photographing the students and display performance to identify errors		(Evaluation)
	(5)min	The practical application of skills and correct the performance		(Application)
	(5)min	Evaluate the students to their colleagues	Emotional	(Evaluation)
	(5)min	Participation of students in Correction of the performance for their colleagues		
	(5)min	Performance of evaluation by participation of students		
	(5)min	Linking the difficulty of what has been learned in the previous stages		(Composition)
Ending	(2)min	The return of the body systems to it's normal level	Relaxation	
	(1)min	Reminder of the importance of collecting information about the skills that will be taught in the following lecture		

Importance of applying the proposed teaching strategy from the researcher point of view and the theoretical literature:

1-Give the opportunity for effective participation of students.

2-Stimulate the students to apply knowledge and skill from the practical application.

3- Give the opportunity for students to use self evaluation for their practical performance.

4- Participation of students in skill analyzing process, and evaluate the skill which require recalling the higher mental process in bloom classification.

5-Using a technological means appropriate to improve and strengthen learning and teaching process.

Presentation and discussion of results :

Post measurements:

The post measurements of the variables under consideration have been applied for the experimental and control group from 24/12/2013 to 26/12/2013 in the same way that has been followed in the pre-measurements.

Statistical processing:

The SPSS statistical program was used for:

-Arithmetic mean-standard deviation-co-efficient-curve-median for research sample adjustment.

- (T) test for significant difference between pre-post measurement for the research variables.

-Improvement percentage.

Table (4)
The differences between pre and post measurements for experimental group for the variables under consideration and improvement percentage N=15

Variables		Pre .test		Post		Def	T	Improve Per %
		M	D	M	D			
body movements Difficulties	Stag Leap	.566	.371	1.200	.253	-.633	*6.141	%111
	Straddle	.733	.258	1.300	.253	-.566	*12.475	%77.35
	Ring Jump	.633	.228	1.166	.243	-.533	*16.000	%84.13
	Pivot Passé	.666	.308	1.200	.316	-.533	*9.025	%80.90
Performance level		2.733	.883	8.066	.703	-5.333	*28.540	%195.12
Cognitive Aspect		33.466	3.440	37.5333	2.325	-4.066	*-3.691	%12.16

Significant at 0.5 = 2.14

Table (4) show that : there are statistically significant differences between pre and post measurement for experimental group in behalf to post- measurements difficulties body movements (stag leap - straddle – ring jump- pivot passé), and performance level, and cognitive aspect, where (T) value was confined between (3.69-28.54) at significant level (0,5) In addition to the percentage of improvement between the pre and post measurement confined between (12.16% - 195.12%) .

The researcher is due to the use of the proposed strategy for teaching unit that have adopted or multiple levels of critical thinking for Bloom's Taxonomy (recalling - understanding - application - analysis- composition – evaluation) Which helped to improve the performance level as a result of using information and knowledge about the skills that are taught, pre- preparation by students and rely on feedback at them (recall), In addition to the formation of a clear picture of the skills (understanding) through skill display, analyze and present it in a data show, and the implementation of the performance by a technical steps (application) and identify the different parts of the skill (analysis and composition), in addition to the participation of students in assessing their level through photographing during performance and identifying weaknesses point and correct it (evaluation) .

The researcher also believes that there is a marked improvement in the cognitive level as a result of the preparation for information and knowledge about the skills that will be taught before the lecture, and supply students by information on how to develop, the skills and the associated physical fitness and achieve a progress on them.

This is consistent with what indicated by "Samia Elhgrsay" (2001) that identification of a progress on them mechanical aspects of the jump is an important factor that help the skill progress and development of performance through access to specific information, it is the bases for building performance method and evaluated in an objective manner and identify errors and correct them. (12:24)

This agree with "Nadia eltaweel & Sana Mamoun" (2012) that the use of technological methods lead to an improvement in the performance of the difficulties level and provides a comparison between what exists and what should be in addition to the viewing help develop motor perception among educated and improved performance specifications and speed of learning and evaluating the absorption, in addition to attracting the attention of the students to be more efficient during the lesson where the student contribute in the learning process.

(11: 141)

the researcher has seen that the proposed teaching strategy from the perspective of critical thinking consistent with the different learning styles (visual, auditory, kinesthetic), as this strategy used a clear vision of the difficulties through the presentation of a model and through the display as well as a detailed explanation of the performance by offering a good model of skill and practice them with error correction , The Strategy also takes into account individual differences among different educational styles, and focuses on scientific approaches and cognitive structure through attention to the cognitive levels of bloom (comprehension, application; evaluation)

The use of critical thinking helps students by giving them an active role in the learning process and provide them by educational and motor experience that help in controlling movements that they do, in addition to the successful use of the different parts of the body.

This achieves first hypothesis of the research, which:

"There are significant differences between pre and post measurement for experimental group in the performance of some body movements difficulties (stag leap - straddle – ring jump- pivot passé) and the performance level, and cognitive aspect in behalf of pre-test measurement for experimental group".

Table (5)

The differences between pre and post measurements of the control group in the variables under consideration and percentage improvement N=15

Variables		Pre .test		Post		Def	T	Improve Pere %
		M	D	M	D			
body movements Difficulties	Stag Leap	.433	.617	.733	.258	-.300	*4.583	69.76%
	Straddle	.700	.316	.933	.371	-.233	*2.824	32.85%
	Ring Jump	.600	.207	.733	.319	-.133	*2.256	21.67%
	Pivot Passé	.633	.399	.800	.253	-.166	*2.646	25.39%
Performance level		2.933	.798	5.666	.899	-2.733	*11.979	93.10%
Cognitive Aspect		32.600	3.850	32.733	3.807	-.133	1.468	0.40%

Significant at 0.5 = 2.14

It is clear from table (5) that there are statistically significant differences between pre and post measurement for control group in (body movements difficulties (stag leap - straddle – ring jump- pivot passé) performance level, except for the cognitive aspect.

The value of (T) between (1.46- 11.79) at significant level (0.5), in addition to the percentage of improvement between the pre and post measurement confined between (0.40% - 93.10%).

This improvement percentage between the pre and post - measurement for control group, is due to students training on the routines which positively affect the performance level, in addition to the high level of fitness as a result of practicing different types of sport activities within the college that have positive effect on the performance skills and difficulties of rhythmic exercises.

The improvement percentage for control group is also due to using teaching and learning strategies within the description of rhythmic exercise (the lecture - demonstration - self-learning - Cooperative learning),and the control group doesn't show improvement in Cognitive aspect due to lack in knowledge and necessary information during teaching process.

This is consistent with the results of "Abeer Waheed" study (2013) that traditional method which depends on exploration and practical model for several times leads to positive improvement in performance .(1)

This achieves the second research hypothesis partly which states:

"There are significant differences between pre and post measurement for control group in the performance of some body movements difficulties (stag leap - straddle – ring jump- pivot passé) and the performance level , and cognitive aspect in behalf of pre-test measurement for control group"

Table (6)

The differences between the post measurements for experimental and control group for the variables under consideration N=30

Variables		Experimental		Control		Def	T	Improve Pere %
		M	D	M	D			
body movements Difficulties	Stag Leap	1.200	.253	.733	.258	-.466	*4.995	%39.16
	Straddle	1.300	.253	.933	.371	-.366	*3.157	%28.15
	Ring Jump	1.166	.243	.733	.319	-.433	*4.171	%31.07
	Pivot Passé	1.200	.316	.800	.253	-.400	*3.822	%33.33
Performance level		8.066	.703	5.666	.899	-2.400	*-8.138	%29.77
Cognitive Aspect		37.533	2.325	32.733	3.807	-4.800	*4.167	%12.78

Significant at 0.5 = 2.05

Table (6)) show That : It is clear from Table (6) that there are statistically significant differences between the two post measurements for the experimental group and control group in behalf to the experimental group in each of the body movements difficulties (stag leap - straddle – ring jump- pivot passé), performance level, and the cognitive aspect, where significant level value of (T) is between (3.157- 8.138-) at sign 0.5, in addition to the improvement percentage between the pre and post measurement confined between (12.78% - 39.16%) .

This is due to application of the proposed teaching strategy where the diversity in applied teaching strategies help students to interact more and increase the active role of the students as a basic dimension in the educational process, in addition to the development of critical thinking skills which as they have important characteristics required for the process of facing the challenges and solving problems which makes the students more active in the learning process and recognize their performance level, in different body difficulties and the ability to have an objective assessment, as well as to identify the weaknesses and try to fix the errors in the performance, which also helps to overcome individual differences, which hinder the achievement.

This is agree with "Yasmin Albahaar" (2004) that we have to present the ideal skill performance for the students, taking into account the use of language and terminology, learning process is closely linked to the real visual image so student get an idea about the general shape of the movement and ability of the student to learn will increase with good model for the movement, as well the teacher should give some information about the skill and technique using various educational methods and the researcher found that all this was available in the used strategy. (14: 95)

This agree with" Larry Katz" study (2004) that using teaching technology in physical education activity achieve the quick learning principal, in addition to use time and effort effectively in teaching motor skills , and go directly to the goal needed to be learned in account to individual difference between students, also "Abd.elhamid Sharaf "(2000) said that using different and various educational methods increase the efficiency of the lecture and become more enjoyable , and provide the students with the ideal performance needed to be learned. (8:16)

"Dallas et al" (2008) said that teaching skills need various technician as verbal, body and visual instruction, "Cindy Bickman et al"(2008) agree with him that exercise learning technician by ideal model for beginners is better and easier in correcting errors . (3:45) (2:190)

The researcher mention that this is available in the applied strategy as the student learn the difficulties and skills after viewing ideal model accompanied by verbal instructions, before practicing the skills.

Study of "Abeer Waheed" (2013) mention that the use of an educational technology in teaching has a positive effect on teaching and learning process where it helps the students to increase their feedback and become able to analyze and compare their performance to ideal performance, which have an effect on the discovery of errors and try to avoid them to achieve good technical performance and this leads to high technical performance level in rhythmic exercises. (1)

The results are consistent with the results of "Eman Shanawany" study (2014) that development of critical thinking need a great effort from the student, the teacher, the curriculum, teaching tools and the way of evaluation to be complementary to each other. (4:53)

This achieves the third hypothesis of the research, which states

"There are significant differences between the two post measurement for the experimental and control group in (body movements difficulties - the performance level - the cognitive aspect) in behalf to post- measurement for experimental group"

Conclusions:

The proposed teaching strategy from the perspective of critical thinking a positive effect on each of difficulties body movements (stag leap - straddle – ring jump- pivot passé), the level of performance skills, cognitive aspect.

Recommendations:

Application of critical thinking courses in other practical because of its positive effect on the educational process strategy

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