The influence of direct and indirect teaching method in the development of selected technical skills in the sport of football to children aged 12-14 years old

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Abstract:

The purpose of this study was to present the effects of Direct and Indirect teaching method, both in theoretical and practical level, in order to decide which one is better acceptable to ages between 12-14 years old, in beginners players of football. The sample of this research included 50 total students, during a pilot program in a high school of Attiki. The program lasted 12 weeks, from 16 of September until 6 of December and the workouts occurred in frequency, 3 trainings per week, enduring 65 minutes each one. As a total, 36 coaching teams took place for each teaching method and also 25 students were used for each method. In order to realize this research, we used four reliable tests, which are the following: a) running with ball and time counting that evaluates them control of the ball and the change of direction, b) ground pass exactly from a distance of 20 meters in a target of one meter, which evaluates the accuracy in ground pass, c) movement with ball between 9 cones "slalom", the distance of which is 1.5 meter and time counting that evaluates "dribbling", d) "toe bounces", in other words hitting the ball up in the air, that evaluates the ball control in the air. These tests have been used by many researchers and are analyzed below. For the statistical analysis, we used paired samples t-test in order to compare two averages and for the analysis we used statistical software SPSS20. The results of this research indicated that the method with the better results in the development of the examinee's movement skills to children between 12-14 years old, was the direct one or else the teacher-center method. We need to mention that there was an important difference compared to indirect teaching method.

Key words: Direct and Indirect teaching method , football technical skills.

Introduction

According to Caroll and Bandura (1982, 1985,1990), the theory of movement learning was "applied to the level of movement skills, despite the fact that initially it had as a purpose to describe how social skills and behaviors are obtained through observation". In Bandura's theory, the main idea is that the acquisition and performance of modeled skills is achieved through knowledge mediation. More specifically, acquisition skill is defined by four individual processes: attention, maintenance, movement reproduction and inducement. From each modeled movement, the dynamic pattern is extorted and attention is selectively directed to some of the spatial characteristics of adeptness. Then, the observer converts the total number of the information to cognitive representation, which guides the first reproduction efforts of movement skill and constitutes a perceptual reference for the judgment of performance correctness and correction of errors. Inducement mechanisms facilitate the initial the manipulation of information, that were a result of modeling. They also increase the level of attention which is directed towards the modeled performance and increase the desire for preserving the information that was presented. An alternative approach to the study of learning through observation was based on the research in the field of visual perception, that had as a purpose the discovery of this kind of information, that is detected by observers during modeled movement (Cutting & Proffitt, 1982, Johansson von Hofsten & Jansson, 1980). The researchers reached the conclusion that it is possible to perceive different kinds of biological movement, based on the changing relationships between parts of the body, during the realization of the movement, which is a part of what is being observed during the modeling of the movement. When the presentation of movement skill to learning occurs, visual presentation is usually chosen for the information that is related to movement skill for learning. It is a fact which means that for this specific skill, the movements are presented a lot of times to the student. When someone learns through the observation of another person who performs the skill for learning, he or she can acquire very fast a concise picture of the movement requirements. On the contrary, in case of verbal presentations, which often last long, the trainees that watch them have a tendency of losing their attention or of failing in recalling to their memory the total number of the material that is presented to them. Learning at school is promoted in a significant level by the strategy or the way by which the trainer will make the student come in contact with the curriculum. This way of teaching can not be accidental or coincidental, a product of improvisation or a-on the spot-inspiration. Teaching actions are effective for the

students, only as long as they are intentional, systematic and well-organized. Thus, the didactic method that an instructor follows in each lesson, plays an important role to the learning of the children. Method is “an organized system of knowledge, behavior and actions, which has a specific philosophy and defined values, follows a technique and is used for the success of the purposes and particular purposes of teaching and additionally the general aims of education (Trilianos, 1998). Teaching method is defined by both the purposes and the aims of the lesson but also by its content. According to Emmanouil (2001), Physical Education is taught, just like the other courses, through Direct (reproductive) or teacher-center method, Indirect (creative) or student-center and through some combinations of these two. In Direct method, all the decisions that refer to preparation, conduct and course evaluation are made by the professor of Physical Education. The main points of direct method, just like it is applied to Physical Education are the following:

Direct method is characterized by the protagonistic role of the teacher (teacher-center). The teacher decides about the lesson organization, the choice of object, time distribution and the students' degree of participation. Students perform the predetermined activities that the teacher explains or displays (the same exercise, the same time and in the same way). The teacher makes suggestions for the improvement of the exercises' performance, moves inside the section and helps students solve their particular problems. The class environment must be one that favors model's performance, repetition and restriction of errors.

The advantages of Direct method are:

It is suitable for undisciplined students. It offers a great level of safety. It is more suitable when the level of the students is low.

The disadvantages of Direct method are: The abilities and weaknesses of the students are not taken into particular consideration. The intensity of the activities can surpass students' possibilities. There is no individualized performance for the greater interest and satisfaction of developmental needs.

According to Emmanouil (2001), in Indirect method, students participate in the making of decisions that are related with the lesson conduct and their evaluation. They give individualized answers or solutions to questions or problems, according to their own personal abilities and weaknesses. The professor of Physical Education is the course's organizer and the students' adviser.

The main points of Indirect method are:

Indirect method is characterized by the protagonistic role of the students (children-center). Knowledge and movement skills, which are unknown to the student or even the teacher, are produced. Students are not passive receivers and performers of his decisions, but they take part in the making of decisions that are related with the conduct and evaluation of the course. The teacher is the lesson's organizer and the students' adviser. He creates movement problems, to which students find solutions, according to their own personal abilities and weaknesses. The teacher circulates among the students, encourages and urges them to present greater activity. It takes time to activate the mental functions that participate in the procedure. The class environment is the one of research, examination of reliability of the alternative solutions and the route beyond what is already known.

The advantages of Indirect method are:

It allows greater participation in the teaching-learning procedure. Students solve movement problems, according to their own abilities and weaknesses, which has as a result the goal of a success degree. This success plays an important role in gaining self-confidence.

The disadvantages of Indirect method are:

Precious time is wasted in order to find the movement solution of the problem. The teacher has a hard time creating notable movement problems. After having taken into consideration previous researches and bibliographical sources such as Somerville (1998), Nelson (1996), Din (199), Veenman (2003), Thomson (1972), Beckett (1990), Emmanouil (1992), Ding (1999), Hubbal (2003) and others, the hypothesis of the research was: The direct teaching method will result in the greatest improvement of the development of specific movement skills (ball control and change of direction, pass, “driple” and ball control in the air), compared to indirect teaching method.

Purpose of the research

The purpose of this research is to find and document scientifically which teaching or practice method from those that are being examined (direct, indirect), offers the better results in the development of movement skills, and especially those of football, to children from 12-14 years old. This will happen by using four reliable tests which are the following: a) ball running and time counting, which evaluates ball control and change of direction. b) “toe bounces”, in other words ball hitting in the air, which evaluates ball control in the air. c) Ground precision pass from a distance of 20 m. for the age of 12-14 years old that concerns us and in target of 1 m., which evaluates the accuracy in ground pass. d) Movement with ball between 9 cones (“slalom”), with a distance of 1.5 m. each one of them and time counting, which evaluates “dribbling”.

Method

Sample

The participants in this research were 50 boys from 12 to 14 years old, who did not previously have any important occupation with football. The program was applied to one school of Attiki, so the researcher had the privilege of applying the special workouts, specific hours and days each week.

The children were divided into two equivalent teams. At the first team, a program which recommends direct or teacher-center method was applied. In other words, the instructor displays the movement ability to the trainees, functioning as a model and the trainees try to learn how to perform it, by also following his corrections. At the second team, the program that recommends indirect or student-center teaching method was applied. In other words, the instructor sets the specific movement problem and lets the trainees find the better movement solution by themselves. In this method, movement games are mainly used, which "force" trainees to use the specific movement skills that are examined. The choice was made through the method of random sampling between male volunteers, after the relevant draw. Parents and participants were informed analytically for the aim, the procedure and the research design at school and they gave their written consent for their participation in the study.

Measurements

a) Anthropocentric

Anthropometric parameters that were examined were height, weight and the percentage of body fat (table 1 and 2).

Table 1. Direct method , N=25

VARIABLES	min	max	Average (A)	Standard Divergence (S.D.)
Age	12	14	13,04	
Height of the athlete (cm)	140	162	155	3,24
Weight of the athlete (pounds)	42	58,5	49,78	4,81
Fat %	14,8	19,35	16,30	3,37

Averages (A) and Standard Divergences (S.D), maximum and minimum values (min, max) of the examinees' anthropometric characteristics.

Table 2. Indirect method, N=25

VARIABLES	min	max	Average (A)	Standard Divergence (S.D.)
Age	12	14	13,04	
Height of the athlete (cm)	139	160	154	3,05
Weight of the athlete (pounds)	40,5	56	48,72	2,53
Fat %	15,1	20,5	17,95	4,05

Averages (A) and Standard Divergences (S.D), maximum and minimum values (min, max) of the examinees' anthropometric characteristics.

b) Technical skills

1) Test a

In the first test, the student, having under his possession the ball, begins from the starting point and he directs himself towards the center of the circle with control. When he passes from the exterior side of the cone, he returns to the point from which he started. Later, he continues cyclically, in the reverse direction of the clock.

When he reaches a cone, he must direct himself towards the center of the circle and return. Then, when he passes all the cones, by following the cited instructions, he will end up at the terminal point, which is identified with that of the start. The circle has a diameter of 9 meters. This test has as a purpose the ability of ball control and ball driving, and it is counted in sec.

Teaching method	BEFORE	AFTER
DIRECT	54,16 sec	51,84 sec
INDIRECT	53,30 sec	52,80 sec

2)Test b

In the second test, the one who tested is examined on ball control . The one who is tested does “toe bounces”, with a maximum of 100.

Teaching method	BEFORE	AFTER
DIRECT	42,48	53,60
INDIRECT	46,28	49,80

3)Test c

In this method , the one who is tested is examined in transmission-goal . He shoots from the distance of 20 m, aiming of sending the ball between two cones, which have one meter distance. The one who is tested revises the test five times, and the successful ones are recorded .

Teaching method	BEFORE	AFTER
DIRECT	2,20	3,92
INDIRECT	2,24	2,80

4)Test d

In this test, the one who is tested is moving between nine cones that have a distance of 1.5 m. aiming at assessing the skill of “dribbling”

Teaching method	BEFORE	AFTER
DIRECT	7,32 sec	6,45 sec
INDIRECT	7,33 sec	7,22 sec

Statistic analysis

The statistic analysis of the results of survey has been provided by the use of SPSS20 statistical programme, and the tests are the ones mentioned. The below charts show the average before and after the implementation of the programme.

Paired Samples Statistic		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	a DIRECT .Before	54,1600	25	4,61027	,92205
	a DIRECT. After	51,8492	25	4,53423	,90685
Pair 2	a INDIRECT. Before	53,3020	25	5,02555	1,00511
	a INDIRECT. After	52,8004	25	4,98286	,99657
Pair 3	b DIRECT. Before	42,4800	25	24,11625	4,82325
	b DIRECT. After	53,6000	25	23,75044	4,75009
Pair 4	b INDIRECT. Before	46,2800	25	21,33565	4,26713
	b INDIRECT. After	49,8400	25	21,44116	4,28823
Pair 5	c DIRECT. Before	2,2000	25	1,11803	,22361
	c DIRECT. After	3,9200	25	,90921	,18184
Pair 6	c INDIRECT. Before	2,2400	25	1,05198	,21040
	c INDIRECT. After	2,8000	25	1,08012	,21602
Pair 7	d DIRECT. Before	7,3212	25	1,54011	,30802
	d DIRECT. After	6,4516	25	1,59603	,31921
Pair 8	d INDIRECT. Before	7,3308	25	1,50667	,30133
	d INDIRECT. After	7,2228	25	1,48677	,29735

More specifically , we can see the below graphs

Fig. 1. Means " Test a Direct and Indirect method"

Fig. 2. Mean "Test b Direct and Indirect method"

Fig. 3. Mean "Test c Direct and Indirect methods"

Fig. 4. Mean "Test d Direct and Indirect method"

Γ	c								
	IND.Befor	-0,56000	,58310	,11662	-,80069	-,31931	4,802	24	,000
	e – c								
	IND.After								
Δ	d DIR.	0,86960	,44266	,08853	,68688	1,05232	-9,822	24	,000
	Before – d								
	DIR. After								
Pair 8	d								
	IND.Befor	0,10800	,06850	,01370	,07973	,13627	-7,884	24	,000
	e – d								
	IND.After								
Pair 3	c								
	IND.After								
	b DIR.	-11,12000	3,91918	,78384	-12,73776	-9,50224	14,187	24	,000
	Before – b								
	DIR. After								
Pair 4	b								
	IND.Befor	-3,56000	1,12101	,22420	-4,02273	-3,09727	15,879	24	,000
	e – b								
	IND.After								
Pair 5	c DIR.								
	Before – c	-1,72000	,89069	,17814	-2,08766	-1,35234	9,655	24	,000
	DIR. After								

The above tables, that are the results of the statistic programme, present the difference before the implementation of teaching methods and after them, the typical difference, the typical error, the limits of the trust distance of the average, the factor t , the degree of freedom ("df") and the element of statistically importance ("sig"). More analytically, we can see that for the first trial "driving-control" (fig. 1) with the Direct teaching method, those who were tested were improved by 2.31 sec whereas with the Indirect teaching method, they were improved by 0.5 sec. In the second teaching method "ball control" (fig. 2) with the Direct teaching method, those tested were improved by 11,12 toe bounces whereas with the Indirect method by 3.56. In the third test "transmission goal" (fig. 3) with the Direct teaching method, those tested improved their goal by 1.72 successful goals whereas by the Indirect method by 0.54 goals., In the last test "slalom" (fig. 4) those who tested reduced their time by 0.869 sec whereas with the Indirect method by 0.108 sec.

Discussion

From the above statistical analysis and its results, we can understand that the method with the best results in the development of movement skills of those tested at children 12-14 years old, is the Direct or teacher-centered method and with significance difference from the Indirect teaching method. This can be partially explained, if we take into account that the Direct method is a suggested method in the show of the movement skill by the teacher, accompanied by instructions on how to perform it, so as to correct possible faults. This specific skill successfully becomes easier and faster understood by the child and consequently greater improvement is presented in the performance of the student in it. What's more, the idea of "external" similarity with an important person provokes the belief that the person will have the same power and the same value with the specific "important person". According to Bandura and Walters (1968a), when a person believes that he looks like an important person, then the trust on his powers is elevated. In other words, self-esteem and self-confidence are greatly improved.

In this way, the first assumption of the survey is reassured in its whole, since the Direct or Indirect teaching method is presented of specific movement skills in comparison to the Indirect teaching method. The results of this survey reassure the results of survey of many researchers, who dealt with the specific topic, like Beckett's (1990), Ding's (1999), Ayers's (2003), Veenman's (2003). However, these results are opposed to the results of some researchers like Liu X.Y. (2001), and Huang (2001) and Jiang (2001), who concluded on a statistical benefit of the Indirect versus the Direct method development of movement skills. The first and third researchers as regard with basketball and the second with javelin throw.

What's more, Theodorakou(2003) proved the statistical benefit of the Indirect method versus the Direct method, consuming children self-esteem, a basic element of which is a good movement level. A first explanation for this difference, could be that these researchers dealt with different athletic activities, for which surveys are few. In spite of this fact a revision of these surveys could help us reassure or reject this disagreement. These conclusions have great practical value for physical education teachers and especially for those who deal with the development of movement skills at children of this age. More specifically, for football, that we examine in this survey, it is obvious that a coach who wants to teach to beginner children, aged between 12-14 years old, movement skills, should use Direct or teacher-centered method, if he wishes for quicker results-greater improvement in less time. The schedule that he will design and exercise on his students, has to be based on basic principles of Direct or teacher-centered method. This means, that he should be able to deal successfully with these skills, in order to be the model for students, taking into account that the role of model is very important in the Direct method. Another factor that plays important role in the Direct teaching method is the feedback, mainly as a technique of boosting the correct method and correcting mistakes.

Conclusions

Last but not least, it is important to mention that all the instructors should be aware of the basic elements of all the teaching methods and training, so as to be able to use the most suitable one depending on the case. What's more, an additional reason of knowing all these methods, is that in some cases, their combination brings the best outcomes (Hubbal 2004). The results of this survey, can contribute a lot to this direction, as from the one hand it presents percentage ways of movement features of children and on the other hand, it presents the best and fastest ways of developing these features.

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