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RESEARCH ARTICLE

The Effect of using the Programmed Teaching Method According to Linear Programming in Teaching the Skills of (Put Down and Shooting) Football Among High School Students

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Abstract
The study aimed to reveal the effect of using programmed instruction in teaching the skills of (put down and shooting) in football to high school students. The researcher used the experimental method for its suitability and the nature of the research. The research sample included fourth-year students in the Martyr Abdul Rahman Preparatory School for Boys in the Kirkuk Governorate Center for the academic year. (2022-2023) and their number was (333) students. The research sample was (25) students for each group, as the experimental group studied with the programmed education method according to linear programming, and the control group studied with the traditional (imperative) method, and the period of implementation of the educational program was (6) weeks, with two units per week, where the duration of the educational unit was (40) minutes, and the researcher conducted a reconnaissance experiment and after the introductory unit, the researcher conducted the main experiment of applying the educational units, and then conducted the post-test, then the data was treated statistically, and the researcher concluded that teaching According to programmed instruction according to linear programming, it was better than the traditional method in terms of having a positive impact on high school students in teaching the skills (put down and shooting) in soccer.

Keywords
Programmed Teaching, Put Down Skill İn Football, Shooting Skill İn Football, High School

INTRODUCTION

Modern educational trends emphasize the necessity of keeping pace with the rapid pace of cognitive development. The teacher must continue to search and investigate modern methods, strategies and methods that enable him to deliver scientific material to the minds of his students with high efficiency to achieve his educational goals, in which the learner, the method, the content and the goal are important elements in the educational process, while the teacher is a guide and guide. Those who follow the educational process realize the necessity of introducing diversity into teaching methods, and it is necessary for the teacher's choices to vary in learning methods so that he does not stop at one specific strategy or method because applying a unified strategy and method for all learners may not lead to correct learning during teaching (Baio et al., 2018).

Points out indicates that "education is a process of mutual interaction between teachers and learners with the aim of providing learners with the required information and skills that should be achieved within a specific period of time. In order to enhance learners' learning, the diversity of methods used affects the speed of achieving the goals of the educational process, which are mastery and consistency of performance, as well as taking into account individual differences among learners"

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(Barakat, 2019). Therefore, teachers must find methods that suit each of the nature of the learners, the teaching environment and the topics, taking into account the individual differences between the learners. (Mahasneh, 2015) , points out that it is necessary for the teacher's choices to vary in learning methods so as not to stop at one strategy. In particular, because applying a unified strategy for not all learners may lead to correct learning. In order to achieve effective education that all modern educational systems seek, it has been shown that the method of programmed education according to linear programming (Rashid & Neamah, 2022).

The learner follows this method of education in a straight line, where the educational material is divided into small frames. They are arranged in a sequential order. In each frame, the learner needs to provide a response of a specific type and obtain immediate feedback and appropriate reinforcement. The learner cannot move to the next frame before he provides a correct response to the content of the current frame (Mahasneh, 2015). Teaching soccer skills, including the skills of (putting down and shooting) depends (Zghair & Kadhum, 2022) . To a great extent, the application of the appropriate teaching method and style that helps learners master performance, and thus organize their studies more effectively, which is the goal that the educational process seeks, has been used in the current research procedures, as the interest in effective teaching methods in order to deliver the scientific material and learn it in an economical way is It is a vital matter, as the teacher plays an important role in providing an environment for learning mathematical skills to create a type of intelligent learning of skills (Muhalhal & Neamah , 2023).

Therefore, we can say that this learning enhances the work of education. From here, we can summarize the importance of this research in using the programmed teaching method according to linear programming and its impact in teaching the skills of (put down and shooting) at the top of the ball among minutes school students and diagnosing their weaknesses to improve the effectiveness of their teaching.

Through examining the studies and research, the researcher noticed the diversity of teaching methods that suit all categories of learners in schools, and that the old, traditional methods in the education process are prevalent in teaching, in consisted of fourth-grade students at Martyr Abdullah Abdul Rahman Minutes School for Boys, addition to the increase in individual differences among learners in schools that no longer help in confronting the obstacles that arise. They face them, which the learner does not know is a passive recipient only because the traditional method is the method of displaying the skill, as the students stand for a while until it is their turn to participate in performing the motor task that is required to be performed, and not exchanging ideas in teaching football skills, away from positive interaction in the educational situation. This is not consistent with the philosophy.

Educational education that focuses on making the learner the focus of the educational process, especially since football skills in general make the student interesting to perform. If the researcher believes that many changes must be made in the educational field, the most important of which is the shift from teaching to learning and from focusing on the teacher to focusing on The learner, from unorganized planning to planning in an organized manner, from the (methodological) textbook to multiple learning sources, and from collective learning to individual learning (Ahmad, 2016).

From here, the research problem crystallized for the researcher and called for the need to use and be of assistance to other strategies and methods in achieving A better educational and learning environment and improving accelerated learning through the use of a programmed teaching method according to linear programming in teaching the skills (put down and shooting) of the ball among minutes school students. Research objectives: Preparing educational units using the method of programmed instruction according to linear programming in teaching the skills of (putting down and shooting) football among minutes school students, and detecting the effect of using the programmed teaching method according to linear programming in teaching the skills of (putting down and shooting) football among minutes school students.

MATERIALS AND METHODS

The researcher used the experimental method because it suits the nature of the research problem, because the experimental method is one of the best research methods in solving practical educational problems. The research population
in the Kirkuk Governorate Center for the academic year 2022/2023. They were chosen intentionally

and their number reached (333) students distributed among (6) academic divisions. As for the research sample, it consisted of (25) students from Section A who were randomly selected and divided into two experimental and control groups. (25) Students represented the experimental group and (25) students represented the control group. The experimental group was subjected to the use of the experimental variable (Programmed teaching method according to linear programming. As for the control group, they used the usual method (traditional).

This article's necessary ethics committee permissions were obtained with University of Baghdad Social Sciences for Woman Ethics Committee Commission Date: 20.02.2023 Issue/Decision No:4/153. Participant provided informed consent, with the volunteer form covering research details, risks, benefits, confidentiality, and participant rights. The research strictly adhered to the ethical principles of the Declaration of Helsinki, prioritizing participant's rights and well-being in design, procedures, and confidentiality measures.

The researcher excluded a number of students from the two research groups (6), namely: deferred students. Table (1) shows this.

Table 1. Shows the number of members of the research sample

No.	Groups	Number of students	Teaching strategy
1	Experimental	25	Programmed teaching method (according to linear programming)
2	Control	25	Traditional learning
	Total		50

Experimental design used in the research

An experimental design called an equal groups design with a post-test was used, and it is considered one of the best experimental designs

Table 2. shows the experimental design used in the research

No.	Groups	Pre-test	Independent variable	Post-test	Compare results
1	Experimental	Skills (put down and shooting) with football	Programmed teaching method according to linear programming	Skills (put down and shooting) with football	Pre-post
2	Control	Skills (put down and shooting) with football	The method followed	Skills (put down and shooting) with football	Pre-post

In order to identify the homogeneity of the individuals in the research sample and to control the variables that may affect the results of the experiment, including individual differences and the homogeneity of the sample in growth variables, the variables concerned with the research study (height, age, weight), the researcher sought to extract indicators of descriptive statistics in order to control the sample specifications. By calculating the value of the skewness coefficient in order to obtain sample homogeneity and Table (3) shows this.

Table 3. Shows the homogeneity of the research sample for the control and experimental research groups

Groups	Variables	Measuring unit	X	Median	SD	Skewness
Experimental	Length	Cm	157.53	158	3.566	0.76
	Mass	Kg	60.73	60	5.22	0.11
	Age	Year	16.36	15.000	1.271	0.447
Control	Length	Cm	158.61	159	3.876	0.66
	Mass	Kg	62.33	61	4.86	0.10
	Age	Year	16.36	15.000	1.271	0.447

Mean (X), Standard Deviation (SD)

It turns out that the skewness coefficient was limited to (±1), which indicates the homogeneity of the research sample in terms of age, height, and mas from the table above.

Table 4. shows the equality of the experimental and control research samples.

No.	Variables	Measuring unit	Control		Experimental		T value	Type sig
			X	SD	X	SD		
1	Put down	Degree	1.400	0.615	1.000	0.714	1.753	Non sig
2	Shooting	Degree	1.000	0.718	1.300	0.632	0.714	Non sig

Arithmetic mean (X), Standard Deviation (SD)

The results in the table above showed that the calculated value of (T) is greater than the value of the error level (0.05), which means that the differences are not significant between the two groups, which indicates that the two groups are equal, and these indicators are considered solid scientific statistical evidence for the pre-test.

Determine the tests used in the research

Through the researcher's knowledge and survey of sources and studies related to skills tests, a questionnaire was prepared containing a set of tests, which was presented to experts and specialists in the field of football. After collecting the forms and transcribing the data, one test for each skill was accepted, meaning three tests were accepted through Percentage: The test that received an agreement rate of (70%) from the experts was accepted (Al-Azzawi, 1991).

Table 5. Shows the percentage of skill tests according to experts' opinio

No.	Skill	Candidate tests	Expert approval	%
1	Put down	1- Put the ball rolling on the ground.	1	%
		2- Put the ball inside the foot while it is in the air.	1	%
		3- Put out the parked ball from a distance of 10m inside a square (2m x 2m).	1	%
2	Shooting	1- Shooting towards a goal divided into squares from a distance of 20 metres	0	%0
		2- Shooting towards three overlapping rectangles, and the distance between the starting line and the rectangles is 10 m	1	%
		3- Shooting from a distance of 12 metres	6	%

Description of skill tests

First: put down test (Al-Zyoud and Alyan, 2005)

Test name: ***Putting the ball in a square (2m x 2m)***

The purpose of the test: to measure the level of performance of the skill of suppressing the ball, regaining control of it by the side of the foot, the foot, the thigh, or the chest. ***Tools used***:(5) legal footballs, adhesive tape for planning, a whistle, and a measuring tape. ***Method of performance***: The layout of the test area as shown in Figure (9). The player stands behind the test area with the ball on the line and after giving the start signal, kicks the ball (a high ball to the player by a fellow player from a distance of 10 meters from the test area) who advances from Starting line to the test area (2m x 2m), trying to stop the ball with any part of his body except the arms, and then returning to the starting line. Thus, the player repeats the attempt (5) times

in a row and the ball must be stopped behind the line within the specified area. For the test, one foot must be inside the test area. If the teacher (colleague) makes a mistake in throwing the ball, the attempt will be repeated and it will not be counted.

Registration

Two marks are given for each correct attempt. The player is given a zero if the attempt is unsuccessful. (10) marks are given for the total of five attempts

Directions

The ball will be kicked with the foot from the bottom to the top, and the attempt will be considered a failure in the following cases: If the player does not succeed in stopping the ball. If it crosses any of the lines of the test area. If he stops the ball illegally in football.

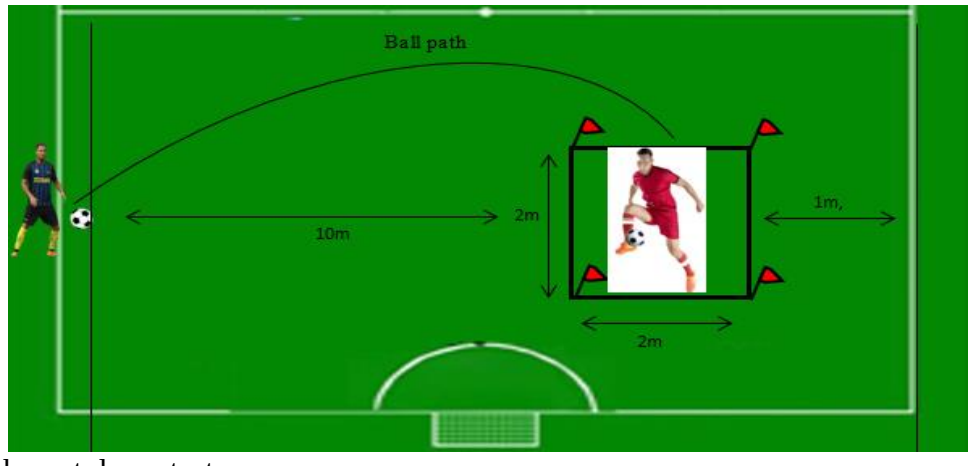

Figure 1. Shows the put down test

Test name: 12 m shooting test (Al-Zyoud and Alyan, 2005)

Purpose of the test: shooting accuracy.

Tools: a futsal goal, (10) futsal balls, and a whistle.

Test description: A futsal goal divided into (6) equal parts and distributed as follows: the upper two corners (4) degrees, the lower (3) degrees, the lower minutes part (1) degrees, the upper minutes part (2) degrees, and a line with a width of (2m) is 12m away from the target, as in Figure (7).

Method of performance: The student stands behind the shooting line and has (5) balls on the line in front of her. Upon hearing the signal, she hits the balls placed on the line to the goal, then she hits the other five balls after they are placed in their place by the work team, and so on until the student completes (10) attempt.

Test conditions

The student hits the ball with her favorite foot. Do not change the position of the balls placed on the line before shooting. Registration: (10) attempts are counted and the total score recorded in the attempts is counted, the highest score being (17).

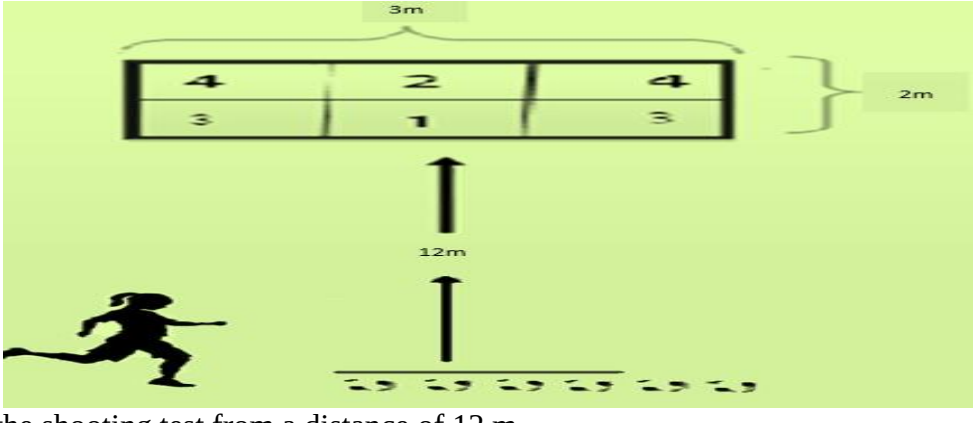

Figure 2. Shows the shooting test from a distance of 12 m

Exploratory experiment

The exploratory experiment for skill tests was conducted on a sample of (10) students from Division C, from within the research community, and the researcher and subject teacher supervised the study on Thursday, 3/2/2023. The aim of this exploratory experiment was as follows:

Knowing the obstacles and problems that may hinder the work of the field experiment. Ensure the safety of the devices and tools used. Verifying the scientific foundations of skill tests. Identify the time taken for the test. Basic research experience

Pre-test

The researcher conducted pre-tests on a sample of the two research groups (experimental and control) on Thursday, 3/9/2023 AD. Football skill tests were applied after preparing the forms for each student's name and for each test according to the nature of recording each student's data to facilitate the work and record the results that it is obtained by every student. The researcher worked to establish all the conditions related to the tests, such as the place, method of implementation and work, as much as possible, creating the same conditions for the post-tests.

Preparing educational units using the programmed teaching method according to linear programming

After reviewing many modern scientific sources and references in the field of methods of teaching physical education and specialized books, the researcher prepared educational units programmed teaching method according to linear programming through a booklet programmed in football for students in the skills (put down and shooting) by analyzing it into small, supported parts. With illustrations for each educational step in a manner that ranges from easy to difficult, taking into account the content in terms of time, in order to achieve the research objectives through each student viewing the educational material designated for the programmed teaching method, which is the special questions about the put down skill, through papers placed on the trip. Each comes A student watches the content of the assigned questions about put down, then begins to answer yes or no, and after that he confirms the correct answer. The student does not move to the next educational unit until after passing the first educational unit. In the event of not passing the question, the student gets immediate feedback by viewing the correct answer then answer a new question again.

Post-tests

The post-tests were conducted on Thursday (April 13, 2023) in the Sports and School Activity Directorate, and the researcher made sure that the conditions were similar to the pre-tests in terms of place, time, and the presence of the assistant work team, and with the same steps as the pre-tests.

Statistical Analysis

A statistical program was used in the statistical analysis of the data obtained. Arithmetic mean, standard deviation, frequency, minimum and maximum values were used in statistical representations of the data. In the normality testing of the data, kurtosis and skewness values of ±1.5 were taken into consideration (Tabachnick & Fidell, 2013). Independent Samples T-test and One-Way Anova were used in the analysis of normally distributed data; Kruskal Wallis H-test and Mann Whitney U-test were used in the analysis of non-normally distributed data. Among the scales used in our research, parametric tests were performed because the kurtosis-skewness values of Sport Participation Motivation, Harmony in Life and Contentment with Life Assessment were between ±1,5. Since the Psychological Well-being scale was not between ±1,5, nonparametric tests were applied.

RESULTS

Table 6. Shows the pre- and post-measurement values for members of the control group for the variables of the skills (put down and shooting)

Variables	Measuring unit	Pre-test		Post-test		T value	Level sig
		X	SD	X	SD		
Put down	Degree	1.400	0.615	3.700	1.588	2.343	0.035
Shooting	Degree	1.000	0.718	2.325	1.435	4.406	0.000

Arithmetic mean (X), Standard Deviation (SD)

Table 7. Shows the pre- and post-measurement values for members of the experimental group for the skill variables (put down and shooting

Variables	Measuring unit	Pre-test		Post-test		T value	Level sig
		X	SD	X	SD		
Put down	Degree	1.000	0.714	3.900	0.354	6.738	0.000
Shooting	Degree	1.300	0.632	3.800	0.622	7.342	0.000

Arithmetic mean (X), Standard Deviation (SD)

Table 8. Shows the differences in the post-test between the control and experimental groups in the variables (put down and shooting)

Variables	Measuring unit	Control		Experimental		T value Calculated	Level sig
		Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation		
Put down	Degree	3.700	1.588	3.900	0.354	3.653	0.002
Shooting	Degree	2.325	1.435	3.800	0.622	2.123	0.042

Arithmetic mean (X), Standard Deviation (SD)

DISCUSSION

It is clear from Tables (6, 7, 8) that the two methods achieved the learning goals, especially in teaching the skills (put down and correcting). believes "that one of the natural phenomena of the education process is that there must be development in education as long as the teacher follows the correct basic steps for teaching and correct performance. The focus on continuous attempts and repetitions until performance is mastered and consistent" (Ghada, 2008; Hussein, et al., 2023) , in addition to the nature of sports work that requires continuous interaction between students and their cooperation together, gives clarity about the extent of their awareness and awareness in implementing what is required of them (Rashid & Neamah, 2022), but there were statistically significant differences between the pre- and post-tests in favor of the experimental group that used the method of programmed instruction according to linear programming. It helped students learn and master skills because programmed instruction has a role in the interaction that takes place between the learner and the educational program, so the effectiveness of the educational program helped increase The desire, excitement, and improvement of the educational process among students, and the multiplicity of questions, tools, and materials used by the teacher work to improve the educational process and raise the effectiveness of learning for the student, and this is what was confirmed by (programmed education in which learners move from one framework to another in the same order, but Each learner works at his own pace, and the material must be prepared and prepared in a special way and presented in an image (Al-Diwan, 2009). Obtaining knowledge results from personal experiences, experience, and practice, and is linked to the individual's mental processes, his method of perception, and his motivation (Zghair & Kadhum, 2022), and that the gradation in education from easy to difficult and taking into account individual differences influenced the experimental group that used programmed instruction according to linear programming in teaching the skills of (put down and shooting) in football to minutes school students and brought about development in their learning as it is one of the successful methods in building The correct ideas for teaching, which are based on the ideas accumulated as a result of watching, practicing, and displaying the successful model, performing different movements quickly (Al-Zyoud & Alyan , 2005). We find that limited compatibility in the multiple functions of the different thought centers is one of the factors that contribute significantly to, in addition to the role of the exercises and games included in the units. Educational due to its special nature and diversity, whether it is practiced with tools or without tools, or it is performed individually, in pairs, or in groups, it provides students with the appropriate opportunity to express their desires and inclinations, in addition to the pleasure they gain through practicing it (Rashid & Neamah, 2022; Majed, 2022).

Conclusions

Using the programmed teaching method according to linear programming is more effective than the traditional method (the usual method) in teaching the skills of (put down and shooting) in football to minutes school students.

Recommendations

Applying the programmed learning method is one of the modern methods in education and teaching to increase the number of learners in classrooms, which helps to utilize time, save effort, and raise the skill level of learners. Applying the programmed teaching method to complex and more difficult skills due to its positive effect on improving and speeding up the learners' learning of motor skills and enriching the learners' cognitive and emotional aspects. More research and studies should be conducted that apply different teaching methods for the purpose of raising the efficiency of the educational process when teaching, teaching and training scientific and practical subjects in schools.

Conflict of Interest

The author declare no conflict of interest.

Ethics Committee

This study was performed by adhering to the Helsinki Declaration. Ethical approval of the study was obtained from Ministry of Education, Iraq Ethics Committee at the board meeting dated 20.02.2023 and numbered No:4/153

Author Contributions

Plans by author: study design,by Amenah Study Design,; Data Collection, AK, OB; Statistical Analysis,; Data Interpretation, Manuscript Preparation,; Literature Search, . the author have read and agreed to the published version of the manuscript.

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Appendix (1) A model of an educational unit for the put down skill

- Stage: Fourth preparatory school
- Group number: 25 students
- Goal: learn to put down
- Unit time: 40 minutes

No.	Unit sections	Time	Details of the educational unit vocabulary
1	Preparatory section	5minutes	A general warm-up of the body and skill-specific physical exercises.
2	Main section	30 minutes	
	Educational section	10 minutes	- General information about the put down skill and its importance, explaining the technical performance of the skill, and mentioning the most common mistakes in it to avoid.
	applied section	20 minutes 15minutes	- Showing pictures and illustrations of the put down skill to students.
		5minutes	
3	Final section	5minutes	Calming and relaxing exercises for the body