THE EFFECT OF EDUCATIONAL UNITS ACCORDING TO LEARNING STATIONS OF VARYING LEVELS ON IMPROVING COGNITIVE MOTIVATION AND GOAL-SCORING IN FOOTBALL

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Abstract

The research aimed to develop educational units based on learning stations of varying difficulty levels to improve cognitive motivation and goal-scoring in football, It also aimed to identify differences between pre- and post-test results in the variables of scoring from a stationary position and scoring from movement for the three research groups, The researcher used the experimental method as it was suitable for the nature of the problem , The researcher relied on a sample of players from Al-Kadhimiya Sports Club (youth category), aged 17-19, totaling (18) players, who were selected purposively, This sample represented (11%) of the original population of (200) players representing (10) clubs in Baghdad, The research sample was divided into three groups by lottery as follows: the first experimental group, consisting of (6) players, which worked according to the learning stations of varying difficulty levels; the second experimental group, consisting of (6) players, which worked according to the delegation method in setting its goals; and the third (control) group, consisting of (6) players, which worked according to the coach's method, The positive impact of the educational units that were implemented on the experimental groups (first and second) had a significant effect on improving the cognitive motivation and goal-scoring of the young players.

Keywords: Educational units, diverse learning stations, cognitive motivation, football.

Introduction:

Learning units provide a structured framework, beginning with defining the learning objective and then organizing the content and activities within cohesive units that accurately measure learning outcomes, Through meticulous unit design, learners can navigate between aspects of technical knowledge, field applications, and self-assessment in a critical and constructive manner, This transforms learning into an integrated experience that strengthens the link between theory and practice in football, Therefore, the learning path is built upon dividing the lesson into learning stations of varying difficulty, allowing students to choose their path according to their abilities and needs, This fosters learning flexibility, enabling students to build strategic competencies and develop a sense of self-accountability, Cognitive motivation, and its relationship to learning to score in football, is the intrinsic incentive that drives students to explore the content and identify the most suitable paths to problem-solving. Accuracy, timing, and skill integration develop as students translate theoretical understanding into successful movement decisions on the field, The importance of this research lies in the fact that organizing content through learning units that include learning stations of varying difficulty levels enhances cognitive motivation and raises both cognitive and skill achievement in football.

Research problem:

The teaching of psychological and skill-based outcomes in physical education classes faces challenges in adapting learning content to the varying levels of students, leading to inconsistencies in cognitive motivation and a decline in goal-scoring performance in football. While different learning levels offer

opportunities to enhance the use of feedback and formative assessment, the question of balancing challenge and ability, and adjusting teaching strategies to meet the needs of each learner, remains crucial and represents a significant gap in students' cognitive and skill-based development.

Research objectives:
1. Develop educational units based on learning stations of varying levels to improve cognitive motivation and goal-scoring in football.

2. Identify the differences between pre- and post-test results in the variables of stationary and moving goal-scoring for the three research groups.

3. Identify the differences between post-test results in the variables of stationary and moving goal-scoring and cognitive motivation for the three research groups.

4. Determine the percentage of improvement in goal-scoring skills for the three research groups.

Research hypotheses:
1. There are statistically significant differences in the pre- and post-tests for the two football scoring variables among the three research groups.

2. There are statistically significant differences in the post-tests for the cognitive motivation and football scoring variables among the experimental groups.

3. The experimental learning units have a positive effect on improving cognitive motivation and football scoring according to the learning stations.

Research fields:
The human field: Players of Al-Kazimiya Sports Club in the youth football category, aged (17-19) years.
Time field: From 15/1/2025 to 20/5/2025 .
Spatial field : Al-Kazimiya Sports Club football stadium.

Research methodology and field procedures:
Research Methodology:
The researcher used the experimental method because it was suitable for the nature of the problem.
Community and sample research:
  The researcher relied on a sample of 18 players from Al-Kadhimiya Sports Club's youth football team (aged 17-19), selected purposively. This sample represented 11% of the original population of 200 players representing 10 clubs in Baghdad. The research sample was divided into three groups by lottery as follows:

- The first experimental group, consisting of 6 players, worked using learning stations of varying difficulty levels.

- The second experimental group, consisting of 6 players, worked using a delegated learning approach to set its own goals.

- The third (control) group, consisting of 6 players, worked according to the coach's method.

Measures of homogeneity and equivalence were performed for the sample and the results were:

Table (1) shows the homogeneity of the sample.

Variables	Measuring unit	Mean	Median	Std. Deviation	Skew ness
Length	cm	175	175.5	5.28	0.28 -
weight	Kg	67.06	67.5	7.39	0.18 -
Age	Year	18.02	18.15	2.70	14.0 -

Table (2): The equivalence of the research groups is shown.

N	Tests	Source of variation	Sum of squares	Degree of freedom	Average of squares	Calculated F value	Tabulated F value
1	Scoring from a Standstill	Between the groups	0.06	2	0.03	0.06	3.68
		Inside the groups	7.96	15	0.53		
2	Scoring from the movement	Between the groups	0.17	2	0.09	0.75	
		Inside the groups	1.74	15	0.12		
3	Cognitive Motivation Scale	Between the groups	1.14	2	5.7	3.15	
		Inside the groups	2410	15	161		

The following methods and tools were used in the research:

- Means:

1. Arabic and foreign sources and references.
2. Personal interviews.
3. The internet.
4. Tests.

- Tools and equipment:

1. Diamond brand stopwatch (Japanese made).
2. Medical scale for weighing.
3. Metal measuring tape.
4. Ten regulation-size footballs.
5. Football field.
6. Football goal.
7. Five goalposts.
8. Goalposts.
9. Measuring tape.

Tests used:

1. Shooting from a stationary position towards the divided goal(Riyadh Hani Al-Atwani:2023)[1]

2. Rolling the ball between the goalposts and shooting towards the divided goal(Riyadh Hani Al-Atwani:2023)

3. The Cognitive Motivation Scale (Trait Sport Confidence Inventory): This scale was developed by Khaled Aswad et al. in 2020. It consists of 13 items, and the athlete answers the items on a scale of 9 points. The scores (1, 2, 3, 4, 5, 6, 7, 8, 9) determine the athlete's level of confidence. The lowest score on the scale is 13, the neutral score is 65, and the highest score is 117. The scale is scored based on the athlete's total scores across all items. The closer the total score is to the highest score of 117, the higher the athlete's level of cognitive motivation(Khaled Aswad Laikh and others:2020) [2]

- **The scientific basis of tests and the cognitive motivation scale:**
  - **Honesty:** The researcher used face validity based on expert opinions, using the square root of stability
  - **Stability:** The researcher used the test-retest method, whereby the same test was repeated three days later under the same conditions on the same sample. Afterwards, Pearson's simple correlation law was used to determine the reliability of the tests by comparing the results of the two tests,

    Table (4).

    The reliability and validity coefficients of the tests used are shown

N	Test name	Stability coefficient	Honesty
1	Scoring from a Standstill	0.93	0.96
2	Scoring from the Movement	0.91	0.95
3	Cognitive Motivation Scale	0.89	0.92

Pre-test:

The researcher conducted the pre-tests were conducted on the three research groups on 21-22/3/2025.

Method for determining educational units with varying levels

1. The player performs three attempts for each test.
2. The arithmetic mean of the three attempts is calculated.
3. The arithmetic mean is subtracted from the best score the player achieved.

4. The difference from step (3) is added to the best score the player achieved, and the resulting number is used to determine the average range.
5. The difference from step (3) is added to the average range to obtain the target range.

Method of representation:

This variable is introduced to the members of the second group by the coach creating and defining a list of learning stations based on his field experience in football through guesswork and subjective belief.

Educational units and their vocabulary:

-This study included modules focused on improving football shooting skills, distributed across 24 learning units at a rate of 3 units per week, and implemented during a specific preparation period.

-Resting time was calculated based on heart rate; the player would begin the next repetition when their heart rate reached 110-120 beats per minute.

-The difficulty level of the learning units varied between 75% and 95%. The researcher used progressively challenging activities, as these are among the optimal methods that align with the study's modules.

Post-test:

The post-tests were conducted on Sunday and Monday, corresponding to (22-23/5/2025).
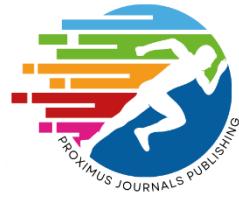
The following statistical means in the research:

The researcher used the Statistical Package for the Social Sciences (SPSS).

Research results:

Presenting and analyzing the results of the research groups in the (T) skill test:

Presenting and analyzing the results of the tests (pre-test, first, second, and post-test) for the first group.

Table (5)

Variables	Measuring unit	Pre-test		First period		Second period		Post-test	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Scoring from a Standstill	Degree	10	2.52	8.83	2.04	10.5	1.87	14.67	3.88
Scoring from the Movement	Degree	6.17	1	4.67	2.38	5.5	0.84	7.84	1.34

Presenting and analyzing the results of the first group in the t-test for skills.

To determine the differences between the pre- and post-tests. Table (6)

Variables	Mean difference	Std. Deviation difference	Value (T)		Degree of freedom	Sig type
			Discounted value	Tabular value		
Scoring from a Standstill	4.66	2.97	3.85	2.57	5	Sig
Scoring from the Movement	1.67	1.03	3.97			

Presentation and analysis of the results of the pre-tests, first and second tests, and post-tests for the second group.

Table (7)

It shows the results of the tests (pre-test, first, second, and post-test) for the second group (the proxy group).

Variables	Measuring unit	Pre-test		First period		Second period		Post-test	
		Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Scoring from a standstill	Degree	10	4.38	7.5	1.52	8.83	1.48	11	1.90
Scoring from the movement	Degree	6.5	1.52	4.84	1.18	5.5	0.84	7.84	1.19

The results of the second group's t-test for both scoring tests are presented and analyzed.

Table (8) shows the arithmetic means of the differences, standard deviations of the differences, calculated and tabulated t-values, and significance level for the second group (the proxy group).

Variables	Mean difference	Std. Deviation difference	Value (T)		Degree of freedom	Sig type
			Discounted value	Tabular value		
Scoring from a Standstill	4.66	2.97	1.98	2.57	5	No Sig
Scoring from the Movement	1.67	1.03	4.03			Sig

Presentation and analysis of the pre- and post-test results for the third group.

Table (9) shows the pre- and post-test results for the control group.

Variables	Mean	Pre-test	Post-test

		Mean	Std. Deviation	Mean	Std. Deviation
Scoring from a standstill	Degree	11.17	5.24	11.5	4.51
Scoring from the movement	Degree	4.84	2.65	6.67	2.34

Table (10) shows the arithmetic means of the differences, standard deviations of the differences, calculated and tabulated T-values, and significance level for the two scoring tests for the control group.

Variables	Mean difference	Std. Deviation difference	Value (T)		Degree of freedom	Sig type
			Discounted value	Tabular value		
Scoring from a Standstill	0	1.42	0	2.57	5	No Sig
Scoring from the Movement	1.83	1	4.57			Sig

Presenting and analyzing the results of the research groups in the analysis of variance (ANOVA) and LSD tests.

Table (11) shows the analysis of variance between the three research groups in the post-tests under study.

Tests	Source of Variation	Sum of Squares	Degree of Freedom	Average of squares	Value of F	
					Calculated	Tabular

Scoring from Standstill	Between the groups	46	2	23	1.77	
	Inside the groups	196	15	12	0.96	
Scoring from the Movement	Between the groups	5.45	2	2.73		3.68
	Inside the groups	42.99	15	2.87	4.031	
Cognitive Motivation	Between the groups	980.778	2	490.389		
	Inside the groups	1825	15	121.667		

Table (12) shows the value of (L.S.D) on the cognitive motivation scale.
shows the results of the (L.S.D) test among the post-test measurements of the cognitive motivation scale for all research groups.

Tests	Unitof measurement	Groups	Arithmetic Means of Sums	The difference between environments	L.S.D	Sig
Cognitive Motivation	Degree	1-2	86.17-68.34	17.83	7.835	Sig
		1-3	79.83-67.34	11.5		Sig
		2-3	79.83-86.17	6.333		No Sig

Presenting and analyzing the results of the research groups using the law of developmental levels.

Table (13) shows the developmental level in the pre- and post-test scores for all research groups.

Groups	Tests Rate of development	Arithmetic Mean		Rate of development
		Pre-test	Post-test	

First	Scoring from Standstill	10	14.67	46.7
	Scoring from the Movement	6.17	7.84	27.67
Second	Scoring from Standstill	10	11	10
	Scoring from the Movement	6.5	7.84	20.62
Third	Scoring from Standstill	11.17	11.5	2.96
	Scoring from the Movement	4.84	6.67	37

Discussion of results:

Discussion of the results of the first group (the group of learning stations with varying levels) in the (T) test.

After the results of this group were presented and analyzed as shown in Tables (1) and (2) in the tests under study, it appears to us that the results of this group were better than the second group (the proxy group) and the third group that worked without period goals, as looking at Table (6) shows us that the arithmetic means of the skill tests used by the researcher have developed and that the development curve is upward, as we find that the arithmetic mean in the (shooting from a stationary position) test, which uses (scores) in its measurement, was (10) in the pre-test and became (14.67) in the post-test. This is an indication of development through the increase in the score of the (shooting from a stationary position) test. As for the (shooting from movement) test, which uses scores in its measurement, we find that the arithmetic mean was (6.17) in the pre-test and became (7.84). This is also an indication that there is a clear improvement in the development of the players' level in skill abilities. As for Table No. (2), we find that the (T) values calculated between the pre-test and post-test measurements in the two tests under study are significant values in all tests and in favor of the post-test measurements.

After observing the results of the players' tests in this group, the researcher can confirm the role, importance, and impact of setting up and defining learning stations of varying levels on the players' cognitive motivation to achieve their best performance levels. This was indeed achieved, as the players' performance improved due to the use of these learning stations, the benefits and impact of which were summarized for the athlete. Since the members of this group used the learning stations of varying levels through a well-designed scientific form that can objectively measure the players' results in skill tests, the researcher agrees with what was mentioned above. During monitoring the work of this sample, it was found that the members of this group working according to the learning stations experienced moments of great enthusiasm and drive when the measurements were taken. They also requested to know their progress rates and what was required to be achieved in the upcoming tests. Therefore, the researcher can confirm that the post-tests had a significant impact on the players' motivation, and this was proven by the post-test results because "consulting the motivation to achieve

excellence in a specific sporting activity represents (70-90%) of the learning process."(Osama Kamel Rateb: 1997) [3] .

The researcher attributes the development of the level of this group to the role of the impact of educational units, as the realism of the impact of educational units that he put forward was applied to the research sample in terms of the time distribution of the aiming skill in terms of the gradation and variety of its exercises, and he chose the correct timing for the use of educational load stimuli in terms of repetition, duration of the stimulus, and the exchange of work between effort and gentleness, as well as the number of training times in terms of quantity and type, in a way that achieves the principle of adaptation in a manner that is compatible with the growth characteristics of this age group.

Discussion of the results of the research groups in the analysis of variance test and the L.S.D. test.

From the analysis of variance table (11) and the L.S.D. table, it appears that the calculated (F) values for the two scoring tests are less than the tabulated (F) values, indicating no statistically significant differences. However, the tabulated (F) values for the cognitive motivation scale were greater than the tabulated (F) values, indicating statistically significant differences. Therefore, the researcher can point to the importance and role of setting and defining learning stations on players' motivation in achieving performance improvement, given that the differences in the L.S.D. test tended towards the first group. This confirms what Spink (1992) stated regarding the relationship between setting learning stations and motivation, and its relation to the improvement of performance levels in the sports field. Spink indicates that "the concept of motivation includes the reasons behind choosing a path towards a goal, and thus motivation is related to the level of intensity with which the goal is observed, in addition to the degree of perseverance with which the goal can be achieved."(GOHAN :K:2021) [4]

The researcher also attributes the superiority of the first group over the other two research groups to the fact that this group worked to achieve objective goals that were compatible with the capabilities and skills of the members of this group, and they achieved these learning milestones through perseverance, diligence and competition among themselves throughout the application of the impact vocabulary and educational units by the researcher.

Discussing the results of the research groups using the law of the level of improvement.

Through the presentation and analysis based on the results of Table No. (13), which shows the development level of the players in the first group that used learning stations of varying levels, it appears that the development level of this sample was high in the two scoring tests. This indicates the importance of setting goals, the benefits of which have been highlighted by all those who have written about learning stations in sports, including Alawi (1994), who considers goal setting "among the most important guidance and instruction processes that the sports coach should pay attention to. The goal is intended to achieve a certain level of progress or mastery in a task within a specific time period. That is, the goal focuses on the fact that this progress, improvement, or mastery will be achieved within a specific time unit, such as a period of three months, or after (20) learning units, or in a period that may reach two years."(Muhammad Hassan Alawi:1994) [5]

The researcher also found through his work with the research sample that the members of the first group, after they had taken the tests and were told what they had to achieve during the upcoming tests, began to compete with each other in order to achieve the required learning milestones. Nichols (1984) points out on this: "If the goal represents the true capabilities of the individual in light of specific standard levels that others have successfully achieved, then the individual becomes interested in self-actualization or what is known as (the ego). But if the goal represents standard levels for the person himself, then this reflects the individual's interest in his level of performance in light of his individual progress."(JON.R.R: 2022) [6].

Regarding the importance of placing learning stations in the teaching units, Hammad (1996) points out that "achieving individual goals is the result of every personal success, meaning that learning stations show you where you stand and what you want to accomplish… Hammad continues, saying that success is considered an achievement of goals, increased performance experience, and there were other successes and increased cognitive motivation, and that this applies perfectly to coaches, so placing good learning stations is extremely important for all types of sports."(Mufti Ibrahim Hammad:1996) [7] .

As for the level of development of the members of the second group (the delegation group), it was in the (targeting from a stationary position) test in the pre- and post-tests (10), which is a low level of development, and the level of development of the members of this group in the (targeting from movement) test in the pre- and post-tests (20.62), which is a medium level of development.

The development level of the third group (control) in the (targeting from a stationary position) test in the pre- and post-tests was (2.96), which is a low development level. However, the development level of the third group in the (targeting from movement) test in the pre- and post-tests was (37), which is a high development level. We find that the development rates of the third group came second after the first group. The researcher attributes this to the fact that this group worked without goals. None of the members of this sample had prior knowledge of the level they had reached or what the next goal was that they had to achieve. Although we talked in the previous sections about the importance of setting learning stations in sports and their impact on the level of achievement through the development of the level, talking about the importance of setting learning stations remains interesting because it reinforces the convictions of many working in the sports field, especially coaches who are always looking for means and methods that help them succeed in their educational work away from traditional training patterns that do not link aspects of training to psychological factors, including cognitive motivation.

Conclusions and recommendations:
Conclusions:
1. The positive impact of the educational units implemented with the experimental groups (first and second) significantly improved the cognitive motivation and scoring abilities of the young players.
2. There were statistically significant differences in the scoring tests for the first group, favoring the post-tests, due to the use of targets of varying difficulty levels.

3. The use of learning stations of varying difficulty levels contributed to the improvement in cognitive motivation and scoring abilities of the young players.

4. There were no statistically significant differences in the analysis of variance (ANOVA) for the scoring tests across all research groups.

5. There were statistically significant differences in the ANOVA for the cognitive motivation scale, favoring the first group.

Recommendations:

1. Focus on establishing and defining learning stations of varying levels in a measurable manner to improve skill performance.

2. Emphasize to coaches the use of verbal reinforcement to build cognitive motivation and avoid criticizing players in front of others.

References:

1. - Riyadh Hani Al-Atwani (2023) The Effect of a Proposed Training Program on Developing Goal-Scoring Skills in Football, published research, Journal of Sports Sciences, University of Baghdad, Volume 20, Issue 2.

2. - Khalid Aswad Laikh et al.(2020) Cognitive Motivation among Students of Some Colleges of Physical Education and Sports Sciences in the Central and Southern Regions, published research, International Journal of Sports Sciences, Volume 2, Issue 4, .

3. - Osama Kamel Rateb: (1997) Motives for Excellence in Sports Activity, Cairo, Dar Al-Fikr Al-Arabi.

4. - GOHAN :K:(2021) Strategies enhancing motivation, USA, the I.A.A.F. guartely magazine, vol. 17. No.

5. - Muhammad Hassan Alawi:(1994) Sports Psychology: Cairo, Dar Al-Maaref.

6. - JON.R.R: (2022) Goal setting a secret to successee J. of Swimming world vol.

7. Mufti Ibrahim Hammad: (1996) Sports Training for Both Sexes from Childhood to Adolescence: Cairo, Dar Al-Fikr Al-Arabi.