

# A Comparative Study of Cognitive Achievement in Football Among Students who Have Different Learning Styles

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## Abstract

The study aims at identifying the differences in cognitive achievement in football among students with different learning styles. The researchers used the descriptive approach with a comparative study method for its suitability for the nature of the problem, and the sample of the examined students who are the fourth stage students in the Faculty of Physical Education and Sports Science - Samarra University for the academic year 2018-2019. The number of students is (108), and the researchers used the Learning Styles Scale (VAK) that was developed at the Qattan Center for Educational Research and Development and a measure of cognitive achievement in football. The main experiment was carried out on Sunday 5/5/2019 to statistically manipulate data, the researchers used the Statistical Package (SPSS) to find: (mean, standard deviation, simple correlation coefficient Pearson, F test for variance analysis, and L.S.D test). The researchers concluded that there were significant differences in cognitive achievement in football among students with different learning styles. Students who preferred visual learning style over students who preferred auditory and kinesthetic learning styles, and students who preferred auditory learning style superior to students who preferred learning style Sense - kinesthetic.

**Keywords:** Cognitive achievement, football, learning styles (VAK).

## Introduction

The learners at any school grade have a set of characteristics, characteristics, and criteria that make him different from other students, and he has the independent personality that leads to a clear difference between him and his colleagues in his view of learning, and the acquisition of different concepts and skills. that helps him to meet his needs, desires, and needs. his motivation to learn increased and his knowledge acquisition increased. Moreover, from the premise that the learning and teaching process is a very complicated issue in terms of the process of its occurrence, especially if we realize that each learner has his method of learning and acquiring concepts through the experiences that he is going through and how he deals with it, i.e. the preferred educational style through which the learner learns. The need to understand the Styles of learning (VAK) is increasing according to the need of group learning within heterogeneous classes and educational literature

has given this aspect attention, as the basis of research, in general, must be the learner with all his dimensions as the basic learning unit <sup>(1)</sup>.

The learning style of a particular student includes his preferred method of receiving information and how to process it. Some learners prefer to hear the educational material with the method of lecture, and the other section prefers displaying the educational material by pictures, slides, and video. There is another section that prefers movement during the learning process and direct participation in it to learn <sup>(2)</sup>. Some people prefer to learn in a group while others prefer to work alone, as some prefer to know the subject in a general way first and then the details and some favor the opposite. <sup>(3)</sup>

## Procedures and measurements

### Participants

The examined students were chosen from the fourth

stage students in the Faculty of Physical Education and Sports Science - Samarra University for the academic year 2019-2020 and they are (115) students, by defining the learning style using the scale of preferred learning styles. It was found that the sample prefers three modes of learning which are the learning style Sense, kinesthetic and visual learning style, and auditory learning style. Accordingly, the sample of (108) students was divided into three groups, the first group that preferred the kinesthetic style consisted of (32) students and the second group that preferred the visual learning style consisted of (40) students. The third group that avoids the auditory learning pattern is composed of (36) students, whose percentage is (93.9%) of the total research community.

### Procedures:

**learning style Scale (VAK):** To achieve the aims of the research, the researchers used the preferred Learning Styles Scale (VAK) which was developed at the Qattan Center for Educational Research and Development <sup>(1)</sup>, which is consisted of (80 A paragraph divided into three dimensions:

- The first dimension (20) Items which represent the kinetic learning style, which is from (1-20).

The second dimension (40) items represent the visual-verbal and non-verbal learning style, which is from (21-60).

The third dimension (20) is an item that represents the auditory learning style, and it is from (61-80).

The results of the feedback to the scale are calculated to determine the preferred pattern by giving (4) degrees to the answer (always), (3) degrees to the answer (often), two degrees to the answer (sometimes), and one degree to the answer (never), and if you get a high degree in one of the three styles (sensation - kinesthetic, visual, auditory), this indicates that you prefer this style in learning situations.

The used scale gained validity after presenting it in its initial form to a group of experts in the field of educational psychology, physical education, and sports science.

Then stability of the scale was found using the Retest method <sup>(4)</sup> <sup>(5)</sup> <sup>(6)</sup>, as the test was applied to a

sample of students outside the final application sample and within community research, and then re-application of the scale after two weeks from the first application. Then, after collecting the scale forms were statistically processed using the simple correlation coefficient (Pearson) between the degrees of the first and second application, so the coefficient of stability of the sense-kinematic style (0,82), and the visual style (0, For the acoustic pattern (0.76), it has high stability that can be used in the application of the instrument. The higher the stability coefficient value (0.71), the better. <sup>(7)</sup>

### Football Cognitive Achievement Scale:

To measure cognitive achievement of basic football skills, the two researchers adopted the test designed by <sup>(4)</sup> and is specifically designed to measure cognitive achievement of basic football skills. This test uses objective questions based on multiple-choice, as it contains (40) patterns and each pattern contains (4) alternatives that achieve the goals related to the educational content of basic skills in football. one score is calculated for each correct answer. To find the scientific foundations of the scale, the researchers followed the same previous procedures where the validity of the scale was extracted by presenting it in its initial form. Also, it included (40) patterns on the experience and specialization in the field of football, and the opinions of the arbitrators were taken as (5) patterns (5, 9, 17, 22, 34) were deleted. Thus, in its final form, it contains (35) paragraphs. According to the arbitrators, it is suitable for students of the fourth stage in the College of Physical Education and Sports Science, and thus the scale has obtained apparent honesty.

To ensure the appropriateness of the scale, and to find consistency for it, a survey which is consisted of (4) students is applied. This correlation has reached (0.87) and this stability is valid for the study.

The participants of the survey answered the cognitive achievement scale in football on Sunday (5/5/2019), and the number (108) students were divided into three groups according to their preferred educational items, and without specifying a time to answer the scale, and the correct answer method was explained on the scale, and that By putting a circle around the correct answer that the student thinks appropriate, and after completing the answer to all the items, the scale questionnaires were

collected from them, and thus the final exam score is the sum of his correct answers on the scale.

**Data analysis:**

The data is prepared, organized, and entered into the computer as an XL file; Various statistical methods

were used to analyze and process statistical data using SPSS V27, then the standard deviation, then the simple correlation coefficient Pearson, the F test for variance analysis as well as the least significant mean difference of L.S.D were used.

**Results**

**Table 1: Shows the statistical variables related to cognitive achievement according to preferred learning styles used in this study**

Items	Measuring unit	Arithmetic mean (s-)	standard deviation (P)
Visual learning Item	score	29.083	2.151
Auditory learning Item	score	22.5	1.90
kinesthetic learning Item	score	17.666	2.549

The arithmetic mean of the visual learning item was (29.083), with a standard deviation of (2.151).

- The arithmetic means for the audio learning item was (22.5) with a standard deviation of (1.90).

- The arithmetic means for the kinetic learning item was (17.666) with a standard deviation of (2.549).

**Table 2: shows the results of the test (F) between the three learning styles in the cognitive achievement test for football**

variable	Measurement unit	Source of divergence	Total squares	Degree of freedom	Average of squares	value(F)	Value (sig)	Significance
Cognitive achievement	Score	Between groups	689.68	2	344.84	71.302	0.000	Significant
		Within-group	135.417	28	4.836			

\* Significant because Sig is less than (0.05)

The values of the (F) test which is found in the cognitive achievement test in football reached (302.71) and at a level of significance of (0,000). It indicates that the significance of the differences in the cognitive achievement test in football between the three learning styles, and to find out the differences between the styles the researchers resorted to using a test the least significant difference (L.S.D) as shown in the following table.

**Table 3: The least significant difference test (L.S.D) in the cognitive achievement test for football between the three styles of learning**

Variable	Groups	Average of difference	(sig) value	Difference significance
Cognitive achievement in football	Visual mode - auditory mode	6.583	0.000	Significant
	visual mode - kinetic style	416,11	0,000	Significant
	auditory mode- kinetic style	833,4	0,000	Significant

\* Significant because Sig is less than (0.05)

- The significance of the differences between the visual learning style and the auditory learning style in the cognitive achievement test in football and the favor of the visual learning style.

- The significance of the differences between the visual learning style and the kinetic learning style in the cognitive achievement test in football and the favor of the visual learning style.

- The significance of the differences between the auditory learning style and the kinetic learning style in the cognitive achievement test in football and the favor of the auditory learning style.

### Discussion

Table (2) showed significant differences between the three learning styles in the cognitive achievement test in football. In favor of the visual learning style, the researchers attribute these differences to the advantages enjoyed by the group of visual students because they see the teacher's body language and facial expressions, as this leads to a full understanding of the content of the lesson. Also, the owners of this style tend to sit in the front rows to avoid visual obstacles, they learn better than during visual presentations (such as illustrations, maps, data, digital videos, and slides), they also take notes on the skill or concept which leads to the assimilation of information. The visual student's group learn better through seeing the educational material and the movements of the teacher and how to perform the

skill, it is important that they see what the teacher is doing, as they have high skills in receiving, preparing, and processing visual experiences, which makes their awareness of educational experiences better through the media Video. <sup>(8)</sup>

The various visual aids used by the teacher in lessons such as educational devices make learning easier and interesting and are an effective tool to attract the attention of learners and help them understand different phenomena <sup>(9)</sup> and the use of visual aids in teaching are one of the ways to improve course progress and give students additional ways to process information and acquire it in an organized way <sup>(10)</sup> The great scientist Comenius said: The basis of all learning is to reasonably represent the senses so that knowledge can be easily acquired and preserved <sup>(11)</sup>. Visual students can process the largest amount of information more efficiently because the visual representations supported by half of the human brain make students able to integrate ideas, facts, and concepts and save them in an organized way, especially when paired with an educational environment controlled by students, where it enables them to obtain deeper learning and gain different concepts and skills.

As can be seen from Table (3), there are significant differences between the audio students and the kinetic students for the benefit of the audio students, and the researchers attribute this to the fact that the audio students benefit from the valuable information that teachers give in their lectures, in addition to the talk and discussions

that take place between the students themselves on the one hand, and between the students and the subject teacher on the other hand, where students interpret the meanings behind the teacher's speech and focus on the tone of his voice and rhythm during the explanation, which reflects positively on their cognitive and skill achievement, and this is unlike the kinetic students who do not find their goal in the curriculum of the subject teacher. Auditory students are described as enjoying speaking and listening, making sounds when reading such as moving lips and whispering, and tending to use phonemes<sup>(12)</sup>

The audio students listen to the teacher's explanation and prefer discussion and work in groups. This is common during lessons related to teaching football skills, as the teacher of the subject before each skill allocates a time when he explains that skill in detail while giving time to interact between him and the students such as asking questions and inquiries and answering them. Many students prefer auditory learning style and love to sit in a quiet classroom and listen to the teacher, so they do not use as much of their energy and economize it<sup>(13)</sup>

In the past, the teacher was seen as the core of the educational process, and recent trends seek for looking at the learner and his needs and taking into account his methods of obtaining the information. Therefore the need to understand student learning patterns is increasing in accord with asking for learning within heterogeneous classes.<sup>(1)</sup>

<sup>(14)</sup> <sup>(15)</sup> <sup>(16)</sup> see preferred learning styles (VAK) as a side Among the aspects of individual differences that ask for all educational organizations of the need to consider them and deal with students in a way that considers them.

We can consider understanding students' favorite learning styles as can improve the planning, production, and implementation of educational programs and the development of experiences, and therefore are more beneficial for students' desires, improve learning, retain information, and speed of retrieval. The effect of students' learning styles on their achievement, knowledge, or acquisition of concepts with study<sup>(17)</sup> all of which dealt with learning styles as independent variables and their impact on acquiring attitudes, skills, and concepts in different subjects.

## Conclusion

The researchers found, through presenting, analyzing, and discussing the results, that there are different educational patterns among the examined students, and that there are significant differences in cognitive achievement in football between students who prefer the visual style and among students who prefer the auditory style and in favor of the visual style. Moreover, there are significant differences in cognitive achievement in football among students who prefer the visual style and among students who prefer the sensory-kinetic and in favor of the visual style, there are also significant differences in cognitive achievement in football between students who prefer the auditory style and among students who prefer the sensory-kinetic and in favor of the auditory style; The researchers recommend that learning Styles should be taken into consideration when developing curricula for physical education, as it is an aspect of individual differences that must be taken into consideration, and teachers should vary in the use of teaching strategies and methods to suit the different learning styles of their students.

**Ethical Clearance:** The Research Ethical Committee at scientific research by ethical approval of both MOH and MOHSER in Iraq

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## References

- 1- Jaber, L & Qur'an, M. Learning Styles - Theory and Practice. 1st Floor, Palestine, Abdul Mohsen Al-Qattan Foundation. 13.2004.
- 2- Jerome, L. Ways of learning: Learning theories and learning styles in the classroom. *European Journal of Teacher Education*, 2010: 33(2), 219–221. <https://doi:10.1080/02619760903499646>
- 3- Sinadah, M. Learning Styles: their models and prospects for their application in higher general education. Khartoum, Sudan Open University. 13.2007.
- 4- Al-Janabi, M. The basics of measurement and testing in physical education, Cairo, The Book Center for Publishing, 2019:91.
- 5- Kurtz, J. E. Test-Retest Reliability. *Encyclopedia of Personality and Individual Differences*, 2017: 1–2.

- [https://doi:10.1007/978-3-319-28099-8\\_1351-1](https://doi:10.1007/978-3-319-28099-8_1351-1)
- 6- Taha, F. Industrial and Administrative Psychology Cairo, The Anglo-Egyptian Library,2010: P: 220.
  - 7- Owais, K. Scientific Research Manual. Cairo, Dar Al-Fikr Al-Arabi Press.1999: 24.
  - 8- Abdul Hussein, W & Hammoudi, L & Jabur, M. Learning Style and its applications between the teacher and the learner. Amman, Dar Al-Radwan for Printing and Publishing.2019: 132.
  - 9- Rasul, S., Bukhsh, Q., & Batool, S. A study to analyze the effectiveness of audiovisual aids in the teaching-learning process at the university level. Procedia - Social and Behavioral Sciences,2011: 28, 78–81. <https://doi:10.1016/j.sbspro.2011.11.016>
  - 10- - Kunari, C. Methods of teaching educational Technology, Publish by Rajouri Garden New Delhi,2006: P: 146.
  - 11- Singh, Y.k. Instructional Technology in Education, published by Darya ganj new Delhi,2005: P: 165.
  - 12- Abdul, Hussein, W. Document learning with the brain, Beirut, Dar Al-Kutub Al-Alami.2014: 47.
  - 13- Ibrahim, R. H., & Hussein, D. A. Assessment of visual, auditory, and kinesthetic learning styles among undergraduate nursing students. Int J Adv Nurs Stud,2016: 5, 1-4]
  - 14- Afaneh, I.Strategic teaching of modern mathematics applied procedures on the Palestinian child. 1st floor, Islamic Gaza.1995: 86.
  - 15- Lincoln, F., & Rademacher, B., Learning styles of ESL students in community colleges'. Community Journal of Research and Practice, 2006: vol. 30(5), p: 485-500. <http://dx.doi.org/10.1080/10668920500207965>.
  - 16- Rajshree S., learning style and academic achievement of secondary school students, the voice of research,2013: Vol.1 Issue 4, p:2.
  - 17- Federico, P.-A. Learning styles and student attitudes toward various aspects of network-based instruction. Computers in Human Behavior,2000: 16(4), 359–379. [https://doi:10.1016/s0747-5632\(00\)00021-2](https://doi:10.1016/s0747-5632(00)00021-2).