

Designing an electronic tool to assess the level of students in the basketball scoring table tests

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Abstract

Basketball is one of the games that has been promoted globally, and it is one of the very popular team games, as well as one of the games that are receiving increasing attention by players, coaches, administrators, referees and spectators, as the literature has proven that basketball is the second most followed sport around the world after football. Far from the traditional methods for assessing the cognitive aspect of (Basketball Law) for students, the researcher found a modern method in the evaluation process represented by using an electronic tool (electronic link) in the form of questions related to the duties of the basketball referees whose duties differ from those of the court referees. It is answered by the research sample to be evaluated accordingly, the importance of research in finding modern means to identify the level of students in the cognitive aspect of (Basketball Law) and to determine the extent of their intellectual capabilities and experience in the field of basketball, while the problem of the research lies through experience. The researcher, in observing and following up the level of students in basketball, and largely for (the law of the game), noticed that there is a discrepancy in the abilities of students between the second and fourth stages in understanding and applying the duties of the referees of the scoring table. Therefore, the researcher decided to delve into the problem of this research to determine their levels in this aspect. The aim of the research is to design an electronic tool to assess the level of students in the registration table tests, as well as to identify the level of students of the second and fourth stages in the cognitive aspect (registration table tests), as well as conducting a comparative study in the results of the registration table tests between students of the second and fourth stages. The researcher used the descriptive method. The research sample was chosen by the intentional method from the students of the two stages (second and fourth) in the College of Physical Education and Sports Sciences. The research sample was chosen by random method (even and single), as the number of students in the two stages reached 120, and the most important conclusions are the emergence of a good level for students of the fourth stage compared to the second stage with tests. For table referees, the researcher recommended paying attention to the theoretical and practical aspects at the same time in the basketball lesson (law).

Keywords: Designing, electronic tool, students, basketball

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1-1- Introduction

It has been developed by human life and its development with it is sports and there are many types, some of which have gained worldwide popularity and local, regional and international sports federations have been formed, and some of them remain little spread, so they are classified under popular games or small games, while basketball is one of the games that has been promoted globally. It is one of the very popular team games, as well as one of the games that are receiving increasing attention by players, coaches, administrators, referees and spectators, as the literature has proven that basketball is the second most followed sport around the world after football, and this sport has many benefits for all Someone who practices it as a consolidation of relations between groups of society, and it removes depression, in addition to that it encourages competition and excellence while playing. We must point out that every sporting event consists of several elements or pillars, including the player, the coach, the referee, in addition to the administrators. The law of basketball is one of the most important laws of sports that require continuous study of its rules, which made the faculties of physical education and sports sciences pay great attention to it, and it is considered one of the requirements of the second and fourth study to increase the cognitive aspect of (the law of the game) for them. Away from the traditional methods of assessing the cognitive aspect of (Basketball Law) for students, the researcher created a modern method in the evaluation process represented by using an electronic tool (electronic link) in the form of questions related to the duties of the basketball referees whose duties differ from those of the court referees and are answered by Before the research sample to be evaluated accordingly. The importance of the research lies in finding modern means to identify the level of students in the cognitive aspect of (Basketball Law) and to determine the extent of their intellectual capabilities and experience in the field of basketball.

1-2- Research problem: The basketball game is characterized by the quick movements of the players and their high skills, which require the presence of high-level referees to manage such physical, skill and planning capabilities. Also, due to the large number of duties placed on the referees of the table, as their work is complementary to the referees of the arena during the matches, and more than one modification has been made to the tests of the game referees in order to successfully run the game matches naturally, including the separation of the test of obtaining the international badge for the referees of the arena from the test of the referees of the registration table. For this, the researcher wanted to design a tool Electronically similar to the international test subject and its application to the Iraqi environment represented by students, and through the researcher's experience in observing and following up the level of students in basketball and largely for (the law of the game) they noticed that there is a discrepancy in the abilities of students between the second and fourth stages in understanding and applying the duties of the referees of the registration table.

Therefore, the researcher decided to delve into the problem of this research to find out their levels in this aspect and to develop appropriate solutions to it.

1-3- research aims:-

1- Designing an electronic tool to assess the level of students in the registration table tests

2- Identifying the level of the second and fourth stage students in the cognitive aspect (registration table tests)

3- Conducting a comparative study in the results of the registration table tests between students of the second and fourth stage

Research areas:-

1- The human field: a sample of (150) second and fourth stage students in the College of Physical Education and Sports Sciences / University of Diyala.

2- Spatial domain: Computer lab in the College of Physical Education and Sports Sciences/University of Diyala

3- Time range: from 12/5/2018 to 28/4/2019

2- Research methodology and field procedures

2.1 Research Methodology:

The researcher used the descriptive method as it is the most appropriate method to solve the research problem.

2-2 The research community and its sample: The research sample was chosen by the intentional method from the students of the two stages (the second and fourth) in the College of Physical Education and Sports Sciences. 15 students for each stage to conduct the exploratory experiment, bringing the total number of the research sample to 150 students, as shown in Table (1)

Table (1)

Shows the description of the research sample

NS	The second phase	The fourth stage	Experimental sample	Total
the number	60	60	30	150

2-3 Devices, tools and means of collecting information:

2.3.1 Devices used in the research:

laptop type calculator hp

An electronic clock to calculate the time when answering

2-3-2 Research tools:

The researcher used the necessary tools to carry out the research, as follows:

The electronic link form (questions) for the basketball registration table tests

2-3-3 Means of collecting information

For the purpose of collecting data and information and arriving at the truth, the researcher used the following means.

Arabic and foreign sources

Electronic information network (internet)

Personal interviews (see Appendix No. (1))

Tests and Measurement

data dump forms

2 4 tests used in the search:

The researcher used the following test

2-4-2 Basketball Recording Table Test Evaluation Form: (See Appendix No. (2))

The evaluation form for the registration table consists of (20) questions, and the answer is (no) (zero) a degree (yes) (1) one degree, and thus the final result of the evaluation of the illustrated arbitration cases ranges (zero-20) degrees, and Appendix No. (1) shows The evaluation form of the illustrated arbitration cases. It included the test questions on three axes: the duties of the technical observer, the duties of the match timer and the 24-second timer, the duties of the registrar and the assistant registrar, as the number of questions for the technical observer was (5) questions, and the temporary ones were (6) questions, while the questions of the registrar were And his assistant (9) questions.

Questions are sent to each laboratory via a special electronic link to be answered within a specified time, as the time to answer each question is 30 seconds, so that the total answer time to (20) questions is 10 minutes, and then the file is returned in the same way to the researcher to collect sample data for statistical processing

2.5 The exploratory experience:

The most important thing recommended by scientific research to obtain accurate and reliable results is to conduct the exploratory experiment, which is “a preliminary experimental study carried out by the researcher on a small sample before carrying out his research, the aim of which is to choose research methods and tools” (1) so the researcher conducted their exploratory experiment on Tuesday 12/ 3/2019 on a sample of (30) students from the second and fourth stages who were randomly selected, with the following aim:

- ☐ The suitability of the tests to the level of the sample members and the understanding of their use.
- ☐ Ensure the appropriate time and place for carrying out the tests.
- ☐ Ensure the validity of the equipment and tools used.
- ☐ Override errors that may occur when executing tests.
- ☐ Knowing the obstacles facing members of the work team and understanding the tests
- ☐ Extracting the scientific basis for the designed form.

2-5-1 The scientific weight of the test

3-5-1-1 Authenticate the form

1- Content authenticity

As the researcher deliberately presented the form prepared by them to a number of experts and specialists (see Appendix No. (3)) in order to express their comments on it and it was approved by all experts without any modification and thus became prepared for application

2- Distinctive honesty

The researcher extracted the validity of the questionnaire by means of discriminatory honesty (discriminatory power) sample of the exploratory experiment

After arranging the test results of the individuals of the exploratory experiment sample in descending order, with the adoption of 50%, they were divided into two groups, upper and lower, with 15 students for each group to extract the discriminatory power of the form prepared by the researcher.

Table (2)

Arithmetic mean and standard deviation of the upper and lower groups and the calculated T-value and its significance in calculating the discriminatory power of the scoring table test

		the	Arithmetic	standard	Values t calculated	mistake	indication
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Test name	groups	sample	mean	deviation		percentage	
recording table	senior group	15th	13.467	1.302	7.472	.000	morale
	lower group	15th	10.200	1.082			

2-5-1-2 Test stability

- split half

The researcher proceeded to extract the test subjects by relying on the data of the individuals of the exploratory experiment sample by the split-half method and dividing the results of the sample (the exploratory) into odd and even to find the correlation coefficient between the two groups using the Pearson correlation coefficient. 0.70 It is a good connection

2-3-1-2 Objectivity of the test

With the form prepared by the researcher, its questions were clear and understandable, and the answers to them were specific, so it was considered of good objectivity.

2-6 The main experience:

After completing Albagesmttlebatt conduct tests key deliberately to research on a major experiment starting on Monday a brief summary of 18/3/ 2019 until on Monday, a brief summary of 04/01/2019), as it was the second stage and fourth students test by electronic link after sending by Albagesaly members The research sample using the Internet system to be answered and returned to the researchers so that the data can be collected and processed statistically

2-7 Statistical means

The researcher used the statistical bag spss To extract search results according to the following laws:

- Arithmetic mean
- standard deviation
- (v) for equal independent samples
- = Pearson correlation coefficient
- square kai

3- Presentation, analysis and discussion of the results

3 -1: Analysis of the results of a form of legal cases and discussed:

The researcher presented to his research sample a form consisting of (20) questions Annex (1) These questions were divided into three axes, the first axis includes answering the questions of the registrant and his assistant and consists of (9) questions, while the second axis includes (6) questions and this axis It includes answering the questions of the match timer and a timer of 24 seconds. The third axis includes (5) questions related to answering the questions of the technical observer. The researcher first presented and analyzed each axis, then discussed the results of each axis, as follows:

3-1-1: Presentation and analysis of the results of the first axis (the recorder and his assistant):

Table (3)

Between the frequencies and their percentages and the calculated value of (Ca 2) and the error rate for the results of the first axis (the logger and his assistant)

questions	Variables	real iterations	Calculated (Ca 2) value	mistake percentage	indication
3	correct answers	14	51,84	0.000	moral
	wrong answers	86			
5	correct answers	43		0.16	random
	wrong answers	57	1,96		
6	correct answers	45	1,00	0.31	random
	wrong answers	55			
9	correct answers	31	14,44	0.000	moral
	wrong answers	69			
10	correct answers	33	11,56	0.001	random
	wrong answers	67			
11	correct answers	23	29,16	0.000	moral
	wrong answers	77			
17	correct answers	46	0,64	0.42	random
	wrong answers	54			
19	correct answers	17	43,56	0,00	moral
	wrong answers	83			
20	correct answers	18	40,96	0.00	moral
	wrong answers	82			

Through the answers of the research sample to the questions of this axis, which include questions (3, 5, 6, 9, 10, 11, 17, 19, 20), which are shown in Table (3), it is clear to us that the answers of the sample to the questions of this axis differed from the question (2) (14%) of the sample respondents answered correctly and (86%) of them answered the wrong answer, and the calculated value of (Ka) 2 was (51,84) with significant differences, as the error rate was (0.000), which is less than (0.05) was below the degree of freedom (1) as he answered question (5) (43%) a correct answer and (57%) of them answered a wrong answer, and the calculated value of (Ka) 2 was (1.96) with non-significant differences as the percentage of The error was (0,16) which is greater than (0.05) under the degree of freedom (1) and on the question (9) answered (45%) correct answer and answered (55%) of them wrong answer was the value of (Ka) 2 calculated (1,000) with non-significant differences, since the error rate was (0.31) which is greater than (0.05) under the degree of freedom (1) and for question (10) he answered (31%) a correct answer and he answered (69%) a wrong answer The calculated value of (Ca) 2 (14,44) had significant differences, as the error rate was (0.00), which is less than (0.05) under the degree of freedom (1) as it answered the question (13) (23%). Correct

answer and 77% of them answered wrong The calculated value of (Ca) 2 was (29,16) with significant differences, as the error rate was (0.00), which is less than (0.05) under the degree of freedom (1), as it appears from Table (1) that (46%)) Of the sample members answered the question (15) a correct answer and (54%) of them answered a wrong answer. It appeared from the statistical treatments that the calculated value of (Ka) 2 was (0.64) with non-significant differences, as the error rate amounted to (0.42) It is greater than (0.05) under the degree of freedom (1) and for question (16) he answered (17%) a correct answer and (83%) of them answered a wrong answer, and the calculated value of (Ka) 2 (43,56) had significant differences. The error rate was (0, 00), which is less than (0.05) under the degree of freedom (1). As for the question (19), it was answered (18%) with a correct answer and (82%) a wrong answer, and the value of (ka) was 2 The calculated (40.96) has significant differences, since the error rate was (0.00), which is less than (0.05) under the degree of freedom (1).

3-1-2 Discussing the results of the first axis: Cases (the Registrar and his assistant):

By looking at the results of Table (3), it appears to us that the answers of the research sample were mostly significant in favor of the correct answers, as the questions of this axis (3, 5, 6, 9, 10, 11, 17, 19, 20) included arbitration cases The answers of the sample to the questions of this axis were mostly correct, and the researcher attributes this to the frequent occurrence of these cases during the match, which gave the laboratory the sufficient ability to take the right decisions, which prompted him to have the audacity to pass judgments. In general, the right decisions taken by the student and based on a clear understanding of the subjects The law enhances the satisfaction, acceptance and praise of all those interested in this game, but now the researcher found that the answer of some of the sample members was incorrect, especially to the question (2,13) which is related to walking with the ball and what is his punishment. The sample is able to reach the correct decision for it and the researcher is convinced that there is an understanding and awareness by the players and coach of the consequences of committing this situation, and then they always try to avoid it.

3-1-3 Presentation and analysis of the results of the second (temporary) axis:

Table (4)

It shows the true frequencies, their percentages, the calculated (Ca) 2 value, and the error rate for the results of the second axis

questions	Variables	real iterations	Calculated (Ca 2) value	percentage%	the difference
2	correct answers	46	0,64	0,42	random
	wrong answers	54			
4	correct answers	40	4.00	0.04	moral
	wrong answers	60			
7	correct answers	41	3,24	0.07	random
	wrong answers	59			
12	correct answers	41	3,24	0.07	random
	wrong answers	59			
14	correct answers	25	25.00	0.000	moral

	wrong answers	75				
16	correct answers	40	64,00		0.000	moral
	wrong answers	60				
	wrong answers	4				
questions						

Through the answers of the research sample to the questions of this axis, which include questions (2, 4, 7, 12, 14, 16) and shown in Table (4), it is clear to us that the answers of the sample to the questions of this axis varied, from question (1) answered (46 %) of the sample members gave a correct answer and (54%) of them answered a wrong answer, and the calculated value of (Ca) 2 was (0.64) with non-significant differences, as the error rate was (0.42) which is greater than (0.05) under the degree of freedom. 1) He also answered question (4) (40%) a correct answer and (60%) of them answered a wrong answer, and the calculated value of (Ka) 2 was (4.00) with significant differences, as the error rate was (0.04), which is less Of the (0.05) under the degree of freedom (1) and on the question (6), (41%) answered correctly and (59%) of them answered the wrong answer, and the calculated value of (Ka) 2 (3,24) had non-significant differences. The error rate was (0.07), which is greater than (0.05) under the degree of freedom (1) and for question (7) he answered (41%) a correct answer and (59%) a wrong answer, and the calculated value of (Ka) 2 was (3.24) with non- significant differences, since the error rate was (0.07), which is greater than (0.05) under the degree of freedom (1). He also answered the question (12) (25%) correctly and answered (75%) of them. Wrong answer was The calculated value of (Ka) 2 (25.00) has significant differences, since the error rate was (0.00), which is less than (0.05) under the degree of freedom (1)

3-1-4: Discussing the results of the second (temporary) axis:

By looking at Table (4), we found a discrepancy in the differences between the calculated (Ca) 2 values and the percentage of error, whether the differences were significant or random, which indicates that the large proportion of the sample members answered the legal questions related to the (temporary) axis correctly and that their results It was moral, and the researcher attributed this to the fact that the legal articles in this axis represented by questions (2-4-7-12-14-16) are among the constants for any student or learner who has obtained information in the basketball law, as these questions clarify several cases Legalities that occur during the match, such as friction, false defense and the attacker's mistake, and these are things that happen to the players and the team in every match, and any referee must be fully aware, understand and understand it clearly because it expresses in its content the personality of the referee inside the arena and how to lead the match with the fewest number of mistakes and then Obtaining the satisfaction of those interested and followers, and for this reason Al-Sheikhly (1997) pointed out that: "The referee who is able to lead the match means that he has the complete preparation in terms of technical, physical, health and psychological aspects" (Saad, 1997).

Nevertheless, the researcher found in some of the answers that some of the sample members had answered incorrectly to questions (14), which are questions related to decisions that are very specific to the technical observer and the researcher, attributing this to the importance and difficulty of decision-making in these cases, as well as the lack of experience that plays a fundamental and decisive role in forming the judgment successful.

3-1-5 Presentation and analysis of the results of the third axis (the duties of the technical observer):

Table (5)

It shows the true repetitions, their percentages, the calculated value of (Ca) 2 and the error rate for the results of the third axis

questions	Variables	real iterations	Calculated (Ca 2) value	percentage%	the difference
1	correct answers	45	1,00	0,31	random
	wrong answers	55			
8	correct answers	42	2,56	0,11	random
	wrong answers	58			
13	correct answers	49	0.04	0,84	random
	wrong answers	51			
15th	correct answers	24	27,04	0.000	moral
	wrong answers	76			
18	correct answers	6	4,00	0.04	moral
	wrong answers	4			

It is clear to us that the answers of the sample to the questions of this axis varied, as for question (1) (45%) of the sample answered correctly and (55%) of them answered the wrong answer, and the calculated value of (Ka) 2 (1,000) had non-significant differences. The error rate was (0,31), which is greater than (0.05) under the degree of freedom (1). He also answered question (8) (42%) a correct answer, and (58%) of them answered the wrong answer, and the value of (ka) was 2 Calculated (2.56) have non-significant differences, since the error rate was (0.11) which is greater than (0.05) under the degree of freedom (1) and for question (13) answered (49%) a correct answer and answered (51%).) of them gave a wrong answer, and the calculated value of (Ka) 2 was (0.04) with non-significant differences, since the error rate was (0.84), which is greater than (0.05) under the degree of freedom (1) as he answered the question (15). (24%) gave a correct answer and (76%) of them answered a wrong answer, and the calculated value of (Ka) 2 was (27,04) with significant differences, as the error rate was (0.00), which is less than (0.05) under the degree of Freedom (1) As it appears from Table (5) that (40%) of the sample members answered the question (18) a correct answer, and (60%) of them answered a wrong answer. It appeared from the statistical treatments that the calculated value of (Ka) 2 (0, 64) It has insignificant differences, since the error rate was (4.00), which is less than (0.05) under the degree of freedom (1).

It is clear from Table (5), which focuses on the duties of the technical observer, that there are no significant differences in this axis represented by the questions (18,15,13,1) and the researcher attributes the reason for this to the fact that the basketball referees (students) need to distribute their attention on the field between the ball and the

game And between the referees themselves and where they are to control the course of the match to apply the provisions and paragraphs of international law in a proper and accurate manner, and that basketball needs this aspect, as the distribution of attention means "the referee's ability to direct his attention to more exciting things at one time or direct his attention towards absorbing and understanding more than information from different sources simultaneously " (Mohammed, 1975) it should be noted that he had " talked Amlaha distribution is relatively less power than the power of influences that occur if you focus on only one element as well as the distribution process requires a large nervous energy compared to the rest of appearances as they are by the processes that occur simultaneously from different parts of the cortex of the brain" (Abdul Hamid, 1976)

In addition to the important motives that help to attract the attention of the chosen one and make him in a state of constant readiness, and among those important motives are personal and appearing at a good level in the match. In addition, the student must always remember that a good decision cannot be achieved without reaching the best degree of attention.

Conclusions

The researcher reached the following conclusions:-

1. The appearance of a good level for students of the second stage compared to the fourth stage in the designed cognitive test.
2. The appearance of a good level for the students of the fourth stage compared to the second stage in the tests of the table judges.

Recommendations:

In light of the research results, the researcher recommends the following:

1. Attention to the theoretical and practical side at the same time in the lesson of basketball (law)
2. Holding periodic tests to determine the level of knowledge (law of the game) among students of the Faculty of Physical Education and Sports Sciences
3. Conducting similar studies using the electronic tool, but on female students.

References

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Supplement (1)

Table referees test questions

	Status	Yes	No
NS	One of the duties of the technical observer is to ensure the measurements of the stadium and the goals		

1-	The play break before the match ends when the referee throws the ball up during the jump ball		
	The team captain is the person who signs the registration form in case of objection		
2-	When the match clock stops, the shooting clock stops automatically		
	for the player A1 Standing outside the 3-point arc, he passes the ball to his teammate A5 The ball entered the basket without touching anyone. A1 Should get 3 points		
3-	If a player commits a technical error during the match, the player must record it in the form c1		
	a He takes a shot and the ball touches the throat. While pulling the ball, a caught ball occurred. Possession arrow indicates team A. Should the clock be renewed to 14 sec?		
4-	The host team has the right to choose the basket that they attack as well as the team's seating area		
	1- A3 Take the ball out of bounds; Can both teams switch?		
5-	During the break between halves. The substitute must inform the scorer before entering the stadium		
	The recorder must use 4 colors to register. Each quarter has a special color		
6-	On the last free throw, the shot clock must be fired when the ball touches the throat		
	Table officials must sign the registration form		
7-	In a jump ball, the match clock and the shooting clock run at the same time		
	The technical observer has the right to consider the team as losing in the result of the match in the event that he does not appear on the field		
8-	15 min break		
	The technical observer is the person responsible for their change of alternate possession during the match		
9-	The referees of the table do not have to wear uniforms		
	The registration form in yellow is handed over to the winning team by the scorer after the end of the game		

10-	The assistant coach of each team has the right to sign the registration form before the match begins		
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