The effect of the Posner model for conceptual change on the performance of refereeing in female handball

Dhuha Jawad Kadhum [1] , Prof. Dr. Hayder Salman Mohseen , Assist. Prof . Dr. Abbas Abdulhamza Kadhim [3]

[1] Master. Student. Faculty of Physical Education and Sports Sciences / University of Kerbala, Iraq.

[2] Faculty of Physical Education and Sports Sciences / University of Kerbala, Iraq.

[3] Faculty of Physical Education and Sports Sciences / University of Kerbala, Iraq.

Dhuhajawad1990@gmail.com , haydersalman@uokerbala.edu.iq , abbas.abdulhamza@uokerbala.edu.iq

Abstract:

The purpose of this paper is to preparing an educational curriculum according to the Posner model for a conceptual change in the refereeing performance of handball for female students, identifying the impact of the educational curriculum according to the Posner model of conceptual change in the refereeing performance of handball for female students, identifying the priority of influence between the educational curriculum according to the Posner model of conceptual change in the refereeing performance of handball for female students and the approach used in the post-tests. The researcher used the experimental method, designed the two equal experimental, and control groups with pre and post-tests in order to suit the objectives and problem of the research. The researchers community was determined by the third stage students in the Faculty of Physical Education and Sports Sciences - University of Kerbala for the academic year (2021-2022), and their number is (44) female students divided into four divisions, namely (D, C, B, A) and two divisions were chosen from them randomly (lottery) represents the main research sample, which is (C, A), as Division (C) represented the experimental group and Division (A) the control group. The sample consisted of (28) students, which represents a percentage of (26.92%) the main research sample was distributed equally It was divided into two divisions, as (14) students from Division (C) represented the experimental group that will be studied using the Posner model of conceptual change, and (14) students from Division (A) represented the control group that would be taught using the mechanism used by the teacher. The exploratory experiment sample consisted of (10) female students. One of the most important results reached by the researcher is that: educational units using the Posner model had an effective impact on developing the refereeing performance of female students. One of the most important recommendations recommended by the researchers is that: Adopting the form that was designed to evaluate the performance of female students' refereeing handball, necessity of using the educational units prepared in the Posner model to develop the refereeing performance of female students in the faculties of physical education and sports sciences, and conducting research and other similar studies using the Posner model for developing refereeing performance and the rest of the applied lessons for sports in Facultys and departments of physical education and sports sciences.

Introduction:

Learning is one of the most important aspects and features that play an important role in the progress of many peoples, as it has a positive and comprehensive impact on the upbringing of a new generation on advanced and modern scientific foundations in its good and economic use. Handball is one of the subjects taught in the third stage in Faculty of Physical Education and Sports Sciences - University of Kerbala, where the curriculum contains the performance of referees in handball so that they can benefit from it and lead their matches on the field of teaching or the school field. The change was not limited to the role of the teacher and the learner in the educational process but extended to the curricula, teaching methods, methods and strategies. Multiple teaching methods, approaches, models and styles appeared, such as the theory of Ausubel, Jane and Brunner. Also, theories emerged based on building knowledge of the learners, and these theories are the constructivist theory that includes some Models and Strategies One of these

models or strategies that are based on the philosophy of constructivist theory is the Posner model, as this model is based on making the learner practice the learning process in a physical environment, that is, making learners think in a scientific way, and this helps to develop their refereeing performance as well as gives learners the opportunity to think about the largest A number of possible solutions to the educational problem by allowing him to build knowledge himself and develop it gradually, as many studies have confirmed that the use of the Posner model in classroom teaching has a clear impact on acquiring concepts and correcting their wrong perceptions. Hence, the importance of the study is evident in building correct perceptions among students of the Faculty of Physical Education and Sports Sciences about the performance of refereeing handball for third-year students in the Faculty of Physical Education and Sports Sciences, and sorting and trimming the wrong information that the learner previously possessed through the application of this model, which has unique privacy in the process Construction and correction, thus accelerating the learning process for the better.

Research problem:

By reviewing previous studies, as well as during the researcher's observation of female students in some lectures for third-year students at the Faculty of Physical Education and Sports Sciences - University of Kerbala, there is a reluctance to perform their refereeing, and through the investigation of this, the researcher found that this weakness is caused by the difficulty of learning performance in refereeing in terms of both moves and signals. The female students in terms of concepts, errors and legal penalties, and this is difficult to know and appreciate by the students, and thus the reluctance to arbitrate educational matches in the handball lesson, whether during lectures or after graduation. The researchers suggested the use of Posner's model of conceptual change in the acquisition of information on the performance of female students' refereeing handball.

Research objective:

- Preparing an educational curriculum according to the Posner model for a conceptual change in the refereeing performance of handball for female students.
- Identifying the impact of the educational curriculum according to the Posner model of conceptual change in the refereeing performance of handball for female students.
- Identifying the priority of influence between the educational curriculum according to the Posner model of conceptual change in the refereeing performance of handball for female students and the approach used in the post-tests.

Research hypotheses:

- There is a positive effect of the Posner model of conceptual change in the performance of female students' handball refereeing.
- There is a preference for the effect of the educational curriculum according to the Posner model of conceptual change in refereeing performance and the style used in handball for female students in the post-tests between the experimental and control groups and in favor of the experimental group.

Research fields:

- Human field: Third stage students - Faculty of Physical Education and Sports Sciences - University of Kerbala for the academic year 2021-2022
- Time field: (15/11/2021) to (22/4/2022)

- Spatial field: The indoor gymnasium in the Faculty of Physical Education and Sports Sciences - University of Kerbala.

Research methodology and field procedures:

Research Methodology:

The researchers used the experimental method, designed the two equal experimental, and control groups with pre and post-tests in order to suit the objectives and problem of the research.

Community and sample research:

The research community was determined by the third stage students in the Faculty of Physical Education and Sports Sciences - University of Kerbala for the academic year (2021-2022), and their number is (44) female students divided into four divisions, namely (D, C, B, A) and two divisions were chosen from them randomly (lottery) represents the main research sample, which is (C, A), as Division (C) represented the experimental group and Division (A) the control group. The sample consisted of (28) students, which represents a percentage of (26.92%) the main research sample was distributed equally It was divided into two divisions, as (14) students from Division (C) represented the experimental group that will be studied using the Posner model of conceptual change, and (14) students from Division (A) represented the control group that would be taught using the mechanism used by the teacher. The exploratory experiment sample consisted of (10) female students.

Means, devices and tools used in the research:

In order to obtain accurate results, the researcher needs devices, tools and means to help her in completing her research, through which she can collect data, solve the problem and achieve the research objectives.

Means of collecting information:

- Arab and foreign scientific sources.
- Preparing a scale.
- Direct observation.
- Tests and measurement.
- Personal interviews (Appendix 1).

Tools and devices that were used in the research

- Legal handball court.
- Chinese-made handballs (10).
- Chinese-made arbitration whistle (10).
- 10 colored (yellow, red and blue) Chinese-made arbitration cards.
- Colored plastic cones (20).
- Technical performance evaluation form
- Photographic camera, type (Canon), number (1).
- Two (2) stopwatches (Hero)
- One (1) computer (DELL)
- Discs (CD) number (3)
- Flex Newsletter (3)
- Display screen device (HD) type (LG) size (42) number (1).
- Videos (educational films).

Scientific basis of the scale:

Refereeing performance test used in the research:

The form for refereeing performance for students, designed by researcher (Hijleh. 2007,) was approved in his study

(The effect of an educational curriculum with a model of accelerating thinking on legal knowledge and refereeing for students in handball) see Appendix (2)

Scientific basis of the form

The validity, stability and objectivity of the refereeing form were adopted based on these foundations in a study (Hijleh. 2007).

Pre-test

The pre-tests were conducted on Thursday 3/3/2022 at exactly nine o'clock in the gymnasium in the Faculty of Physical Education and Sports Sciences, University of Kerbala. During educational matches, the students were tested based, on which this match was photographed and presented to three arbitrators in the specialization and for the control and experimental groups, in order to know the results of the Test and install in the data dump form.

Equivalence:

The experimental and control groups were rewarded in refereeing the subjects of international law in handball and after completing the tribal tests using the (T) test for independent and equal samples as shown in Table (1).

Table (1) shows the equivalence of the two research groups

Variables	Group	Arithmetic mean	Standard deviation	T value calculated	Level Sig	Type Sig
performance refereeing	Experimental	14.8214	.77477	1.485	.149	Non Sig
	Control	14.4286	.61573			

Main experience:

Preparing educational units with the Posner model for conceptual change for learning performance refereeing in handball:

The researchers prepared (8) educational units using the Posner model of conceptual change for learning performance according to international law in handball and approved by the vocabulary of the third stage - the Faculty of Physical Education and Sports Sciences according to the stages of the model, which is the stage of exploring misunderstanding patterns, and the stage of using the treatment method, which is done by Through the following steps (developing the individual's ability to distinguish the new concept in a clear, reasonable and useful manner, This stage is called the stage of representation, The individual accepts the new concept completely, by exchanging the new concept with the old concept by raising the value of the new concept at the expense of depreciating the value of the old concept).

Post-test

The post-test for the experimental and control groups was conducted on Sunday 8/5/2022 at exactly nine o'clock in the gymnasium in the Faculty of Physical Education and Sports Sciences, University of Kerbala. The method of implementation and the assistant work team, in order to avoid the variables that may affect the results of the tests.

Statistical methods: The search data was processed through the Statistical Package for the Social Sciences (SPSS).

Results and discussion:

Presentation and analysis of the results of the pre and post-tests for the two research groups and their discussion:

Presentation, analysis and discussion of the differences between the results of the pre and post-tests of the experimental group in the performance of refereeing:

Table (2) shows the arithmetic means, standard deviations, and (T) value of the pre and post-test for the experimental group

Variables	Tests	Arithmetic mean	Standard deviation	Difference between arithmetic mean	Difference between standard deviations	T value	Level sig	Type sig
performance refereeing	Pre-test	14.8214	.77477	-29.17857	.23209	-125.721	.000	sig
	Post-test	44.0000	.87706					

Table (2) shows the results of the pre and post-tests for the experimental group for the refereeing test, as the arithmetic mean for the pre-test was (14.8214), and with a standard deviation of (.77477) for the pre-test, while the arithmetic mean for the post-test was (44.0000) and with a standard deviation for the post-test. 87706)), while the average differences for the dimensional and tribal were (-29.17857), and the standard deviation of the dimensional and tribal differences was (.23209), and when inferring the significance of the differences between the two arithmetic means, the calculated (T) value reached (-125.721), which is greater than the tabular At a significance level of (0.05) and a degree of freedom (13), This indicates the existence of a moral difference between the pre-and post-tests, and in favor of the post-test in refereeing performance.

Presentation and analysis of the differences between the results of the pre and post-tests of the control group in the performance of refereeing, analysis and discussion:

Table (3) shows the means, standard deviations, and (T) value of the pre and post-test for the control group.

Variables	Tests	Arithmetic mean	Standard deviation	Difference between arithmetic mean	Difference between standard deviations	T value	Level sig	Type sig
performance	Pre-test	14.4286	.61573	-16.57143	.24505	-67.626	.000	sig

refereeing	Post-test	31.0000	.87706					

The results of Table (3) show the differences and discrepancies in the values of the arithmetic means and the standard deviations between the tribal and remote tests among the students of the control group in the pre and post measurements of the refereeing performance test. The arithmetic mean for the pre-test was (14.4286) and with a standard deviation of (.61573), while the arithmetic mean for the post-test and with a standard deviation of (31.0000) reached (.87706), respectively, and the average differences for the post- and pre-test were 16.57143) and with a standard deviation for the post- and pre-test differences. It reached (.245), and when inferring the significance of the differences between the two arithmetic means, the results showed the calculated (t) value of (-67,626), which is greater than the tabular and below the level of significance (0.05) and with a degree of freedom (13), This indicates that there is a significant difference between the pre-and post-tests and in favor of the post-test in the refereeing performance test.

Presentation and analysis of the results of the differences between the post-tests of refereeing performance and the two research groups (experimental and control):

Table (4) shows the description and statistical inference of the results of the post-test in refereeing handball performance for the two experimental and control groups.

Variables	Group	Arithmetic mean	Standard deviation	T value calculated	Level Sig	Type Sig
Performance refereeing	Experimental	44.0000	.87706	39.216	.000	Non Sig
	Control	31.0000	.87706			

It is through Table (4) that there is a discrepancy and a difference between the mean values and the standard deviations in the dimensional measurements between individuals (the experimental group and the control group), as the value of the arithmetic mean and the standard deviation of the refereeing performance variable for members of the experimental group, respectively (44.0000) (.87706) , while the values of the arithmetic mean and standard deviation of the control group, respectively (31.0000) (.87706), and the calculated (t) value was (39.216), which is greater than its tabular value at the level of significance (0.05) and the degree of freedom (26), and this confirms the existence of significant differences between Post-tests for the two groups and for the experimental group.

Discussing the results of the differences between the pre-and post-test of refereeing and the control group:

Through the presentation and analysis of the results of the tribal and post-tests for refereeing and for the two research groups (experimental and control) as shown in Table No. (2, 3, 4) it was found that there are moral differences, as for the differences in the results of the experimental group between the pre and post-tests, the researcher attributes the reason for these differences In the investigated variables, to the effect of educational units in the Posner model for the proposed conceptual change, as it is one of the most effective means to highlight the energies and achieve the goals and the student, and symbolically through technological means, the field application of learning and

evaluation thereof, and the integration of theoretical and practical material. The researcher also attributes these differences to the principle of using questions and answers, explanation and presentation for each part of the legal materials in handball, and the combination of theoretical and practical aspects in the educational curriculum, which was able to raise the level of refereeing performance for female students through the ability to develop and think. In addition, “the degree of change in performance depends on the nature of the situation in which the individual obtains the information and on its source, style and degree of mastery” (Kazem. 2017).

The Posner model has an effective impact on developing the refereeing performance of the experimental group and comparing it with the control group in terms of the results of the pre and post-tests for both groups, through its adoption of quality of education and a technologically advanced method through its use of tools and devices that provide information to students in a manner commensurate with their inclinations and desires and in an attractive and interesting way for them This is because this model is characterized by the presentation and application of the content of the educational material in a sequential, intense and overlapping manner by assembling the content in one frame (applied educational video, posters, virtual reality glasses) accompanied by the teacher’s explanation and practical exercises for presentation (Odeh. 2006). The researchers believe that the development of refereeing performance in handball for the experimental group by raising the motivation to learn using the Posner model away from the prevailing methods of learning and its reflection on the increase in the acceptance of the scientific material and the desire to learn it through the video presentation and posters that provoke their thinking and exciting their enthusiasm.

The researchers also attribute the development of the experimental group in the performance of handball refereeing to the fact that the model worked to increase the cognitive abilities of students through the sequence of learning and graduation from easy to difficult and the diversity of work with presentation situations and a specialized application of these cognitive abilities represented by a set of goals (educational, behavioral), In addition to that, retaining information for the educational curriculum by remembering the educational situations that have been made, as " confirm that the effectiveness of the teaching method through planning and organizing them, where the teacher has to prepare and plan for scientific activities, how to use them and the requirements for their implementation". (Al-Rubaie and Amin. 2011).

The researchers believe in the development of the control group for the results of its post-tests in comparison with its tribal results in the research variable (referring performance), that the control group practiced the educational volume of the educational content of the subject teacher and his method of teaching to achieve the educational goals also for the third stage in handball, as the continuity in Learning leads to development in performance in general by making changes in the behavior of learners day after day and with the presence of the educational material and the teacher and the accumulation of experience for the learner, and it may be at levels according to the nature of the teacher and his method and the response of the learner from the researcher’s point of view.As (Fatima Abd) asserts, “The natural phenomena of the learning process must have an evolution in learning as long as the teacher follows the steps of the sound foundations of learning and teaching” (Faydi. 2000).

Last but not least, the development at the level of the control group was not at the level of ambition for what the experimental group achieved in comparison with the

results of the post-tests for both groups, where the high moral differences in the effectiveness of the independent variable by the researcher and its field effect on the refereeing performance of handball for female students.

Conclusions and Recommendations:

Conclusions:

- The educational units using the Posner model had an effective impact on developing the refereeing performance of female students.

Recommendations:

The researcher recommends the following:

- Adopting the form that was designed to evaluate the performance of female students' refereeing handball.
- Necessity of using the educational units prepared in the Posner model to develop the refereeing performance of female students in the faculties of physical education and sports sciences.
- Conducting research and other similar studies using the Posner model for developing refereeing performance and the rest of the applied lessons for sports in Facultys and departments of physical education and sports sciences.

References:

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4- Mahmoud Daoud Al-Rubaie and Saeed Saleh Hamad Amin: 2011. Physical and Sports Education Curricula, Al-Najaf Al-Ashraf, Dar Al-Diaa for Printing and Publishing,.
5- Salim Abu Odeh. 2006. The effect of using the constructivist model in teaching mathematics on the development and retention of systemic thinking among students of the seventh grade, unpublished master's thesis, Gaza University, Palestine.

Appendix (1)

Names of experts and specialists

No.	The name	Jurisdiction	Workplace
1	Prof. Dr. Hassem Abdel-Jabbar Saleh	Training / Handball	Faculty of Physical Education and Sports Sciences / University of Kerbala
2	Prof. Dr. Ahmed Khamis Radi	Training / Handball	Faculty of Physical Education and Sports Sciences / University of Baghdad
3	Prof. Dr. Kamel Shannen Manahi	Injuries / handball	Faculty of physical education and sports sciences / University of Basra
4	Prof. Dr. Hossam Mohamed Jaber	Training / Handball	Faculty of physical education and sports sciences / University of Basra
5	Prof. Dr. Sadiq Abbas Ali	Training / Handball	Faculty of physical education and sports sciences / University of Basra
6	Prof. Dr. Suhail Jassem Al-Maslmawi	Asian referee and technical observer	Faculty of Physical Education and Sports Sciences / University of Babylon
7	Prof. Dr. Ali Sumoom Al-Fartousi	Tests and Measurements/ Basketball	Faculty of physical education and sports sciences / Mustansiriya University
8	Prof. Dr. Mohamed Hamza Shehab	Tests / Handball	Faculty of physical education and sports sciences / Mustansiriya University
9	Prof. Dr. Iqbal Abdel Hussein Neama	Teaching methods / handball	Faculty of Physical Education and Sports Science for Girls / University of Baghdad
10	Assist. Prof. Dr. Hossam Ghaleb Abdel Hussein	Teaching methods/handball	Faculty of Physical Education and Sports Sciences / University of Kerbala
11	Assist. Prof. Dr. Ali Hussein Al Jassim	Psychology / Handball	Faculty of Physical Education and Sports Sciences / University of Kerbala
12	Assist. Prof. Dr. Fouad Miteb Hussein	Tests / handball	Faculty of Physical Education and Sports Sciences / University of Baghdad

13	Assist. Prof. Dr. Kazem Habib Abbas	Psychology / Handball	Faculty of physical education and sports sciences / University of Basra
14	Assist. Prof. Dr. Khaled Shaker Hussein Jaber	Learn / Handball	Faculty of Physical Education and Sports Sciences / University of Kufa
15	Assist. Prof. Dr. Dergham Abdel Salem Nehme	biomechanics / handball	Faculty of physical education and sports sciences / University of Basra
16	Assist. Prof. Dr. Osama Sobeih Mustafa	Tests / handball	Faculty of physical education and sports sciences / University of Basra
17	Lec.Dr. Raad Khanjar	Training / Handball	Faculty of Physical Education and Sports Sciences / University of Baghdad

Appendix (2)

Describe the performance appraisal procedures of refereeing handball for students

- Test name: Performance evaluation for handball refereeing.
- The objective of the test: measuring the mechanism (mechanical) of the arbitration handball.
- Tools: legal handball court, (18) handball players, table referees and match supervisor, (2) legal handball, (2) stopwatch, (2) whistle, video camera with stand (2), equipment Basic rule, adhesive numbers.
- Description of the test: Numbers are placed to distinguish on the chest and back of the test referees for the imaging procedures for the evaluation, and then they are distributed in the form of refereeing teams, in addition to the presence of two teams playing inside the arena, where the two tested referees take their positions as a court referee and a goal referee at the sending throw, and the members of the two teams take Their positions as an attacking team and a defending team, and then starting the test through (the match between the two teams started with the whistle of the arena referee), and for a period of (10) minutes of actual play for each referee team.
- Test conditions: It is agreed with the two playing teams to create cases of breach of the rules and laws of the game, as well as to diversify the defensive and offensive formations. The rest of the refereeing teams (the testers) are obligated to sit outside the playing field and in a place where the test procedures cannot be seen or monitored in order to not know the test requirements.
- Grade evaluation: The lab's grade evaluation is based on direct observation by experts and specialists in handball, which are (3) assessors by watching the refereeing performance of the two testers, where the score average of the three assessors (the arithmetic mean of the assessors' score) for each of the paragraphs is calculated. The evaluation form for the refereeing performance in handball,

which is attached hereto, if the evaluation is individually for the refereeing staff (each referee has his own degree of refereeing performance).

Appendix (3)

Teaching unit: the first

Number of female students: 15

Educational objective: Teaching performance refereeing

Educational objective: to encourage students to judge

Tools: balls, whistles

Time: 90 minutes

Referee cards

Date:

Sections of the unit educational	Time (min)	Sections of the Posner Model	Events and Activities	formations	Notes
Preparatory section	20				
introduction	5		Students standing, taking absence, performing salutations, preparing tools and means	Xxxxxxxx	Emphasis on orderly standing and controlling distances between students
general warm-up	5		Ordinary walking walking on combs walking on the heels light jogging - jogging with the arms rotated forward - jogging with the arms rotated back jogging with the knees raised in front high alternately - jogging with jumping high when the whistle		The general numbers are in the form of a circular frame with an open circle

			is heard - light jogging normal walking standing.		
private warm up	10		(Standing) twisting the neck to both sides from the left 4 reps (Standing open) Raise the arms side to the front high and lower them for 6 repetitions (Standing reflexively) bend the torso to the sides to the right 4 reps (Standing) Raising the legs alternately 2 repetitions	four teams	Ensure that the exercises are performed correctly
main section	65				
educational activity	20	integration stage	1-Draw the learners' attention to the new topic by asking questions about the law subjects that will be taught, and these questions need to be answered. 2-Retrieving information through the students' thinking about the information that was taught in the previous lectures		Emphasis on giving feedback .2He presents and discusses examples and molecules, making use of educational aids

			and related to the current lectures, since the law is interconnected and the subjects cannot be separated from each other. 3- Linking previous information with current information. 4-Ask questions. 5-Motivating female students A competition among students to answer the questions posed and encouraging the student who answered correctly.		
		change	At this stage, the refereeing materials and cases are presented to the students.		
Applied Activity	45	The distinction stage + part of the integration stage	The application of refereeing cases and amendment by the school and guidance for the correct decision.		Examples of questions -What are the violations that are punished with an escalation penalty? -What are the fines of a two-minute suspension? -What is the violation for which the player is disqualified?

		bridging stage	Helping teamwork through cooperation between students and helping them to manage matches by adhering to decisions.		
final section	5		Encouraging the students to make the right move inside the playground and understanding between the students to make the right decision, and the school intervenes in each case to clarify and consolidate the information.		Collect tools