

The Effect of The Format Model in Reducing Cognitive Failure and Learning the Skills of Dribbling and Shooting from A Forward Jump In Handball for Students

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Abstract

The study's significance lies in utilizing the Format Model to decrease cognitive failure and enhance the acquisition of Dribbling and shooting skills through forward jumping in handball among students. This approach aims to address individual differences among students and foster a positive learning experience. The study challenge pertains to the impact of using the Format Model (4mat) on the reduction of cognitive failure and the acquisition of Dribbling and shooting abilities via forward leaping in handball among students. The research sought to develop instructional units based on the 4mat format model to enhance cognitive performance and improve the abilities of Dribbling and shooting by springing forward in handball among students. The study population and sample consisted of second-year students enrolled in the College of Physical Education and Sports Sciences at the University of Basra. A total of five subjects were selected for the purpose of constructing the scale. The College of Physical Education and Sports Sciences at Al Ain University offers two sections for the second stage students. Section (B) follows a model-based approach for learning, whereas section (C) adopts the teacher-led technique. The key findings indicate that using the format model (4mat) in the Education units has resulted in a significant enhancement in decreasing cognitive failure and improving the acquisition of Dribbling and shooting abilities from a forward leap in handball among students. The primary suggestions include prioritizing the use of the format model (4mat) in instructional modules due to its significant impact on mitigating cognitive failure and facilitating the acquisition of offensive handball abilities among students.

Keywords

The Format Model, Cognitive Failure, Chubbiness, Forward Jumping, Handball

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Introduction

Scientific advancements greatly assist educators in implementing contemporary educational approaches, techniques, methodologies, and models, both cognitive and practical, that enhance the dissemination of knowledge to students. The educational process assumes a crucial and basic function in instructing, acquiring proficiency, and enhancing performance based on contemporary and sophisticated scientific principles. Consequently, individuals responsible for this process have shifted their focus. In order to explore different models, strategies, methods, and approaches for enhancing learning at different stages, one notable model is the format model, also known as 4mat. This contemporary teaching method is centered around tailoring education to the individual student's fundamental abilities. Students are presented with a scientific problem and are then tasked with working on it. Utilize the available tools and techniques to solve problems by uncovering the necessary knowledge, ideas, and rules in accordance with the four learning styles that follow a predetermined and sequential order. Students gain a significant advantage from 75% of their remaining time as they enhance their capacity to acquire knowledge and gather factual information. The phases in this model, including the contemplative stage, idea refining, active experimentation, and felt experiences, were devised by Bernice McCarthy. This educational approach is founded on the assumption of the dominance of the left and right brain in humans. Cognitive failure refers to a state of confusion or disruption in the learner's sensory, attentional, and perceptual systems, as well as in their memory. A cognitive impairment or intellectual deficiency that hampers the capacity to comprehend information to a limited extent. This may occur in learners while acquiring a certain skill, particularly when they are beginners.

Handball is a widely recognized team sport. The spread emerged due to the game's advancement in terms of the swift execution and diverse offensive skills shown on the field during gameplay. The study's importance is evident in the researcher's meticulous scientific pursuit, drawing upon their extensive knowledge gained over their academic career. To evaluate the influence of the 4mat format model on decreasing cognitive failure in students and its contribution to improving their comprehension of the skills of dribbling and shooting from forward leaping in handball, it is crucial to examine its advantages.

1-2 Research problem:

Based on extensive field experience and a thorough review of scientific literature, the researcher discovered that the implementation of contemporary educational methods and models, such as the format model (4mat), provides learners with a comprehensive range of information. This approach equips them with the necessary skills to effectively tackle any mathematical problem they may encounter. This led the researcher to create educational units based on a specific model. The first unit focuses on the cognitive aspect, as the researcher believes that there is a cognitive deficiency in learning how to dribble and shoot from a forward jump in handball among students. The second unit focuses on enhancing mental abilities related to the actual execution of these skills. The research problem revolves around this issue. The aforementioned elements, together with the research issue, are encapsulated in the following query:

Does the use of the 4mat format have a significant impact on decreasing cognitive failure and improving the acquisition of dribbling and shooting abilities from a forward leap in handball among students?

1-3 Research objectives:

- 1- Building a measure to reduce cognitive failure in the skills of Dribbling and shooting from forward jumping in handball for students.
- 2- Preparing educational units according to the format model in reducing cognitive failure and learning the skills of Dribbling and shooting from forward jumping in handball.
- 3- Identifying the effect of the format model and the method used by the teacher in reducing cognitive failure and learning the skills of Dribbling and shooting from forward jump in handball for students.
- 4- Identifying the differences between the results of the post-tests between the control and experimental groups in reducing cognitive failure and learning the skills of Dribbling and shooting from a forward jump in handball for students.

1-4 Research hypothesis:

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- 1- The results of the pre- and post-tests for both the control and experimental groups indicate substantial statistical differences, with the post-tests showing more positive outcomes.
- 2- There are notable differences in the results of the post-test between the control and experimental groups, with the experimental group demonstrating more positive findings..

1-5 areas of research:

5 -5- 1 Human field: Second stage students / College of Physical Education and Sports Sciences / University of Basra and Al Ain University for the academic year (2023/2024).

1-5-2 Time frame: The period from 8/14/2023 to 12/10/2023.

1-5-3 Spatial area: The College of Sports and Physical Education Sciences at the University of Basra & Al Ain College include halls and a handball court..

1-6 Definition of terms:

The Format Model (4mat): “It is a model of learning styles that does not differ much from Kolb’s model, as it sees that individuals learn new experiences and information and confront new situations in one of two ways, either through feelings or through thinking” (**Lamia Al-Diwan et al.**)(7: p. 106).

Cognitive failure: “It means that any process of confusion, interruption, or deficiency in the mechanisms of sensation, attention, perception, or even memory represents a mental disability or cognitive failure that affects to unseen degrees the processes of processing information” (**Qasim Hussein**) (5: p. 19).

2- Research methodology and field procedures:

2-1 Research methodology:

The researcher used the descriptive strategy by using the survey methodology, as well as the experimental approach by adopting the two equal groups method (control and experimental). This was complemented by a pre- and post-test to ensure alignment with the fundamental features of the study topic.

2-2 The research community and its sample:

Prior to delving into the specifics of the sample, it is essential to familiarize oneself with the research community. The research community consisted of second-year students enrolled in the College of Physical Education and Sports Sciences at the University of Basra and Al-Ain National University. The research community comprised a total of 169 students, making it a representative and meaningful sample. The total number of students in Basra University is 90, divided into five sections. The research community constitutes 25.53% of the total student population. On the other hand, Al Ain Private University has a sample size of 32 students, distributed across two sections (B and C). The research community in this university accounts for 18.93% of the total student population, with each section having 16 students. The researcher used a lottery approach to assign participants to either the control or experimental group. The students in section (B) who are learning the abilities of Dribbling and shooting by leaping forward according to the form model were designated as the experimental group. Regarding the pupils in section (C), they acquire the abilities of Dribbling and shooting via the technique of leaping forward as instructed by the instructor. Ten kids from Division C of the original community were enlisted to carry out the reconnaissance experiment. Several students were removed from the program owing to their insufficient dedication to their work, and a portion of them subsequently experienced illness and academic failure.

2-2-1: Equivalence of the research sample: For the purpose of ensuring that the sample is equal in the research variables and to indicate the starting line for the sample members, the value of (t) was calculated between the two groups (control and experimental), as in the following table.

(1)Table

It shows the equality of the control and experimental research groups in all variables under study

Variables	measuring unit	Pre test		Post test		Pre test	Post test	Type of significance
		m	±S.D	m	±S.D			
Length	cm	172.18	5.91	171.61	6.64	1.49	0.65	insignificance
Age	mo	243.54	5.29	242.89	4.48	1.36	0.44	insignificance
The mass	Kg	70.32	3.84	71.32	2.97	1.52	0.41	insignificance
Cognitive Failure	Second	144.562	3.794	145.562	3.982	0.727	0.473	insignificance
Dribbling	Second	12.853	0.866	13.040	0.985	0.571	0.572	insignificance
Shooting by jumping forward	Degree	11.625	0.718	11.812	0.655	0.771	0.747	insignificance

*Significant at a significance level $\leq (0.05)$.

2-3 Methods of gathering data, gadgets, and techniques used in research:

2-3-1 Means of collecting information:

1- Arab and foreign sources and references. 2- Information Network (Internet). 3- Observation. 4- Personal interviews. 5- A measure of reducing cognitive failure.

2-3-2 Devices and tools used in the research:

1- HUAWEI (Y9) Prime mobile device (1). 2- Hard disks for storage. 3- Handballs (12). 4- Manual electronic scientific calculator, Lenova type (1). 5 Laptop devices (Dell), of European origin, number (2).

2-4 Field research procedures:

2-4-1 Steps to construct a scale for reducing cognitive failure:

2-4-1-1 Determining the goal of the measure:

Building a measure to reduce cognitive failure for second-year students at the College of Physical Education and Sports Sciences / Al Ain University. "Determining the goal of the measure helps the researcher determine the source of information and the type of method from which the measure must derive concepts." (Omar Majeed) (3: p. 48).

2-4-1-2 Defining the phenomenon to be measured:

The phenomenon is the cognitive failure of my skills (Dribbling and shooting by jumping forward) in handball for the students of the second stage, College of Education / Al Ain Private University.

2-4-1-3 Preparing segments for the cognitive failure reduction scale:

The researcher prepared (48) items for the cognitive failure reduction scale for the students of the second stage / College of Physical Education and Sports Sciences / University of Basra, in anticipation of the possibility of some items falling when analyzed statistically. It is

2-4-1-4 Determining the foundations and wording of the segments of the cognitive failure reduction scale:

After conducting a thorough review of relevant sources and previous studies, the researcher devised a method for formulating segments. Each segment was presented with five answer alternatives: "I completely agree," "I agree to a certain extent," "I agree a little," "I don't agree," and "I don't agree at all." Additionally, all paragraphs were worded in a negative manner. The researcher took into consideration the standards outlined by Thorndike and Hagin (1: p. 208) when drafting the paragraphs. These standards include ensuring that each segment addresses an important aspect of the content and is not trivial, avoiding complex language, and keeping reading requirements and linguistic vocabulary at a minimum. Avoid inquiries that depend on deceit.

2-4-1-5 Determining the validity of the segments of the cognitive failure reduction scale:

The researcher administered the original set of test items, totaling 48 items, to a panel of 15 experts and specialists in the fields of teaching methods, tests, measurement, sports psychology, and motor learning and sports training. The purpose was to assess the appropriateness of the test in measuring its intended objective. The findings revealed that eight items were excluded from the analysis. The exclusion was based on the Ca² test, which was conducted at a significance level of 0.05. This significance level served as a benchmark for accepting or rejecting the items. The items that were excluded are 45, 42, 33, 25, 21, 15, 9, and 4. The following table provides more details.

(2) Table

Shows the remaining and excluded items for the cognitive failure reduction scale

S	Number of excluded segments	Sequence of excluded segments	Number of remaining segments
1	8	45.42.33.25.21.15.9.4	40

2-4-1-6 Choosing a rating scale for the measurement :

After the researcher reviewed a set of standards, he determined the five-point rating scale for the measurement, as shown in the following table:

(3) Table

Shows the rating scale for the Measurement

Totally agree	I agree to a certain extent	I agree a little	I don't agree	I don't agree at all
5	4	3	2	1

2-4-1-7 Preparing instructions for answering the scale:

Instructions for the scale were prepared and the instructions specified the method of answering the scale's items and emphasizing not to mention names and that their responses will be used only for scientific research endeavors.

2-4-1-8 The exploratory experiment of the cognitive failure reduction scale:

The survey was conducted by the researcher on a sample of 10 students who were enrolled in the morning study program of Division C, namely in one of the courses at the College of Physical Education and Sports Sciences at Al Ain Private University. The researcher collected data from the sample members on October 1, 2013, at 9:00 AM, and documented it in tables for statistical analysis. After the experiment was finished, the data was analyzed to gain insight into the difficulties encountered throughout the research and to identify the most efficient methods for completing the job. The challenges that testers encounter include comprehending the scale's instructions in relation to its terminology and substance, responding to the scale's items, and assessing the degree of ease, complexity, or ambiguity of the items..

2-5 Applying the scale to the structure sample :

The researcher administered the scale's questionnaires to a group of students, who were gathered in classrooms and the sports hall at the College of Physical Education and Sports Sciences at the University of Basra. The students were then instructed to respond to the scale's items in order to assess the items' discriminatory ability. The efficacy of the options used in the paragraphs of the scale on 10/5/2023, which corresponds to Thursday, at 9:00 AM..

2-6 Analyzing the scale items statistically:**2-6-1 The two terminal groups of the scale:**

The researcher administered the scale to the sample population and then organized the overall scores, which were adjusted for scale corrections, in a decreasing order. The upper group was comprised of 27% of the students, which equates to a total of 24 individuals. Additionally, a percentage of 27 was picked. The minimal group consists of 24 students out of a total of 90 students' questionnaires, representing the two terminal groups. Subsequently, the researcher used the t-test for two separate samples via the Statistics Package for the Social Sciences (SPSS) in order to compare the outcomes and discern the items on an index. All items were unique, with the exception of (4) items that were not unique. These items had a significance level higher than the significance level (0.05). The sequencing of these paragraphs was as follows: (5, 31, 33, 38)..

2-6-2 Internal consistency of the scale items:

The researcher determined the internal consistency coefficient by calculating the Pearson correlation coefficient between each item's score and the total score of the scale. This analysis was conducted on a sample of 90 students, referred to as the construct sample, and was performed after completing the statistical analysis. All items on the scale were determined to have significant values at a significance level above 0.05.

2-7 The scale for reducing cognitive failure in its final form:

Upon using various statistical techniques to analyze the cognitive failure scale, it was determined that the test would consist of 36 items. The overall score for the scale was found to be 180, with the lowest possible score being 36, assuming an average response. The number is 108.

2-8 Torsion coefficient:

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The researcher calculated the skewness coefficient using the spss statistical program, and it reached (0.127).

(4) Table

It shows the arithmetic mean, standard deviation, standard error, and skewness coefficient for the sample constructing the cognitive failure reduction scale

Statistical treatments Variable	Arithmetic mean	S D	Standard error	Standard error of the arithmetic mean	Torsion coefficient
Reducing cognitive failure	156.133	27.903	0.254	2.941	0.127

2-9 Standard scores for the scale:

The researcher processed the scale results statistically by using the arithmetic mean, standard deviation, z-score, and t-score.

2-10 Typical degrees of the scale:

The researcher chose to have five levels for the scale for reducing cognitive failure, as seen in the following table:

(5) Table

Shows the standard levels of the cognitive failure reduction scale

The Level	Standard Score	Modified Standard Score	Raw Grade	The Number	Percentage %
Very High	+1.8 _+3	68-80	152-180	7	7.77
High	+0.6 _+1.8	56-68	123-151	43	47.77
Medium	+0.6 _- 0.6	44-56	94-122	23	25.55
Acceptable	-1.8 _-0.6	32-44	65-93	17	18.88
Weak	-3 _-1.8	20-32	36-64	0	0
Total				90	100%

2-11 Psychometric properties of the scale:

2-11-1 Validity:

2-11-1-1 Content validity:

This was confirmed by presenting the scale to experts in sports psychology, tests and measurement, teaching methods, motion learning, and handball, who stated their opinions on its suitability for research work and the validity of the items. Their number was (15) experts.

2-11-1-2 Validity of the hypothesis formation (construct):

The implications of the hypothesis formation's validity were confirmed through the utilization of two statistical methods: the two extreme groups and the internal consistency coefficient. The internal consistency coefficient, which is the most intricate form of validity, relies on theoretical assumptions that are experimentally verified (p. 32:13). The abbreviation "DCronbach.L.j" refers to a specific concept or term.

2-11-1-3 Reliability of the scale:

The researcher used the split-half method to get the coefficient of reliability. This included dividing the scale into two equal pieces after applying it to the sample, and then calculating the correlation between these two sections. This strategy is often used for the aim of ensuring reliability. The scale had 18 components. The components must possess both odd and even characteristics, and both sides must demonstrate a significant level of homogeneity. Subsequently, a direct correlation coefficient (Pearson) was calculated between the two ends of the scale and was modified using the Gottman's equation, as shown in the following table.:

Table (6)

It shows the split-half and shows the correlation and reliability coefficient for the scale

Cronbach for the first half	Cronbach for the second half	Pearson	Gottman
0.983	0.980	0.982	0.991

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2-11-1-4 Objectivity of the scale:

Since the test contains alternatives to the answer, it is considered objective.

2-12 Description of technical performance tests for the skills under study:

First: The experiment entails the administration of a continuous dribbling test, wherein participants are required to navigate in a zigzag direction.:

The objective of the examination is to assess the extent of proficiency in the art of dribbling..

- Tools: five bars, a stop watch, a handball.

- Performance method: Five indicators are positioned in a linear arrangement on the ground. The distance between each pair is precisely 3 meters. The initial and final lines are delineated with a separation of 3 meters from the first sign. The pupil is positioned at the rear of the starting line. Upon receiving the signal to start, the student proceeds to dribble the ball and traverse a zigzag trajectory between the signs repeatedly. And continues till he reaches the finish line.

The recording's time is calculated in both directions, starting from the moment it begins and ending when the player reaches the endpoint. The reference is from the book "Muhammad Karim" on pages 56-57.

Second: Testing the accuracy of aiming from jumping forward:

The objective of the examination is to assess the precision of short-distance targeting while executing a forward leap.

Tools employed in this study encompassed ten handballs, together with a handball goal meticulously depicted on the wall. The goal entailed five circles, each measuring 60 cm in diameter. Notably, four of these circles were meticulously drawn at each corner of the goal, whereas the fifth circle was meticulously incorporated in the center of the bottom segment of the crossbar.

Description of performance: The tester stands with the ball in his hand behind the seven-meter throw line. He shoots ten balls into the circles attached to the goal after taking three steps, then jumping, then throwing, commencing with the circle located in the upper right region, subsequently progressing towards the circle positioned on the left side, followed by the circle situated in the middle, and ultimately concluding with the circle found in the lower left corner. **the rules:**

- The laboratory is allotted a total of ten opportunities to place the balls within the circles, with two balls assigned to each circle, with the understanding that each circle possesses a designated value for testing..

- Two opportunities are permitted prior to the commencement of the examination.

- The act of shooting occurs subsequent to the completion of three strides followed by a leap. It is strictly prohibited to make contact with or traverse the line of shooting execution, situated at a distance of 7 meters, prior to engaging in the act of shooting..

Orientation and registration:

1- The laboratory bestows a pair of marks for the successful passage of a ball through the circular boundaries situated in the upper right and left corners. Similarly, one mark is granted for the entry of a ball within the innermost circle.

2- three marks are allocated for the achievement of a ball entering the lower right and left circles. Consequently, the cumulative score acquired from the ten trials serves as an indicator of the laboratory's overall precision. The aforementioned scores are measured on a scale ranging from 0 to 22 degrees, as stated by Muhammad Karim on pages 63-64 of his work.

2-13 The first exploratory experiment :

The researcher conducted an exploratory experiment on skill tests. The experiment took place on October 1, 2023, a Sunday, at 10 o'clock in the morning. The experiment was conducted in the handball court at the College of Physical Education and Sports Sciences/Al Ain Private University. The experiment involved 10 students from both the general population and the research community..

2-14 The second exploratory experiment:

The researcher performed the study on Wednesday, October 4, 2023, precisely at 10:00 AM. The sample included 10 students from Section C of the research community. The goal of the experiment was The objective of the exploratory survey is to ascertain the difficulties that the researcher may have during the implementation of the first instructional unit created following the format model, as well as to establish the duration required for each individual step..

2-15 Scientific foundations of skill tests:

2-15-1 Validity :

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The researcher used content validity and apparent validity by presenting skill tests to a group of experts and specialists in order to express their opinions and take them into account, so honesty was achieved.

2-15-2 Consistency:

To determine the stability coefficient, the test will be administered twice. The first application will take place on October 1, 2023 AD at precisely 9 o'clock in the morning, while the second application will occur on October 8, 2023 AD at the same time, with a 7-day interval between the two applications. Subsequently, the fundamental Pearson correlation coefficient values will be derived from the outcomes of the two measurements. Next, the correlation coefficient between the first and second test results will be computed...

2-15-3 Objectivity:

To ensure the impartiality of the tests, the researcher utilized the scores from the retest conducted on 10/8/2023. After applying statistical treatment using the correlation coefficient, the researcher established the relevance of objectivity in all skill tests.

(7) Table

Shows the scientific foundations (reliability factor, objectivity factor) for the skills used in Research

S	Tests	Stability coefficient	Sig	Type of significance	Objectivity coefficient	Sig	Type of significance
1	Dribbling test	0.909	0.000	Incorporeal	0.054	0.000	incorporeal
2	Jump shooting test	0.904	0.000	incorporeal	0.941	0.000	incorporeal

*Significant at the significance level (0.05).

2-16 Pre-tests:

On Monday, 10/9/2023, at nine in the morning, on the handball court at the College of Physical Education and Sports Sciences / Al Ain Private University, with the presence of a teacher, the research sample for the control and experimental groups was administered the cognitive failure reduction scale pre-test along with the skill tests. The study team and its supplementary materials, overseen by the researcher.

2-17 The main experiment (educational units):

The researcher arranged the educational units for the experimental sample in a manner that is suitable for the format model (4mat) utilized by the experimental group. This format model consists of four stages. Additionally, the educational units were tailored to meet the needs of the research sample, which was divided into 12 educational units. Each educational unit had a duration of 90 minutes. The implementation of the educational units commenced on Sunday, October 15, 2023, following the format model (4mat). The experimental group received two educational units per week, on Sundays and Wednesdays, for a total of six weeks. The application of the educational curriculum concluded on Wednesday, which coincided with November 22, 2023..

2-18 Stages of applying the educational curriculum:

The researcher adopted the handball subject to learn the skills (dribbling and shooting from jumping forward), which was scheduled to be taught by the teaching staff for the second stage. The researcher included it within the format model (4mat), and the work of the experimental group was according to the stages of the format model (4mat) in the main section as follows:

- **The first stage (reflective observation):** The work in this stage of the model takes place in the main section of the educational unit in the educational activity. The time of this stage is (5) minutes, where the teacher explains the value of the students' experiences by asking the question about the skill, and then the teacher By clarifying the importance of the skill they learn during this educational unit, the extent of its relationship to subsequent skills, and how students can link the previous experiences they have with the new experiences they have received and analyze these experiences through reflection.

- **The second stage (refining the concept):** The work in this stage of the model takes place in the main section of the educational unit in the educational activity. The time of this stage is (15) minutes, as the teacher moves the students in this stage from experience to the abstract concept, by addressing the specific details. Skills in this educational unit in a precise manner through presentation a good model of the skill through illustrations (posters) and videos via the laptop, and then the teacher presents the skill himself in front of the students, and then listens to the students' questions about the

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skill and answers them.

• **The third stage (active experimentation):** The work in this stage of the model takes place in the main section of the educational unit in the applied activity. The time of this stage is (20) minutes, as the teacher in this stage of the model moves the students from crystallizing the concept to the stage of experimentation and manual practice. That is, from the theoretical to the practical side, in order to verify the validity of the expectations and reflections that they have set, where the students try to have their performance of the skill be the same as the ideal, typical performance that the teacher performed. The teacher gives simple exercises that he performs before them in order to expand on the skill, and the focus is on the students acquiring it themselves. New experiences and the role of the teacher is to guide and encourage students to apply and perform correctly.

• **The fourth stage (tangible physical experiences):** At this point in the paradigm, the applied activity is where the bulk of the instructional unit's work occurs. This part takes twenty-five minutes. Teachers strive to help their students draw on their own experiences and expertise to deepen and broaden their understanding of previously covered material. Fresh, by reimagining concepts in different visual forms. This is achieved by regularly assigning exercises to students, who then execute them in front of the instructor to help them understand them better. At the same time, students compete with one another to demonstrate the highest level of performance, and the teacher then assesses their work and gives them feedback..

2-19 Post-tests: The post-tests for the cognitive failure reduction scale and the skill tests (stumbling and aiming from jumping forward) were conducted for the control and experimental groups at exactly nine o'clock in the morning on Sunday, 11/26/2023.

2-20 Statistical methods: The search results were extracted using the Social Portal (SPSS), version 2023.

3- Presentation, analysis and discussion of the results:

3-1 Presentation and discussion of the results of the cognitive failure reduction scale:

(8) Table

It shows the arithmetic means, standard deviations, and skewness coefficient for the measure of reducing cognitive failure

The scale	Application Sample	Arithmetic mean	Hypothetical mean	standard deviation	Standard error	Torsion coefficient	Level
Reducing cognitive failure	32	96.687	108	14.76	0.346	0.356	Medium

Table (9)

Shows standard scores, raw scores, levels, number and percentage To measure the reduction of cognitive failure for the application sample

Levels	Standardization	Raw grade	Number	percentage
Very high	80-68	180-152	0	0 %
High	68-56	151-123	3	9.375 %
Medium	56-44	122-94	19	59.375 %
Acceptable	44-32	93-65	5	15.625 %
Weak	32-20	64-36	5	15.625 %

This finding suggests that second-year students in the College of Physical Education and Sports Sciences have a moderate amount of cognitive failure when it comes to offensive handball skills. To help them improve, teachers can provide them with techniques that help them use their abilities, organize their thoughts, and express themselves in a more effective way. The goals of the PE class may be accomplished while dealing with the professional issues that arise. Table 9 shows that out of the complete application sample, 19 have reached the average level, which is 59.35% of the total, which is a degree of failure that is predicted. Cognitive for the application sample, as this issue arose for a number of reasons that the researcher attributes to issues both external to and internal to the learners, which restrict their capacity to possess adequate knowledge about the sport of handball. Offering students the chance to think critically is important, according to the researcher. Receiving and thinking about this knowledge is a once in a lifetime chance for students

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to raise their cognitive level and decrease their cognitive failure. When compared to lower levels of cognitive organization, "thinking" is among the highest because it relies on perception and demands more intricate and challenging mental processes from the user (Nader et al.) (11, 1777).

3-2 Presenting and discussing the results of the pre- and post-tests of the cognitive failure reduction scale for the control and experimental groups:

(10) Table

The data presented in the study includes the calculation of arithmetic means, standard deviations, and the (t) value for both pre- and post-tests measuring cognitive failure in the control and experimental groups.

Scale	Groups	Measurement unit	Pre test		Post test		T Calculated	sig	Sig Cognitive failure
			m	±S.D	m	±S.D			
Cognitive failure	Experimental	Degree	145.562	3.982	100.437	3.244	33.413	0.000	incorporeal
	Control Groups	Degree	144.562	3.794	92.937	4.090	37.059	0.000	incorporeal

* Significant at a significance level of (0.05).

Table (10) shows the presence of statistically significant differences in favor of the post-tests and for the two groups, but with different differences. The researcher attributes this to the fact that teaching offensive skills theoretically and practically gives a great opportunity for the learner to gain improvement in the cognitive level of these skills through the questions that the learner poses to the teacher or may be Internal (mental) linked to the learner's brain, and this may raise his cognitive level and reduce cognitive failure, and since the educational units were prepared by the researcher according to the format model (4mat), which includes a large group of exercises for these skills in the main part, in addition to what the teacher provides from... Cognitive information about performance: "It requires an honest effort to provide the practicing individual with basic cognitive aspects and scientific principles to refer to in his practice of motor skills in order to achieve a complete understanding of the nature of the practiced sporting activity and its goals" (Muhammad Shamoun) (8: p. 26).

3-3 Presenting and discussing the results of the post-tests of the cognitive failure reduction scale for the control and experimental groups:

Table (11)

The data displays the mathematical mean, standard deviation, and the computed (t) value for both the control & experimental groups.

Group	Measurement unit	Pre test		Post test		T Calculated	Sig	Type of significance
		m	±S.D	m	±S.D			
Cognitive failure	Degree	100.437	3.244	92.937	4.090	5.746	0.000	incorporeal

* Significant at a significance level ≤ (0.05).

There are statistically significant variations in the experimental group's pre- and post-test scores, as shown in Table (11). The experimental group was shown to have a lower rate of cognitive failure compared to the control group. This finding is explained by the fact that the experimental group learned the right job procedure using the four stages of the Format model (4mat). Because this model is centered on the learner's positive engagement with reinforcement from the instructor through feedback, the four stages of the format model (4mat) encourage students to actively participate in skill learning, which improves their understanding of the material and helps it stick in their minds. "The educational system that is based on these principles and laws must be effective and have scientific originality that is inherited from the traditional method of learning" (Yuknerthar, 12: p. 67), as stated in the introduction intended for the learner.

3-4 Presenting the results of the pre- and post-tests to test the skills of striking and aiming from jumping forward to the control and experimental group and discussing them:

Table (12)

It shows the arithmetic means, standard deviations, the calculated (t) value, the (sig) value, and the type of significance between the pre- and post-tests, the skills of tapping and shooting from jumping, for the control and experimental group.

The group	Variables	measuring unit	Pre test		Post test		T Calculated	Sig	Type of significance
			m	±S.D	m	±S.D			
Control Groups	Dribbling	Second	13.040	0.985	12.000	0.730	3.960	0.000	incorporeal
	Shooting by jumping forward	Degree	11.812	0.655	14.500	0.894	17.855	0.000	incorporeal
Experimental	Dribbling	Second	12.853	0.866	10.187	0.543	9.052	0.000	incorporeal
	Shooting by jumping forward	Degree	11.625	0.718	18.000	0.730	23.442	0.000	incorporeal

* Significant at a significance level $\leq (0.05)$.

Table (12) shows that both groups' pre- and post-test scores were significantly different, with the post-test scores being higher and the skills being studied (dribbling and shooting forward). The researcher attributes this to the fact that both groups were taught a well-designed curriculum. To contain educational goals that assist educate students and equip them to practice the teaching profession. Consequently, the research sample gains practical knowledge in the areas of the abilities studied as a result of these activities. "Development of the skill in both the cognitive and skill aspects is facilitated when learning is applied within an educational curriculum that is characterized by clarity and objectivity." The experimental group's post-test scores and abilities (dribbling and forward-jumping shooting) improved (Qasim Jabr, 6: p. 56). The researcher attributes part of the reason for the improvement in the post-tests to a combination of factors, including the researcher's own curriculum and the variety of methods used. By implementing it in accordance with the stages of the format model (4mat), students are provided with a unique opportunity to shape the educational unit's management and direction. This, in turn, motivates students to acquire the researched skills, boosts their confidence, and ultimately expands their experience. "Learners are more likely to complete assigned tasks because they are motivated and motivated to learn, which leads to multiple experiences and a less anxious and hesitant learning environment" (Ghazi Hussein) (4: p. 96).

3-5 Presenting and engaging in discourse regarding the outcomes of the post-tests assessing the proficiency in stamping and aiming while engaging in forward jumps for both the control and experimental cohorts.

Table (13)

The given data illustrates the arithmetic means, standard deviations, and the calculated (t) value between the post-skill tests for both the control and experimental groups. These findings will now be further examined and analyzed.

Variables	measuring unit	Pre test		Post test		Pre test	Post test	Type of significance
		m	±S.D	m	±S.D			
Dribbling	Second	12.000	0.730	10.187	0.543	7.962	0.000	incorporeal
Shooting by jumping forward	Degree	14.500	0.894	18.000	0.730	12.142	0.000	incorporeal

*Significant at a significance level $\leq (0.05)$.

After comparing the control and experimental groups' post-test scores on the two skills under

investigation (dribbling and shooting forward), researchers discovered that the experimental group had statistically significant advantages. In the end, the researcher concluded that the 4mat model was responsible for the observed improvements and distinctions. The 4mat model emphasizes the importance of the learner being at the center of the educational process and allowing him the freedom to freely express his opinions. As a result, it not only improved the learners' abilities to understand and absorb the researched skills, but it also increased their suspense, excitement, motivation, and desire for the lesson. One of the most fundamental factors that promotes learning is "caring for the learner," which entails placing the student at the center of all attention and activities, honoring his unique perspective and talents, and providing him with an abundance of positive reinforcement. (Al-Moussawi Abdullah) (2: page 119). The study also notes that the improvement in skill performance is a contributing factor. The experimental group's research sample had to guide students through the four steps of the model—reflective observation, concept crystallization, active experimentation, and tangible physical experiences—to better understand performance, with the goal of providing feedback, correcting performance, diagnosing and evaluating errors, and finally introducing the learner to the level they had reached. make sure they get every part of the skill right and then find out how well they did. Because of this, they were even more committed to imparting the knowledge and skills to their students and making the most of the time and energy set aside for instruction in the classroom. "The opportunity for the learner to continually learn about the results of his performance is crucial to the success of the educational process and improving the learner's efficiency." (Al-Qati, Muhammad, 9: 31, p. 31).

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Appendix (1)

Shows the items of the cognitive failure reduction scale in its final form

S	Sections	Totally agree	I agree to a certain extent	I agree a little	I do not agree	I completely disagree
1	When I learn the skill of Dribbling, I fail to control the ball.					
2	I am experiencing failure to perform the shooting skill of jumping forward at the right time.					
3	I lose my balance when performing the shooting skill of jumping forward.					
4	Sometimes I have difficulty mastering the skill of Dribbling when I change my position.					
5	Not understanding important notes when the teacher explains the skill of Dribbling.					
6	I sometimes find it difficult to execute the shooting skill of jumping in front from a long distance.					
7	Sometimes I am unable to perform the Dribbling skill correctly.					
8	I lose focus when performing the shooting skill of jumping forward from a narrow angle.					
9	When I try to repeat the shooting skill of jumping forward with specific steps, I forget that.					
10	Sometimes I fail when performing the quick Dribbling skill in a zigzag manner.					
11	I sometimes fail to anticipate the correct movement path when performing the shooting skill of jumping forward.					
12	I feel bored when the teacher explains the skill of Dribbling.					
13	I lose my temper when I fail to execute the shooting skill of jumping forward.					
14	I face great confusion when I catch the ball to perform the forward jump shooting skill.					
15	I lose attention when performing the Dribbling skill during the practical exam.					
16	Not remembering the names of my colleagues when I focus on performing the skill of shooting from jumping forward.					
17	Sometimes I exceed the allowed steps when I perform the skill of Dribbling quickly.					
18	I feel annoyed when I fail to perform the shooting skill of jumping forward.					

[13]

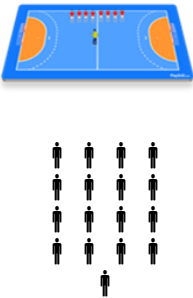


19	My inability to recover the main steps to execute the shooting skill of jumping forward.					
20	I failed to discover my mistakes when performing the Dribbling skill.					
21	I failed to determine the goal when trying to shoot by jumping in front of the (9m) line.					
22	I have difficulty with the correct movement when performing the Dribbling skill.					
23	I lose decision making when I try to perform the shooting skill by jumping forward.					
24	I failed to perform the forward jumping shooting skill while competing with my colleagues.					
25	I failed to answer when the teacher asked me to mention the steps I learned in the skill of Dribbling					
26	I cannot remember the correct steps for the shooting skill by jumping forward when I try to repeat it.					
27	I face failure in using appropriate phrases while learning the skill of Dribbling .					
28	I feel frustrated when I see my colleagues performing better than me in the skill of shooting from jumping forward.					
29	I get nervous when performing the Dribbling skill, which affects my learning.					
30	I failed to identify the important aspects while the teacher explained the skill of shooting from jumping forward.					
31	I sometimes face a failure to perceive feedback while I am busy performing the Dribbling skill.					
32	He failed to perform the shooting skill by jumping forward when the ground was not suitable.					
33	Sometimes I fail to regain my memory of some of the technical stages of the Dribbling skill.					
34	I feel uncomfortable when applying the shooting skill by jumping forward of an illegal handball size.					
35	Sometimes I fail to perform the Dribbling skill when I hear the teacher directing me to change direction.					
36	I face difficulty when I shoot from a forward jump from the 7m line in the presence of a goalkeeper, and thus I fail.					

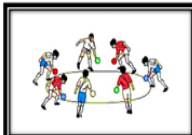
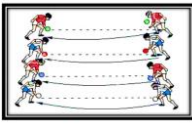
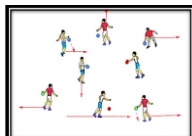
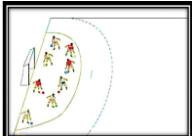


Appendix (2)

A model of an educational unit according to the format model

Educational unit :
 Week:
 Stage: Second.
 Time: 90 minutes.

History: / /
 Educational objectives: Integration and interaction among students.
 Learning Objectives: Teaching the skill of dribbling throughout stabilization and movement.
 Tools and methods used: handballs. sian. whistle. flags. stopwatch.

Sections of the educational unit	Time in minutes	Details of the educational unit	Organization	Notes
- Preparatory section Introduction and warm Up _Physical exercises	15min 7min 8min	Stand in one straight line to register attendance and begin the lesson with the agreed-upon shout (sport...activity) then general body conditioning exercises, walking - jogging with the arms rotating forward and backward - raising the knees high - normal jogging - walking - stop. (Standing) jumps on the spot with the arms extended to the side high continuously (10 seconds). (Standing, open) Bend and extend the arms (1-4). (Standing, Waist) Twist the torso to the sides in succession (4 counts). (Standing - Waist) With the knees bent and extended, raise and lower the arms high (1-2).		-Emphasize on calmness and maintain organization. _ Taking into account the health safety of students. _Emphasizing the muscle groups involved in performance.
Main section - Educational activity	65min 20min 45min	<p>1- Reflective observation stage (5 minutes): The teacher asks a question: Are there difficulties in applying the skill of tapping? Then he re-explains the importance of the handball tapping skill of stability and movement and its relationship to learning subsequent skills and how the correct perception can be created through the previous information the learner possesses about the skill and linking it to the information he will receive, as the teacher repeats the explanation of the skill in its initial and simple form and focuses on the generalities of the skill. At this stage, the learner reflects by linking the previous information he possesses with the information he received from the teacher, and through his reflections, he expects his performance to be better in the future.</p> <p>2- The concept crystallization stage (15 minutes): In this stage, the teacher re-explains the skill of stabilization and movement accurately and focuses on the details of the movements required to perform the skill,</p>	 	1- Giving an introduction to the skill of Dribbling from stabilizing motion and presenting it (linking). This step is linked to the right half of the brain. - Make the students contemplate and notice the teacher's explanation of the parts of the skill (attendance). This step is linked to the left half of the brain. 2- The teacher presents a

<p>_ Applied activity</p>	<p>6min</p> <p>7min</p> <p>7min</p> <p>6min</p> <p>6min</p> <p>6min</p> <p>7min</p>	<p>mentioning all its related features and common errors when performing it, and presenting a good model of the skill by the teacher, such as illustrations (poster).) and the videos, then he presents the skill himself to the students, ensuring that the performance is error-free, and then listening to the students' questions about the skill.</p> <p>3- Active experimentation stage (20 minutes): In this stage, the learners are asked to implement the skill they have learned to verify the validity of the expectations and reflections they have made, and the learners try to ensure that their performance of the stabilization skill of stability and movement is in the same ideal, typical performance that the teacher performed, as the learners perform</p> <p>The skill is in its initial form, and the teacher corrects errors and adjusts the course of the skill to be learned. The learner connects the theoretical side with the practical field side, as the learners perform the skill of stabilization and movement with exercises they freely choose related to the skill, with the possibility of seeking the help of the teacher and consulting him about anything that is not clear about the skill. Then they perform simple exercises that the teacher chooses for them in order to expand the skill, which they perform in front of them for clarification, and then the students, as follows:</p> <p>_The students stand in a circle and perform the tap at a low and stable level. The exercise is repeated for (5 minutes) after which a rest (2 minutes) is given.</p> <p>_ Divide the students into two opposite groups, and when they hear the teacher's whistle, the students stop moving at a low altitude for a distance of (2m) and return to the same place. The exercise continues for (5 minutes), followed by a rest (2 minutes).</p> <p>4- The stage of tangible physical experiences (25) minutes: In this stage, the teacher expands and develops the students' concepts about</p>	     	<p>good model of all the joints of Dribbling, stability and movement and learning them. The teacher explains how they can be used as an offensive weapon (visualization). This step is linked to the right half of the brain.</p> <p>-An organized presentation of the information and experiences being studied in a sequential manner (inform). This step is linked to the left half of the brain.</p> <p>3-What do we learn (abstract concept) (performance application) This step is linked to the left half of the brain with correcting errors.</p> <p>- Students help their other colleagues and the skill is performed according to the exercise they chose and then the exercise set by the teacher (expansion). This step is linked to the</p>
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		<p>the skill of stability and movement, as he gives regular exercises to be performed by them for clarification, while making competition among the students in order to show the best (exemplary) performance that they possess. And adding all the needs and requirements for the exercises, and the teacher challenges the learners to perform correctly, and the teacher evaluates their level of performance, and shares what they have learned with everyone.</p> <p>_Students spread out all over the field and perform the skill of lowering movements in different directions (forward, sideways, and backward). The exercise continues for 5 minutes, followed by a 1-minute rest.</p> <p>_ Divide the students into two groups. Each group performs the high-pressure skill of standing freely inside the goal area. The exercise continues for 5 minutes, followed by a 1-minute rest.</p> <p>_ Divide the students into two opposite groups, separated by a distance of (7metres), with one of the groups having a ball. When the whistle blows, the one with the ball bounces to the group in front of him until he reaches the first group, hands him the ball, and returns behind the group. The exercise continues for (5 minutes), after which there is a (1 minute) rest.</p> <p>_The students stand in two equal groups behind a line in front of them (5) markers, between each one (1 m) and upon hearing the teacher's whistle, the first student from each group performs a low tap between (5) markers back and forth and hands the ball to the next student, and so on. The group that finishes the tap first is Winner, the exercise continues for 6 minutes, followed by a 1 minute rest. At the end of this stage, the teacher asks a question: Did you encounter difficulty at any stage of the model?</p>		<p>right half of the brain.</p> <p>4- Make students take responsibility for their learning by relying on their own experience (technique). This step is linked to the left half of the brain.</p> <p>- Students practice their new learning and share their results with others (performance). This step is linked to the right half of the brain.</p> <p>- Ensure that the ball is close to the body during the Dribbling .</p>
Concluding section	10min	<p>Do a light jog around the playground. Small game. Return the balls and equipment to their places.</p>		<p>Emphasis on restoring the body's functional systems to their normal</p>

[17]

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