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The impact of educational exercises utilizing the McCarthy model on attention and the learning of some forward and backward rolls on the floor exercise mat in artistic gymnastics for female students

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Abstract. Learning is a branch of general scientific and educational knowledge that governs an individual's life from birth to death. Because of its direct and fundamental relationship to motor control, motor learning is regarded as one of the science's most significant in the fields of physical education and sports sciences. The educational process is a series of continuous variables in the relationship between the teacher and the learner, which in turn helps in acquiring experiences and knowledge to bring about various behavioral changes. Additionally, guiding learners to think aloud encourages them and instills in them the desire to reach the maximum benefit allowed by their abilities. Furthermore, it drives and motivates them to practice thinking processes and skills, as well as develop concepts and cognitive structures and correct misconceptions through the processes of assimilation and accommodation. Among educational constructivist models, the McCarthy model emerged as a constructivist philosophy model based on the learner's understanding and interpretation of the phenomena they encounter, as well as their ability to assimilate it in light of previous learning experiences and the transfer of training effects. The research problem is formed around the fact that some teachers still impose a teaching style on students without considering their preferences for one style or another. Since inclination and desire for application and learning are fundamental to learning motor skills in gymnastics, it has become essential for teachers to understand their students' preferences for teaching styles in order to increase the effectiveness of positive participation in the lesson. The researcher attributes the study of this phenomenon and the exploration of its true reality through the use of a method different from the conventional approach in expressing performance in improving attention and learning some basic skills on the floor exercise in gymnastics for third-year students at the College of Physical Education and Sports Sciences. The aim of the research is to identify the preferential impact on improving attention and learning the skills of forward and backward rolls on the floor exercise in gymnastics between the educational curriculum using the McCarthy model and the curriculum adopted by the teacher.

Keywords. motor learning, McCarthy model, gymnastics

1-1Introduction:

Physical education and sports sciences form an important part of the educational curriculum and its subjects, and they are considered one of its essential components. Learning

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is regarded as a tool for understanding most sports topics. In addition, it enhances higher-order thinking skills and interacts with the environment in which one lives. It is also seen as a means to encourage sports imagination and spatial thinking, as well as a source of aesthetic and cultural values. From the perspective of learning and education, humans are the most capable beings of learning, quick comprehension, and the ability to solve complex motor tasks. The effectiveness of learning and education increases, and an individual's learning ability develops as the learner engages in experiences with thought and awareness. This represents the development of direct relationships between the senses receiving external stimuli and the systems responsible for producing movement. Learning is also considered a change in behavior resulting from consultation, meaning it is the acquisition of means that help comprehend requirements and motivations to achieve goals, or it is the ability to perform advanced motor skills through practice along with capability.

Learning is considered one of the branches of general scientific and educational knowledge that guides human life from birth to death. It is also one of the essential sciences in the field of physical education and sports sciences due to its direct and fundamental connection to motor control. The educational process is a series of continuous variables in the relationship between the teacher and the learner that help in acquiring experiences and knowledge to bring about various behavioral changes. Some scholars emphasize the importance of dialogue and discussion between the teacher and the learner and among learners themselves within the classroom to form correct concepts and meanings. The teacher plays the role of a mediator and facilitator, guiding the learner from basic and simple general knowledge to specialized and in-depth scientific knowledge, gradually directing them towards understanding the task, applying it practically, and mastering it. Moreover, it is fundamentally important in motivating students to understand and master scientific knowledge and to develop a deep meaning of concepts. Additionally, guiding learners to think aloud encourages them and instills in them the desire to achieve maximum benefit, within their capabilities, pushing and motivating them to engage in thinking processes and skills, develop concepts and cognitive structures, and correct misconceptions through the processes of assimilation and accommodation.

The McCarthy model emerged as one of the educational teaching models based on constructivist philosophy, which focuses on the learner's understanding and interpretation of the phenomena they encounter. It also considers the ability to assimilate this understanding in light of previous learning experiences and the transfer of training effects. McCarthy established her educational model rooted in constructivist philosophy, which facilitates the change of concepts and the correction of misconceptions.

The McCarthy model consists of five educational stages: rephrasing ideas, reviewing changes in ideas, applying ideas by stimulating students' thinking about a specific topic to enhance participation, intellectual and practical encouragement with sound management and lesson planning, and discussing the various opinions they hold within their cognitive structures. Additionally, it involves selecting the appropriateness, effectiveness, validity, and the possibility of modifying, using, and applying these ideas, and finally evaluating and reviewing the changes through stimulating learners' thinking.

Integrating educational themes within the curriculum of physical education and sports sciences enhances imagination, discovery, reasoning, rule formulation, and validation, thereby promoting cognitive development and intelligence. Therefore, we must teach and train learners on how to think through these processes, recognize them, and choose what they think about. Metacognition refers to the steps taken by the learner during the thinking process and when considering solutions to specific problems. It is the brain's ability in humans to make the learner

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more aware of their thinking, enabling them to describe what is happening in their cognitive structure based on previous educational experiences and situations.

Artistic gymnastics is considered one of the ancient sports practiced by humans since ancient times and is known as gymnastics. It was practiced by the Romans in military training. Similarly, it was practiced by the Sufis and the ancient Egyptians. Over time, there have been many developments in gymnastics. It is a competitive sport distinct from other activities and devices in its geometric design, performed by learners, involving movements on the floor exercise mat used in competitions for both men and women, accompanied by music or without it. The educational entry points involve apparatus, and the floor exercises contain a large number of artistic groups that resemble the artistic groups found in gymnastics apparatus.

Since some skills in artistic gymnasticseon the floor exercise mat (such as the forward roll and backward roll) are relatively difficult forelearners, and because these skills require coordinated movements and cognitive processes to analyze these movements through the transfer of actions between the hands, legs, and torso in a harmonious manner, this necessitates broader and unconventional thinking about these skills to overcome points of difficulty in performance. Therefore, the researcher must prepare teaching exercises using a McCarthy model that differs from the educational models used by the subject teacher, with the primary aim of helping learners focus and exceed the usual level while innovating educational solutions to enhance their motor abilities and artistic performance, achieving the main goal of the educational unit.

1-2- ResearcheProblem:

The procedure of organizing information and equipping female students with the basic skills of artistic gymnastics, reaching correct solutions, and identifying the main problems that female students face in the artistic gymnastics lesson is crucial. This observation comes from the researcher, who is a teacher and practitioner of the sport, as the students lack organization in solving the problems they encounter in the sport in general and the studied skills in particular. Randomness is the dominant characteristic of how these problems are solved, and they do not follow correct steps during performance. Often, female students find the final solution without resorting to the correct steps for performance, which reflects their lack of understanding and awareness. The researcher also noted that some teachers still impose a teaching style on students without considering their preferences for one style or another. Since inclination and desire to apply and learn are fundamental to acquiring motor skills in gymnastics, it has become imperative for teachers to understand their students' preferences for teaching styles to enhance positive participation in lessons. Therefore, the researcher aims to study this phenomenon and explore its true reality by using a different approach than the usual method of expressing performance to improve attention and learn some basic skills on the floor exercise in gymnastics for third-year students at the College of Physical Education and Sports Sciences. This is a modest scientific attempt that contributes to serving our students and our dear country.

1-1- Objectives_of Research:

1- Determine the effect of the McCarthy model curriculum on developing attention and learning the abilities of forward and backward rolling on the floor exercise mat in artistic gymnastics for female students.
2- To identify the preference of the effect in improving attention and learning the skills of forward and backward rolling on the floor exercise mat in gymnastics between the curriculum using the McCarthy model and the teacher's approved curriculum.

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1-4 Hypotheses:

1. Employing the McCarthy model within the gymnastics curriculum positively impacts students' ability to focus and master forward and backward rolling techniques on the floor exercise mat .
2. The effectiveness of the McCarthy model curriculum versus a teacher-approved curriculum in improving attention and the acquisition of forward and backward rolls during artistic gymnastics floor exercises displays a noticeable difference.**1**

Research Areas:

1-5-1 Human Field / Third-year students in the College of Physical Education and Sports Sciences - University of Karbala for the academic year 2023 - 2024.

1-5-2 Temporal Field / 1/10/2023 until 3/5/2024

1-5-3 Spatial Field / Indoor hall - College of Physical Education and Sports Sciences - University of Karbala.

3- Methodologies:

3-1 Research Method:

Choosing the appropriate method for researching any problem is one of the steps that determine the success of the research. This is because the term method is defined as "the techniques and procedures or approaches used in research to collect data and reach results, interpretations, or predictions related to the research topic."

The researcher used the experimental method with a design of two equivalent groups (control and experimental) with pre-test and post-test. This aligns with the specifications of her research problem and achieving the objectives of her study.

3-1-1 Experimental Design:

There are multiple models of experimental designs, and the researcher must choose the appropriate experimental design to test the validity of the results derived from the hypotheses. The choice of design depends on the nature of the study and the conditions and circumstances under which it is conducted.

The researcher used the experimental design of two equivalent groups (control and experimental) with pre-test and post-testeto determine the effect of theeindependent variable on the dependent variables by comparing the results of the pre-test with the results of the post-test. The independent variable (the McCarthy model of educational methodology) will be applied to the experimental group, while the researcher will allow the control group to rely on the methodology applied by the subject teachers, as shown in Figure (1).

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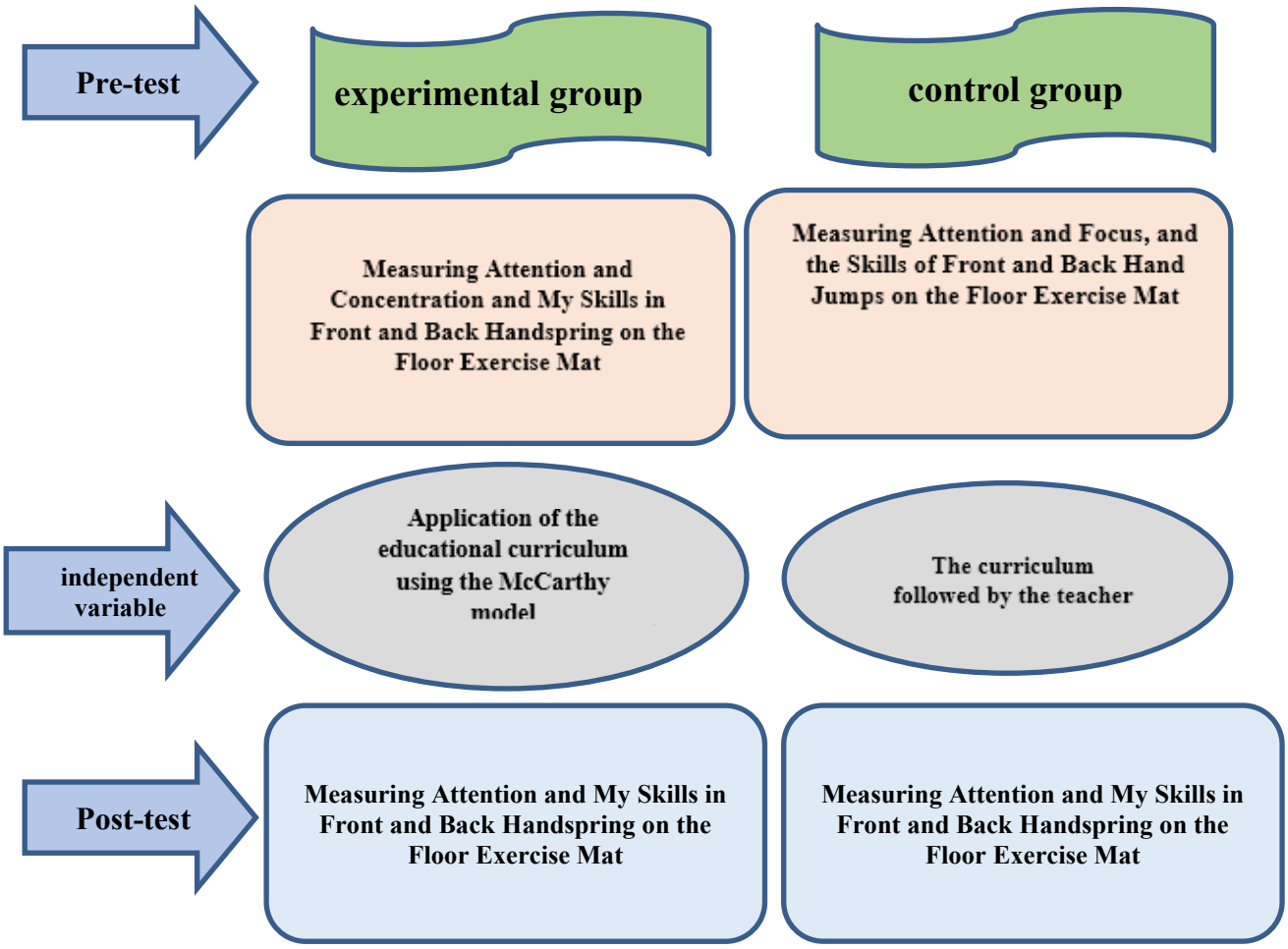

3-2- Research Community and Sample:

For this research, the study population consisted of the 59 female students in their third year at the Karbala University College of Physical Education and Sports Science in the 2023-2024 academic year. These students were divided into four sections (A, B, C, D). For exploratory analysis, a simple random sample was drawn, encompassing ten students (17% of the population). The research employed a simple random sample of 30 students (51% of the community), divided into experimental (section A, n=15) and control (section B, n=15) groups (see Table 1).

Table (1)
Shows the distribution of the research community and samples

No.	Groups	Community size	Sample exploratory experiment	Main experiment sample	Observations
1	Division (A,B)	32		30	
2	Division (C,D)	27	10		
Total		59	17%	51%	

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3-2-1 Homogeneity of the Research Sample:

- Descriptive statistical analysis (mean, mode, standard error, standard deviation, and skewness) was conducted on the main sample to ensure homogeneity regarding potential extraneous growth variables that might affect the independent variable's impact on the dependent variables. Results are shown in Table 2.

Table (2)

Demonstrate the homogeneity of the individuals in the main sample in growth variables

No.	Variables	Unit of measurement	Sample	Lowest degree	Biggest degree	Arithmetic mean	Mediator	Standard deviation	Standard error	Torsion coefficient
1	Length	Centimeter	30.00	1.50	1.65	1.5787	1.58	03702	00676	-0.11
2	Weight	Kg	30.00	60.00	79.00	68.4333	69.00	5.48153	1.00179	0.54
3	lifetime	year	30.00	19.00	24.00	21.4667	22.00	1.90703	34818	0.84-

3-3 Methods, Instruments, and Techniques Employed in the Study:

3-3-1 Methods:

1- Systematic Examination
2- Survey Instrument.
3- Testing and measurement.

3-3-2 Instruments:

1- Computer (Acer).
2- Video cameras (2) (Canon).
3- Types of Pens (quantity: 50).
4- Legal floor exercise mat.
5- Foam mats (25).
6- Display screen (1) (Samsung).
7- Educational wooden boxes (20).
8- High-pressureefoam mat (2).
9- Educationalebooklet (25 booklets).
10- Music device (DJ) (1).

3-4- Field Research Procedures

3-4-1 Exploratory Experiment:

The pilot experiment is regarded as one of the most crucial preparatory steps undertaken by researchers prior to conducting the main experiment. Its purpose is to evaluate the research methods and tools, as well as to determine the prerequisites for achieving accurate and reliable results while minimizing potential challenges. The exploratory experiment is considered a practical training opportunity for the researcher to gain firsthand experience in observing both the challenges and advantages encountered during the implementation of educational units and the administration of tests, enabling the researcher to address these issues in future endeavors.

On Thursday, October 8, 2023, in the hall of Karbala University's College of Physical Education and Sports Sciences, the researcher conducted an exploratory experiment on the study variables with six female students to identify:

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- The suitability of the educational units in the teaching curriculum using the McCarthy model for the research sample in terms of theoretical and practical content.
- The extent to which the female students can achieve the objectives of the educational units of the McCarthy model in attention on one hand and their ability to learn the skills of forward and backward rolling on the gymnastics floor exercise apparatus and observe them on the other hand.
- The suitability of the hall and the various equipment for conducting the main experiment.
- The scientific foundations represented by (validity and reliability) of the attention tests.
- The time each student takes to perform the skills and ability tests.
- The efficiency of the assisting work team.
- Identifying the difficulties that the researcher may face to avoid them in the future.
- Understanding the scientific foundations represented by (validity and reliability) of the performance evaluation forms for the front and backhand rolling skills.

Despite the fact that all attention tests and the proposed form for assessing the performance of the front and back hand rolls on the floor exercise mat in artistic gymnastics are standardized and have been included in numerous local studies, the researcher sought to extract indicators of their validity and reliability by presenting them to experts and reapplying them to the same sample of exploratory individuals under the same conditions on Sunday, October 15, 2023, and extracting the Pearson correlation coefficient between the first and second applications for the students in the exploratory trial, in addition to relying on the evaluation of judges and extracting the Pearson correlation coefficient between the judges' ratings to extract objectivity.

3-4-2- Scientific foundations of attention tests and performance assessment forms for the skills:

First: Validity:

The degree of validity is the most important factor for the quality of tests and measurements. Attention tests and performance assessment forms for the front and back hand rolls on the floor exercise mat in gymnastics for third-year students in the College of Physical Education and Sports Sciences have one type of validity, which is content validity, considered one of the most common and widely used types of validity in the field of physical education and sports sciences. When the researcher presents the tests and performance assessment forms for the front and back hand rolls to a group of experts and specialists to determine their suitability for measuring the two studied abilities and to determine each student's score in performing the front and back hand rolls.

Secondly: Stability:

Stability has a special importance in selecting and using measurement tools for a specific purpose. It refers to "the degree of confidence we can place in the results of our tests." The researcher extracted the stability coefficient for the attention test and the stability of the raters, which is one of the main sources of variance in scoring on the test in measurements. This depends on the evaluator's assessment, not on the scoring key. When the performance evaluation of a sample of (6) students was adopted, it was done through the assessment of three judges for the performance of the front and back hand rolling skills by the students. Afterward, the researcher sought to extract the Pearson correlation coefficient between the ratings of the first judge and the second judge, in addition to the ratings of the first and third judges, and the ratings of the second and third judges.

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3-4-3- Defining the SkilleUnder Study:

The ability being studied was defined using the components of the artistic gymnastics curriculum for the third stage in physical education institutions.

4 - 4 equal groups of research:

To attribute the differences in post-test results for mental abilities and floor exercise jump performance to the experimental factor, the researcher verified group equivalence using the t-test for independent samples with equal numbers and Levene's test (Table 3).

Table (3)

Illustrate the values of the (T) test and (Levene) for the mental variables and the front and back hand jump skills to find the equivalence in physical education and sports sciences, in accordance with the requirements of the research topic and the educational curriculum prepared for it

Groups		Sample	Community	Distractions	Standard error	Levine value	Significance level	T value	Significance level
Front rolling	Control	15.00	2.67	1.29	0.33	3.24	0.08	0.34	0.74
	Experimental	15.00	2.53	0.83	0.22				
Rear rolling	Control	15.00	1.67	0.72	0.19	1.08	0.31	0.22	0.83
	Experimental	15.00	1.60	0.91	0.24				
	Experimental	15.00	9.73	1.49	0.38				
External focus	Control	15.00	14.07	1.98	0.51	0.60	0.45	0.44	0.66
	Experimental	15.00	13.73	2.12	0.55				
Bearing for external stimulus	Control	15.00	13.40	2.61	0.67	0.06	0.81	0.14	0.89
	Experimental	15.00	13.27	2.66	0.69				
Internal focus	Control	15.00	13.60	3.36	0.87	0.52	0.47	0.11	0.91
	Experimental	15.00	13.47	3.00	0.77				
Bearing an internal stimulus	Control	15.00	15.20	2.60	0.67	0.59	0.45	0.06	0.95
	Experimental	15.00	15.13	3.20	0.83				

3-4-5- Pre-tests:

The pre-tests for the control and experimental groups were conducted on (10/12/2023). This was after completing two introductory educational units. The first educational unit focused on the skill of front handspring on the floor exercise mat, using the McCarthy model in perception. It included an explanation of the skill with the aid of some images and drawings related to that skill, followed by a presentation on a laptop program. The research sample then applied it, and after the completion of the educational unit, the pre-tests were conducted on the sample to evaluate the technical performance as well as the accuracy of the skill itself.

-4-4 The Educational Curriculum:

Before starting to implement the educational curriculum, it is necessary to clarify the relationship between the methods aimed at achieving a specific set of goals and utilizing models and educational methods in learning the researched skills in artistic gymnastics for female students.

The McCarthy model aims to foster teacher-student relationships, promoting student development and independence. The preparatory warm-up should emphasize regularity, coordination, accuracy, responsiveness, and control, guiding focused teaching.

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The researcher organized the control and experimental research groups to begin the research.

- The research sample, consisting of (30) female students, was divided randomly into two groups: a control group and an experimental group, each containing (25) students.

Control group: Students followed the standard College of Physical Education and Sports Sciences at Karbala University curriculum for the third stage, covering four units.

- Experimental group: The students in the experimental group learned a new skill, which is the front handspring on the floor exercise mat, practiced it, and developed and used an electronic device (laptop) as well as a DATA SHOW screen.

The educational curriculum lasted for (4) educational units, with each unit lasting (90) minutes, conducted once a week to change the learning environments, reduce learning time, and stimulate the students' enthusiasm.

The researcher implemented the educational units using the McCarthy attention model on the members of the experimental group as follows:

The educational program started on 16/1/2024, which corresponds to Sunday, and ended on 28/4/2024, also a Sunday. It included appropriate exercises for the scientific units to learn the researched skill and specific assignments following the McCarthy style, in line with the students' interests, abilities, desires, and potential, as well as improving their sensory-motor perception. The researcher ensured that there were no differences between the groups in all parts of the educational units, which amounted to (4) educational units.

3-7 PerformanceEvaluation of the Skill in Question:

To validate its ability to measure and identify talent, the researcher's performance assessment form, which scores preparatory, main, and concluding skill components, was reviewed by a panel of gymnastics professionals and specialists.

After collecting the forms and analyzing the experts' opinions, the results showed complete agreement on the validity of the form at a rate of (100%) after making some minor adjustments. Subsequently, the assessment of judges was relied upon to evaluate each student's performance when executing the skills on the gymnastics apparatus relevant to the study.

3-5 Post-Tests:

After completing the application of the educational program, which included (4) educational units, the researcher conducted a post-test measurement for the skill in question on all members of the main experimental sample from both the experimental and control groups, under the same conditions and specifications as the pre-test, on 3/5/2024, and collected the data, recording it in forms in preparation for statistical analysis.

3-6 Statistical Methods:

• Use of the Statistical Package for the Social Sciences (SPSS).

4- Results Presentation, Analysis, and Discussion

4-1 Presentation of Results for Research Groups, Analysis, and Discussion

Following the completion of research procedures and tests (pre-tests and post-tests), raw scores were obtained. To achieve the study's second objective—identifying the effect of the McCarthy model on attention skills and forward/backward rolling in artistic gymnastics among female students—the researcher analyzed the differences between pre-test and post-test measurements in the experimental and control groups.

4-1-1 Presentation of Results for Differences in Pre-Test and Post-Test Measurements for the Control Group on the Two Skills, Analysis, and Discussion:

Has been used a paired t-test to analyze pre-test and post-test data from the control group. This analysis determined the mean and standard deviation for each variable (attention

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methods, forward rolling, backward rolling) and assessed the statistical significance of the differences between the pre-test and post-test measurements, as shown in Table 6.

Table (6)

Demonstrates the difference between pre-test and post-test measures for members of the control group for the investigated skills

Variables	audition	Community	Distractions	Teams of the media	Standard error	T values	Significance level
Front rolling	Post-test	4.73	1.16	2.07	0.36	5.77	0.00
	Pre-test	2.67	1.29				
Rear rolling	Post-test	4.20	0.94	2.53	0.26	9.91	0.00
	Pre-test	1.67	0.72				
	Pre-test	14.07	1.98				
Bearing for external stimulus	Post-test	17.27	2.81	3.87	1.01	3.81	0.00
	Pre-test	13.40	2.61				
Internal focus	Post-test	16.73	3.95	3.13	1.23	2.54	0.02
	Pre-test	13.60	3.36				
Bearing for internal stimulus	Post-test	18.27	2.79	3.07	1.12	2.74	0.02
	Pre-test	15.20	2.60				

Table 6 shows a difference in the mean values of attention methods, forward hand rolls, and backward hand rolls between the pre-test and post-test measurements of the control group.

When inferring the significance of the differences between the mean values using the (T) test for related samples, the results showed that the calculated value of (T) between the pre-test and post-test measurements for the variable of rolling the hands forward on the gymnastics floor mat reached (5.77).

This is greater than its tabulated value of (14.2) at a significance level of (0.05) and a degree of freedom of (14). Meanwhile, the calculated value of (T) for the variable of rolling the hands backward on the gymnastics floor mat was (9.91). This is also greater than its tabulated value, confirming that there is a significant difference between the mean values in the pre-test and post-test measurements for the members of the control group.

The researcher believes that the teaching method employed by the subject teacher has an impact on students' learning of basic skills on the gymnastics floor mat. The researcher attributes this development in the members of the control group, which relied on the teaching method adopted by the subject teacher, to the appropriate repetitions that accompanied the educational units.

In addition, the continuous performance of exercises was considered, taking into account their suitability for the students' capabilities and abilities, as well as the progression in the level of difficulty of the movements and skills.

While performance was ensured by everyone, this aligns with what (Najah Mahdi Shalash and Akram Muhammad, 2000) indicated that "practice and effort in training and continuous repetitions are essential in the process of education and acquisition. Training is also a fundamental factor in the individual's interaction with the skill, controlling their movements,

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and achieving coordination between the movements that constitute the skill in a correct sequential performance and appropriate timing, which enhances the learning and development of the skill and its mastery."

4-1-2 Presentation of the results of the pre-test and post-test measurements of the experimental group for the researched skills, analysis, and discussion:

In order for the researcher to reveal the differences between the pre-test and post-test measurements of the experimental group, she sought to statistically process the data and extract the mean values and standard deviation for all the variables under study, which are (attention methods, forward hand rolling on the floor exercise mat, backward hand rolling on the floor exercise mat). After that, the researcher used the (T) test for related samples as a statistical means to determine the significance of the differences and whether the differences and variances were due to a real difference or to chance, as shown in Table (7).

Table_(7)

Demonstrates the distinction between the pre-test and post-test assessments of the experimental group for the investigated skills

Variables		Mediums	Distractions	Teams of the media	Standard error	T values	Significance level
Front rolling	Post-test	6.80	0.94	4.27	0.36	11.91	0.00
	Pre-test	2.53	0.83				
Rear rolling	Post-test	5.87	0.74	4.27	0.32	13.51	0.00
	Pre-test	1.60	0.91				
	Pre-test	9.73	1.49				
External focus	Post-test	24.53	4.29	10.80	0.93	11.65	0.00
	Pre-test	13.73	2.12				
Bearing for external stimulus	Post-test	21.13	2.72	7.87	1.06	7.42	0.00
	Pre-test	13.27	2.66				
Internal focus	Post-test	20.33	2.74	6.87	1.21	5.67	0.00
	Pre-test	13.47	3.00				
Bearing for internal stimulus	Post-test	23.40	7.05	8.27	1.45	5.70	0.00
	Pre-test	15.13	3.20				

Table 7 shows a difference between the means and standard deviations of the experimental group's pre-test and post-test measurements. A paired samples T-test indicated significant variations in all studied variables (attention methods, forward hand rolling, and backward hand rolling). Specifically, the calculated T-value for forward hand rolling (11.91) exceeded the tabulated value (14.2) at a significance level of 0.05 and 14 degrees of freedom. Similarly, the calculated T-value for backward hand rolling (13.51) also exceeded its tabulated value.

The researcher attributes the differences to the practice of the experimental group in educational exercises during the units of instruction. In addition to their components and the clear application of those exercises. This confirms the significant effect of the method used by the researcher in improving attention, as it helped in learning the two skills, and consequently

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contributed to acquiring and building a motor learning program with a good level of scientific knowledge in artistic gymnastics.

The educational curriculum significantly improved learning of floor exercise skills in artistic gymnastics. The exercises effectively activate multiple muscle groups through varied movements of the torso, arms, legs, and head, with adjustments in speed, repetition, and range of motion.

Additionally, a display screen and an instructional booklet were used, all of which helped in learning and acquiring the skills (attention techniques, forward hand rolls on the floor exercise mat, backward hand rolls on the floor exercise mat) for the members of the experimental group. The importance and benefit of educational learning tools lie in their impact on the three main elements of the educational process (the teacher, the learner, and the educational material).

It captures his interest and excites him to learn, which increases his motivation to discover new facts. These means help make experiences more effective, leave a lasting impact, reduce the likelihood of forgetting, and provide opportunities for desired diversification and renewal, thus contributing to addressing the issue of individual differences. It has been established by educational psychologists that the more senses of a student are engaged in studying a concept, the faster the learning and acquisition of experiences occurs.

The exercises effectively facilitated the female students' learning and acquisition of basic ground movement skills. This success is attributed to the gradual introduction of skills, moral support that enhanced focus, and strategies to minimize distractions, ultimately promoting learning proficiency, fluid performance, and skill mastery.

Skill mastery is achieved through tailored movement programs, repeated exercises, and student responses to learning requirements within educational units, which serve as the most effective means to highlight potential, maintain standards, and achieve goals.

The researcher believes that displaying the skill on the screen is in line with the scientific developments occurring in all scientific fields and learning through the correct model, as this game lacks many models in universities.

4-2 Presentation of the results of post-measurements between the research groups and their analysis:

In order to achieve the third objective of the study, which involves identifying the preference of differences between the effects of the curriculum using the McCarthy model in improving attention, as well as learning the skills of forward and backward rolls on the gymnastics floor for female students, in addition to the curriculum adopted by the teacher.

The researcher sought to extract the values of the mean, standard deviation, and standard error for the data of the individuals in the research groups (experimental and control) in the post-measurement, as shown in Table (8).

Table (8)

Shows the difference in post-measurements for individuals in the experimental and control groups

1. Variables groups		2. Sample	3. Community	4. Distractions	5. Standard error	6. T value	7. Significance level
8. Front rolling	9. Experimental	10. 15.00	11. 6.80	12. 0.94	13. 0.24	14. 5.35	15. 0.00
	16. Officer	17. 15.00	18. 4.73	19. 1.16	20. 0.30		
	22. Experimental	23. 15.00	24. 5.87	25. 0.74	26. 0.19	27. 5.38	28. 0.00

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21. Rear rolling	29. Officer	30. 15.00	31. 4.20	32. 0.94	33. 0.24		
	34. Officer	35. 15.00	36. 11.33	37. 1.84	38. 0.47		
39. External focus	40. Experimental	41. 15.00	42. 24.53	43. 4.29	44. 1.11	45. 4.93	46. 0.00
	47. Officer	48. 15.00	49. 17.80	50. 3.10	51. 0.80		
52. Bearing for external stimulus	53. Experimental	54. 15.00	55. 21.13	56. 2.72	57. 0.70	58. 3.82	59. 0.00
	60. Officer	61. 15.00	62. 17.27	63. 2.81	64. 0.73		
65. Internal focus	66. Experimental	67. 15.00	68. 20.33	69. 2.74	70. 0.71	71. 2.90	72. 0.00
	73. Officer	74. 15.00	75. 16.73	76. 3.95	77. 1.02		
78. Bearing for internal stimulus	79. Experimental	80. 15.00	81. 23.40	82. 7.05	83. 1.82	84. 2.62	85. 0.00
	86. Officer	87. 15.00	88. 18.27	89. 2.79	90. 0.72		

The experimental group demonstrated statistically significant improvements in attention and in learning forward and backward rolls compared to the control group's pre-test measurements. This improvement is attributed to the experimental group's use of the McCarthy model and teaching method, which facilitated clearer and more effective learning. Incorporating effective teaching methods is crucial for developing learners who can problem-solve and think critically, fostering self-development, self-control, and adaptability in diverse learning situations. Furthermore, substantial and clear feedback during the educational units fostered a motivating and effective learning environment, contributing to the learners' achievement of the educational unit's goals.

1- Conclusions and Recommendations:

5-1- Conclusions:

Based on the results of the study, the researcher concluded several findings, including:

1 .Female students in the experimental group showed significantly greater improvement in attention and in learning forward and backward rolls on the floor exercise mat in artistic gymnastics compared to the control group.

2. The McCarthy model is effective for improving attention and learning forward and backward rolls on the floor exercise mat in artistic gymnastics for female students.

5-2- Recommendations:

1. It is more beneficial to focus on an educational system that allows students to study based on their inclinations, desires, and talents by giving them with choices.

2. Conduct further studies and research on the same variables and other categories and samples.

References

- Mohammad Al-Amri: Special notes on the course of designing and producing scientific materials, Yarmouk University, Faculty of Education, 1993.
- Najah Mahdi Shalash and Akram Mohammed: Motor Learning, University of Mosul, Dar Al-Kutub for Printing and Publishing, 2000.

Waleed Al-Zend and Hadi Hatmil: Educational Curricula: Designing, Implementing, Evaluating, and Developing, Jordan 2010.