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The Effect of Educational Exercises Using the Ashur Model on Sensory-Motor Perception and Learning Some Skills on the Floor Movement Mat and the Vaulting Platform in Artistic Gymnastics for Female Students

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ABSTRACT

The journey to improving athletic ability is a crucial one, as it teaches individuals how to reach their peak performance through dedicated practice, training, and repetition. The key to success in any educational pursuit lies in the trust between student and instructor, as well as the ability of the instructor to inspire a passion for learning. Just like lesson planning, effective work cannot be achieved without following established educational models and procedures. The intricacies of lesson planning involve setting educational goals and choosing the best methods to achieve them. Additionally, teachers must also engage with their students' minds, shaping their perspectives and values in a positive manner. In today's rapidly evolving world, it is crucial for teachers to maintain accuracy and precision when planning lessons. By utilizing educational models and exercises, teachers can effectively manage their time and continuously develop their practical and educational capabilities. Through careful planning and implementation, teachers gain valuable experience that allows them to select the most effective teaching strategies and means to achieve their goals. This also enables them to adapt and find alternatives for any shortcomings in their methods, leading to a sense of confidence and innovation. By incorporating modern exercises and utilizing models such as the Ashur model, which focuses on designing a comprehensive learning and planning program, teachers can create a dynamic and engaging educational experience for their students. This model takes into account the characteristics of learners, sets goals and standards, and uses a variety of educational materials and strategies to foster a meaningful response from students. With this approach, teachers can eliminate the mundane routine of traditional methods and achieve successful and fruitful results.

INTRODUCTION

Artistic gymnastics is a core component of physical education programmes; the sport demands a solid foundation in fundamental skills that can't be built up through casual practice alone; this, in turn, necessitates a well-thought-out approach that makes efficient use of time and energy. This is why individuals responsible for education have sought wide range of strategies to improve it. Thanks to the combined efforts of instructors and students, this sport has come a long way, particularly on an international stage, elevating its already stunning technical performance and increasing the difficulty of this beautiful sport. As a result, numerous educational approaches have emerged in this domain, one of which is the Ashur model, with the goal of shifting the focus and responsibility for learning from the instructor to the student. Artistic gymnastics is one of the individual games with talents that are defined by difficulty in performance, and the evolution of modern gymnastics' efficacy has been more challenging and sophisticated than other activity techniques in recent years. This study aims to identify the effects of educational exercises utilising the Ashur model on sensory-motor perception, as well as on the acquisition of abilities on the artistic gymnastics vaulting platform and the floor movement mat, in female students. As a gymnastics instructor and observer of the

sport's training and education systems, the researcher noticed a gap in the students' skill development at the University of Karbala's College of Physical Education and Sports Sciences. She reasoned that students get bored with the same old boring models of instruction and their performance suffers as a result. So, she set out to fill this gap by developing her own model of effective student skill acquisition. A key reason for learning artistic gymnastics' efficacy is that pupils have a hard time and aren't very good at picking up the necessary abilities. As a result, the researcher starts to wonder if the absence of contemporary instructional approaches in the classroom and the failure to connect student learning to technology advancement could be to blame for the underwhelming performance on the tested abilities. This led the researcher to the conclusion that artistic gymnastics would be an ideal setting for the first application of the Ashur model of sensory-motor perception in the classroom.

Objectives

- Tutoring female pupils in artistic gymnastics on the jumping platform and fundamental movement mat, as well as developing instructional exercises based on the Ashur paradigm of sensory-motor perception.
- How teaching artistic gymnastics to female pupils via the Ashur model affected their sensory-motor perception

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and their ability to learn certain skills on both the floor and the jumping platform.

Research Hypotheses

- Instructional activities based on the Ashur model improve female gymnasts’ sensory-motor perception and help them master the front-hand jump on the floor-movement mat.
- Differentiating between the control and experimental groups to determine which one had a more favourable impact

Research Areas

- Human field: Third-year female students in the College of Physical Education and Sports Sciences, University of Karbala
- Time field: 9/15/2024 to 11/29/2024
 - Spatial field: Hall of the College of Physical Education and Sports Sciences, University of Karbala - closed hall

MATERIALS AND METHODS

How to do research depends on the situation’s specifics, the study’s aims, and the working hypotheses. As the definition puts it, “a method of thinking and working that the researcher adopts to organise, analyse and present his

ideas with the aim of reaching reasonable results and facts about the phenomenon that is the subject of the study” sums up methodology.

Given the nature of the problem and the study’s objectives, the researcher employed the experimental technique by creating equal groups and administering pre- and post-measurements. This was done since it is the most reliable way to obtain accurate data.

Research Community and Sample

For the academic year (2023–2024 AD), forty students (representing 51.9% of the total) from the College of Physical Education and Sports Sciences at the University of Karbala served as the research community’s de jure determinants. As a result, we split the population into an experimental and a control group. Fifteen female students made up both the experimental group and the control group.

Sample Homogeneity

Before starting to implement the educational curriculum, the researcher resorted to verifying the homogeneity of the research sample in the variables related to morphological measurements, which are (height, weight and age), as shown in Table 1.

Table 1: This demonstrates that the research sample is uniform with respect to the three variables under consideration (age, weight, and height)

Coefficient of skewness	Standard deviation	Median	Arithmetic mean	Unit of measurement	Variables
0.80	4.30	171	172.15	Cm	length
0.54	5.54	73.50	74.50	Kg	weight
0.81	0.74	20	19.80	قنيس	Age

Table (1) shows that the values of the skewness coefficient are between (± 1), which indicates the homogeneity of the research sample individuals in these variables, i.e. the normality of their distribution.

Research Methods, Devices and Tools Used

Research Methods

- Sources and references.
- Personal interviews
- Observation.
- Tests and measures.

Equipment and Tools Used

- 1- Acer computer, number (1).
- 2- Floor mats, number (20).
- 3- Jumping platform, number (2).
- 4- Glove, number (2).
- 5- Sony camera, number (1).
- 6- Educational bench, number (2).
- 7- Trampoline, number (2).
- 8- Wooden box, number (2).
- 9- Educational pony, number (2).
- 10- Magic pen, number (1).
- 11- Technical performance evaluation forms for skills.

Field Research Procedures

Procedures for Determining the Skills of the Floor Mat and the Vaulting Platform

• This study aimed to assess the level of floor mat and vaulting platform skills among second-stage female students at the College of Physical Education and Sports Sciences - University of Karbala. To do this, the researcher compiled the relevant curriculum from this level’s lessons, put them in a questionnaire, and then sent it to a panel of gymnastics experts and specialists for feedback. The goal was to identify the most important skills for the students to work on and use those as dependent variables. As part of the preparation process, the researcher created a performance evaluation form and had it reviewed by three artistic gymnastics professionals to ensure its validity. Relying on the assessment of three arbitrators, the results demonstrated that there was full agreement on the form’s validity at a rate of (100%) after collecting and transcribing the data. After removing the scores of two arbitrators, we calculated the median grade based on how well each student executed the floor mat and vaulting platform abilities covered in the first semester’s lesson plan. Experiment number three to five:

- An exploratory experiment was carried out on Monday, September 18, 2024, at ten in the morning in hall 1-Gymnastics affiliated to the College of Physical Education and Sports Sciences / University of Karbala. The purpose of the experiment was to confirm the steps of scientific research and to determine the accuracy and validity of the related work. A random sample of five students from the second stage was used, along with the extraction of scientific foundations for the skills evaluation form, which were characterised by reliability and honesty. The experiment aimed to identify the following:

- Being aware of how long it takes to teach the exercises and take pictures of the class so you can see how well they did.
- The fitness of the athletic facility and its apparatus for carrying out the preliminary investigation.
- Instructing the assistant team on how to carry out the exercises and making sure their work is organised.
- Being aware of potential reasons and challenges that may arise during exercise implementation.
- Being aware of the appropriateness of the instruments and making sure that pupils are safe.
- How well students grasp the scale vocabulary and are able to apply the techniques.
- Checking the data-recording form for authenticity

Scientific Foundations of the Questionnaire

First: Validity of the Questionnaire

The degree of validity is “the most important factor for the quality of tests and scales”. The floor movement mat and jumping platform skills assessment questionnaire under study gained content validity when it was presented to a group of experts to approve its suitability in determining each student’s score on the skills.

Second: Form Reliability

When deciding on and implementing a test or data collecting procedure, reliability—which is defined as “the degree of confidence we can place in the results of our measurements”—is crucial. The reliability coefficient of the gymnastics skills performance evaluation form was determined by administering the form to five students as part of the exploratory experiment once after seven days and then administering it again. With a value of 0.861, the simple correlation coefficient (Spearman) demonstrated a good level of reliability. With a degree of freedom of 3 and a significance level below 0.05, the computed (t-r) test for reliability coefficient (2.54), which is greater than its tabular value of 2.02, confirms that the form enjoys a high and reliable degree of reliability.

Preparing Exercises for the Ashur Model

- The researcher used scientific sources and the findings from the exploratory experiment to create the exercises.
- The following, then, are the particular drills for each ability that were settled upon throughout the field procedures:

- The researcher has designed four exercises for each skill; these will be taught in the gymnastics hall at the College of Physical Education and Sports Sciences/ University of Karbala.

- The programme will run for eight weeks, with two units per week, for a total of sixteen educational units. This lines up with what Klinzing and Sharky have said, that in order to see performance improvement, the number of units per week should be between two and three, and that the number of weeks should be at least six. The practical portion of the main educational unit lasts fifty minutes and is where the exercises will be presented, with the subject teacher and the researcher supervising. The artistic gymnastics apparatuses (front and back rolls, handstands, human wheels, front handsprings, open platform jumps, and platform jumps) were introduced and shown in a straightforward manner throughout the instructional courses. The instructional portion accounted for fifteen minutes of the primary segment. The complete technique is first demonstrated, and then the key points and specifics of each step in performing the talent are covered, including the proper placement of the hands, head, trunk, tension, and so on. When a skill is introduced to a student, he or she must first grasp the big picture before breaking it down into its component parts. This way, the student can fully grasp the skill, even if it’s taught in a simplified form.

Based on his findings from the preliminary experiment, the researcher followed the protocol of progressively more challenging exercises after completing easier ones, up to the compatibility stage. He then used the allotted time of 12.5 minutes to complete each exercise. He told the student he could only do the exercise after he found his spot among his classmates. The exploratory experiment determined that a 5-count deep breathing break in between repetitions is enough to regain their mental and physical power.

Gloves, educational benches, trampolines, sponge mats, wooden boxes, an educational pony, and a geometric figure drawn on the ground were among the supplementary tools employed by the researcher. The results are displayed in the appendix (6).

Pre-Test

Two introduction units regarding the job and the chosen skills were conducted by the researcher. On Tuesday, September 24th, 2024, the first introductory unit took place, and on Wednesday, September 25th, 2024, the second. After that, she started by administering a pre-test to forty female students from the College of Physical Education and Sports Sciences / University of Karbala who were part of the basic sample for the research variables. She then collected data using specialised forms in order to reveal the equivalence of the two groups through statistical processing. section 3-7-1-2 The two research groups are on equal ground: The researcher wanted to find out if the two groups (control and experimental) were similar in terms of the study’s

variables, so she calculated the means and standard deviations for each group and for all the learning-related variables (gymnastics skills). Based on the statistical analysis, there were no significant differences between the two groups' arithmetic means for any of the variables,

proving that the two groups were statistically equivalent across the board. This was determined by utilising the t-test for independent and similar samples. Section 2 of the table.

Table 2: Shows the equivalence of the two research groups (control and experimental) in the variables studied

Significance	Significance Level	Calculated t-Value	Standard Error	Deviations	Means	Sample	Variables	
Random	.506	-.838	.14406	.66019	3.9841 ∩	20	Experimental	Human wheel
			.11925	.53332	4.1252 ∩	20	Control	
Random	.455	-.634	.13638	.62499	3.9127 ∩	20	Experimental	Jumping Open
			.11166	.49934	4.0250 ∩	20	Control	
Random	.522	-.777	.13431	.61547	3.9484 ∩	20	Experimental	Jumping jack
			.10832	.48441	4.0733 ∩	20	Control	
Random	.522	-.777	.13431	.61547	3.9484 ∩	20	Experimental	Handstand
			.10832	.48441	4.0743 ∩	20	Control	
Random	.535	-.738	.13365	.61244	3.9365 ∩	20	Experimental	Front jump
			.10779	.48206	4.0594 ∩	20	Control	
Random	.547	-.765	.13394	.61377	3.9444 ∩	20	Experimental	Forward roll
			.10796	.48280	4.0699 ∩	20	Control	
Random	.545	-.761	.13385	.61336	3.9431 ∩	20	Experimental	Back roll
			.10788	.48245	4.0675 ∩	20	Control	

The experimental group did activities based on the Ashur model of sensory-motor perception, while the control group stuck to the subject teacher-approved style of instruction. The instructional units were introduced over the course of eight weeks, with a weekly rate of two units. Consequently, sixteen educational units were a part of the programme. The programme started on Monday, which is equivalent to 10/25/2024, and it ended on Sunday, which is equivalent to 11/27/2024. The educational units utilised modern teaching approaches and methods for female students during the main section of the unit, as well as specialised exercises for learning artistic gymnastics skills. The researcher was quite concerned that the activities should not exceed the skill levels of the female pupils. Aside from the portion of the educational unit dealing with the educational and applied activity, where each group conducts its own application and practice, there should be no distinction between the two groups throughout the entire unit.

Post-Test

On Thursday, 11/28/2024, the researcher administered a post-test to the entire basic experimental sample, including both the control and experimental groups, using the same conditions and specifications as the pre-test. The purpose of this was to collect data in preparation for statistical processing, after the experimental group had completed the Ashur model in sensory motor exercises, which included sixteen educational units.

Statistical Methods

The researcher used the Statistical Package for Social Sciences (SPSS) to process the data.

RESULTS AND DISCUSSION

Presentation of the Results of the Pre- and Post-Measurement Differences for the Research Sample Members

By comparing the pre- and post-test scores of the control and experimental groups, the researcher hoped to determine whether instructional exercises based on the Ashur model improved the sensory-motor perception of female students and whether they learned any new skills on the artistic gymnastics jumping platform or floor movement mat.

The findings of the control group's pre- and post-tests for the studied skills are displayed, analysed, and discussed: The researcher wanted to find out if the control group's pre- and post-test scores were different, so she used statistical methods to analyse the data from both sets of measurements and find out how the variables (curled front jump, back jump, handstand, human wheel, open springboard jump, close springboard) were distributed. Then, to accomplish this and determine the significance of the changes between the pre-and post-measurements, she utilized the (t) test for correlated and equal-numbered samples as a statistical tool, as indicated in Table (3).

Table 3: Shows the difference between the pre- and post-measurements of the control group members for the skills studied

Significance Level	Calculated t-Value	Mean Difference	Standard Error	Deviations	Sample	Means	Variables	
.000	9.592	2.20750	.21527	.96270	20	6.3325 ∩	After	Human wheel
			.12133	.54262	20	4.1252 ∩	Before	
.000	10.436	2.55800	.23331	1.04342	20	6.5830 ∩	After	Jumping Open
			.11150	.49865	20	4.0250 ∩	Before	
.000	11.360	2.14150	.19343	.86505	20	6.2160 ∩	After	Jumping jack
			.10875	.48634	20	4.0733 ∩	Before	
.000	7.838	2.06700	.24902	1.11365	20	6.1415 ∩	After	Handstand
			.10875	.48634	20	4.0743 ∩	Before	
.000	6.539	2.03250	.29180	1.30495	20	6.0915 ∩	After	Front jump
			.10785	.48233	20	4.0594 ∩	Before	
.000	9.374	2.43050	.23848	1.06653	20	6.4995 ∩	After	Forward roll
			.10820	.48388	20	4.0699 ∩	Before	
.000	8.855	2.34150	.23053	1.03096	20	6.4085 ∩	After	Back roll
			.10819	.48382	20	4.0675 ∩	Before	

*Note that the table value of the (T) test at a significance level of (0.05) and a degree of freedom of (19) equals (2.02).

According to the study's author, pupils' acquisition of foundational abilities on the artistic gymnastics leaping platform and floor exercises mat is influenced by the pedagogical approach used by the instructor. This progress was credited by the researcher to the members of the control group who followed the subject teacher's instructional approach, which included suitable repetitions with the lessons, continuous exercises tailored to each student's abilities, and a progressive level of difficulty for the movements and skills that were performed by all. This lines up with the findings of (Najah Mahdi Shalash and Akram Muhammad, 2000) which state that repetition and practice are crucial in learning and development. A person's ability to learn, develop, and choose a skill depends on his or her training, which is essential for controlling one's own movements and coordinating the many movements that comprise a skill in a logical, sequential, and timely fashion.

Presented, Analysed, and Discussed are the Outcomes of the Experimental Group's Pre- and Post-tests

The researcher conducted a statistical analysis to determine the average and standard deviation values for each of the variables under study and research. These variables included the following: human wheel, open jump on the jumping platform, combined jump on the jumping platform, handstand, front jump, front roll curled, and back roll curled. The goal was to identify any differences between the pre- and post-measurements of the experimental group members. Table 4 illustrates the results of her statistical analysis, which included the following steps: determining the significance of the differences; and determining if the differences and disparities are attributable to a real difference or to chance. She employed the (T) test for correlated samples.

Table 4: Shows the difference between the pre- and post-measurements of the experimental group members for the skills studied

Significance Level	Calculated t-Value	Mean Difference	Standard Error	Deviations	Sample	Means	Variables	
.000	13.426	3.05833	.21333	.95402	20	7.0583 ∩	After	Human wheel
			.15043	.67274	20	4.1252 ∩	Before	
.000	12.356	3.34983	.20924	.93577	20	7.2583 ∩	After	Jumping Open
			.14318	.64033	20	4.0250 ∩	Before	
.000	12.053	3.11783	.19405	.86783	20	7.0708 ∩	After	Jumping jack
			.14099	.63051	20	4.0733 ∩	Before	
.000	12.962	3.25533	.22127	.98953	20	7.2083 ∩	After	Handstand
			.14099	.63051	20	4.0743 ∩	Before	
.000	11.774	3.24383	.20480	.91591	20	7.1833 ∩	After	Front jump
			.14025	.62724	20	4.0594 ∩	Before	

.000	10.982	3.16033	.21264	.95095	20	7.1083 ∩	After	Forward roll
			.14062	.62886	20	4.0699 ∩	Before	
.000	11.567	3.25300	.20824	.93126	20	7.2000 ∩	After	Back roll
			.14050	.62834	20	4.0675 ∩	Before	

*Note that the table value of the (T) test at a significance level of (0.05) and a degree of freedom of (19) equals (2.02).

It has been confirmed that the Ashur educational model has a notable impact on sensory motor perception and the acquisition of basic jumping skills on the floor movement mat and jumping platform. This is because the educational units incorporate exercises that target the maximum number of muscles, such as a wide range of motions for the trunk, arms, legs, and head, as well as variations in speed, repetition, and distance. As a result, the members are able to learn and perfect skills such as forward and backwards rolling, the human wheel, standing on their hands, the front hand jump, the combined jump on the jumping platform, and the open jump on the jumping platform. This proves that the instructional units' exercises helped students acquire and develop fundamental skills on the leaping platform and floor exercise mat. The researcher believes that the students' responses to all learning needs during the educational units are the most effective way to emphasise energies, maintain the level, and achieve goals, and that this is why they learned and acquired the abilities under study. The effort of an athlete is more likely to be effective and less likely to be disregarded if he or she trains with a definite objective in mind (Nizar Al-Talib and Kamel Louis, 2000). If the athlete wants to get the most out of their workout and know how far they've come, it's the sports educator's

job to help them create attainable goals. (Mohammed Barakat, 1984) showed that "sensory preferences in learning are more influential and require the teacher to use his personality completely, and that making him aware of the results of his work and comparing him with his colleagues and realising the extent of his progress or delay is considered one of the strongest motivations for learning, while it was found that neglecting the learner and not making him feel his position or caring about the extent of his progress or delay is likely to lead the learner to boredom and laziness".

Presented, Analysed, and Discussed are the Outcomes of the Post-Measurements Conducted by both Organisations

Table (5) shows that in order to achieve the fourth objective of the study, which is to determine which group favoured learning the skills under study, the researcher sought to extract the values of the arithmetic mean and standard deviation of the data from the control and experimental research groups after the measurement. The (t) test for independent and equal samples in number was used as a statistical tool to accomplish this goal. The calculated (t) value is the criterion for judgement based on comparisons with its tabular value.

Table 5: Shows the difference between the dimensional measurements of the individuals in the control and experimental groups for the skills studied

Significance	Significance level	Calculated t-value	Standard Error	Deviations	Means	Sample	Variables	
Significance	.012	2.639	.21333	.95402	7.0583 ∩	20	Experimental	Human wheel
			.21527	.96270	6.3325 ∩	20	Control	
Significance	.014	2.549	.20924	.93577	7.2583 ∩	20	Experimental	Jumping Open
			.23331	1.04342	6.5830 ∩	20	Control	
Significance	.003	3.120	.19405	.86783	7.0708 ∩	20	Experimental	Jumping jack
			.19343	.86505	6.2160 ∩	20	Control	
Significance	.003	3.203	.22127	.98953	7.2083 ∩	20	Experimental	Handstand
			.24902	1.11365	6.1415 ∩	20	Control	
Significance	.004	3.063	.20480	.91591	7.1833 ∩	20	Experimental	Front jump
			.29180	1.30495	6.0915 ∩	20	Control	
Significance	.016	2.391	.21264	.95095	7.1083 ∩	20	Experimental	Forward roll
			.23848	1.06653	6.4995 ∩	20	Control	
Significance	.015	2.548	.20824	.93126	7.2000 ∩	20	Experimental	Back roll
			.23053	1.03096	6.4085 ∩	20	Control	

*Note that the table value of the (T) test at a significance level of (0.05) and a degree of freedom of (19) equals (2.02).

The researcher attributes the successes of the experimental group in the abilities tested (forward and backwards rolling, handstand, human wheel, front jump, jumping together on the springboard, jumping open on the springboard) to the statistical analyses of the post-measurement data for the two groups: the control group that followed the subject teacher's instructional method and the experimental group that used sensory-motor exercises. The experimental group's students clearly outperformed the control group's students who followed the subject teacher's method of instruction because the exercises he designed for them were more tailored to the students' individual learning styles. This allowed each student to acquire the skill in a way that best suited him. Because most gymnastics skills are challenging for beginners to perform, the researcher divided the sample into two groups based on the participants' preferences for sensory motor skills; this allowed them to tailor the skill delivery to each group's individual needs. This is a crucial component for perception to take place, which follows feeling of stimuli, or taking in input and creating a mental model of the skill's motor programme. Since the senses play such a significant role in motor skill acquisition and performance improvement, it follows that a novice learner needs good perception—just the translation of sensations—to understand the ins and outs of a certain ability before he can practice it. If one's visual, aural, and sensory faculties are well-developed, one's perceptions will be more accurate, leading to more fruitful practice and learning. The second rationale is that the students in the experimental group were able to put into practice the artistic gymnastics abilities they were learning through the researcher-provided instructional exercises that were a part of the curriculum. The researcher's use of instructional resources such as a glove, a wooden box, an educational pony, and a trampoline—all of which played an important role in the development of the student's motor skills and skill mechanism—increased the frequency with which the student attempted to repeat the exercise while decreasing the frequency with which they made mistakes. The fact that “the educational units are integrated with educational and training tools and methods” lends credence to this. These exercises were chosen by the researcher because they were low-risk compared to other motor activities, they don't call for any particular skills, tools, or location, and they can be practiced by as many people as possible simultaneously without requiring a lot of advance planning or exceptional talent. This is related to the fact that “setting goals” (Mohammed Hassan Alawi, 2001)

Increased desire and an effort to overcome challenges and barriers, along with greater excitement and tenacity, prevent boredom and signs of exhaustion from setting in for the learner.

CONCLUSION

During the instructional portion of the primary educational units, the experimental group in (sensory-motor perception) concentrated on the motor performance of the skill. Consequently, the group learned through its preferred sensory system, which made learning more engaging and fun. This helped eliminate the monotony and boredom that can set in when teaching methods fail to consider individual differences.

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