



THE EFFECT OF USING THE MERRILL MODEL ON DEVELOPING SOME BASIC VOLLEYBALL SKILLS AMONG THIRD-YEAR FEMALE STUDENTS-A RESEARCH SUBMITTED BY THE RESEARCHER

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Abstract

The study sought to determine the level of basic skills among students of the College of Education / Department of Physical Education and Sports Sciences at Al-Mustansiriya University. It also aimed to design exercises based on the Merrill Model for learning selected fundamental volleyball skills among students of the same department and university. In addition, the research attempted to identify the level of skill acquisition achieved through the Merrill Model in learning certain basic volleyball skills among those students. Since addressing the research problem is closely related to the methodology employed, the researcher adopted the experimental approach. The research population and sample were represented through an experimental design involving two groups: an experimental group and a control group. Each group included (10) female students from Section (A), third stage, selected randomly. Accordingly, the experimental group (Merrill Model) consisted of (10) female students, while the control group also consisted of (10) female students. The researcher also carried out pilot experiments on (5) third-stage female students from the College of Education / Department of Physical Education and Sports Sciences at Al-Mustansiriya University from the same section but outside the primary research sample. The proportion of the sample in relation to the original population reached (10.865%).

The findings revealed that the exercises designed according to the Merrill Model contributed to improving the students' learning level in basic volleyball skills. The model directed students toward appropriate methods of learning and applying skills through reliance on the senses and body parts involved in performance. It also enhanced the integration of the senses connected with the learning process and strengthened clear and effective relationships among students, which improved their capacity for learning. Furthermore, applying the Merrill Model increased the female students' confidence in performing and acquiring basic volleyball skills.

The recommendations stressed the importance of adopting the Merrill Model exercises prepared by the researcher because they correspond with modern strategies currently implemented worldwide. The study also recommended introducing and developing varied exercises that support students during the learning process and improve their understanding and speed of learning. In addition, exercises should be carefully refined and selected to contribute effectively to the development of skill performance. Finally, the study highlighted the necessity of benefiting from earlier studies and implementing their recommendations and proposals, as some of them encourage continuing the work previously initiated.

Keywords: Merrill Model, Basic Skills, Volleyball, Female Students.

1. Introduction to the Research

1-1 Introduction and Importance of the Research:

Learning is regarded as one of the essential characteristics of a civilized and aware individual, as it helps provide people with advanced abilities that support the construction of society on proper and progressive foundations, contributing to the development of both society and its individuals.



As mentioned earlier, learning represents the foundation of knowledge and advancement. Therefore, attention to the learning process has become a necessity, and it should be treated as a strategic and purposeful process with clearly defined objectives. This can be achieved by developing different strategies that correspond to the nature of the material being learned or to the specific skills associated with the type of activity practiced. Thus, educational strategies should be designed in a way that facilitates learning for students, accelerates the educational process, prevents unnecessary complexity, and presents information in a more engaging and stimulating manner for the senses. Activating more than one sense contributes to making learning more stable and firmly established among learners.

The Merrill Model is considered one of the instructional models through which students can acquire the required educational skills. The model is built upon five educational principles that explain and organize the interaction between the teacher and students during the educational unit, while also creating a coordinated and flexible framework connecting students, the teacher, and the curriculum. As a result, students become more capable of organizing their role within the educational unit and understanding the required principles in a clear and fundamental way.

Based on the above, the significance of the research lies in applying exercises designed according to the Merrill Model in volleyball to teach female students at the College of Physical Education and Sports Sciences / Al-Mustansiriyah University the fundamental skills of volleyball.

1-2 Research Problem:

The educational process is a complex process that requires a great deal of mutual and cooperative work between the teacher and the student.

1-3 Research Objectives:

To determine the level of basic skills among students of the College of Education / Department of Physical Education and Sports Sciences at Al-Mustansiriyah University.

To design exercises based on the Merrill Model for teaching certain fundamental volleyball skills to students of the College of Education / Department of Physical Education and Sports Sciences at Al-Mustansiriyah University.

To identify the level of skills according to the Merrill Model for learning some basic volleyball skills among students of the College of Education / Department of Physical Education and Sports Sciences / Al-Mustansiriyah University.

1-4 Research Hypothesis:

There are statistically significant differences between the pre-tests and post-tests in favor of the post-tests for the experimental groups.

1-5 Research Domains:

1-5-1 Human Domain:

Third-stage students at the College of Education / Department of Physical Education and Sports Sciences / Al-Mustansiriyah University.

1-5-2 Time Domain:

From 18/1/2026 until 30/4/2026.

1-5-3 Spatial Domain:

Volleyball court.

2. Research Methodology and Field Procedures

2-1 Research Methodology:

Solving the problem depends directly on the type of methodology used; therefore, the researcher adopted the experimental method.



2-2 Research Population and Sample:

The proper implementation of research requires an accurate and well-considered selection of both the research population and the study sample.

The research sample was represented by adopting an experimental design composed of two groups: an experimental group and a control group. Each group included (10) female students from Section (A), third stage, selected randomly. Accordingly, the experimental group (Merrill Model) consisted of (10) female students, while the control group also included (10) female students. Furthermore, the researcher carried out pilot experiments on (5) third-stage female students from the College of Education / Department of Physical Education and Sports Sciences at Al-Mustansiriyah University from the same section but outside the primary research sample. The total sample constituted (10.865%) of the original population.

The researcher also attempted to ensure the normal distribution of the sample in the variables of (age, weight, and height) through calculating the coefficient of skewness, as presented in Table No. (1).

Table (1)
Homogeneity of the Research Sample

Variable	Units of Measurement	Mean	Standard Deviation	Median	Skewness Coefficient ± 3
Age	Year	22.433	1.432	22.6	0.433
Height	cm	179.32	3.2	179	0.299
Weight	kg	68.21	2.032	68	0.754

The findings showed that all variables were within the limits of the normal distribution curve, indicating the appropriate distribution and homogeneity of the sample in the research variables. This is because one of the characteristics of the ideal normal distribution curve is that the skewness coefficient ranges between the two values (+1) (Al-Sayyid, 1978, pp. 455–456).

2-2 Means, Devices, and Tools Used in the Research:

2-2-1 Research Means Used:

1. Arabic and foreign sources and references.

2-2-2 Devices Used:

1. A (Surface Laptop 3) laptop computer manufactured in the United States, one (Sony) camera made in China, adhesive tape, a medical scale, two (Fox) whistles, (20) markers, (3) electronically operated stopwatches, (10) volleyballs, a volleyball court, a board, colored papers, and colored pens.

2-4 Field Procedures:

It is common practice to carry out a pilot experiment in order to avoid errors that may arise during the main experiment, as well as to identify the availability of logistical, field, and human resources necessary for implementing and achieving the objectives of the primary experiment.

First: Pilot Experiment for the Skill Tests under Study:

(5) students from Section (A), outside the main research sample, were chosen to conduct the pilot experiment. The experiment was carried out on Sunday, 19/10/2025, for the skill tests, for the following purposes:

- To familiarize the research sample with the tests and determine the ability of the assisting work team to manage and control the procedures throughout the experiment.
- To determine the time required by the researcher as well as the average performance time of the research sample.

Another Pilot Experiment for the Exercises Used:



The researcher carried out another experiment on Thursday, 22/10/2025. The objectives of conducting this experiment were as follows:

- To determine the ability of the work team to implement the exercises on the research sample, evaluate the sample's understanding of the selected exercises, identify the time required for each exercise individually, and determine the duration of a single unit.

2-4-3 pre-tests:

The pre-tests were administered to the experimental research group, which consisted of (10) students. The skill pre-tests were conducted on Sunday, 26/10/2025, on the college court. Before the tests began, the researcher provided the research sample with a full explanation of the tests and their procedures.

2-4-4 The Main Experiment (Educational Curriculum):

This experiment represented the main procedure carried out by the researcher to identify methods that could contribute to addressing the research problem under study.

After completing all the requirements of the main experiment, including exercises, tests, equipment, and instructional means based on the Merrill Model, the researcher initiated the main experiment on 27/10/2025 and continued it until 29/12/2026. The experiment included (10) educational units delivered at a rate of one unit per week, with each unit lasting (45 minutes). These educational units were distributed across a number of selected skills. All educational units based on the Merrill Model were implemented, and between (10–13) exercises were assigned to each skill, resulting in a total of (35) varied exercises. The researcher adopted the exercises for the educational units after consulting scientific references and obtaining the opinions of experts and specialists.

The educational curriculum was applied to the experimental group during the first semester of the academic year (2025–2026), for the period from 27/10/2025 until 29/12/2026, on the college court. The duration of the educational unit was determined to be (90 minutes), and the exercises were applied within the main part of the educational unit.

2-4-5 Merrill Model:

The Merrill Model is based on four important stages and foundations, namely:

Task-Centered Principle: Learning becomes more effective when students engage in solving real-life problems or carrying out practical tasks. In this context, education is not limited to memorizing theories; rather, it focuses on problem-solving.

Activation: The model depends on activating the learner's previous experiences. If the student lacks a prior foundation, a basic experience is provided to help build new knowledge upon it.

Demonstration or Clarification: Instead of only presenting information verbally, concepts are demonstrated to students directly. Merrill relied on examples, counterexamples, and multimedia tools to explain concepts more clearly.

Application: Learners are required to apply what they have learned independently. Merrill considers error to be a natural part of the learning process; therefore, immediate feedback and guidance should be provided and gradually reduced as the student's level of mastery increases.

Integration: This represents the final stage in which all previous processes are combined. At this stage, learners are encouraged to incorporate the new skill into daily life, defend their viewpoints, or create innovative ways of applying what they have learned.

The educational curriculum was applied to the experimental group during the first semester of the academic year (2025–2026), for the period extending from 27/10/2025 until 29/12/2026, on the college court, where the exercises were implemented using the strategy.



2-4-6 post-tests:

The researcher administered the tests after completing the Merrill Model exercises prepared by the researcher over a period of (8) weeks, beginning on 27/10/2025 and continuing until 29/12/2026. The post-tests for the experimental group were carried out on Wednesday, 7/1/2026. The researcher ensured that the same procedures and similar conditions applied in the pre-tests were maintained during the post-tests, in addition to providing the same tools and assistance staff.

2-5 Statistical Means:

To process the data obtained by the researcher, the following statistical means were used:

Arithmetic mean, standard deviation, skewness coefficient, percentage law, and (T) test for independent samples.

3- Presentation, Analysis, and Discussion of the Results:

3-1 Presentation of the Research Results for the Research Group between the Pre-Test and Post-Test of the Research Group and Their Discussion:

Table (3-1)

Arithmetic Means, Standard Deviations, Mean Difference Values, Standard Deviations, and Calculated (T) Value for the Pre-Tests and Post-Tests of the Skills for the Research Group

Variables	Unit of Measurement	Experimental Group Pre-Test		Experimental Group Post-Test		Mean Difference	Standard Deviation Difference	Calculated T Value	sig	Significance
		Mean	± SD	Mean	± SD					
Servicing	Score	13.13	0.834	20.59	1.347	7.426	1.535	16.977	0.000	Significant
Setting	Score	10.85	1.167	18.35	0.929	7.500	1.345	21.072	0.000	Significant

- At the significance level (0.05) and degree of freedom (9).

3-1-1 Discussion of the Results of the Experimental Group Tests:

After examining Table (-), it became clear that the significance of the differences in the research results was in favor of the post-tests. The researcher attributes these outcomes to the application of exercises based on the Merrill Model, for which suitable exercises were prepared with the aim of reinforcing the model in the minds of the female students and obtaining the best results in the skills under investigation. The objective of education for every teacher and educator is to place the student in a condition of awareness and comprehension. Such understanding requires motivating the student toward a particular stage and condition in which the educational process becomes an essential need, described as “a state of tension resulting from basic needs that drive the individual to practice and learn a certain skill” (Al-Hadi, 2006, p. 119).

The researcher also focused on varying the exercises and removing the routine restrictions associated with the implementation process. The sample was organized into cooperative groups, appropriate instructions were provided, and the work was left to be managed and coordinated freely by the female students. This contributed to saving time and effort through “eliminating the traditional constraints of learning, as well as providing high-



quality learning, reducing time and effort, and presenting information repeatedly and accurately with the correct model” (Salman, 2000, p. 17).

4- Conclusions and Recommendations:

4-1 Conclusions:

2. The exercises designed according to the Merrill Model contributed to improving the students’ learning level in the fundamental volleyball skills.
3. The Merrill Model guided students toward appropriate methods for learning and applying skills through reliance on the senses and body parts involved in performance.
4. The Merrill Model helped integrate the senses connected with the learning process and created clear and strong relationships among students, which enhanced their ability to learn more effectively.
5. Applying the Merrill Model increased the female students’ confidence in performing and acquiring the fundamental volleyball skills.

4-2 Recommendations:

1. Adopting the Merrill Model exercises prepared by the researcher because they are consistent with the modern strategies currently applied worldwide.
2. Developing and diversifying new exercises that support students in the learning process and enhance their understanding and speed of learning.
3. Carefully refining and selecting exercises in a manner that contributes effectively to the development of skill performance.
4. Benefiting from previous studies and implementing their recommendations and suggestions, as some of them encourage continuing the work previously initiated.

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Model Educational Unit

First Educational Unit — Third-Year Students

First Week

Unit Duration: 90 minutes

Number of Students: 10

Educational Objective: Learning the skills of serving and setting in volleyball

Day: Tuesday

Educational Aim: Teaching students' commitment and perseverance in performance

Date: 27/10/2025

Sections of the Unit	Time	Details of the Unit	Tools	Notes
Preparatory Section	10 min	- General integrated warm-up - Special warm-up	_____	_____
Main Section	70 min	Applied vocabulary of the lecture		
A- Educational Section	30 min	The researcher works with the assisting staff to explain and clarify the skills according to the five foundations.		
B- Applied Section	40 min	Exercises prepared by the researcher	Volleyballs, markers, whistle.	Distributing the groups correctly and quickly, correcting errors if any.
		The assisting staff supervises the performance of the exercises. The students send the balls to the other side of the court, and the serves are		

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		corrected through the concept of the Merrill Model and the allocation of the foundations.		
		Each two students stand facing each other in the form of two lines, and each pair has one ball. The two students perform setting to one another, and errors are corrected through recording them for each student.		
		The students stand in the form of two vertically opposite rows. The student directs a spike toward his colleague, and the colleague receives the ball from below.		
Final Section	10 min	Cooling-down and relaxation exercises		