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# The Effectiveness of Applying the V-Shape Map Strategy on the Level of Skill Performance of Some Handball Skills among Students of the College of Physical Education and Sports Sciences, Misan University

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***Abstract:*** ***The purpose of this study was to determine the efficacy of teaching according to the V-shape strategy in developing cognitive achievement and the level of skill performance of certain handball skills among students of the Faculty of Physical Education and Sports Sciences at Misan University. The study employed an experimental methodology. A handball skills examination was administered (defensive movements, shooting accuracy while falling, shooting accuracy during high jumps, continuous drifting, passing, and ball reception), it consists of five tests administered to a sample of twenty second-year students from the College of Physical Education and Sports Sciences at Misan University. The students were divided into two groups: an experimental group in which ten students studied using the V-shape strategy, and a control group in which ten students studied in the conventional manner. The findings indicated that there were statistically significant disparities, at a significance level of 0.05, between the mean scores of the students from the two study groups in terms of cognitive achievement and handball skills, with the experimental group demonstrating superior performance. The study proposes the adoption of the V-shape strategy for instructing handball, emphasizing the importance of training educators in its implementation, integrating it into curriculum design, and conducting further research to evaluate its efficacy in teaching scientific concepts and unexplored variables beyond the scope of this study.***

***Keywords:*** ***Effectiveness, V-Shape Map, Strategy, Handball.***

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## 1. INTRODUCTION

Physical education is a significant domain of knowledge that necessitates educators to possess a diverse range of teaching methodologies (Metzler, 2017). This enables them to consistently introduce novel approaches and possess comprehensive knowledge regarding the intricacies of each method (Jachyra, et al., 2021). In addition to the mere acquisition and recall of knowledge, it is imperative for contemporary educational programs to equip students with the ability to navigate and thrive in both present and future contexts (Wright & Richards, 2021). This can only be achieved through the cultivation of a cognitive mindset that actively engages in the practices of dialogue, discourse, and the development of robust scientific thinking skills (Fenanlampir, Leasa & Batlolona, 2021). It recognizes that each element within the curriculum system is interdependent and requires simultaneous development. Furthermore, curriculum mapping plays a crucial role in assisting educators and institutions in determining the desired outcomes to be achieved within a specific timeframe (Sevillano-Monje et al., 2021). This includes the attainment of targeted learning outcomes through the comprehensive implementation of the school curriculum, encompassing its constituent parts such as subject objectives, content, teaching methodologies, activities, classroom dynamics, extracurricular engagements, and assessment practices. Dettbarn, Kilian, and Hallsteinsdóttir (2023) have provided a definition of learning through the use of maps as an effective cognitive tool for organizing and categorizing facts and ideas. These maps employ the utilization of colors and drawings, with a central concept serving as the foundation from which various sub-concepts branch out. These sub-concepts are represented through words, symbols, or images, thereby mirroring the cognitive processes of the human brain. Furthermore, the utilization of such maps offers students novel and enjoyable methods for memorization and information retrieval, while also enhancing memory, concentration, and creativity by stimulating the imagination. Consequently, these maps serve as a means to optimize the utilization of a student's cognitive resources (Novitasari, 2021). The V-shaped map serves as a representation of constructivist theory, depicting the organized components involved in the process of knowledge construction. This model aids students in comprehending the constructivist nature of knowledge and the significance of concepts in the observation and interpretation of events and objects (Zuo & Su, 2022). According to Mertala (2019), the efficacy of utilizing the (V) shape in the learning process can be attributed to the amalgamation of concepts, principles, and theories that are employed to analyze events, objects, and cognitive framework requirements. The (V) figure serves as a cognitive conduit to novel information, offering learners a conceptual framework that has not been previously acquired. Consequently, it facilitates comprehension of the essence of knowledge and its subsequent development. According to Tomporowski and Pesce (2019), the cognitive framework of an educated individual plays a crucial role in facilitating the processes of acquiring, retaining, and maintaining learned experiences. The global development of handball has been significantly propelled by the dissemination of valuable teachings and traditions in European and Latin African nations, resulting in rapid growth. According to Demchenko et al. (2021), the teaching and learning processes in physical education hold significant importance within the broader educational framework. These processes necessitate the identification and implementation of logical solutions to overcome obstacles and challenges. It is crucial to recognize that the overall success of the educational

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process relies heavily on the effective utilization of diverse methods and approaches by those responsible for facilitating learning (Ferreira, Martinsone & Talić, 2020). The researcher, a professor at the College of Physical Education and Sports Sciences, has discovered that conventional teaching approaches are inadequate for acquiring and comprehending fundamental handball skills. To remain aligned with advancements in education as a whole, and physical education specifically, it is imperative to incorporate scientific progress into the educational and training processes, the researcher was motivated to utilize the V-shape maps teaching method due to its focus on facilitating the acquisition, retention, and maintenance of learned experiences, as well as promoting meaningful transfer of knowledge. This method aims to enhance the learner's awareness of educational foundations such as sensation, perception, attention, memory, association, judgment, reasoning, and other relevant aspects. Considering all aspects that contribute to the effective delivery of information, it is evident that incorporating this approach is a significant contemporary trend in the field of education. This approach aims to facilitate learners' comprehension, retention, and subsequent recall of information at any given time. This led the researcher to explore the utilization of the Maps Figure (V) teaching method in addressing the deficiency of fundamental handball skills among players enrolled in the College of Physical Education.

**Research Objectives**

The objective of this study is to examine the effects of utilizing maps (Figure V) on (defensive movements, shooting accuracy while falling, shooting accuracy during high jumps, continuous drifting, passing, and ball reception) of handball. The study focuses on students enrolled in the College of Physical Education and Sports Sciences at Misan University.

**Research Hypotheses**

1. There are statistically significant differences between the pre- and post-measurements of the control group in the level of academic achievement and learning skills (defensive movements, shooting accuracy while falling, shooting accuracy during high jumps, continuous drifting, passing, and ball reception) valid post-tests.
2. There are statistically significant differences between the pre- and post-measurements of the experimental group in the level of academic achievement and learning skills (defensive movements, shooting accuracy while falling, shooting accuracy during high jumps, continuous drifting, passing, and ball reception) valid post-tests.
3. There are statistically significant differences in telemetry between the control and experimental groups in learning skills (defensive movements, shooting accuracy while falling, shooting accuracy during high jumps, continuous drifting, passing, and ball reception).

## 2. METHODOLOGY

**Research Methodology**

The researchers employed the experimental method, adhering to an experimental design that incorporated pre- and post-testing. One of the experiments was conducted to test the effects of

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the independent variable, while the other served as a control to ensure its appropriateness for this study.

**Research Population and Sample**

The research participants were chosen from the student population of the second stage at Misan University's College of Physical Education and Sports Sciences. The research sample consisted of a deliberate selection of 20 students from the second stage. The researchers proceeded to select a sample of 50 students, after initially considering 10 students, to carry out an exploratory study. The sample was divided into two groups: the first group received instruction using V-shape maps, while the second group served as the control. The researcher ensured homogeneity among the sample by considering variables such as age, height, weight, as well as conducting physical and skill tests. Table 1 provides an overview of these variables.

Table 1: Show arithmetic mean, standard deviation, median and torsion coefficient value of the research sample in growth variables and some physical and skill choices selected.

| Variables | Unit of measurement | M | SD | Torsion coefficient |
|---|---|---|---|---|
| Age | Year | 19.43 | 0.24 | 0.949 |
| Length | CM | 169.67 | 5.76 | 0.501 |
| Weight | Kg | 67.85 | 4.49 | 0.487 |
| Defensive Movements | Degree | 4.13 | 1.32 | 0.370 |
| Shooting Accuracy While Falling | Degree | 2.42 | 1.55 | 0.183 |
| Shooting Accuracy During High Jumps | Degree | 10.56 | 1.10 | 0.514 |
| Continuous Drifting | Second | 14.82 | 1.35 | 0.610 |
| Passing And Ball Reception | Number | 19.27 | 3.56 | 0.387 |

The data presented in Table 1 demonstrates that the torsion coefficients consistently approached zero (14), indicating a moderate distribution of the sample across the growth variables (age, height, weight) and the skill tests being examined. The researcher has conducted an assessment of the equivalence of the research sample in the experimental tests. The analysis of Table (1) reveals that there were no statistically significant disparities observed between the experimental and control groups during the initial assessment of physical tests across all measures. This finding suggests that the two groups can be considered equivalent in terms of their performance in these tests.

**Means of Data Collection**

**Skills Tests**

In order to ascertain the skill assessments, the researcher consulted the curriculum for the second stage to identify the specific skills recommended for students at that level. This approach facilitated the process of test selection. The tests used to measure it have been determined through consultation with experts, resulting in the following tests being identified:

1. Defensive Movements Tests.

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2. Shooting Accuracy While Falling Tests.
3. Shooting Accuracy during High Jumps Tests.

Continuous Drifting Tests.
Passing and Ball Reception Tests.

**Exploratory Experience**

**First Exploratory Study:** The exploratory study was conducted from Monday, February 15, 2022, to Saturday, February 21, 2022, on a randomly selected sample from the research community and outside the fundamental research sample of ten students. The purpose of this study was to identify:

1. Ensure that the tests are easy.
2. Choose the right places to conduct tests.
3. Determine the number of educational steps that can be applied during the time allotted for the educational part of the educational unit.
4. Training assistants on how to measure.
5. Ensure the scientific transactions (consistency and honesty) of the physical and skill tests used.

**Second Exploratory Study:** The researchers conducted a second exploratory study on Sunday, February 22, 2022, in order to validate the proposed program. This was achieved through an experiment and two events of the program, utilizing Figure V maps.

**Tutorial Using V-Figure Maps:**

**Objective of the tutorial:** Identify the effect of using V-shape maps on learning some basic skills in handball for second-stage students.

**Basics of the Tutorial Mode:**

1. Consider the objective of the program.
2. Adaptation of the program content to the level and capabilities of the research sample
3. Provide the capabilities and tools used in the program.
4. Program flexibility and acceptance of practical application.
5. The educational steps are graded from easy to hard and simple to complex.
6. Consider appropriate repetitions to learn the skill.
7. Taking into account providing instructions and instructions that clarify the correct technical aspects of each step for three errors and correcting them.
8. Consider presenting a sample of each educational step and providing feedback to the learner.
9. The learner acquires a set of knowledge and information about each of the skills under research.
10. The content of the program should be characterized by diversity, ease and simplicity.
11. The content of the program should be commensurate with the place, tools and capabilities necessary to implement the program.
12. Provide the opportunity for participation and practice for all members of the experimental research sample.

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13. Determine the basic aspects of the program depending on the scientific references, studies and research associated with knowledge of the opinions of experts in this field and the researcher has reached these aspects as follows:

a) Tutorial weeks (12) weeks.
b) The number of educational units is two units per week, with a total of (24) educational units.
c) The time of the educational units is (45) minutes (5) minutes for the introductory part, (35) minutes for the main part, (15) minutes for physical preparation, (20) minutes for the educational part (5) minutes for the closing part.

**Capabilities Necessary to Implement the Program:**

1. **Spacious hall.**
2. A number of cadres and some tools.
3. Computer.
4. Data Show device.
5. Maps.

**Stages of Map Formation**

**The Researchers Composed the Map through the Following Multiple Stages:**

❖ **The First Stage is the Brainstorming Stage and Ascertaining the Subject Goal and the Content Included in the Map:**

1. How the theoretical parts relate to the practical side.
2. Collect as many words, ideas, terms, keypoints, and sub-points as possible.
3. Obtaining a large number of interrelated ideas both theoretically and practically.

❖ **Second Stage Organization Phase:**

1. Preparation and preparation for the drawing of the first draft (preliminary map).
2. Select main groups and subgroups.
3. Arrangement and organization of groups.
4. Dyeing and abbreviating phrases that have been done by researchers.

❖ **Phase Three: Design Phase:**

1. It is the stage of preparation and preparation for the drawing of the second draft.
2. Use certain words, symbols and mental images.
3. Draw curved lines from the center and each of them contains an idea.

❖ **The Fourth Stage is the Stage of Linking Ideas:**

1. Use longitudinal and transverse linear connections that connect ideas together.
2. Use arrows to communicate ideas and illustrate the flow of ideas.
3. Use images and colors to activate memory for access and ensure the accuracy of binding statements.

❖ **Fifth Stage: Drafting and Directing:** It is the work of a copy of the penultimate maps that show the learners understanding in designing and building maps.

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❖ **Phase VI Map Presentation:**

1. The designer builds the map for each unit according to the principles followed in building the map and the main idea is placed in the middle of the map.
2. Complement the placement of arrows, symbols and words and illustrate with drawing or pictures.
3. Show the map to some teaching methods experts and modify what can be modified.

❖ **Seventh Stage Final stage:** It is to reach the final form of the map.

**Main study Pre-test:** The primary experiment was conducted in accordance with the timetable for the educational units of handball skills, which consisted of twelve weeks, two educational events per week, and a unit duration of ninety minutes. The researchers determined the start date of the educational program to be two days prior to the beginning of the experiment.

**Search Experience Application**

The main experiment was carried out according to the time plan for the educational units in the manner of Figure V maps, by (12) weeks, from Tuesday 23/2/2022 until Thursday 30/5/2022.

**Post- Tests**

Following the completion of the educational program application utilizing Figure V maps, the researcher proceeded to conduct a dimensional measurement of the research sample on the dates of Saturday and Sunday, 1st and 2nd of June 2022. The same tests that were administered during the pre-measurement phase were applied once again, under identical conditions and circumstances. The resulting data was then organized into tables specifically prepared for the purpose of statistical analysis.

**Statistical Means**

The researcher processed the research data using the (SPSS- 24) programs for statistical packages using the following statistical.

## 4. RESULTS

**Presentation, Analysis and Discussion of Results:**

Table 2: Shows the arithmetic mean, standard deviation and value (T) between the pre- and post-measurements of the control group in skill tests and the level of academic achievement.

| Variables | Unit of Measurement | Pre-Test | | Post-Test | | T | Sig |
|---|---|---|---|---|---|---|---|
| | | M | SD | M | SD | | |
| Defensive Movements | Degree | 4.11 | 1.23 | 5.03 | 1.34 | 4.92 | 0.000 |
| Shooting Accuracy While Falling | Degree | 2.14 | 1.01 | 3.31 | 1.09 | 3.37 | 0.000 |
| Shooting Accuracy During High Jumps | Degree | 10.33 | 2.77 | 13.31 | 1.89 | 5.17 | 0.000 |
| Continuous Drifting | Second | 13.47 | 1.43 | 10.31 | 1.88 | 10.05 | 0.000 |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Passing And Ball Reception | Number | 18.90 | 2.21 | 26.50 | 4.28 | 6.07 | 0.000 |
| Cognitive attainment | Degree | 47.27 | 6.22 | 63.50 | 5.09 | 11.77 | 0.000 |

The results presented in Table 2 indicate that there are statistically significant disparities between the pre- and post-tests of the control group across all skill tests, as well as in terms of academic achievement. These differences consistently favor the post-tests.

Table 3: Shows the arithmetic mean, standard deviation, and value (T) between the pre- and post-measurements of the experimental group in skill tests and the level of academic achievement.

| **Variables** | **Unit of Measurement** | **Pre-Test** | | **Post-Test** | | **T** | **Sig** |
|---|---|---|---|---|---|---|---|
| | | **M** | **SD** | **M** | **SD** | | |
| Defensive Movements | Degree | 4.22 | 1.19 | 8.77 | 1.34 | 5.17 | 0.000 |
| Shooting Accuracy While Falling | Degree | 2.08 | 1.10 | 4.48 | 1.14 | 6.80 | 0.000 |
| Shooting Accuracy During High Jumps | Degree | 10.15 | 2.63 | 16.94 | 2.12 | 6.24 | 0.000 |
| Continuous Drifting | Second | 13.65 | 1.39 | 8.64 | 1.57 | 10.48 | 0.000 |
| Passing And Ball Reception | Number | 18.75 | 2.31 | 31.73 | 5.11 | 7.19 | 0.000 |
| Cognitive attainment | Degree | 48.03 | 6.05 | 71.35 | 4.99 | 12.19 | 0.000 |

The data presented in Table 3 indicates that there exist statistically significant disparities between the pre- and post-tests of the experimental group across all skill tests, the level of academic achievement, and the post-test.

Table 4: Shows the arithmetic mean, standard deviation, and value (T) between the dimensional measurement of the experimental and control groups in skill tests.

| **Variables** | **Unit of Measurement** | **Control** | | **Experimental** | | **T** | **Sig** |
|---|---|---|---|---|---|---|---|
| | | **M** | **SD** | **M** | **SD** | | |
| Defensive Movements | Degree | 5.03 | 1,34 | 8.77 | 1.54 | 4.53 | 0.000 |
| Shooting Accuracy While Falling | Degree | 3.31 | 1.09 | 4.82 | 1.14 | 5.92 | 0.000 |
| Shooting Accuracy During High Jumps | Degree | 13.31 | 1.89 | 16.94 | 2.12 | 5.44 | 0.000 |
| Continuous Drifting | Second | 10.31 | 1.88 | 8.64 | 1.57 | 5.60 | 0.000 |
| Passing And Ball Reception | Number | 26.50 | 4.28 | 31.73 | 5.11 | 6.72 | 0.000 |
| Cognitive attainment | Degree | 63.50 | 5.09 | 71.35 | 4.99 | 13.52 | 0.000 |

Table (4) shows that there are rates of progress for the dimensional measurement of the pre-measurement of the experimental and control groups in all skill tests and the level of academic

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achievement, and that the experimental group is superior to the control group in terms of the rates of progress of these tests.

## 5. DISCUSSION OF THE RESULTS

It is evident from Table (2) that there are statistically significant differences between the pre- and post-tests of the control group on all skill assessments and academic achievement, with the post-test performing significantly better. The researcher ascribed this phenomenon to the influence of the conventional program implemented with the control group. This influence was observed in certain skills as a result of the control group's exposure to a consistent duration of physical education lessons focused on handball skills. Consequently, the control group experienced certain variations, as evidenced by the post-test conducted subsequent to their previous assessment. This post-test confirmed the validity of the initial hypothesis, which posited that such variations would occur: There are statistically significant differences between the pre- and post-measurements of the control group in the level of academic achievement and learning skills (defensive movements, shooting accuracy while falling, shooting accuracy during high jumps, continuous drifting, passing, and ball reception) valid post-tests.
The analysis of Table (3) reveals statistically significant disparities between the pre- and post-tests of the experimental group across all skill tests, as well as in terms of academic achievement. These differences consistently favor the post-test and the experimental group. The positive impact of the educational program and the utilization of Shape maps (V) as an instructional method were identified by the researcher as factors contributing to the development of self-directed learning skills. These skills were fostered through learner-paced instruction and the cultivation of scientific thinking, facilitated by the implementation of Shape maps (V). As a result, the learners were able to enhance their learning experiences and acquire fundamental skills. This finding aligns with the research conducted by Li et al. (2021), which yielded significant results. Notably, the study demonstrated that conflict maps effectively enhance students' performance on the conceptual change test and positively influence their alternative perceptions of the concepts related to chemical energy within the experimental sample. Based on the aforementioned information, the second hypothesis, which posited the validity: There are statistically significant differences between the pre- and post-measurements of the experimental group in the level of academic achievement and learning skills (defensive movements, shooting accuracy while falling, shooting accuracy during high jumps, continuous drifting, passing, and ball reception) valid post-tests. The results presented in Table 4 indicate statistically significant differences between the experimental and control groups in terms of post-tests in skills tests and academic achievement. These differences were observed in all skill tests and academic achievement measures, with the experimental group performing better than the control group. The researchers posit that the experimental group, which utilized the teaching method involving the use of Maps Figure (V) in the context of pre-test, demonstrated statistically superior results compared to the post-test. This outcome can be attributed to factors such as motivation, self-realization, and the educational program's ability to enhance learners' motivation and efficacy. By creating an environment that fosters enjoyment, anticipation, and engagement during the acquisition of fundamental handball skills, the educational program effectively increased learners' motivation and effectiveness. The students' elevated motivation

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contributes to their enhanced integration into the learning process, enjoyment of learning, perseverance, and increased effort. Additionally, their confidence in their performance is heightened, resulting in improved performance and reduced anxiety in educational settings. Consequently, the utilization of shape maps (V) as a learning method has proven to be effective in acquiring the prescribed handball skills, owing to these factors and others. The utilization of V-shaped maps has been observed to contribute to advancements in skill performance levels. This approach facilitates the cultivation of scientific thinking, stimulates learners' cognitive processes, and enhances their mental capacities during the acquisition of motor skills (Johnson & McNeal, 2022). The researchers also attribute this phenomenon to the utilization of V-shape maps is also acknowledged by the researchers. They further advocate for learners to engage in exploration by offering them suitable maps, which facilitate their understanding of the subject matter. This approach allows learners to establish connections and uncover relationships through their own active involvement and personal experiences. The findings of this investigation align with the research conducted by Burhaein et al. (2021), wherein it was determined that the fitness curriculum map encompasses various components, namely basic learning levels, knowledge, skills, learning activities, adaptation or adaptability, and materials. The fitness curriculum's content has been determined and delineated in the curriculum map, encompassing its fundamental components, namely comprehensive basic questions and comprehensive permanent concepts. Each of these components comprises multiple questions that serve as guiding principles for learners in acquiring knowledge and understanding of the fitness curriculum (Opstoel et al., 2021). In the research conducted by Li et al. (2021), statistically significant differences were observed in the average scores of the second group (referred to as Figure V) compared to the average scores of the first group (implementing the proposed strategy) and the third group (control) in the achievement test. These differences were found to favor the second group. The utilization of the (V) shape resulted in a higher percentage of improvement in course comprehension compared to the conventional method. The utilization of shape (verb) facilitated the cultivation of scientific research skills, thereby equipping individuals with the ability to effectively address a diverse range of challenges. Whoever mentioned above verifies the validity of the third hypothesis: There are statistically significant differences in telemetry between the control and experimental groups in learning skills (defensive movements, shooting accuracy while falling, shooting accuracy during high jumps, continuous drifting, passing, and ball reception). The data presented in Table 4 demonstrates the rates of progress in post-tests for both the experimental and control groups in the skill tests, as well as their level of academic achievement. The table clearly shows the percentage of progress observed in the post-test compared to the pre-test for both groups across all skill tests and academic achievement levels.

Based on the observed variations in the rates of improvement between the two groups, it can be concluded that the utilization of Figure (V) maps as a learning style has had a significant impact on the development of handball skills among the participants of the research sample consisting of second stage students.

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## 6. CONCLUSIONS

1. Teaching using the V-map is better than teaching in the traditional way, as the average score of the experimental group that learned with the V-maps was greater than the average score of the control group that used the traditional method.
2. The present study showed evidence regarding the efficacy of the V-shape strategy in enhancing cognitive achievement and skill performance in handball skills. These findings corroborate previous studies that have demonstrated the effectiveness of this instructional approach in educational contexts more broadly.

**Recommendations**

Following the study's findings, the researcher suggests the following:

1. Using V-shape maps in the academic achievement of handball skills prescribed for second-stage students at the College of Physical Education and Sports Sciences at Misan University.
2. Use V-shape maps to learn prescribed handball skills.
3. The implementation of training courses and programs aimed at enhancing the effectiveness of educators and mentors who possess expertise in utilizing contemporary instructional approaches, such as the utilization of the map figure (V) technique, is proposed.
4. The significance of integrating theoretical knowledge with practical skills in various games, or sports activities cannot be overstated.

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