



EFFECT OF AN EDUCATIONAL PROGRAM USING DRIVER MODEL ON EFFICIENCY OF COGNITIVE REPRESENTATION AND LEARNING UNDERARM ENTRY AND LEG DIVE FROM A STANDING POSITION IN FREESTYLE WRESTLING FOR STUDENTS

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ABSTRACT

Background. Wrestling is a combat sport that requires mastery of various techniques and strong cognitive representation to perform skills effectively. Traditional teaching methods often focus primarily on physical execution, while neglecting structured cognitive engagement that supports deeper understanding and learning transfer. **Objectives.** To address this gap, this study aimed to examine the effect of an educational program based on the Driver model on enhancing cognitive representation and learning of the underarm entry and leg dive techniques from a standing position in freestyle wrestling among students. **Method.** The research employed an experimental method involving 50 students from the College of Physical Education and Sports Sciences, University of Maysan. Participants were randomly assigned into two groups: an experimental group (n = 25), which received training using the Driver model, and a control group (n = 25), which received traditional instruction. The program lasted for eight weeks, consisting of eight educational units, with four units dedicated to each technique. **Results.** Findings indicated that the educational program using the Driver model significantly improved the experimental group's ability to learn and execute the underarm entry and leg dive techniques compared to the control group. Moreover, the experimental group demonstrated higher efficiency in cognitive representation, reflecting deeper comprehension and skill retention. **Conclusion.** In conclusion, integrating the Driver model into wrestling instruction enhances both cognitive and technical aspects of learning. The study contributes to the field of physical education by recommending the adoption of structured cognitive-based models, such as the Driver model, in teaching wrestling techniques to optimize skill acquisition and student development.

Keywords; educational program, driver model, cognitive representation, leg dive, freestyle wrestling.



A. INTRODUCTION

In recent decades, the rapid progress of human knowledge, cognitive science, and educational innovation has placed greater demands on the educational process. Learners are no longer passive recipients of information but are required to actively seek, reflect, and construct knowledge through both individual and collaborative engagement (Ebrahim & Hussein, 2025; Sulaiman et al., 2025). This shift underscores the necessity of adopting contemporary teaching methods and instructional models that foster deeper understanding and enable learners to adapt to the evolving challenges of modern education (Adriani et al., 2025; Ciptadi et al., 2025). Within this paradigm, constructivist theory plays a central role by emphasizing the learner's active participation in knowledge construction and its application to real-life contexts.

Freestyle wrestling, as a physically demanding and cognitively complex sport, requires students to master a variety of techniques that demand both motor skills and cognitive representation (Yernazarov et al., 2025). Among these, the underarm entry and leg dive from a standing position are fundamental techniques that necessitate mental concentration, conceptual clarity, and technical accuracy. However, traditional approaches to teaching wrestling often rely on repetitive demonstration and physical execution while paying limited attention to cognitive engagement. This pedagogical limitation results in persistent misconceptions, poor knowledge retention, and suboptimal performance outcomes among students, particularly those with limited prior experience in combat sports.

To address this gap, the Driver model, rooted in constructivist theory, offers a promising instructional framework. Unlike conventional approaches, the Driver model specifically targets learners' misconceptions, restructures their cognitive frameworks, and promotes conceptual change through interactive and problem-based activities (Griban et al., 2021). By placing the learner at the center of the educational process, this model strengthens the efficiency of cognitive representation, enhances memory recall, and improves the integration of new and prior knowledge (Eckner et al., 2015).

The significance of this research lies in its potential to bridge the gap between physical execution and cognitive development in wrestling education (Yernazarov et al., 2025). Whereas most studies in physical education emphasize physical training or motor skill

development, few have systematically examined the role of structured cognitive models in wrestling instruction. The novelty of the present study is its application of the Driver model—originally designed for science education—to the domain of combat sports. This innovative integration aims to validate whether a cognitive-based instructional model can effectively improve both conceptual understanding and technical performance in wrestling.

One of the principal challenges in teaching wrestling lies in selecting effective pedagogical strategies that ensure accurate execution of complex techniques. Conventional instructional approaches, which rely heavily on demonstration and repetition, often fail to address students' cognitive misconceptions and provide insufficient support for integrating new knowledge with existing frameworks (Mashud et al., 2023; Rumpoko et al., 2025; Sudirman et al., 2024; Suryadi et al., 2024). As a result, students struggle to develop strong cognitive representations that are necessary for recalling accurate movement patterns, understanding the conceptual basis of the techniques, and performing them with precision.

This issue is particularly evident in the learning of underarm entry and leg dive techniques, which demand not only physical execution but also high levels of mental concentration and conceptual clarity. Observations in physical education faculties have revealed that many students face persistent difficulties in mastering these skills, often exhibiting hesitation, inaccuracies, and inefficiencies. These problems can be attributed to weak cognitive representation and the continued reliance on traditional teaching methods that do not sufficiently promote conceptual understanding (Griban et al., 2021; Yernazarov et al., 2025). Therefore, it is crucial to explore an instructional model that can enhance both the cognitive and technical aspects of learning. In this regard, the Driver model, rooted in constructivist theory, offers a promising alternative by emphasizing conceptual change, restructuring cognitive frameworks, and facilitating deeper understanding of the learned material.

Based on this rationale, the present study sets out three key objectives: to develop an instructional program based on the Driver model aimed at improving cognitive representation and facilitating the learning of underarm entry and leg dive techniques in freestyle wrestling; to design and implement an assessment tool for evaluating cognitive representation efficiency in wrestling; and to examine the effectiveness of the Driver model-based program compared to traditional teaching methods. In line with these objectives, the

study hypothesizes that there will be significant differences between pre-test and post-test results for both the experimental and control groups regarding cognitive representation efficiency and the acquisition of wrestling techniques. Furthermore, it is hypothesized that the experimental group taught using the Driver model will demonstrate greater improvement in both cognitive representation and technical performance compared to the control group that receives traditional instruction.

Therefore, this study is not only important for enriching the literature on cognitive-based teaching in physical education but also offers practical implications for curriculum design in colleges of physical education and sports sciences. By evaluating the effect of an educational program based on the Driver model on the acquisition of underarm entry and leg dive techniques, as well as on the efficiency of cognitive representation, the findings may provide a foundation for adopting evidence-based instructional innovations in wrestling education.

B. METHOD

Participant

The research community comprised third-year students from the College of Physical Education and Sports Sciences at the University of Masan and the University of Basra for the academic year 2023-2024, totaling 280 students. The University of Masan had 70 students, and the University of Basra had 210 students. A research sample was randomly chosen from the remaining participants after excluding the 20 students included in the pilot study at the College of Physical Education and Sports Sciences, University of Masan. Fifty students from the College of Physical Education and Sports Sciences at the University of Masan were chosen to constitute two groups: twenty-five students in the experimental group and twenty-five students in the control group. A sample of 100 students was chosen from the College of Physical Education and Sports Sciences at the University of Basra to develop the cognitive representation efficiency test, resulting in a total primary study sample of 170 students, which constitutes 60.71% of the original population.

Equivalence of Research Samples

To uphold objective and scientific principles, the researcher partitioned the study population into two cohorts: an experimental group and a control group. The sample was

divided using a random approach through a lottery system. To guarantee impartial allocation, the researcher performed equivalence tests between the two groups to prevent bias in favor of one group. The scores were subsequently subjected to statistical analysis, as illustrated in Table (1).

Table 1. Shows the equivalence of the research sample in the pre-tests for the two groups

Variables	Groups				Calculated t	Sig. level	Sig. type
	Experimental		Control				
	mean	St.d	mean	St.d			
Underarm entry grip	2.76	0.597	2.64	0.569	0.728	0.470	Insig.
Diving from a standing position	2.68	0.557	2.52	0.586	0.990	0.327	Insig.
Cognitive Representation Efficiency Test	54.12	12.501	51.08	11.797	0.884	0.381	Insig.

Research Design

The researcher employed the experimental approach because of its appropriateness for the research problem's nature. Experimental research is characterized as research that depends exclusively on experimentation or observation. This research is data-driven and reaches results that can be validated by observation or testing.

The research methodology relied on several key sources and tools to ensure the accuracy and reliability of the findings. A variety of Arabic and foreign references were consulted to provide the theoretical foundation of the study and to support the design of the instructional program. Performance evaluation forms were employed to assess the students' mastery of wrestling techniques, while a five-alternative test was specifically developed to measure the efficiency of cognitive representation among the participants. To further validate the procedures and instruments, academic referees specializing in wrestling were consulted, ensuring that the content and assessment tools were appropriate for the study objectives. In addition, the research process was supported by an assistant work team that contributed to the facilitation of data collection, organization, and monitoring of the educational sessions.

Techniques, Instruments, and Resources Employed in the Study

Information gathering procedures are fundamental research prerequisites and serve as the primary means for data collection, encompassing digital, theoretical, or exploratory data

essential for addressing the research topic (Haider Abdul Razzaq Al-Abadi, 2015). The researcher utilized the following from it:

Instruments and Apparatus Utilized in the Study

The practical component of the study was carried out using standardized wrestling equipment and apparatus to maintain accuracy and consistency. An official wrestling mat was employed to provide a safe and regulated environment for the execution of techniques. Three referees' whistles were used to coordinate and control the practical sessions. Time-related measurements were conducted using a Japanese-made Diamond brand electronic stopwatch, which ensured precision in tracking performance duration. Furthermore, a data show device (model YG300) was utilized to present educational content and instructional materials to the students, thereby enhancing the effectiveness of the teaching process.

Field Research Procedures

Following the researcher's visit to the wrestling instructors at the College of Physical Education and Sports Sciences at the University of Masan to evaluate the curriculum for third-year students, which was developed in accordance with the guidelines set by the Ministry of Higher Education and Scientific Research, and motivated by a desire to examine the specific grips designated by the course instructor for the first semester, the researcher incorporated these grips into the research methodology. Regarding the cognitive representation efficiency assessment, the researcher is not aware of any test specifically developed to evaluate the cognitive representation of the factors pertinent to this study. Consequently, the researcher developed a test to evaluate the cognitive representation effectiveness of the wrestling game.

The researcher developed a cognitive representation efficiency assessment appropriate for the age demographic of the study sample. This was accomplished by examining other prior research and analogous assessments. The researcher developed a cognitive representation efficiency test for the research sample in its preliminary form, comprising 35 items. Subsequent to its presentation in a questionnaire to 15 professionals and specialists in testing and measuring, pedagogical methodologies, and wrestling, this was to assess the appropriateness of the products for their intended preparation. Subsequently, the researcher gathered the data from the questionnaire to analyze which items were approved

or rejected, enabling the rearrangement of certain things and the modification of others' wording. Following the researcher's consideration of the feedback, it was decided to eliminate five things, resulting in a total of thirty items. In the statistical analysis employing the chi-square test, the final iteration had 30 items, of which 10 were negative (4, 7, 9, 11, 14, 17, 22, 25, 27, 30) and the remaining 20 were positive (1, 2, 3, 5, 6, 8, 10, 12, 13, 15, 16, 18, 19, 20, 21, 23, 24, 26, 28, 29) (Appendix 1), as illustrated in Table (2).

Table 2. Shows the percentage of expert agreement on the accepted and deleted items for the cognitive representation test

No	No. Agreeing	No. Disagreeing	Calculated Chi-Square Value	Significance Level (Sig)	Result
1	13	2	8.067	0.005	Accepted
2	14	1	11.267	0.001	Accepted
3	13	2	8.067	0.005	Accepted
4	14	1	11.267	0.001	Accepted
5	14	1	11.267	0.001	Accepted
6	13	2	8.067	0.005	Accepted
7	14	1	11.267	0.001	Accepted
8	13	2	8.067	0.005	Accepted
9	14	1	11.267	0.001	Accepted
10	14	1	11.267	0.001	Accepted
11	5	10	1.667	0.197	Deleted
12	13	2	8.067	0.005	Accepted
13	13	2	8.067	0.005	Accepted
14	13	2	8.067	0.005	Accepted
15	14	1	11.267	0.001	Accepted
16	13	2	8.067	0.005	Accepted
17	14	1	11.267	0.001	Accepted
18	14	1	11.267	0.001	Accepted
19	13	2	8.067	0.005	Accepted
20	13	2	8.067	0.005	Accepted
21	13	2	8.067	0.005	Accepted
22	13	2	8.067	0.005	Accepted
23	13	2	8.067	0.005	Accepted
24	5	10	1.667	0.197	Deleted
25	13	2	8.067	0.005	Accepted
26	13	2	8.067	0.005	Accepted
27	13	2	8.067	0.005	Accepted
28	13	2	8.067	0.005	Accepted
29	14	1	11.267	0.001	Accepted
30	13	2	8.067	0.005	Accepted
31	13	2	8.067	0.005	Accepted
32	7	8	0.067	0.796	Deleted
33	13	2	8.067	0.005	Accepted
34	7	8	0.067	0.796	Deleted
35	7	8	0.067	0.796	Deleted

In preparing the items for the cognitive representation efficiency test, the researcher employed a five-point Likert scale with the alternatives (Never, Rarely, Sometimes, Often, Always). This scale was reviewed by a panel of experts and specialists, who agreed that it was appropriate for measuring the intended construct. The test required participants to place a checkmark (✓) beside the alternative they deemed most suitable. To ensure clarity and control for extraneous variables that might affect the validity of the test, the researcher provided a set of instructions before administration. These instructions emphasized that no item should be left unanswered, that respondents should independently select the alternative they considered appropriate, and that no assistance should be sought from peers. Furthermore, the scale was coded to allow for both positive and negative items, where responses were assigned values from one to five depending on the direction of the statement.

To further ensure the technical accuracy and reliability of the instrument, a pilot study was conducted on Tuesday, October 17, 2023, at 10:00 AM. The pilot involved 20 third-year students from the College of Physical Education and Sports Sciences at the University of Maysan, who belonged to the research community but were not included in the final sample. The pilot study served multiple purposes: to determine the appropriate duration for the test, to verify the accuracy and organization of its administration, to identify potential difficulties that could arise during implementation, and to evaluate the effectiveness of the assistant work team. Based on the pilot, the test duration was calculated using the average completion time between the first and last respondents, resulting in a standardized time of 20 minutes. This preliminary step ensured that the test was well-structured, clear to participants, and ready for use in the main study.

After the researcher made the necessary modifications to the items of the Cognitive Representation Efficiency Test, as suggested by the expert panel after consulting them, and it was agreed to delete (5) items and modify the others, and then determine the answer time within the instructions, the researcher proceeded to apply the test to a construction sample at the University of Basra, College of Physical Education and Sports Sciences - Third Stage, consisting of (100) students, on Wednesday, October 18, 2023, in the presence of the assisting work team. After collecting and reviewing the test forms, the researcher entered the data into special tables for the examinees for statistical processing.



Table 3. Final Cognitive Representation Efficiency Test





No	Paragraphs	Never	Rarely	Someti mes	Often	Always
1	When I use the repetition of performing the under-the-arm entry grip, I make sure I have memorized the performance.					
2	When I break down the performance of the leg dive from a standing position, it makes it easier for me to perform the hold.					
3	I can efficiently recall and retrieve information about performing the underarm entry grip.					
4	I can't remember how to do the standing leg dive I memorized after the lecture.					
5	I can connect new information with previous information about the underarm entry grip performance.					
6	I can search for the relationship between the performance of the standing leg dive grip and each other					
7	.My inability to connect the theoretical and practical performance of the underarm entry grip					
8	I have the ability to search for information that supports the performance of the standing leg dive.					
9	My inability to form a complete picture of the under-the-arm khol grip performance..					
10	I can add something from my memory to the new information to perform the standing leg dive					
11	My inability to remember how to perform the leg dive grip for future use.					
12	I can focus on performing the underarm entry grip to utilize it in performing another grip					
13	I can strive to apply the diving grip performance on the legs from standing in multiple places.					
14	My inability to pay attention to the performance of the underarm entry grip to utilize it in other places.					
15	I can suggest a solution for the weakness in the performance of the standing leg dive.					
16	I can treat the underarm entry hold as a complete performance.					
17	My inability to deduce new meanings for performing the standing two-legged dive.					
18	I can imagine performing the underarm entry and connect it to what's in my memory.					
19	I can classify the performance information for the standing leg dive before starting the performance.					
20	I can search for information that matches what's stored in my memory to perform the underarm entry hold					
21	I can put in the least amount of effort possible to perform the standing leg dive and succeed at it..					
22	My inability to test myself on the underarm entry grip until I fully understand it.					
23	I feel mentally stimulated when performing the standing leg dive, even if it's difficult and complex for me.					

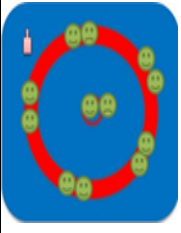
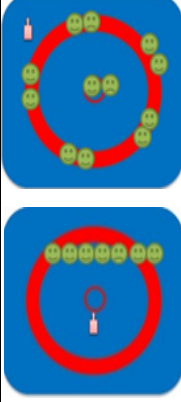
24	I can remember the underarm entry hold performance from what is presented to me in the lecture.					
25	My inability to pass the exam was due to memorizing the performance of the standing leg dive more than understanding it					
26	The underarm entry grip excites me just as much as a skill performance in another sporting event excites me.					
27	My inability to recall the performance of the standing leg dive from just the lecture.					
28	I can spend most of my free time practicing the underarm entry hold to discuss it in lectures.					
29	I feel deep psychological satisfaction while recalling the performance of the standing leg-grab dive.					
30	My inability to research the stages of performing the underarm entry grip I suggested in the lecture					

Table 4. A teaching unit model from the educational program used in the Driver model

<p>Today's date: Wednesday, November 22, 2023</p> <p>Group: Experimental Model of a Teaching Unit Using the Driver Model Number of Students: (25)</p> <p>Educational Objective: To teach students the underarm entry holds in wrestling. Time: 90 minutes</p> <p>Behavioral Objective: Students will perform the under-the-arm entry grip at a good level.</p>
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No	Unit Departments	Time	Details	Formations	note
	Preparatory Department	15 min	Prepare the equipment, have the students stand in a single line, inspect their clothing and jewelry, take attendance, and perform the starting cheer (Sports - Activity).		Emphasize the need for quiet inside the hall.
	Introduction part	3 min			
	General Warm-up	5 min	Normal walking, walking on tiptoes, walking on heels, jogging around the mat, jogging with arms rotating forward, jogging with arms rotating backward, jogging with torso twisting side to side, jogging and jumping high when the whistle is heard, jogging with knees lifted high, jogging with heels hitting the hips.		Emphasizing adherence to the scheduled time for general and specific warm-up and performing

					the warm-up correctly.
	Special Warm-up	7 min	Various exercises for the muscles involved in performance, preparing the arm muscles, twisting the elbow, arm, and knee joints, twisting the torso right and left, and preparing the back and abdominal muscles.		Emphasizing adherence to the scheduled time for general and specific warm-up and performing the warm-up correctly.
2	Main Department	60 minute	The teacher prepares the learners' minds, grabs their attention, and excites them for the lesson by demonstrating the underarm entry grip performance to guide the learners' thoughts toward the correct and optimal performance and to pique their interest in the performance.		Emphasizing attention to the teacher
	Educational Activity: Step One (Guidance)	20 min 10min			
	Step Two (Presenting the Idea)	10 minute	In this step, the teacher asks a series of questions related to the underarm entry grip, and the learners are expected to answer them based on their existing ideas and reveal any misconceptions they may have so that they can be corrected and the learners' ideas can be modified.		
	Practical Activity Step Three (Reframing Ideas)		In this step, learners are divided into cooperative groups to clarify ideas by performing the underarm entry grip among group members and understanding the correct and required performance in order to abandon misconceptions about the grip's performance and reformulate correct ideas.		Emphasizing active participation by all learners.

	Step Four (Applying the Ideas)	20 min	After connecting the new ideas to the previous ones and correcting the misconceptions about performing the grip in this step, each learner performs the grip with a teammate of the same weight while they are spread out on the mat and under the guidance and direction of the teacher.		
.3	Concluding Section	15 min	In this final step of the Driver model, the teacher assesses the cooperative groups by asking a series of questions related to the underarm entry grip performance. Then, the teacher asks the cooperative groups to perform the grip to identify the extent of improvement and development in their performance. The teacher also provides feedback to the learners. A small game related to performing the underarm entry grip, followed by finishing the lesson and leaving.		Emphasize leaving quietly after performing the sports salute to depart.

Cognitive Representation Efficiency Test Validity

The validity of a scale pertains to the degree to which it accurately measures the intended function, without concurrently measuring any other function (Bahaa Abdul Hassan Hussein, 2012). The researcher utilized the judges' validity and construct validity to ascertain the test's validity, as detailed below:

1. Validity of the Judges: The researcher developed a cognitive representation efficiency assessment and subsequently submitted it to fifteen judges with expertise in testing and measuring, pedagogical approaches, and wrestling. The efficacy of cognitive information representation and the scoring methodology were delineated, and the researcher solicited the judges' comments and recommendations for augmenting, eliminating, or altering items in the assessment. The judges advised the removal of five items, which the researcher incorporated into the final edition of the test.
2. concept Validity: Construct validity was established by determining the discrimination coefficients for the hypothetical concept through the analysis of two extreme groups. The t-value was extracted between the two extreme groups, allowing the researcher to retain items with high discrimination.

Discriminatory Power

The researcher assessed the items' discriminative capacity utilizing the extreme groups approach, grounded in the outcomes of the construction sample surveys comprising 100 students. The researcher employed the following steps to assess the discriminating potential of the items:

1. Arrange the test scores in descending order, from the greatest total score to the lowest total score.
2. Identifying the two extreme groups, comprising 27% of the highest scores and 27% of the lowest scores on the questionnaires, since this percentage yields two groups with the greatest potential size and distinction. Each group comprised 27 pupils. Assessing the discriminatory efficacy of each item in the cognitive representation test through independent samples t-test utilizing the Statistical Package for the Social Sciences (SPSS) to evaluate the score disparities between the high-scoring and low-scoring groups for each test item.
3. Calculate the arithmetic means and standard deviations for each item of the test in the upper and lower groups.
4. Comparing the calculated (t) value with the (Sig) degree value, it is shown that all items are discriminatory because the (t) value is greater than the (Sig) degree value at a significance level of (0.05), as shown in Table (5).

Table 5, Shows the discriminatory power of the cognitive representation test items

No	low-scoring groups		high-scoring groups		Calculated T value	Sig. level	Statistical sig.
	mean	St.d	mean	St.d			
1	4.925	0.266	1.592	0.500	30.526	0.000	Sig.
2	5.000	0.000	1.777	0.423	39.520	0.000	Sig.
3	5.000	0.000	1.518	0.509	35.529	0.000	Sig.
4	4.814	0.395	1.592	0.500	26.231	0.000	Sig.
5	4.963	0.192	1.481	0.509	33.234	0.000	Sig.
6	4.777	0.423	1.444	0.506	26.234	0.000	Sig.
7	5.000	0.000	1.814	0.395	41.811	0.000	Sig.
8	4.703	0.465	1.592	0.500	23.650	0.000	Sig.
9	5.000	0.000	1.629	0.492	35.588	0.000	Sig.
10	4.963	0.192	1.555	0.506	32.684	0.000	Sig.
11	5.000	0.000	1.592	0.500	35.360	0.000	Sig.
12	4.740	0.446	1.629	0.492	24.327	0.000	Sig.
13	4.925	0.266	1.518	0.509	30.799	0.000	Sig.
14	5.000	0.000	1.666	0.480	36.056	0.000	Sig.
15	5.000	0.000	1.706	0.465	36.809	0.000	Sig.
16	4.740	0.446	1.555	0.506	24.514	0.000	Sig.

17	4.851	0.362	1.629	0.492	27.407	0.000	Sig.
18	5.000	0.000	1.703	0.465	36.809	0.000	Sig.
19	4.666	0.480	1.592	0.500	23.020	0.000	Sig.
20	5.000	0.000	1.629	0.492	35.588	0.000	Sig.
21	4.888	0.320	1.629	0.492	28.844	0.000	Sig.
22	5.000	0.000	1.481	0.509	35.907	0.000	Sig.
23	4.777	0.423	1.592	0.500	25.234	0.000	Sig.
24	4.925	0.266	1.333	0.480	33.970	0.000	Sig.
25	4.777	0.423	1.444	0.506	26.234	0.000	Sig.
26	4.703	0.465	1.333	0.480	26.186	0.000	Sig.
27	4.740	0.446	1.555	0.506	24.514	0.000	Sig.
28	5.000	0.000	1.555	0.506	35.345	0.000	Sig.
29	5.000	0.000	1.592	0.500	35.360	0.000	Sig.
30	4.925	0.266	1.592	0.500	30.526	0.000	Sig.

Internal consistency of the cognitive representation efficiency test

To verify the validity of the test items, the researcher relied on the Pearson correlation coefficient between the score of each item and the total score of the test. It was found that all items were statistically significant, as the correlation coefficient values were greater than the (Sig) value at the (0.05) level, as shown in Table (6).

Table 6, Shows the internal consistency coefficient for the correlation between the item score and the total score of the cognitive representation test

No.	Correlation coefficient Person	Significance Level (Sig)	Statistical significance	No.	Correlation coefficient Person	Sig. Level	Statistical sig.
1	0.257**	0.008	Sig.	16	0.296**	0.002	Sig.
2	0.309**	0.002	Sig.	17	0.295**	0.003	Sig.
3	0.266**	0.008	Sig.	18	0.434**	0.000	Sig.
4	0.261**	0.009	Sig.	19	0.320**	0.000	Sig.
5	0.318**	0.001	Sig.	20	0.426**	0.000	Sig.
6	0.262**	0.009	Sig.	21	0.399**	0.000	Sig.
7	0.459**	0.000	Sig.	22	0.365**	0.000	Sig.
8	0.262**	0.009	Sig.	23	0.316**	0.001	Sig.
9	0.279**	0.007	Sig.	24	0.467**	0.000	Sig.
10	0.293**	0.003	Sig.	25	0.305**	0.003	Sig.
11	0.289**	0.004	Sig.	26	0.297**	0.003	Sig.

12	0.318**	0.001	Sig.	27	0.333**	0.001	Sig.
13	0.393**	0.000	Sig.	28	0.367**	0.000	Sig.
14	0.354**	0.000	Sig.	29	0.398**	0.000	Sig.
15	0.294**	0.003	Sig.	30	0.288**	0.004	Sig.

Stability of the Cognitive Representation Efficiency Test

Stability refers to a laboratory achieving the same score if the same tool is applied to them under the same conditions (Salah Ahmed Murad, Amin Ali Salman, 2005). This means that if we apply a test to a group of examinees and then reapply it to the same group under the same conditions, we obtain results that are as close as possible to the first test. In this case, stability means the amount of variation or similarity between the examinees' scores when the test is reapplied to the same group under similar conditions. The reliability was extracted using the (test-retest) method. The researcher verified the reliability of the test by applying it to a sample of (20) randomly selected students. The first test was conducted in the pilot study, and then the test was reapplied to the same sample after a week. Pearson's correlation coefficient was used between the scores of the sample members in the two applications, and the reliability coefficient obtained using this method was (0.855), which is a good reliability coefficient, as shown in Table (7).

Table 7, shows the degree of stability of the cognitive representation efficiency test

Test	Stability of Cognitive Representation Efficiency Test	Sig. level	Statistical sig.
Cognitive Representation Efficiency	0.855	0.002	Sig.

After completing the requirements and procedures for building the Cognitive Representation Efficiency Test and finalizing its structure, the researcher administered the pre-test to the main research sample. This was conducted on Wednesday, November 1, 2023, at 10:00 AM, on 50 third-year students from the College of Physical Education and Sports Sciences at the University of Maysan, with the presence and assistance of the supporting research team. The purpose of this stage was to establish baseline measurements of students' cognitive representation before the implementation of the educational program.

To evaluate students' technical performance, two wrestling techniques were selected: the underarm entry grip and the standing leg dive. The nomination of these techniques was based on a review of previous sources and studies that had developed reliable performance tests. The first test, developed by Musaed Ali Mahmoud (2004), assessed the underarm entry grip from a standing position. Its objective was to evaluate students' skill level in executing the grip, using a wrestling mat and a referee's whistle as tools. During performance, the tester lifted the opponent's arm, entered under the armpit, encircled the waist, and executed the throw. Conditions required the subjects to be of equal weight, with each student allowed a single attempt. Scoring was conducted by expert evaluators who allocated ten points across three phases of performance: three points for the preparatory phase, four points for the execution, and three points for the conclusion. The second test, designed by Ali Salman Abdul Tarfi (2023), assessed the standing leg dive. Its purpose was to measure skill level in performing a double-leg takedown from a standing position. Similar conditions were applied: equal weight of subjects, one attempt for each student, and a ten-point scoring system distributed across preparation (three points), execution (four points), and conclusion (three points).

Before implementing the main experiment, an exploratory study was carried out on Monday, November 6, 2023, in the wrestling hall of the College of Physical Education and Sports Sciences. This trial aimed to identify potential obstacles, verify the suitability of the tests for the target sample, determine the required testing time, and assess the efficiency of the assisting staff in measurement and data recording. This step also ensured that possible errors and drawbacks could be anticipated and minimized during the main experiment.

To establish the scientific basis of the selected tests, the researcher examined their reliability, validity, and objectivity. Reliability was assessed using the test-retest method. The two performance tests were first applied to a pilot sample of 20 students on November 6, 2023, and then reapplied after seven days, on November 13, 2023. The Pearson correlation coefficient was calculated between the two applications, and the results indicated a high level of reliability for both tests. Validity was established through content validity by presenting the tests to a panel of experts and specialists, who confirmed that the tests appropriately measured the intended skills. To ensure objectivity, the researcher enlisted the assistance of three evaluators—Dr. Ehsan Ali Thabit, Dr. Farzdaq Abdul Qadir, and Dr.

Mohammed Nasser Muftin—and calculated the Pearson correlation coefficient between their scores. The results demonstrated a high degree of agreement, confirming the objectivity of the tests. Table (8) summarizes the results of the reliability, validity, and objectivity analyses, confirming that the selected performance tests were both scientifically sound and suitable for application in the present study.

Table 8. Shows the reliability and objectivity coefficients for the two masks used in the research

Variables	Test-Retest Reliability	Objectivity coefficient for two referees
Underarm entry grip	0.93	0.87
Diving grip on the legs from a standing position	0.95	0.92

Following the development and validation of the research instruments, the researcher proceeded with the pre-tests for the main sample. These were administered on Monday, November 20, 2023, and included the performance tests of the two wrestling techniques under investigation—the underarm entry grip and the standing leg dive. Upon completion of the testing process, the results were carefully organized and prepared for statistical analysis to establish baseline performance levels.

Subsequently, the educational program based on Driver’s model was implemented for the experimental group. The program commenced on Wednesday, November 22, 2023, and concluded on Monday, January 8, 2024, spanning a total of eight consecutive weeks. The design of the program followed the structured steps of Driver’s model and consisted of eight educational units, with one unit delivered each week. Four units were dedicated to teaching the underarm entry grip, while the remaining four focused on the standing leg dive grip. Sessions were held on Mondays, except for the first unit, which was conducted on Wednesday. The experimental group received instruction using the Driver model, whereas the control group completed the same number of units over the same duration using the traditional instructional method employed by their teacher.

At the end of the intervention, post-tests were administered to both groups to assess changes in cognitive representation and technical performance. The post-testing took place over two days, on Tuesday and Wednesday, January 9–10, 2024. The first day was devoted to administering the cognitive representation efficiency test, while the second day focused

on evaluating the skill performance of the two wrestling techniques. Following the administration of these tests, the results were again compiled and organized for subsequent statistical analysis.

Statistical Methods

The study results were statistically processed using the Statistical Package for Social Sciences (SPSS) version (V25) software. The following were calculated: percentage values, arithmetic mean, standard deviation, simple correlation coefficient (Pearson), independent samples t-test, and paired samples t-test.

C. RESULTS AND DISCUSSION

Results

Based on the statistical analysis of the pre- and post-tests, significant improvements were observed in the experimental group across all measured variables when compared to the control group. Table 7 shows the results of the paired samples t-test, which indicate that both groups achieved progress from pre-test to post-test; however, the improvements in the experimental group were substantially higher. For the underarm entry grip, the experimental group's mean score increased from 2.76 (SD = 0.597) in the pre-test to 7.84 (SD = 0.746) in the post-test, yielding a highly significant difference ($t = 26.578$, $p < 0.001$). In contrast, the control group improved from 2.64 (SD = 0.569) to 5.96 (SD = 0.455), with significance also achieved ($t = 22.802$, $p < 0.001$), though the magnitude of improvement was lower than that of the experimental group.

Similarly, in the diving leg grip from a standing position, the experimental group's mean score rose from 2.68 (SD = 0.557) to 7.56 (SD = 0.507), producing a significant difference ($t = 32.414$, $p < 0.001$). The control group improved from 2.52 (SD = 0.586) to 5.44 (SD = 0.507), with a significant result as well ($t = 18.849$, $p < 0.001$). These findings further confirm that the Driver-based instructional program was more effective in enhancing skill acquisition.

In addition, the results of the cognitive representation efficiency test revealed marked differences between the two groups. The experimental group's scores increased dramatically from 54.12 (SD = 12.501) in the pre-test to 125.40 (SD = 13.379) in the post-test, with a significant difference ($t = 19.464$, $p < 0.001$). The control group also showed improvement from 51.08 (SD = 11.797) to 107.28 (SD = 6.188), with significance achieved (t

= 21.373, $p < 0.001$). Nevertheless, the experimental group demonstrated greater gains in cognitive representation, highlighting the superior impact of the Driver model on developing mental representations of wrestling techniques.

Table 9. This shows the results of the paired samples t-test for the pre- and post-tests of the experimental and control research groups in cognitive representation efficiency and learning the underarm entry and diving leg takedown techniques from a standing position in freestyle wrestling for students

Variables	Groups	Pre-test		Post-test		F.	F*St.d	Calculated T value	Degree sig	significance
		Mean	St.d	Mean	St.d					
Underarm entry grip	Experimental	2.76	0.597	7.84	0.746	5.080	0.191	26.578	0.000	Sig.
	Control	2.64	0.569	5.96	0.455	3.320	0.146	22.802	0.000	
Diving grip on the legs from a standing position	Experimental	2.68	0.557	7.56	0.507	4.880	0.151	32.414	0.000	Sig.
	Control	2.52	0.586	5.44	0.507	2.920	0.155	18.849	0.000	
Cognitive Representation Efficiency Test	Experimental	54.12	12.501	125.40	13.379	71.280	3.662	19.464	0.000	Sig.
	Control	51.08	11.797	107.28	6.188	56.520	2.644	21.373	0.000	

Table 10. This shows the results of the independent samples t-test in the post-tests for the experimental and control research groups in cognitive representation efficiency and learning the underarm entry and diving leg takedown techniques from a standing position in freestyle wrestling for students

Variables	Pre-test		Post-test		Calculated T value	Degree sig	significance
	Mean	St.d	Mean	St.d			
Underarm entry grip	7.84	0.746	5.96	0.455	10.759	0.000	Sig.
Diving grip on the legs from a standing position	7.56	0.507	5.44	0.507	14.795	0.000	Sig.
Cognitive Representation Efficiency Test	125.40	13.379	107.28	6.188	6.146	0.000	Sig.

Further verification through independent samples t-tests (Table 10) confirmed significant post-test differences between the two groups. The experimental group outperformed the control group in the underarm entry grip ($t = 10.759$, $p < 0.001$), the standing diving leg grip ($t = 14.795$, $p < 0.001$), and the cognitive representation efficiency test ($t = 6.146$, $p < 0.001$). These findings collectively emphasize that the Driver-based educational intervention not only enhanced technical execution but also improved the cognitive representation of wrestling techniques to a greater extent than traditional instructional methods.

Discussion

The Refling activity, which was the seventh meeting, was a very challenging activity because it involved descending from a height using the equipment provided. However, in this activity, students were required to practice courage and self-confidence, as Refling is an activity that trains the adrenaline. In the eighth meeting, students were required to work together toward a common goal in the water tower activity. After the activity, a final test was conducted, yielding the following data: the average pretest score was 86.73, and the average posttest score was 108.23, with an average increase of 21.5. The t-value was 7.447, and the significance level (Sig) was 0.000. Using the formula $\text{Sig} < 0.05$, the data was deemed significant because $\text{Sig} (0.000) < 0.05$.

Referring to the results in Table (9), the comparison between pre-test and post-test scores indicates that third-year students in both the experimental and control groups demonstrated improvements in learning the two wrestling techniques under investigation. Similarly, their efficiency of cognitive representation improved significantly in the post-tests compared to the pre-tests. However, the findings in Table (10) clearly show that students in the experimental group outperformed their peers in the control group across all variables, both in technical skill acquisition and in cognitive representation efficiency.

The researcher attributes this difference to the use of Driver's model in the experimental group. This instructional model is particularly well-suited to motor skill learning in wrestling, given the cognitive demands of technique execution and the developmental stage of the students. Driver's model emphasizes cognitive engagement, structured collaboration, and reflective learning, which allowed students to actively analyze, discuss, and refine their

performance of the underarm entry and standing leg dive grips. By encouraging students to exchange ideas, evaluate performance, and apply feedback in practice, the model stimulated higher-order thinking processes and improved their ability to organize, retain, and retrieve information.

This aligns with Driver's assertion that the model encourages learners to engage with content by testing ideas, evaluating applicability, and negotiating meaning (Anchunda & Kaewurai, 2025). Cooperative and teacher-guided work enabled learners to identify correct execution strategies, thereby strengthening their intrinsic motivation to perform optimally. Similarly, Filippou et al., (2022); Scager et al., (2016) emphasized that co-teaching methods enhance active listening, discussion, analysis, and reflection, all of which were evident in the experimental group's learning process. The students' increased motivation and perception of optimal performance as a meaningful challenge appear to have contributed significantly to their cognitive balance, self-regulation, and persistence in refining their skills.

These findings further resonate with Ausubel's cognitive theory, as cited by Harianto et al., (2023), which suggests that cognitive representation efficiency relies on the integration of new ideas with existing knowledge structures. In this study, Driver's constructivist model appears to have provided a framework for such integration, fostering deeper learning and stronger retention of wrestling skills. Despite these promising outcomes, several limitations must be acknowledged. First, the study sample was restricted to a specific age group of third-year students, which may limit the generalizability of the findings to athletes of different ages, experience levels, or competitive contexts (Huijgen et al., 2015; Sánchez Trujillo & Rodríguez Flores, 2022; Suharsiwi et al., 2023; Veldman et al., 2019). Second, the intervention lasted for eight weeks, which raises questions about the long-term sustainability of the observed improvements. Third, external variables such as students' prior wrestling exposure, individual motivation levels, or differences in physical conditioning were not strictly controlled and may have influenced the results.

Future studies should therefore investigate the application of Driver's model across different combat sports, age categories, and competitive levels to confirm its broader applicability. Longitudinal research would also be valuable in examining whether the improvements in skill acquisition and cognitive representation efficiency are maintained over time. Moreover, exploring hybrid instructional models that combine Driver's

framework with other evidence-based teaching approaches could provide further insights into optimizing motor skill learning in wrestling and related disciplines.

D. CONCLUSION

Based on the findings of this study, it can be concluded that the educational program designed using the Driver model was highly effective in enhancing students' learning of the two-leg takedown in freestyle wrestling. Students in the experimental group demonstrated superior performance compared to those in the control group, not only in the technical execution of the skill but also in the efficiency of their cognitive representation. The use of the Driver model fostered an active and meaningful learning environment where students assumed positive and effective roles through discussion, collaboration, and information exchange. This interactive approach significantly improved their learning acquisition and facilitated deeper cognitive processing of wrestling techniques. Moreover, the Driver model stimulated enthusiasm, vitality, and cooperative spirit among students, which encouraged greater engagement in class activities and contributed positively to the development of their technical and cognitive skills. In light of these conclusions, several recommendations can be made. First, greater attention should be given to the selection and application of teaching methods, strategies, and instructional models in physical education and sports science, particularly in teaching complex wrestling techniques, while accounting for learners' individual differences. Second, future studies should extend this line of research to examine the impact of the Driver model on other motor skills, games, and physical activities across different educational levels to validate and broaden the applicability of the findings. Finally, it is strongly recommended that the Driver model be incorporated into wrestling instruction within colleges of physical education and sports sciences, as it offers an effective framework for enhancing both technical performance and cognitive representation in skill acquisition.

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F. AUTHOR CONTRIBUTION STATEMENT

MAH takes full responsibility for the authenticity of the manuscript and the content of this research.

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