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The Degree of Preference among Students of the Faculty of Sports Science at the Arab American University for the Teaching Methods used in Basketball and Handball Curricula and their Attitudes Towards Them

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Abstract: Objective: This study aimed to identify the teaching methods preferred by students of the Faculty of Sports Science at the Arab American University in the Basketball (1) and Handball (1) curricula, and to explore their attitudes toward these methods. **Methodology:** The study employed a descriptive approach. The sample consisted of 112 students enrolled in the Basketball (1) course and 115 students in the Handball (1) course during the academic years 2020–2021 and 2021–2022. The study investigated students' preferences across five teaching methods based on Mosston and Ashworth's (2002) spectrum: command style, practice style, reciprocal style, guided discovery style, and divergent thinking style. A questionnaire was used as the main data collection tool. **Main Results:** The results showed that the reciprocal style was the most preferred teaching method for both basketball and handball, followed by the practice style, while the command style was the least preferred. Students demonstrated highly positive attitudes toward the preferred methods, especially regarding practical dimensions and the teacher's role. No statistically significant differences were found in preferences based on gender or course type. **Conclusions:** Students favor interactive and student-centered teaching methods, with an emphasis on peer collaboration and practical application. **Recommendations:** The study recommends adopting the reciprocal and practice styles more extensively in sports education curricula. It also emphasizes the importance of training instructors in interactive teaching strategies and enhancing the psychological components of the teaching process. Additionally, it suggests maintaining consistent teaching methods regardless of gender or course type.
Keywords: Teaching methods, Physical Education, Interactive Teaching, Command Style, Practice Style, Reciprocal Style, Guided Discovery Style, Divergent Thinking Style, Basketball, Handball.

درجة تفضيل طلبة كلية علوم الرياضة في الجامعة العربية الأمريكية لأساليب التدريس المستخدمة في تدريس مناهج كرة السلة وكرة اليد واتجاهاتهم نحوها

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الملخص: الهدف: هدفت هذه الدراسة إلى التعرف على أساليب التدريس المفضلة لدى طلبة كلية علوم الرياضة في الجامعة العربية الأمريكية ضمن مساقي كرة السلة (1) وكرة اليد (1)، بالإضافة إلى استكشاف درجة التفضيل واتجاهاتهم نحو هذه الأساليب. **المنهج:** اعتمدت الدراسة على المنهج الوصفي. وتكوّنت العينة من 112 طالبًا وطالبة في مساق كرة السلة (1)، و115 طالبًا وطالبة في مساق كرة اليد (1)، خلال العامين الدراسيين 2020–2021 و2021–2022. حيث تم قياس تفضيلات الطلبة لخمسة أساليب تدريسية وفقًا لطيف "موستون وآشوورث" (2002): الأسلوب الأمري، الأسلوب التدريبي، الأسلوب التبادلي، أسلوب الاكتشاف الموجّه، وأسلوب التفكير المتشعب. وتم استخدام الاستبانة كأداة رئيسية لجمع البيانات. **أهم النتائج:** أظهرت النتائج أن الأسلوب التبادلي كان الأكثر تفضيلًا لتعليم مهارات كرة السلة وكرة اليد، يليه الأسلوب التدريبي، بينما كان الأسلوب الأمري الأقل تفضيلًا. كما بينت النتائج وجود اتجاهات إيجابية عالية لدى الطلبة تجاه الأساليب المفضلة، وتركزت هذه الاتجاهات بشكل خاص على الجوانب العملية ودور المعلم، مقارنة بالجوانب النفسية. ولم تُظهر النتائج فروقًا ذات دلالة إحصائية في التفضيلات تعزى إلى متغيري الجنس أو نوع المساق. **الاستنتاجات:** يفضل الطلبة الأساليب التفاعلية والمتمركزة حول المتعلم، مع التركيز على التعاون بين الزملاء والتطبيق العملي. **التوصيات:** توصي الدراسة بالتركيز على استخدام الأسلوب التبادلي والأسلوب التدريبي بشكل أوسع في مناهج التربية البدنية، مع تدريب المعلمين على تطبيق استراتيجيات التدريس التفاعلية، والعمل على تعزيز الجوانب النفسية في العملية التعليمية. كما توصي باعتماد أساليب تدريس موحدة وفعّالة دون الحاجة لتعديلها بناءً على جنس الطالب أو نوع المساق.
الكلمات المفتاحية: أساليب التدريس، التربية البدنية، التدريس التفاعلي، الأسلوب الأمري، الأسلوب التدريبي، الأسلوب التبادلي، أسلوب الاكتشاف الموجّه، أسلوب التفكير المتشعب، كرة السلة، كرة اليد.

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Introduction

Physical education plays a crucial role in shaping a well-rounded individual, extending beyond physical fitness to influence psychological, social, and intellectual development. Among team sports, basketball and handball hold significant importance in both academic and athletic settings. As the focus on improving physical education curricula grows, the effectiveness of teaching methods has become a key factor in ensuring student engagement and skill development. The choice of appropriate teaching methods directly impacts the success of the educational process and the overall learning experience of students.

Teaching methods encompass various strategies used by instructors to transfer knowledge and skills. These methods range from traditional approaches, such as lectures and rote learning, to modern, student-centered techniques that emphasize active and collaborative learning. In physical education, practical and interactive teaching styles are particularly effective, as they encourage firsthand participation and skill application. However, the effectiveness of any method depends on how well it aligns with students' needs, learning preferences, and personal characteristics such as gender, academic level, and sports experience.

In this context, the most used teaching methods for team sports are based on Mosston and Ashworth's (2008) "Spectrum of Teaching Styles." These include the Command Style, which focuses on teacher-led instruction with clear steps and discipline; the Practice Style, which allows students to develop skills independently under teacher supervision with immediate feedback; the Reciprocal Style, which promotes peer learning through collaborative evaluation; the Divergent Thinking Style, which encourages creativity in problem-solving and strategy development; and the Guided Discovery Style, which fosters independent learning by prompting students to explore concepts through questioning and self-reflection.

Research findings on the effectiveness of these teaching methods vary across cultural and educational contexts. For example, Allen et al. (2021) found that the guided discovery method improved tactical decision-making among basketball players in the United States, whereas Al-Kharshi (2020) observed that the reciprocal style enhanced teamwork among handball students in Egypt but was met with resistance from those accustomed to traditional approaches. Meanwhile, Ibrahim (2019) reported that the command style remains dominant in Palestinian universities due to limited resources, restricting opportunities for creativity and student-led learning. Khanfar (2009) also highlighted that feedback is one of the most influential factors affecting the acquisition of motor skills. Similarly, Mufleh and Missmar (2010) emphasized the importance of employing modern teaching methods in physical education, particularly through the use of microteaching strategies. Such variations raise critical questions about the factors that influence students' preferences for specific teaching styles and how these preferences align with global trends in sports education. Given these complexities, this study aims to bridge the gap between current teaching practices and research-based evidence by analyzing the use of five key teaching methods (command, practice, reciprocal, divergent thinking, and guided discovery) at the Arab American University. By examining students' preferences and attitudes, the study seeks to determine whether their experiences align with international trends or are shaped by local educational and social factors. The findings will contribute to improving physical education curricula in Arab universities, enhancing both teaching quality and student performance.

Additionally, understanding students' attitudes toward different teaching methods will help design targeted instructor training programs, fostering a more effective and engaging learning environment.

Problem of Study

Despite significant progress in the field of physical education and the diversity of teaching methods used, there is a lack of studies that focus on students' preferences and attitudes toward these methods, particularly in Arab universities. This gap may lead to the use of inappropriate teaching methods, which negatively impact students' academic achievement and practical skills. Furthermore, a lack of understanding of students' attitudes could hinder the development of educational curriculum in a way that aligns with their needs and aspirations.

Teaching methods are considered one of the main factors determining the success of the educational process, especially in practical fields such as physical education. The use of appropriate methods can increase students' motivation to learn and improve their academic and practical performance. However, the effectiveness of any teaching method depends on how well it meets students' needs and preferences.

In this context, there is a need for an in-depth study of the degree of preference for teaching methods used in basketball and handball curricula by students at the College of Sports Science, and an analysis of their attitudes toward them. Understanding students' preferences and attitudes can assist in designing training programs for instructors to improve their teaching skills and develop educational curricula in line with students' needs.

Additionally, several factors may influence students' preferences and attitudes toward teaching methods, such as gender, academic level, and sports experience. Male students may prefer teaching methods that differ from those preferred by female students, and students at advanced academic levels may have different preferences than students at earlier levels. Therefore, studying these factors can provide a comprehensive understanding of students' preferences and attitudes.

On the other hand, the educational environment plays a significant role in shaping students' preferences and attitudes toward teaching methods. An educational environment that provides modern resources and facilities can increase student engagement with modern teaching methods, while an environment lacking these resources may hinder the use of such methods. Therefore, studying the impact of the educational environment on students' preferences and attitudes is crucial.

In conclusion, it can be said that this study contributes to filling the research gap in the field of physical education, particularly in the Arab context. The findings of the study can serve as a reference for instructors and curriculum developers in Arab universities, contributing to the improvement of education quality and increasing student engagement. The study also highlights the importance of understanding students' preferences and attitudes.

Importance of Study

This research is the first of its kind in Palestine to comprehensively evaluate five teaching methods in basketball and handball while examining their relationship with students' psychological attitudes. With the continuous advancements in physical education, effective teaching methods have become essential for developing athletic competencies, especially in team sports that require a combination of tactical, physical, and psychological skills. The Faculty of Sports Sciences at the Arab American University, a leading academic institution in Palestine, aims

to align its educational programs with international standards. However, challenges persist in ensuring that teaching methods match students' preferences and attitudes, which directly impacts the effectiveness of the learning process.

From a theoretical perspective, this study will contribute to expanding the Mosston & Ashworth model by applying it within an Arab educational environment that faces political and economic challenges. Additionally, it will either support or challenge Allen et al. (2021), who highlighted the effectiveness of the guided discovery method in tactical sports, potentially uncovering unique insights specific to the Palestinian context.

On a practical level, the findings will help faculty members adopt the most engaging teaching methods for students. For example, divergent thinking could be integrated into basketball lessons to enhance creativity, while the reciprocal method could be applied in handball to improve teamwork. Furthermore, this study will assist decision-makers in investing in instructor training on underutilized methods, such as divergent thinking, and providing advanced tools like performance analysis applications to support guided discovery.

From a social standpoint, understanding students' attitudes toward different teaching methods can help break stereotypes that view physical education as solely based on physical strength. Instead, this research will emphasize the role of cognitive approaches, such as critical thinking, in preparing students for the job market. Additionally, by generating data that can be compared to international studies (e.g., Slavin, 2014), this research will foster academic collaboration between the Arab American University and global institutions, contributing to the overall development of physical education.

Study Objectives

The study aimed to achieve the following objectives:

1. To identify the teaching methods preferred by students enrolled in Basketball (1) and Handball (1) courses at the College of Sports Science for learning basic skills in basketball and handball.
2. To examine differences in students' preferences for teaching methods based on gender and course type (basketball or handball).
3. To explore students' attitudes toward the preferred teaching methods based on gender and course type (basketball or handball).

Study Questions

The study sought to answer the following questions:

1. What are the most preferred teaching methods for teaching basketball and handball skills among students at the Faculty of Sports Science, Arab American University, from their perspective?
2. What are the students' attitudes toward the preferred teaching methods for teaching basketball and handball skills at the Faculty of Sports Science, Arab American University?
3. Are there statistically significant differences in the preferred teaching methods for teaching basketball and handball skills among students at the Faculty of Sports Science, Arab American University, based on gender and course type (basketball or handball)?
4. Are there statistically significant differences in students' attitudes toward the preferred teaching methods for teaching basketball and handball skills at the Faculty of Sports Science, Arab American University, based on gender and course type (basketball or handball)?

Study Boundaries

The study adhered to the following boundaries during its implementation:

Human Boundary: The study was limited to students enrolled in the Basketball (1) and Handball (1) courses at the College of Sports Science, Arab American University.

Spatial Boundary: The study was conducted exclusively within the premises of the College of Sports Science, Arab American University.

Temporal Boundary: The study was conducted during the first and second semesters of the academic years 2020–2021 and 2021–2022.

Study Methodology

The researcher employed a descriptive approach using the survey method to collect data related to the descriptive study tools for the entire study sample.

Study Population

The study population included all students enrolled in the Faculty of Sports Science at the Arab American University during the academic years (2020–2021) and (2021–2022), totaling approximately (500) male and female students, according to the records of the Admission and Registration Department.

Study Sample

The study was conducted on a sample of (227) male and female students from the Faculty of Sports Science at the Arab American University. The sample was selected purposively from students enrolled in Basketball (1) courses, totaling (112) students, and Handball (1) courses, totaling (115) students, during the first and second semesters of the academic years (2020–2021) and (2021–2022). The study sample represents approximately (45%) of the study population. Table (1) shows the distribution of the study sample individuals according to the variables of gender, course type, and teaching method in the descriptive study.

Table (1): Distribution of the Study Sample Participants According to the Variables of Gender, Course Type, and Teaching Method.

Variables	Variable level	Repetition	Percentage %
Gender	Male	119	52.4
	Female	108	47.8
	Total	**227**	**%100**
Course Type	Basketball	112	49.3
	Handball	115	50.7
	Total	**227**	**%100**
Teaching Method	Command Style	42	18.5
	The Practice Style	42	18.5
	The Reciprocal Style	48	21.1
	The Guided Discovery Style	48	21.1
	The Divergent Style	47	20.8
	Total	**227**	**%100**

Study Tools

Considering the study's objectives, the researcher employed two tools to conduct the descriptive study. The first tool measures the degree of preference for teaching methods, while the second tool measures students' attitudes toward their preferred instructional method. The following clarifies this:

First: Tool for Degree of Preference for Teaching Methods: To identify the most preferred teaching methods among students in basketball and handball courses, the researcher developed a tool containing a list of teaching methods (command style, practice style, reciprocal style, guided discovery style, divergent thinking style). Students were asked to select their degree of preference for each applicable method using three options: "highly prefer" (3 points), "moderately prefer" (2 points), and "do not prefer" (1 point).

Second: Tool for Students' Attitudes Toward the Preferred Instructional Method: By reviewing educational literature and previous studies related to students' attitudes toward preferred teaching methods, such as Al-Hamouri's (2004) study and Mueller's (2020) study, the researcher designed a tool to measure students' attitudes toward their preferred instructional method, relying on the questionnaire developed by Al-Hayek and Al-Hamouri (2005). The final version of the tool consisted of 28 items, all phrased positively, and distributed across four domains as outlined in Table (2).

Table (2): Description of the Tool Measuring Students' Attitudes Toward the Preferred Instructional Method.

Field No.	Name of the Field	No. of Paragraphs	Distribution of Paragraphs in the Tool
1	The Role of the Teacher in the Teaching Method Used	7	13 ،11 ،9 ،7 ،5 ،3 ،1
2	The Role of the Student in the Teaching Method Used	7	14 ،12 ،10 ،8 ،6 ،4 ،2
3	The Nature of the Teaching Method Used	7	27 ،25 ،23 ،21 ،19 ،17 ،15
4	The Psychological Characteristics of the Teaching Method	7	28 ،26 ،24 ،22 ،20 ،18 ،16
The Tool as a Whole		28	1- 28

The response scale for the items consists of five options (1–5) based on a five-point Likert scale, as follows: Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), and Strongly Disagree (1).

Scientific Characteristics of the Study Tools:

First: Validity: To ensure the validity of the study tools related to the degree of preference for teaching methods and students' attitudes toward the preferred teaching method, the validity of the tools was confirmed through expert review. This was done by presenting the tools to a group of specialists in physical education to provide their opinions on the suitability of the tools for measuring that for which they were designed. The results of the review, which were agreed upon by 80% or more of the reviewers, were as follows:

Tool for Measuring Preference for Teaching Methods: No modifications were made to this tool, and therefore it measures what it was designed to measure.

Tool for Measuring Students' Attitudes Toward Preferred Teaching Methods: Only linguistic modifications were made, and no items were deleted. The last version of the tool consists of 28 items distributed across four domains (the teacher's role in the teaching method, the student's role in the teaching method, the nature of the teaching method, and the psychological characteristics of the teaching method). Hence, the tool measures what it was designed to measure.

Second: Reliability: To ensure the reliability of the study tools, the test-retest method was used. The tools were applied twice to a pilot sample consisting of ten students in a basketball course and ten students in a handball course. The time interval between the two applications of the study tools was two weeks. Afterwards, the Pearson Correlation Coefficient was used to determine the relationship between the first and second applications, as shown in Tables (3 and 4).

Table (3): Reliability and Internal Validity Coefficients for the Tool Measuring Preference for Teaching Methods (N = 20).

Teaching Methods	Reliability Coefficient	Self-Authenticity	Significance (Sig.)
Command Style	0.80	0.894	**0.000
The Practice Style	0.86	0.927	**0.000
The Reciprocal Style	0.84	0.916	**0.000
The Guided Discovery Style	0.85	0.921	**0.000
The Divergent Style	0.80	0.894	**0.000

**Statistically significant relationship at the significance level ($\alpha \leq 0.01$).

The results of Table (3) indicate that the Tool for Measuring Preference for Teaching Methods possesses a high degree of reliability and is suitable for achieving the purposes of the study. The reliability coefficient values for the preferred teaching methods ranged between (0.80–0.86), and the values of its internal validity ranged between (0.894–0.927).

Table (4): Reliability and Internal Validity Coefficients for the Tool Measuring Students' Attitudes Toward Preferred Teaching Methods (N = 20).

Fields	Reliability Coefficient	Self-Authenticity	Significance (Sig.)
The Role of the Teacher in the Teaching Method Used	0.86	0.927	**0.000
The Role of the Student in the Teaching Method Used	0.90	0.948	**0.000
The Nature of the Teaching Method Used	0.93	0.964	**0.000
The Psychological Characteristics of the Teaching Method	0.85	0.921	**0.000
The Tool as a Whole	0.93	0.964	**0.000

**Statistically significant relationship at the significance level ($\alpha \leq 0.01$).

The results of Table (4) indicate that the Tool for Measuring Students' Attitudes Toward Preferred Teaching Methods possesses a high degree of reliability and is suitable for achieving the purposes of the study. The reliability coefficient values ranged between (0.85–0.93), and the values of its internal validity ranged between (0.921–0.964).

Study Variables

This study is descriptive in nature and includes the following variables:

Independent Demographic or Categorical Variables:

- **Gender**, with two levels: (Male, Female).
- **Course Type**, with two levels: (Basketball, Handball).

Dependent Variables: These variables are represented by the overall response degree of the study sample to the items and domains of the descriptive study tools related to the preference for teaching methods and students' attitudes toward the preferred teaching method.

Study Procedures

The researcher followed the following steps and research procedures to implement this study:

- Reviewing previous studies and educational literature related to the study topic and designing two tools to measure the degree of preference for teaching methods and students' attitudes toward the preferred teaching method.
- Identifying the target population and sample of the study. The descriptive study was conducted on a sample of students enrolled in the Basketball (1) course and Handball (1) course.
- Ensuring the scientific conditions and characteristics of the study tools after conducting a pilot experiment on a sample of 20 male and female students from the study population, who were not included in the main study sample.
- Selecting the study sample for basketball and handball from students enrolled in five sections of the Basketball (1) course and five sections of the Handball (1) course during the first and second semesters of the academic years (2020-2022).
- The researcher taught the students the various skills outlined in the curriculum of the Basketball (1) and Handball (1) courses at the Faculty of Sports Sciences at Arab American University, using five methods from Mosca Muston and Ashurt (2002), namely: (the command style, practice style, reciprocal style, the guided discovery style, and the divergent thinking style) from the beginning of the first and second academic semesters (2020-2021) (2021-2022) until

the end of the eleventh week of each semester in each year.

- Students were introduced to the nature of each method used and the role of the teacher and student in each method. They were informed about the method or group of methods that would be used to teach each skill at the beginning of and before each class.
- The researcher excluded the results of students who had previous experience or knowledge of any of the methods used in the study.
- The questionnaire related to the students' preference for teaching methods and the questionnaire related to their attitudes toward the methods used in learning were distributed at the end of the eleventh week of the semester.
- After completing data collection, the data was coded and statistically processed using the SPSS statistical program.
- The study results were obtained, leading to conclusions and recommendations.

Statistical Treatments

The Statistical Package for Social Sciences (SPSS) was used, employing the following tests.

- Frequencies, percentages, means, and standard deviations.
- Pearson Correlation Coefficient to determine the reliability coefficient for the descriptive study tools and the skill tests for basketball and handball.
- Two-way Analysis of Variance (2*2 ANOVA) to determine the differences in both the preference for teaching methods and students' attitudes toward the preferred teaching method in the study sample, based on the variables of (gender and course).

Presentation of Study Results

First: Results of the First Question, which is:

What are the most preferred teaching methods for use in teaching basketball and handball skills among students of the Faculty of Sports Sciences at Arab American University, from their perspective?

To answer this question, the arithmetic means and standard deviation for each teaching method were calculated based on the students' views in the Basketball and Handball courses, as well as for the entire sample. The highest arithmetic means represents the most preferred methods for use, while the lowest arithmetic means represents the least used methods. Table (5) illustrates this.

Table (5): Arithmetic Means and Standard Deviations for the Preferred Teaching Methods for Use in Teaching Basketball and Handball Skills Among Students of the Faculty of Sports Sciences at Arab American University, From Their Perspective (N = 227).

No.	Preferred Teaching Methods	Basketball sample (N = 112)		Handball sample (N = 115)		The overall sample (N = 227)	
		*Mean**	Standard Deviations	*Mean**	Standard Deviations	*Mean**	Standard Deviations
1	Command Style	1.74	0.86	1.70	0.89	1.72	0.87
2	Practice Style	2.20	0.81	2.22	0.80	2.21	0.81
3	Reciprocal Style	2.43	0.82	2.44	0.77	2.44	0.80
4	Guided Discovery Style	2.06	0.81	2.18	0.74	2.12	0.78
5	Divergent Style	2.25	0.83	2.15	0.82	2.20	0.83

*Maximum response = 3 points

The results of Table (5) indicate the following:

Basketball Sample: The most preferred teaching method for use in teaching basketball skills, according to the students in the Basketball course, was the reciprocal style with an arithmetic mean of (2.43). This was followed by the divergent thinking method with

an arithmetic mean of (2.25). The least preferred teaching method was the American style with an arithmetic mean of (1.74).

Handball Sample: The most preferred teaching method for use in teaching handball skills, according to the students in the Handball course, was the reciprocal style with an arithmetic mean of (2.44). This was followed by the training method with an arithmetic mean of (2.22). The least preferred teaching method was the American style with an arithmetic mean of (1.70).

Overall Sample: The most preferred teaching method for use in teaching both basketball and handball skills, according to the overall sample, was the reciprocal style with an arithmetic mean of (2.44). This was followed by the training method with an arithmetic mean of (2.21). The least preferred teaching method was the American style with an arithmetic mean of (1.72).

Second: Results of the Second Question, which is: What is the degree of students' attitudes at the Faculty of Sports Sciences at Arab American University toward the preferred teaching methods for use in teaching basketball and handball skills, from their perspective?

To answer this question, the arithmetic means and standard deviation for each item, as well as for the domain it belongs to and the total score for the attitudes, were calculated. The results in Table (6) show this. To interpret the results, the commonly used arithmetic means were applied to classify the scores according to the five-point Likert scale, as follows:

- (1.80) or below: Extremely low degree.
- (1.81–2.60): Low degree.
- (2.61–3.40): Medium degree.
- (3.41–4.20): High degree.
- Above (4.20): Extremely high degree.

Table (6): Arithmetic Means and Standard Deviations for the Preferred Teaching Methods for Use in Teaching Basketball and Handball Skills Among Students of the Faculty of Sports Sciences at Arab American University, From Their Perspective (N = 227).

No.	The paragraphs	Mean response*	standard deviation	Grade
Field 1: The Role of the Teacher in the Teaching Style Used		**3.73**	**0.58**	**High**
1	Using this teaching method, I gained valuable teaching experiences	3.77	0.93	High
2	The teaching method used made the basketball/handball lecture and lesson engaging	3.57	0.91	High
3	Students at Sports Science Colleges should be familiar with this teaching method	3.68	0.90	High
4	The teaching method used by the instructor encouraged me to learn more about basketball/handball skills	3.86	0.86	High
5	Using this teaching method, the teacher is concerned with how to perform the skill correctly	3.72	0.95	High
6	This method has provided me with excellent teaching experiences	3.77	0.93	High
7	Using this teaching method in schools and sports colleges will positively affect the students' learning abilities	3.76	0.96	High
Field 2: The Role of the Student in the Teaching Style Used		**3.68**	**0.65**	**High**
8	The teaching style used introduced me to new teaching skills	3.82	0.96	High
9	I prefer learning using this teaching style more than learning with the traditional method	3.83	0.97	High
10	The teaching style used helped me improve my skill performance level	3.63	0.98	High
11	Using this teaching style, the instructor helps me when I encounter any difficulties in learning any of the basketball/handball skills	3.62	0.94	High
12	The teaching method used has helped me learn basketball/handball skills better	3.71	0.95	High
13	Using this teaching method helped the instructor treat all students equally	3.55	0.92	High
14	The teaching method used encouraged me to put in more effort	3.58	0.98	High

No.	The paragraphs	Mean response*	standard deviation	Grade
Field Three: Nature of the Teaching Method Used		**3.78**	**0.67**	**High**
15	In the future, I will use this teaching method because it is one of the effective methods	3.72	0.93	High
16	This teaching method improved my relationships with others	3.70	0.96	High
17	The adopted teaching method made me feel comfortable while collaborating with my colleagues	3.88	0.88	High
18	The adopted teaching method made me feel comfortable when interacting with the teacher during the lesson	3.68	0.98	High
19	The adopted teaching method helped me make many important classroom decisions during the lesson	3.76	0.98	High
20	This teaching method considers the individual differences among students	3.97	0.93	High
21	The teaching method provided me with ample time to practice the skill	3.76	0.99	High
Field Four: Psychological Characteristics of the Method		**3.61**	**0.73**	**High**
22	The teaching method used saves the teacher's time	3.67	0.91	High
23	The teaching method used helped both the teacher and the students to perform a good model of the skill	3.59	0.97	High
24	The teaching method used encouraged me to explore other teaching methods	3.62	0.95	High
25	The teaching method used made me feel that I will be a successful teacher in the future	3.53	0.97	High
26	The teaching method used helped me learn quickly and easily	3.69	0.97	High
27	The teaching method used helped me become more effective during the lesson and lecture	3.52	0.95	High
28	The teaching method used helped the instructor manage the lecture and deliver it effectively	3.67	0.98	High
The overall score of the attitudes		**3.70**	**0.56**	**High**

*Maximum response = 5 points

The results of Table (6) indicate the following

Teacher's Role in the Teaching Method Domain: The overall score for this domain, according to the students of the Faculty of Sports Sciences at Arab American University, was high, with an average response of (3.73). The score was high for all items (1–7), with average response values ranging from (3.57 to 3.86).

Students' Role in the Teaching Method Domain: The overall score for this domain, according to the students, was high, with an average response of (3.68). The score was high for all items (8–14), with average response values ranging from (3.55 to 3.83).

Nature of the Teaching Method Domain: The overall score for this domain, according to the students, was high, with an average response of (3.78). The score was high for all items (15–21), with average response values ranging from (3.68 to 3.97).

Psychological Characteristics of the Teaching Method Domain: The overall score for this domain, according to the students, was high, with an average response of (3.61). The score was high for all items (22–28), with average response values ranging from (3.52 to 3.69).

Summary of Results for the Second Question: The overall degree of students' attitudes at the Faculty of Sports Sciences at Arab American University toward the preferred teaching methods for use in teaching basketball and handball skills, from their perspective, was high, with an arithmetic mean of (3.70). The response degree was high across all domains, with the highest response in the "Nature of the Teaching Method" domain, with an arithmetic mean of (3.78), followed by the "Teacher's Role in the Teaching Method" domain with an

arithmetic mean of (3.73). The lowest response was in the "Psychological Characteristics of the Teaching Method" domain with an arithmetic mean of (3.61).

Third: Results of the Third Question, which is: Are there statistically significant differences in the preferred teaching methods for use in teaching basketball and handball skills among students of the Faculty of Sports Sciences at Arab American University, attributed to the variables of gender and course type?

To answer this question, a two-way ANOVA (2*2) was used, and the results of Tables (7 and 8) show this.

Table (7): Arithmetic Means and Standard Deviations for the Preferred Teaching Methods for Use in Teaching Basketball and Handball Skills, According to Gender and Course Type (N = 227).

Preferred Teaching Methods	Gender / Course	Male			Female			Whole		
		No.	Arithmetic Mean	Standard Deviations	No.	Arithmetic Mean	Standard Deviations	No.	Arithmetic Mean	Standard Deviations
Command Style	Basketball	57	1.72	0.86	55	1.76	0.86	112	1.74	0.86
	Handball	62	1.56	0.84	53	1.87	0.92	115	1.70	0.89
	Whole	119	1.64	0.85	108	1.81	0.89	227	1.72	0.87
Practice Style	Basketball	57	2.14	0.83	55	2.25	0.80	112	2.20	0.81
	Handball	62	2.23	0.86	53	2.21	0.74	115	2.22	0.80
	Whole	119	2.18	0.84	108	2.23	0.77	227	2.21	0.81
Reciprocal Style	Basketball	57	2.47	0.83	55	2.38	0.83	112	2.43	0.82
	Handball	62	2.45	0.78	53	2.43	0.77	115	2.44	0.77
	Whole	119	2.46	0.80	108	2.41	0.80	227	2.44	0.80
Guided Discovery Style	Basketball	57	1.98	0.81	55	2.15	0.80	112	2.06	0.81
	Handball	62	2.19	0.70	53	2.17	0.80	115	2.18	0.74
	Whole	119	2.09	0.76	108	2.16	0.79	227	2.12	0.78
Divergent Style	Basketball	57	2.35	0.83	55	2.15	0.83	112	2.25	0.83
	Handball	62	2.13	0.80	53	2.17	0.85	115	2.15	0.82
	Whole	119	2.24	0.82	108	2.16	0.83	227	2.20	0.83

*Maximum response = 3 points

Table (8): Results of the Two-Way ANOVA Analysis for the Significant Differences in the Preferred Teaching Methods for Use in Teaching Basketball and Handball Skills, according to the Variables of Gender and Sport (N = 227).

Preferred Teaching Methods	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F Value	Significance (Sig.)
Command Style	Gender	1.71	1	1.71	2.26	0.134
	Course Type	0.04	1	0.04	0.05	0.827
	Gender * Course Type	0.95	1	0.95	1.05	0.264
Practice Style	Gender	0.13	1	0.13	0.20	0.657
	Course Type	0.02	1	0.02	0.03	0.859
	Gender * Course Type	0.25	1	0.25	0.38	0.540
Reciprocal Style	Gender	0.17	1	0.17	0.26	0.608
	Course Type	0.02	1	0.02	0.02	0.888
	Gender * Course Type	0.08	1	0.08	0.12	0.728
Guided Discovery Style	Gender	0.27	1	0.27	0.45	0.502
	Course Type	0.49	1	0.49	1.30	0.256
	Gender * Course Type	0.61	1	0.61	0.82	0.368
Divergent Style	Gender	0.38	1	0.38	0.56	0.454
	Course Type	0.55	1	0.55	0.81	0.370
	Gender * Course Type	0.86	1	0.86	1.26	0.264

*Statistically significant differences at the significance level ($\alpha \leq 0.05$)

The results of Table (7) indicate the following: There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) between the arithmetic means for all preferred teaching methods for use in teaching basketball and handball skills among students of the Faculty of Sports Sciences at Arab American University, from their perspective, attributed to

the variables of gender, course type, or their interaction.

Fourth: Results of the Fourth Question, which is: Are there statistically significant differences in students' attitudes at the Faculty of Sports Sciences at Arab American University toward the preferred teaching methods for use in teaching basketball and handball skills, attributed to the variables of gender and course type?

To answer this question, a two-way ANOVA (2*2) was used, and the results of Tables (9 and 10) show this.

Table (9): Arithmetic Means and Standard Deviations for Students' Attitudes Toward the Preferred Teaching Methods for Use in Teaching Basketball and Handball Skills, According to Gender and Course Type (N = 227).

Attitudes	Gender / Course	Male			Female			Whole		
		No.	Arithmetic Mean	Standard Deviations	No.	Arithmetic Mean	Standard Deviations	No.	Arithmetic Mean	Standard Deviations
The Teacher's Role in the Teaching Method Used	Basketball	57	3.58	0.60	55	3.84	0.58	112	3.71	0.60
	Handball	62	3.83	0.60	53	3.68	0.52	115	3.76	0.56
	Whole	119	3.71	0.61	108	3.76	0.55	227	3.73	0.58
The Role of the Student in the Teaching Method Used	Basketball	57	3.57	0.63	55	3.84	0.75	112	3.70	0.70
	Handball	62	3.60	0.62	53	3.70	0.56	115	3.65	0.59
	Whole	119	3.59	0.62	108	3.77	0.67	227	3.68	0.65
Nature of the Teaching Method Used	Basketball	57	3.69	0.80	55	4.01	0.62	112	3.85	73.
	Handball	62	3.87	0.63	53	3.55	0.54	115	3.72	0.61
	Whole	119	3.78	0.72	108	3.78	0.63	227	3.78	0.67
Psychological Characteristics of the Teaching Method	Basketball	57	3.63	0.77	55	3.81	0.89	112	3.72	0.83
	Handball	62	3.53	0.67	53	3.49	0.54	115	3.51	0.61
	Whole	119	3.58	0.72	108	3.65	0.75	227	3.61	0.73
Total Attitude Score	Basketball	57	3.62	0.62	55	3.87	0.56	112	3.74	0.61
	Handball	62	3.71	0.55	53	3.61	0.44	115	3.66	0.50
	Whole	119	3.66	0.58	108	3.74	0.52	227	3.70	0.56

*Maximum response = 5 points

Table (10): Results of the Two-Way ANOVA Analysis for the Significant Differences in the Preferred Teaching Methods for Use in Teaching Basketball and Handball Skills, according to the Variables of Gender and Sport (N = 227).

Attitudes	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Square	F Value	Significance (Sig.)
The Teacher's Role in the Teaching Method Used	Gender	0.17	1	0.17	0.51	0.475
	Course Type	0.12	1	0.12	0.36	0.552
	Gender * Course Type	2.32	1	2.32	7.03	*0.009
The Role of the Student in the Teaching Method Used	Gender	1.94	1	1.94	4.69	*0.031
	Course Type	0.16	1	0.16	0.38	0.536
	Gender * Course Type	0.41	1	0.41	0.99	0.320
Nature of the Teaching Method Used	Gender	0.01	1	0.01	0.001	0.991
	Course Type	1.12	1	1.12	2.59	0.109
	Gender * Course Type	5.70	1	5.70	13.27	*0.000
Psychological Characteristics of the Teaching Method	Gender	0.27	1	0.27	0.51	0.474
	Course Type	2.57	1	2.57	4.83	*0.029
	Gender * Course Type	0.62	1	0.62	1.16	0.283
Total Attitude Score	Gender	0.34	1	0.34	1.13	0.289
	Course Type	0.46	1	0.46	1.53	0.218
	Gender * Course Type	1.78	1	1.78	5.90	*0.016

*Statistically significant differences at the significance level ($\alpha \leq 0.05$).

The results of Table (10) indicate the following:

Gender Variable: There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in the overall attitude scores and their domains (Teacher's Role in the Teaching Method, Nature of the Teaching Method, Psychological Characteristics of the Teaching Method) toward the preferred teaching methods for use in teaching basketball and handball skills among students at the Faculty of Sports Sciences at Arab American University, attributed to the gender variable. However, statistically significant differences were found between males and females, favoring females, in the "Student's Role in the Teaching Method" domain**.**

Course Type Variable: There are no statistically significant differences at the significance level ($\alpha \leq 0.05$) in the overall attitude scores and their domains (Teacher's Role in the Teaching Method, Student's Role in the Teaching Method, Nature of the Teaching Method) toward the preferred teaching methods for use in teaching basketball and handball skills among students at the Faculty of Sports Sciences at Arab American University, attributed to the course type variable. However, statistically significant differences were found in the "Psychological Characteristics of the Teaching Method" domain, favoring basketball.

Interaction (Gender * Course Type): There are statistically significant differences at the significance level ($\alpha \leq 0.05$) in the overall attitude scores and their domains (Teacher's Role in the Teaching Method, Nature of the Teaching Method) toward the preferred teaching methods for use in teaching basketball and handball skills among students at the Faculty of Sports Sciences at Arab American University, attributed to the interaction between gender and course type, favoring males in handball and females in basketball. However, no statistically significant differences were found in the domains of "Student's Role in the Teaching Method" and "Psychological Characteristics of the Teaching Method" due to the interaction between gender and course type.

Discussion of the Results

Results of the First Question: Which teaching methods are most preferred for teaching basketball and handball skills by the students of the Faculty of Sports Sciences at the Arab American University, from their perspective?

The results in Table (5) indicate that the preferred teaching method for teaching basketball and handball skills among the entire sample was the reciprocal method with a mean of 2.44, followed by the training method with a mean of 2.21. The least preferred method was the direct instruction method with a mean of 1.72. The researcher attributes this result to the preference for the reciprocal method, as it relies on active interaction and participation between the teacher and student, enhancing understanding and application of skills. As for the training method, students prefer it because it focuses on practical exercises and repetition, which helps in building confidence and performance ability. The lower preference for the direct instruction method is due to its reliance on lecturing and direct guidance without actively involving the student in the learning process, making it less attractive to students who prefer more interactive and participatory methods. Therefore, these results reflect students' inclination towards teaching methods that promote active learning and engagement with the material. This aligns with the results of Larson and Kim (2023), Phillips and Johnson (2022), Brown and Chao (2022), Smith and Johnson (2021), and Muller and Van der Bel (2020).

Results of the Second Question: What is the degree of attitudes of students of the Faculty of Sports Sciences at the Arab American University towards the preferred teaching methods for teaching basketball and handball skills from their perspective?

The results in Table (6) show that the overall degree of attitudes of the students of the Faculty of Sports Sciences at the Arab American University towards the preferred teaching methods for teaching basketball and handball skills was large, with a mean of 3.70. The response was large in all areas, with the highest response in "Nature of the method used" with a mean of 3.78, followed by the area of "Teacher's role in the method used" with a mean of 3.73. The lowest response was in "Psychological characteristics of the method" with a mean of 3.61. The researcher attributes this result to students giving more importance to methods that focus on practical application and effectiveness in teaching. They also appreciate the teacher's role in selecting and implementing these methods. As for psychological aspects, they may be less noticeable or impactful on their educational experience, which led to a lower response. This aligns with the studies of Martinez and Collins (2024), Anderson and Perez (2023), and Johnston and Williams (2023).

Results of the Third Question: Are there statistically significant differences in the preferred teaching methods for teaching basketball and handball skills among students at the Faculty of Sports Sciences at the Arab American University based on gender and course type?

The results in Table (8) indicate that there were no statistically significant differences at the significance level ($\alpha \leq 0.05$) between the mean scores of all the preferred teaching methods for teaching basketball and handball skills among students, based on gender, course type, or the interaction between these variables. The researcher attributes this result to the similarity in the educational and training background of the students, regardless of gender and course type, as well as the common educational culture within the university that encourages the use of teaching methods. This suggests that preferences for teaching methods are not significantly affected by gender or course type, indicating that preferred teaching methods can be applied without major modifications based on these variables. This finding is consistent with studies by Martinez and Collins (2024), Anderson and Perez (2023), and Johnston and Williams (2023).

Results of the Fourth Question: Are there statistically significant differences in the attitudes of students of the Faculty of Sports Sciences at the Arab American University towards the preferred teaching methods for teaching basketball and handball skills based on gender and course type?

The results in **Table (10)** indicate the following:

Gender Variable: There were no statistically significant differences at the significance level ($\alpha \leq 0.05$) in the overall attitudes and subfields (teacher's role in the method used, nature of the method used, psychological characteristics of the method) towards the preferred teaching methods for teaching basketball and handball skills among students at the Faculty of Sports Sciences at the Arab American University based on gender. However, statistically significant differences were found between male and female students in the "Student's role in the method used" field, with females showing a higher preference. The researcher attributes this result to females being more interested in teaching methods that enhance their active participation in the learning process, reflecting their desire to have

a larger role in decision-making, while males may focus less on this aspect.

Course Type Variable: There were no statistically significant differences at the significance level ($\alpha \leq 0.05$) in the overall attitudes and subfields (teacher's role in the method used, student's role in the method used, nature of the method used) towards the preferred teaching methods for teaching basketball and handball skills among students based on course type. However, statistically significant differences were found in the "Psychological characteristics of the method" field, with basketball students showing a greater preference. The researcher attributes this result to the nature of basketball requiring teaching methods that enhance psychological aspects such as self-confidence and focus, making students in this course more interested in this area compared to handball students.

Interaction between Gender and Course Type: Statistically significant differences were found in the overall attitudes and subfields (teacher's role in the method used, nature of the method used) towards the preferred teaching methods for teaching basketball and handball skills among students based on the interaction between gender and course type, with males preferring methods that enhance the teacher's role and the nature of the method in handball, while females preferred these aspects in basketball. There were no statistically significant differences in the subfields "Student's role in the method used" and "Psychological characteristics of the method" due to the interaction between gender and course type. The researcher attributes this result to the fact that males in handball prefer teaching methods that emphasize the teacher's role and the nature of the method more, while females in basketball may be more interested in these aspects. This interaction may reflect differences in expectations or experiences between genders in each course. This finding aligns with the studies of Martinez and Collins (2024), Anderson and Perez (2023), and Johnston and Williams (2023).

Conclusions

1. Students at the Arab American University prefer the reciprocal teaching style for teaching basketball and handball skills, followed by the practice style, while the command style was the least preferred. This reflects students' inclination toward interactive methods that enhance their active participation in the learning process.
2. The attitudes of students at the College of Sports Science at the Arab American University toward the preferred teaching methods for teaching basketball and handball skills are highly positive, with a focus on practical aspects and the teacher's role compared to psychological aspects.
3. There are no statistically significant differences in the preferences for teaching methods used in teaching basketball and handball skills among students at the College of Sports Science at the Arab American University based on the variables of gender, course type, or the interaction between them.

Recommendations

1. Focus on using the reciprocal and practice teaching styles in instruction, while reducing reliance on the command style. Teachers should be trained to apply interactive methods to enhance learning outcomes.
2. Continue using practical teaching methods that emphasize the teacher's role, while also improving the psychological aspects of these methods to ensure a comprehensive educational experience.
3. Adopt unified and effective teaching methods for teaching basketball and handball skills, without the need for modifications based on students' gender or course type.

Disclosure Statement

- **Ethical approval and consent to participate:** The protocol, design, and procedures of the study titled "The Degree of Preference Among Students of the Faculty of Sports Science at the Arab American University for the Teaching Methods Used in Basketball and Handball Curricula and Their Attitudes Towards Them", prepared by Ali Shanti, Med Jed Tijani, Saber Abdellaoui, and Abderraouf Ben Abderrahman, were approved by the Scientific and Ethics Committee at Higher Institute of Sport and Physical Education, Ksar-Said. Informed consent was obtained from all participants prior to the commencement of the study. The research was conducted in accordance with the ethical principles of scientific research and the regulations of the institution.
- **Availability of data and materials:** The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.
- **Author contribution:** Ali Shanti and Abderraouf Ben Abderrahman were responsible for the overall design and planning of the study. Med Jed Tijani and Saber Abdellaoui contributed to the development and design of the research instrument. Ali Shanti conducted the data collection and was responsible for analyzing the data, interpreting the results, and drafting and critically revising the manuscript. All authors Ali Shanti, Med Jed Tijani, Saber Abdellaoui, and Abderraouf Ben Abderrahman reviewed and unanimously approved the final version of the manuscript.
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