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## Effect of the flipped strategy learning on learning preparing skill in volleyball of the second stage students in Al-Kut University College

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### Abstract

The study aimed to explore the effectiveness of implementing the flipped learning approach, in teaching volleyball skills to second stage students at Kut University. The researcher utilized a method forming two groups for a pre test and post test assessment involving 38 students from the second stage. Each group consisted of 18 students. Following the test equivalence procedures the experiment was conducted, post tests were administered and statistical analysis using SPSS was employed to determine the outcomes necessary to meet the research objectives. The findings indicated a preference for the group in mastering volleyball preparation skills attributed to the inverted learning strategy that introduces scenarios through technology tailored to learners abilities while moving away from traditional methods of information dissemination. One recommendation highlighted by the researcher is for teachers to incorporate flipped learning strategies with activities due to its role in conveying cognitive information and accommodating individual learner differences. Moreover emphasizing the integration of information technology in education, across formats based on learners levels and capabilities was deemed essential.

**Keywords:** Flipped strategy, learning, volleyball

### Introduction

The rapid growth of information technology is transforming all aspects of life, including education. Educational institutions traditionally focused on delivering knowledge, but today's fast-paced world demands new approaches to shorten learning time and cater to student needs.

One such approach is the flipped classroom strategy. It leverages technology by providing students with learning materials (like videos) beforehand, through social media for instance. This frees up class time for in-depth skill practice and personalized instruction based on students' physical and mental abilities. The flipped classroom aims to improve knowledge retention and is being explored in various fields, including sports. This research explores the flipped classroom strategy's effectiveness in teaching the overhead serve in volleyball to secondary school students. The strategy uses technology to provide external stimuli for learning, potentially improving skill development. These learning materials [referring to educational videos] allow students to grasp the basic mechanics of the skill at their own pace. This builds a foundation (kinetic perception) that considers their physical and mental capabilities, maximizing knowledge retention. The flipped classroom approach is particularly well-suited for sports education, including volleyball. This research investigates its effectiveness in teaching the overhead serve (preparation from above the head forward) to secondary school students. By leveraging technology for external learning stimuli, the flipped classroom strategy can potentially enhance their volleyball skill development.

### Research Problem

Physical education, especially in developed countries, is a major focus in schools. Educational institutions play a crucial role in learning through modern curriculums and technology programs. This emphasis on innovation is what motivated the researcher to explore flipped learning as a way to enhance the learning process. Flipped learning doesn't replace traditional methods, but aims to accelerate learning and gain deeper understanding of students' physical capabilities. It caters to individual learning styles and aims to improve

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educational outcomes by aligning with the advancements in information technology. This research utilizes flipped learning to teach the overhead serve in volleyball to students, aligning with this modern approach to learning.

**Research Objective**

Identify the impact of the flipped learning strategy to learn the skill of preparation from head to front volleyball for students of the second stage at the University College of Kut.

**Research Hypothesis**

1. There are statistically significant differences between the results of the pre- and post-tests and in favor of the post-tests of the two research groups.
2. There are statistically significant differences between the results of the post-tests of the two research groups and in favor of the experimental group.

**Research Fields**

- Human field: students of the second stage of the Department of Physical Education and Sports Sciences (Al-Kut University) for the academic year 2023-2024.
- Time Field: From (20/9/2022) to (5/3/2023)
- Spatial field: Al-Kut University College Stadium.

**Research Terms**

The flipped classroom approach flips the traditional learning model. Students prepare for class by consuming educational materials, like videos, beforehand – often on their smart phones through social media platforms. This frees up classroom time for activities that go beyond basic content

delivery, such as discussions, problem-solving exercises, and applying the learned concepts.

**Methodology and Field Procedures**

**Methodology**

The researcher used a controlled experiment with two equal groups. This means there was a control group and an experimental group, and both groups were similar at the beginning of the study. The researcher then changed a specific variable (the independent variable) only in the experimental group. By observing and comparing the results of both groups (the dependent variable), the researcher could identify the effect of the changed variable.

**Research Community and Sample**

**Research Community**

The research community for this study consisted of 80 second-year students from the Department of Physical Education and Sports Sciences at Al-Kut University College, Wasit Governorate. These students were enrolled in the academic year (2022-2023) and distributed across three sections: A, B, and C.

**Research Sample**

A random sample of students was selected for the research. This involved randomly choosing two out of the three sections (A, B, and C). These two sections, A and B, had a total of 50 students initially. However, after excluding some students, the final sample size was reduced to 36 students. These 36 students were divided equally into two groups: an experimental group and a control group.

**Table 1:** Shows the research community, sample, and percentage

Variables	No.	Research Community No.	Sample No.	Total Origin Community No.	Percentage
Practitioner Students	6	80	36	80	45%
Exploratory Experiment Sample	8				
Female students	30				

**Sample Homogeneity**

To minimize the influence of individual physical characteristics on the study's results, the researcher aimed to create homogenous groups within the sample. This means

the researcher ensured the participants in both the experimental and control groups had similar body measurements, such as height, weight, and age. Table 2 presents this data on participant characteristics.

**Table 2:** Shows homogeneity of the experimental and control group members

Statistical Calculations Variables	Measurement units	M.	St.d	Model	Torsion coefficient
Height	cm.	20,15	0,778	20	0.192
Mass	Kg.	176,76	5,25	175	0.33
Age	Year	86,92	8,44	66,50	0,28

Table (1) shows that the values of the torsion coefficient of the variables (morphology) were limited between ( $\pm 1$ ) and thus it is clear that the sample is homogeneous.

**Methods, devices and tools used in the study**

**Means of data collection**

- Arab and foreign references and sources.
- Observation and experimentation.
- Testing and measurement.

**Devices and tools**

- 10 legal volleyballs.

- Volleyball court.
- The instrument used for the test.
- 2 electronic stopwatches.
- Electronic medical scale.
- Tape measure.
- Whistle type (Fox).

**Field Research Procedures**

**Research Tests**

After reviewing many of the theses and theses, the researcher used a test designed and codified and used by the researcher Amer Rashid and similar to the current sample.

- Performance accuracy evaluation test for volleyball preparation skill:

**Test Objective:** Measuring the accuracy of the performance of the skill of preparation in volleyball.

**Tools:** Proposed test tool, 5 legal volleyballs, pre-prepared accuracy evaluation form.

**Method of performance:** The tested student stands in the place of the prepared center No. (3) and the tool in the center No. (4) and at a distance of (60) cm from the side line and (120) cm from the center line, then the teacher hands the ball to the student who tries to pass it to the frame that is at the top, as shown in Figure (1), each student is given five attempts.

**Recording:**

- The ball that did not reach the tool and the frame is given zero grades.
- The ball away from the upper frame (2) points.
- The ball that touches the upper frame (3) points.
- The ball that enters the upper frame (5) points.
- The maximum score obtained by the laboratory (25) points.

**Exploratory Experiment**

Before the main experiment, the researcher conducted a pilot study on a smaller scale. Pilot studies, also known as exploratory experiments, serve several purposes:

- Uncover new information related to the main experiment.

- Identify potential challenges or limitations in applying the main experiment.
- Train research assistants involved in the study.

This pilot study was conducted on Saturday, September 30th, 2023, with a group of 8 participants from both sections (A and B) who were experienced volleyball players at the same level. The focus of this pilot study was specifically on the skill test that would be used in the main experiment. The objectives of the exploratory experiment were:

- To know the time to finish the test.
- Identify the difficulties that may face the researcher, in the course of his work and develop the appropriate solution for each problem.
- Ensure the efficiency of the assistant work team.

**Pre-tests**

The pre-tests for both the experimental and control groups were administered on Saturday, October 7th, 2023, at the Al-Kut University College yard. The testing began at 9:00 AM and continued until noon. These pre-tests assessed the research variables and involved the participation of research assistants.

**Research Sample Equivalence**

To guarantee similar starting points for both groups, the researcher ensured the research sample exhibited homogeneity. Table 3 presents the data on this.

**Table 3:** Shows the equivalence of the two research groups (Control and experimental)

Statistical Calculations Variables	Measurement units	Control group		Experimental group		Calculated (t)	Significance level
		M.	St.d	M.	St.d		
Preparation accuracy from overhead to forward	degree	11,70	3,73	12,11	3,91	0,44	Insignificant

Tabular (T) value is (2.04) at a significance level (0.05) and a degree of freedom of 34 and significant at the significance level (0.05) if the error is  $\leq$  or  $=$  (0.05)

The researcher used an independent samples t-test to analyze the data collected from the pre-tests. This test helps determine if there are statistically significant differences between two groups. In this case, the calculated t-value was lower than the critical t-value from a statistical table. This result suggests that there were no significant differences between the experimental and control groups at the beginning of the study, indicating their equivalence.

**Work According To the Flipped Learning Strategy**

The first part of the flipped learning strategy focused on pre-class learning outside the classroom. The researcher leveraged information technology by sending learning materials to students through their smart phones via social media. To facilitate communication and address any difficulties, the researcher agreed with students to connect via Whats App during a designated time window (8:00 PM to 9:00 PM). The learning materials consisted of twelve video clips with audio explanations. These videos provided a detailed breakdown of the skill, including proper execution techniques. Additionally, after each clip, a set of questions were presented to encourage active learning. Students were expected to answer these questions during the following class session. This approach aimed to transform students from passive recipients of information to active

participants who engage with the material and build their knowledge base before the practical application phase. The second part of the flipped learning strategy took place within the classroom.

- Review and Clarification: The teacher began by providing a brief overview and discussion of the skill, refreshing students' memory based on the video clips they watched beforehand.
- Interactive Q&A: Students then had the opportunity to answer the questions posed by the researcher after each video clip in the first part. This allowed for discussion and clarification of any lingering doubts.
- Practical Application: Following the review and Q&A, the class transitioned to the practical application of the skill. The teacher provided feedback to students as they performed the skill, helping them refine their technique.

**Main Experience**

The main experiment was conducted during the first semester of the academic year, as the overhead serve skill is typically taught during this period. Each skill was covered over four weeks.

The researcher focused on the overhead serve and began the experiment with the experimental group (students from Section B) on Saturday, October 14th, 2023. The sessions were held twice a week for four weeks, with each session lasting 90 minutes. The experiment concluded on November

14<sup>th</sup>, 2023.

The control group (Section A) followed the traditional curriculum and teaching methods used by the professor for the same four-week period, adhering to the college's weekly schedule.

**Post-tests**

The post-tests were conducted on Thursday, 16/11/2023 for the experimental and control groups in the yard of Al-Kut University College at ten in the morning with the help of the assistant team, and the same tests were applied to the research sample in the pre-test.

**Statistical Means**

The researcher used the statistical bag (SPSS):

- Mean.
- Torsion coefficient.
- Standard deviation.
- Simple correlation coefficient (Pearson).
- (T) Test for independent and non-independent samples.
- Mode.
- Medium.

**Results Presentation, Analysis, and Discussion**

Results presentation and analysis of the test variable in the pre- and post-tests of the experimental and control group

**Table 4:** Shows the means and standard deviations of the results of the pre- and post-tests in the research variables of the experimental and control group.

Statistical Calculations Variables	Groups	Pre-test		Post-test		Calculate (t)	Sig. level	Sig. type
		M.	St.d	M.	St.d			
Preparation accuracy from overhead to forward	experimental	12,11	3,91	17,64	4,35	5,79	0,00	Sig.
	control	11,70	3,73	15,65	4,28	4,65	0,00	Sig.

Tabular (T) value = (2, 11) at significance level (0.05) and degree of freedom 17 And significant at the level of significance (0.05) if the error is  $\leq$  or = (0.05)

Table 4 presents data related to the preparation accuracy from the overhead serve test for the experimental group. The average score in the pre-test was 12.11, with a standard deviation of 3.91. This indicates the average performance of the experimental group before the intervention (flipped learning strategy). The average score in the post-test increased to 17.64, with a standard deviation of 4.35. This suggests an improvement in performance after participating in the flipped learning program. A statistical t-test was conducted to analyze the significance of this improvement. The calculated t-value was 5.79, and the confidence level was 0.000. This value is compared to a critical t-value from a statistical table (not shown here). Since the calculated t-value (5.79) is greater than the critical t-value, and the confidence level (0.000) is smaller than the chosen significance level (typically 0.05), the results suggest statistically significant differences between the pre-test and post-test scores. In simpler terms, the improvement observed in the experimental group's performance is unlikely due to chance. Following the same format as the experimental group, Table 4 also presents data for the control group's preparation accuracy from the overhead serve test. The pre-test average score for the control group was 11.70, with a standard deviation of 3.73. This reflects their initial performance level. Similar to the experimental group, the control group's average score improved in the post-test to 15.65, with a standard deviation of 4.28. A t-test was conducted to assess the significance of this improvement. The calculated t-value was 4.65, and the confidence level was 0.000. As with the experimental group, this value is compared to a critical t-value from a statistical table (not shown here). The results suggest statistically significant differences between the pre-test and post-test

scores for the control group as well.

**Pre and Post-Test Results Discussion**

Table 4 reveals significant improvements in both the experimental and control groups. The experimental group's pre-test and post-test scores for the overhead serve accuracy test showed a statistically significant difference, favoring the post-test. This suggests a positive impact from the flipped learning strategy. The researcher attributes this development to several factors within the flipped learning approach: Modern Technology: Students accessed lesson information and concepts through video clips and animations, making learning materials readily available and convenient. Diverse Delivery: Flipped learning allows for the presentation of skills in various ways, breaking away from traditional methods. Self-Paced Learning: Students could watch video clips repeatedly, allowing them to adjust the learning pace to their individual needs and improve their grasp of new concepts. Interestingly, the control group also exhibited significant improvement in the test scores. The researcher suggests that this might be due to the professor's unique teaching style. Engaging Explanation: The professor's method of explaining and presenting educational material likely fostered student engagement. Motivational Approach: The professor's use of a "loving and special way of fun" may have boosted student morale, leading to increased attendance, enthusiasm, and motivation to learn. As the researcher points out, strong learner motivation can significantly enhance learning outcomes. In conclusion, both the flipped learning strategy and the professor's teaching style appear to have contributed to improvements in student performance.

**Presentation and analysis of the results of the post-test of the experimental and control groups**

**Table 5:** Shows the mean, standard deviation, calculated T value and confidence level between the experimental and control research groups in the variables studied.

Statistical Calculations Variables	Experimental group		Control group		Calculated (t)	Sig. level	Sig. type
	M.	St.d	M.	St.d			
Preparation accuracy from overhead to forward	17,64	4,35	15,65	4,28	3,018	0,012	Sig.

Tabular (T) value = (2.04) at significance level (0.05) and degree of freedom 34 And significant at the significance level (0.05) if the error is  $\leq$  or = (0.05)

Following the post-test, a statistical analysis was conducted to compare the performance of both groups. The results showed: Experimental Group: The average score on the post-test was 17.64 with a standard deviation of 4.35. Control Group: The average score on the post-test was 15.65 with a standard deviation of 4.28. A t-test was performed to assess the significance of the difference between these means. The calculated t-value was 3.018, with a confidence level of 0.012. Considering a significance level of 0.05 and 38 degrees of freedom (likely referring to the total sample size minus two), the results indicate statistically significant differences between the experimental and control groups. This difference favors the experimental group, suggesting that the flipped learning strategy may have led to a greater improvement in performance compared to the traditional teaching method.

### Results Discussion of post-test

The analysis of post-test results revealed statistically significant differences between the experimental and control groups, favoring the experimental group. The researcher suggests that this improvement can be attributed to the flipped learning strategy employed in the experiment. Here's how flipped learning might have contributed to these results: Information Delivery: The flipped classroom approach allowed for the delivery of a larger volume of information outside of class time, potentially leading to a deeper understanding of the skill. Modern Technology: The use of information technology, such as video clips and animations, aligns with modern learning styles and caters to individual learner capabilities. This is a significant advantage over traditional methods that rely solely on in-class instruction. Exclamation multisensory Learning: Flipped learning can potentially engage multiple senses (Visual, auditory, kinesthetic) during the learning process. Research suggests that relying solely on one learning style can limit educational effectiveness expand more By activating multiple senses, flipped learning may enhance information retention, aligning with the principle of "total immersion" in learning. Overall, the results suggest that the flipped learning strategy, with its emphasis on technology-driven information delivery and multisensory engagement, may be a valuable tool for enhancing student learning outcomes.

### Conclusions and Recommendations

#### Conclusions

After presenting, analyzing and discussing the results, the researcher reached the following conclusions:

- 1. Positive Impact of Flipped Learning:** The study demonstrated that the flipped learning strategy has a beneficial effect on teaching the overhead serve skill.
- 2. Improved Learning Outcomes:** Both the experimental and control groups showed improvement in learning the overhead serve. However, the experimental group, which utilized the flipped learning approach, exhibited a significantly greater improvement compared to the control group.
- 3. Contribution of Traditional Teaching:** The results also suggest that the professor's unique teaching style contributed to some degree to skill acquisition in the

control group. However, this effect was less pronounced compared to the flipped learning strategy employed in the experimental group.

#### Recommendations

According to the conclusions obtained, the researcher recommends the following:

Here's a rephrased version of your recommendations based on the study findings:

- 1. Expanding Flipped Learning:** The flipped learning strategy's effectiveness in teaching the overhead serve suggests its potential application for other volleyball skills and even beyond volleyball to other sports entirely. Implementing flipped learning across various athletic disciplines could lead to an overall improvement in student athletic performance.
- 2. Promoting Flipped Learning:** To encourage wider adoption of flipped learning, consider conducting workshops for educators within the education sector. These workshops could demystify the flipped learning concept and provide practical guidance for its implementation. Additionally, replicating this study with different student age groups and across other academic subjects could generate valuable data supporting the broader application of flipped learning.
- 3. Leveraging Technology in Education:** This study highlights the importance of information technology in education. By incorporating various forms of educational technology tailored to learners' individual needs and skill levels, educators can enhance knowledge delivery and cater to diverse learning styles.
- 4. Replication with Different Games:** To explore the generalize ability of these findings, consider conducting similar studies focusing on other sports with different skill sets and targeting various age groups. This broader research could provide valuable insights into the effectiveness of flipped learning across different athletic contexts.

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