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## The Effects of Learning Strategies on Senior High School Students' Motivation and Learning Outcomes of Overhead Passing in Volleyball

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## The Effects of Learning Strategies on Senior High School Students' Motivation and Learning Outcomes of Overhead Passing in Volleyball

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### Abstract

This research objective was to determine the effects of Learning Strategies on Motivation and Learning Outcomes of Overhead *Passing* in Volleyball. The research sample consisted of 40 eleventh-grade senior high school students using a *treatment by level 2x2* research design with the Tukey's test at  $Q_h$  level = 28.99 and  $Q_t$  level = 3.79. The results significantly affected overhead *passing* learning outcomes in volleyball games between *contextual teaching-learning* (CTL) and *expository* learning strategies. The research results obtained  $F_h > F_t$ , namely  $47.80 > 4.06$ . Therefore, the overall conclusion reported an interaction between learning strategies and motivation on learning overhead passing in volleyball games. The *Tukey's* test in groups  $A_1B_1$  and  $A_2B_1$  resulted in  $Q_h = 17.42$  and  $Q_t = 2.95$ . Based on these results, it can be concluded that the results of learning overhead passing in volleyball games on highly motivated students who were taught using the *contextual teaching-learning* strategy (CTL) were better than those taught using *expository* learning strategy. The  $Q_h = 2.16$  and the  $Q_t = 2.95$ , meaning that the results of learning overhead passing in volleyball games of low motivated students who were taught using the contextual teaching-learning strategy (CTL) were not better than those taught using the expository learning strategies.

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### Introduction

Education is a conscious and planned effort to create a learning atmosphere and learning process for students to actively develop their potential to have religious-spiritual strength, self-control, personality, intelligence, noble character, and skills needed by themselves and society. Physical Education, Sports, and Health are some subjects carried out at the elementary, secondary, and even higher education levels (Dewi & Verawati, 2021). In addition to being healthy for the body, sports can also train togetherness, make individuals happier or happier, and foster cohesiveness in a team (Verawati, Dewi, & Ritonga, 2021). Education aims to achieve a standard of living or for better progress.

The primary purpose of education is to help students develop every potential that exists in themselves to become human beings balanced between their personal and social lives (Herawati, Abduloh, & Resita, 2021). In simple terms, education is a learning process for students to understand, comprehend, and make humans more critical in thinking. Education is a culture embodiment of human who always wants to learn and is full of curiosity about science (Haryanto, Gani, Ramadan, Samin, Fataha, & Kadir, 2018). According to Jasmani, Ilmu, Jasmani, and Ilmu (n.d.), education is a life situation that affects individual growth as a learning experience in all environments and throughout life. Furthermore, Mustafa and Dwiyo (2020) state that the national education system explains that national education develops abilities and forms character to become a religious and pious human. Physical education in schools is used as a means of education and used as a means of students' talent development in sports. Physical education, health, and sports in schools are needed to improve children's physical fitness and contribute to inculcating their life skills and provide meaningful movement variations for students (Jasmani *et al.*, n.d.).

Haryanto *et al.* (2018) state that physical education is part of comprehensive education that prioritizes physical activity and fosters a healthy life for harmonious physical, mental, social, and emotional growth and development. Additionally, Physical, Sports, Physical, Sports & Physical (2016a) is an integral part of general education. The role of education can be pursued to develop individual personalities through physical education programs (Physical, Sports, Physical, Sports, & Physical, 2016b). Physical education forms knowledge, attitudes, and movement patterns (Penelitian & Sinuraya, 2018).

Moreover, Kanca (2017) states that physical education has a unique (typical) learning character than general learning. This uniqueness can be seen from the particular expertise of someone in doing it. Physical education has always been a favorite subject for students. Physical education is closely related to movement activities (Eriko & Febriyanti, 2014). The purpose of physical education, sports, and health is a physical achievement and involves psychological activity. However, there are many difficulties faced to achieve the goals that have been set. One of the difficulties that are often encountered in the learning process is the low learning outcomes of students in mastering basic sports techniques, particularly the basic technique of overhead *passing*. The factor that causes students to lack knowledge about the basic technique of overhead *passing* is the approach and learning strategy used by the teachers. The teachers tend to teach conventionally with the characteristics of teacher-centered learning so far. Therefore, a practical approach strategy is required in the implementation of learning. Of course, in doing physical learning, the teacher must have a good learning strategy. Strategy is part of a plan that has been prepared in a measurable manner that will be achieved authentically within a certain period. Learning strategies have a crucial role in determining student learning outcomes in various lessons. The learning strategy becomes a point with the strategy of each individual will have the motivation to continuously learn and improve the quality of his life (Jasmani *et al.*, 2016a).

Physical education teachers can develop strategies in developing students' motivation, and learning outcomes for sports are contextual teaching and learning and expository learning. *Contextual teaching and learning* (CTL) link physical education material with students' real-world situations. Hence, it can encourage students to connect their knowledge and its application in their lives as family and community members. *Contextual teaching and*

*learning* (CTL) is a comprehensive system consisting of interconnected parts. If these parts are intertwined, it will produce an effect that exceeds the results given separately. Each of these different parts of the CTL contributes to helping students understand school assignments (Jasmani *et al.*, n.d.).

Furthermore, the *contextual teaching and learning* (CTL) approach is a learning concept that helps a teacher relate the material being taught to the situation students' real world and encourage students to make connections between their knowledge and its application in their lives as members of their families and communities (Jasmani *et al.*, n.d.). The *contextual teaching and learning* (CTL) approach can improve student learning outcomes because the contextual approach is a learning concept that helps teachers relate the material they teach to students' real-world situations (Jasmani & Keolahragaan, 2003). Some theories underlie *contextual teaching and learning* strategy such as (1) *Knowledge-Based Constructivism*-this theory assumes that learning is not memorizing, but experiencing, where students can construct their knowledge through innovative active participation in the learning process; (2) *Effort-Based learning/Incremental Theory of Intelligence*-this theory assumes that working hard to achieve learning goals will encourage students to commit to learning; (3) *Socialization Theory*-this theory assumes that learning is a social process that determines the learning objectives. Therefore, social and cultural factors are parts of the learning system; (4) *Situated Learning Theory*-this theory assumes that knowledge and learning must be situational, both in a physical context and in a social context, to achieve learning objectives; (5) *Distributed Learning Theory*-this theory assumes that humans are integral parts of the learning process, in which there must be a process of various knowledge and various tasks (KHOFI, 2019). Therefore, it can be concluded that the *Contextual teaching and learning* (CTL) strategy is a learning activity strategy that links learning material with students' real-world situations.

Expository Learning Model is a learning model that emphasizes the process of delivering material or learning materials verbally (oral and written) from a teacher to a group of students with the intention that students can master the material optimally (Putro, Rinawati, & Muh, 2013). Rahayu (2014) defines expository learning as the same as direct instruction because the teacher directly delivers the subject matter. The expository learning model is the most effective and efficient way of teaching in instilling meaningful learning. Thus, it can be understood that expository learning is a learning model that directly leads to the delivery of lesson content. Students can master it to achieve maximum learning goals, and the teachers can find the most effective and efficient way of teaching in instilling meaningful learning. Expository Learning Strategy is a learning strategy that emphasizes the process of delivering material verbally (can be done through discussions and lectures) to a group of students; hence, the students can think more critically to master the materials (Halik, 2016). In expository learning, the teacher is the primary source of information, but other sources of data and information can also be used. The most frequently used sources of information are textbooks. Other sources such as pictures, filmstrips, encyclopedias, and libraries are often used in expository learning strategies.

Expository learning strategies are often associated with a lack of practice in learning, using non-monotonous rigidity, emphasis on learning data based on facts and memorization, using the lecture method, and others. Learner-based learning is generally proposed as the antithesis of expository learning strategies in which the learners become the recipients of knowledge. Expository learning strategies are more suitable for transferring

knowledge (Maulana Ismail Sardi). Learning strategies can be accompanied by motivation to make students interested in learning (Penelitian & Sinuraya, 2018).

Motivation affects the level of success or failure of learning. In general, learning without motivation will be difficult to succeed (Perwita & Indrawati, 2020). Heijnen et al. (2013) say that motivation is a desire contained in an individual that stimulates him to take actions or something that is the basis or reason someone behaves. It is in line with Rosita (2014), who states that motivation is abstract psychological energy that reflects the strength of the interaction between cognition, experience, and needs. Haqiyah, Muhamad, Bujang, Mylsidayu, and Mamesah (2020) say motivation is a force that drives a person to act or not react to determine the direction of activity towards achieving goals. Based on some of the explanations given by the experts above, it can be concluded that motivation is an abstract primary mover of each individual, both human and animal. The individual activities are based on the drive to achieve the ultimate goal that has been set or previously planned. In other words, individual activities are driven by the goals or results they want to achieve. Learning motivation has a vital role in providing stimulation, enthusiasm, and pleasure in learning so that those who have the motivation to carry out the learning process. A strong learning motivation makes students study diligently, which ultimately manifests in the students' learning outcomes. Therefore, learning motivation should be applied to students to happily follow the subject matter taught by the teacher at school. Motivation affects students in learning. Without motivation, inevitably, students will not be passionate about learning. With motivation, students will be easier to catch, learn, and comprehend well what the teacher has taught, significantly improving the learning outcomes of overhead passing in volleyball.

Learning outcomes occur from the learning process that develops from the three aspects: cognitive, affective, and psychomotor aspects. Changes in the learning process can be changes in knowledge, behavior, attitudes, and skills. This change leads to a positive thing: students' enthusiasm for learning. The spirit of learning in students can be raised by providing motivation. Giving motivation will make students enthusiastic in carrying out the learning process to obtain good learning outcomes. Blume et al. (2014) explain a relationship between motivation and learning outcomes. The existence of motivation makes learning outcomes increase. Other research related to learning strategies and the relationship of motivation to learning outcomes was also carried out by Ulfah (2016). Belajar, Atas, Voli, Siswa, and Xi (2021) reported a relationship between learning strategies and student learning outcomes.

### **Teachers' Roles in Physical Education Learning**

The volleyball game is an educational sport, recreation, and achievement sport. The volleyball game is taught through physical education, sports, and health (Destriana, Muslimin, & Destriani, 2021). Teachers as educators are the main components in supporting the progress of education. Therefore, teachers must have competencies, namely: pedagogic, professional, personality, and social competencies (Akhmad, 2016). Pedagogic competence is the ability to understand students, design and implement learning, evaluate learning outcomes, and develop students to actualize their various potentials.

Indicators in Pedagogic competence include 1) Understanding students in-depth, including understanding students by utilizing the principles of cognitive development, personality principles, and identifying students' initial teaching provisions. 2) Designing learning, including understanding the educational foundation for the benefit of learning, which includes understanding the foundation of education, applying learning and learning theory, determining learning strategies based on the students' characteristics, competencies to be achieved, and teaching materials, as well as preparing learning designs based on the chosen strategy. 3) Implementing learning includes arranging learning *settings* and carrying out conducive learning. 4) Designing and implementing learning evaluations, including designing and carrying out evaluations (*assessment*) of learning processes and outcomes on an ongoing basis with various methods, analyzing the results of evaluating processes and learning outcomes to determine the mastery level of learning, and utilizing the results of learning assessments to improve program quality and learning in general. 5) Developing students to actualize their various potentials, including facilitating them to develop various academic potentials and to develop various non-academic potentials.

Professional competence is the mastery of learning material broadly and deeply, which includes mastery of curriculum material in school subjects and the scientific substance that overshadows the material, as well as mastery of the structure and scientific methodology, namely: 1) Mastering the material, structure, concept, and scientific mindset that supports the lessons learned. 2) Mastering competency standards and essential competencies of subjects/fields of development that are capable. 3) Developing learning materials that are taught creatively. 4) Sustainably developing professionalism by taking reflective actions. 5) Taking advantage of Physical Education to develop yourself. One indicator of pedagogical competence is the teacher's ability to implement learning strategies.

However, based on the results of observations and interviews conducted on teachers and the physical education learning process, it was found that 1) physical education teachers still teach using conventional learning strategies; 2) The motivation of students to learn is still low; 3) the learning process is not active; 4) in general, the student's learning outcomes are still low; 5) physical education teachers do not use learning that can improve student learning outcomes.

## **Method**

The research method was experimental with a 2 x 2 factorial design. The number of samples was 40 students. All samples were divided into four treatment groups so that each group consisted of ten students. The research design to facilitate the control of each treatment group was given in Table 1.

This research design used a by-level research design with three research variables, namely one dependent variable and two independent variables. The dependent variable was the result of learning overhead passing in volleyball. Moreover, two independent variables included learning strategies and student motivation. The samples were grouped into two groups or classes: (A<sub>1</sub>) the first or first class was used as a class or group that received CTL method learning; meanwhile, (B<sub>2</sub>) the second group or class received expository learning. The

learning process in both classes began with a pretest, and then the two classes got different treatments. Furthermore, this research was ended with a posttest given to both classes.

Table 1. The 2 x 2 Factorial Design of ANOVA

<b>Learning Strategy (A)</b>	<b>CTL (A<sub>1</sub>)</b>	<b>Expository (A<sub>2</sub>)</b>
<b>Motivation (B)</b>		
High (B <sub>1</sub> )	A <sub>1</sub> B <sub>1</sub>	A <sub>2</sub> B <sub>1</sub>
Low (B <sub>1</sub> )	A <sub>1</sub> B <sub>2</sub>	A <sub>2</sub> B <sub>2</sub>
Total	A <sub>1</sub>	A <sub>2</sub>

The research procedure in this research consisted of four stages. Those four stages in this research can be seen in Table 2 as follows:

Table 2. Experimental Research Stages

<b>Stages</b>	<b>Procedure</b>
First Stage	This stage began with an introduction used to obtain problem identification, problem formulation, and the required literature to determine the research tools used.
Second Stage	This stage began with research tools consisting of (1) learning approaches, (2) learning tools such as lesson plans, and (3) research instruments. Then, experimental class I and experimental class II were selected as research subjects. Before being tested on research subjects, learning devices must be validated by competent experts.
Third Stage	This stage was used for the implementation and data analysis. In the third stage, the experimental class I used <i>Contextual Teaching and Learning Strategy</i> , and meanwhile, experimental class II used <i>expository learning</i> strategies. At the end of the research, students were given a motivational test and questionnaire to see students' motivation and learning outcomes.
Fourth Stage	In the data analysis stage, the data of students' learning motivation test after obtaining the treatment using two learning strategies were analyzed qualitatively and quantitatively. The process of solving student problems was analyzed qualitatively. In total, the following was a summary of the workflow in this research to provide a more detailed description of the research procedures of this research.

The data analysis used in this research consisted of two parts, namely descriptive analysis, and inferential analysis. The descriptive analysis presented data through the histogram frequency distribution table, average, and standard deviation. Meanwhile, inferential analysis was used to test statistical hypotheses.

Before testing the hypothesis, the data groups were tested for normality. Furthermore, the *Liliefors* analysis technique was used for the needs of this normality test. Meanwhile, the analysis of the homogeneity test used *Bartlett's* test analysis technique. Statistical hypothesis testing used the ANOVA (analysis of variance) technique, namely by comparing the numbers on the coefficient value  $F_{count}$  with  $F_{table}$  on each factor [learning strategy (A) and student ability (B)] and analyzing the interaction between these factors  $(A \times B)^2$ . If the test showed an interaction between  $A \times B$ , then the analysis would be continued by using *Tuckey's* test to know the level of significance of the interaction.

## Results

There were three variables in this research. The dependent variable was the result of overhead passing learning in volleyball; meanwhile, the independent variables were the *Contextual Teaching and Learning* (CTL) and *Expository learning* strategies. The moderator variable was learning motivation (high and low).

After following a series of learning processes that had been programmed by dividing into two groups, namely groups of students taught by using *Contextual Teaching and Learning* (CTL) strategy and groups of students taught by using expository strategy, the results of overhead learning in volleyball obtained in the form of scores used and analyzed based on the mean score of the three evaluators' assessment results. In each group, some students had high and low motivations, and the level of student motivation was measured by giving a test.

Table 3. Factorial ANOVA 2x2

Learning Strategy (A) \ Motivation (B)	Contextual Teaching and Learning (CTL) Strategy (A <sub>1</sub> )	Expository Strategy (A <sub>2</sub> )
High (B <sub>1</sub> )	$\sum x = 781$ $\sum x^2 = 61713$ $\bar{x} = 77.50$ $SD = 8.68$ $N = 10$	$\sum x = 403$ $\sum x^2 = 16935$ $\bar{x} = 40.30$ $SD = 8.78$ $n = 10$
Low (B <sub>1</sub> )	$\sum x = 633$ $\sum x^2 = 41003$ $\bar{x} = 63.30$ $SD = 10.18$ $n = 10$	$\sum x = 680$ $\sum x^2 = 47296$ $\bar{x} = 68.00$ $SD = 10.83$ $N = 10$
Total	$\sum x = 1414$ $\sum x^2 = 102716$ $\bar{x} = 70.7$ $SD = 12.022$ $n = 20$	$\sum x = 1083$ $\sum x^2 = 64231$ $\bar{x} = 54.15$ $SD = 17.147$ $N = 20$



**Frequency Distribution of Overhead Passing Learning Outcomes in the Group of Students Taught by Using *Contextual Teaching and Learning* (CTL) Strategy (A<sub>1</sub>B<sub>1</sub>B<sub>2</sub>)**

Based on the overhead passing learning results in the group of students who were taught *Contextual Teaching and Learning* (CTL), the range was obtained from 49 to 89. The average was 70.7, the SD was 12.02, and the frequency distribution was shown in Table 4 as follows:

Table 4. Frequency Distribution of Overhead Passing Learning Outcomes in Group of Students Taught by Using *Contextual Teaching and Learning* (CTL) Strategy (A<sub>1</sub> B<sub>1</sub> B<sub>2</sub>)

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	49-56	4	20%
2	57-64	1	5%
3	65-72	6	30%
4	73-80	4	20%
5	81-89	5	25%
	Total	20	100%

Based on Table 4, it can be explained that students who got learning outcomes below the mean score were 11 students (35%). The mean score of students with learning outcomes was four students (20%), and those above the mean score were five students (25%).

**Frequency Distribution of Overhead Passing Learning Outcomes in the Group of Students Taught by Using Expository Strategy (A<sub>2</sub> B<sub>1</sub> B<sub>2</sub>)**

Based on the data on the results of overhead passing learning in the group of students taught by using the expository strategy (A<sub>2</sub>B<sub>1</sub>B<sub>2</sub>) without differentiating the level of student motivation, it was known the score range was 29 to 88 with a mean score of 54.15 and a standard deviation of 17.15 The frequency distribution can be seen in Table 5. Based on Table 5, it can be seen that students who got learning outcomes below the mean score were eight students (40%). Students who got learning outcomes as mean score were six students (30%), and students who got learning outcomes above the mean score were six students (30%).

Table 5. Frequency Distribution of Overhead Passing Learning Outcomes in Group of Students Taught by Using Expository Strategy (A<sub>2</sub> B<sub>1</sub> B<sub>2</sub>)

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	29-39	5	25%
2	40-50	3	15%
3	51-61	6	30%
4	62-72	3	15%
5	73-88	3	15%
	Total	20	100%

**Frequency Distribution of Overhead Passing Learning Outcomes in Group of Students with High Motivation ( $A_1A_2B_1$ )**

Based on the data of the overhead passing learning outcomes of a group of students who had the high motivation ( $A_1A_2B_1$ ) by not discriminating against the feedback given, it was known that the overall score ranged from 29 to 89, with a mean score of 59.20 and a standard deviation of 21.22. The frequency distribution can be seen in Table 6. Based on Table 6, it is known that students who got learning outcomes below the mean score were nine students (45%). Students who got learning outcomes as the mean score was one student (5%) and students who got learning outcomes above the mean score were ten students (50%).

Table 6. Frequency Distribution of Overhead Passing Learning Outcomes in Group of Students with High Motivation ( $A_1A_2B_1$ )

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	29-40	5	25%
2	41-52	4	20%
3	53-64	1	5%
4	65-76	4	20%
5	77-89	6	30%
	Total	20	100%

**Frequency Distribution of Overhead Passing Learning Outcomes in Group of Students with Low Motivation ( $A_1A_2B_2$ )**

The data on the results of overhead passing to the group of students with low motivation ( $A_1A_2B_2$ ) by not distinguishing the overall feedback given showed that the score range was 49 to 88, the mean score was 65.55 and the standard deviation (SD) was 10.63. The frequency distribution can be seen in Table 7. Based on Table 7, it can be seen that students who got learning outcomes below the mean score were ten students (50%). Students who got learning outcomes as the mean score were five students (25%), and students who got learning outcomes above the mean score were five students (25%).

Table 7. Frequency Distribution of Overhead Passing Learning Outcomes in Group of Students with Low Motivation ( $A_1A_2B_2$ )

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	49-56	5	25%
2	57-64	5	25%
3	65-72	5	25%
4	73-80	3	15%
5	81-88	2	10%
	Total	20	100%

**Frequency Distribution of Overhead Passing Learning Outcomes in the Group of Students Taught by Using *Contextual Teaching and Learning* (CTL) Strategy with High Motivation (A<sub>1</sub>B<sub>1</sub>)**

Based on the data on the results of overhead passing, the group of students with high motivation who were taught with *Contextual Teaching and Learning* (A<sub>1</sub>B<sub>1</sub>) strategy, it was known that the score range was 65 to 89, the mean score was 78.10, and the standard deviation was 8.92. The frequency distribution can be seen in Table 8 below:

Table 8. Frequency Distribution of Overhead Passing Learning Outcomes in Group of Students Taught by Using *Contextual Teaching and Learning* (CTL) Strategy with High Motivation (A<sub>1</sub>B<sub>1</sub>)

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	65-71	3	30%
2	72-77	1	10%
3	78-83	1	10%
4	84-89	5	50%
	Total	10	100%

Based on Table 8, it can be seen that students who got learning outcomes below the mean score were three students (30%). Students with learning outcomes as the mean score were two students (20%), and those above the mean score were five students (50%).

**Frequency Distribution of Overhead Passing Learning Outcomes in Groups of Students Taught by Using *Contextual Teaching and Learning* (CTL) Strategies with Low Motivation (A<sub>1</sub>B<sub>2</sub>)**

The data on the results of overhead passing to a group of students with low motivation taught by using *Contextual Teaching and Learning* strategies (A<sub>1</sub>B<sub>2</sub>) showed that the score range was 49 to 77, the mean score was 63.30, and a standard deviation was 10.19. The frequency distribution can be seen in Table 9 below:

Table 9. Frequency Distribution of Overhead Passing Learning Outcomes in Groups of Students Taught by Using *Contextual Teaching and Learning* (CTL) Strategy with Low Motivation (A<sub>1</sub>B<sub>2</sub>)

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	49 - 53	2	20%
2	54 - 63	3	30%
3	64 - 70	2	20%
4	71 - 77	3	30%
	Total	10	100%

Based on Table 9, it was known that students who got learning outcomes below the mean score were five students (5%), then students who got learning outcomes as the mean scores were two students (2%), and students who got learning outcomes above the mean scores were three students (30%).

**Frequency Distribution of Overhead Passing Learning Outcomes in Group of Students Taught by Using Expository Strategy with High Motivation (A<sub>2</sub>B<sub>1</sub>)**

The data on the results of overhead *passing* to the group of students who were taught by using the expository strategy with high motivation (A<sub>2</sub>B<sub>1</sub>) showed that the score range was 29 to 53, the mean score was 40.30, and a standard deviation was 8.78. The frequency distribution can be seen in Table 10.

Table 10. Frequency Distribution of Overhead Passing Learning Outcomes in Group of Students Taught by Using Expository Strategy with High Motivation (A<sub>2</sub>B<sub>1</sub>)

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	29-35	5	50%
2	36-41	0	0%
3	42-47	2	20%
4	48-53	3	30%
	Total	10	100%

Based on Table 10, it can be seen that students who got learning outcomes below the mean score were five students (50%). Students who got learning outcomes as the mean score were two students (2%), and students who got learning outcomes above the mean score were three students (30%).

**Frequency Distribution of Overhead Passing Learning Outcomes in the Group of Students Taught by Using Expository Strategy with Low Motivation (A<sub>2</sub>B<sub>2</sub>)**

Based on the data on the results of overhead passing, the group of students taught with an expository strategy with low motivation (A<sub>2</sub>B<sub>2</sub>), it was known that the score range was 56 to 88, the mean score was 68.00, and a standard deviation was 10.83. The frequency distribution can be seen in Table 11:

Table 11. Frequency Distribution of Overhead Passing Learning Outcomes in Groups of Students Taught by Using Expository Strategy with Low Motivation (A<sub>2</sub>B<sub>2</sub>)

No	Interval Class	Absolute Frequency	Relative Frequency (%)
1	56-64	5	50%
2	65-72	2	20%
3	73-80	1	10%
4	81-88	2	20%
	Total	10	100%

Based on Table 11, it can be seen that students who got learning outcomes below the mean score were five students (50%). Students who got learning outcomes as the mean score was one student (10%) and students who got learning outcomes above the mean score were four students (40%).

### Testing Requirements Analysis

Before the analysis of variance (ANOVA), the requirements analysis tests were conducted, namely (1) the normality test and (2) the population homogeneity test.

#### *Normality Test*

The normality analysis test used the *Lilliefors* analysis technique, a non-parametric requirements analysis technique. Based on random sampling, a null hypothesis was tested. The null hypothesis mentioned that the sample came from a normally distributed population, and meanwhile, the counter hypothesis stated that the population was not normally distributed. Based on those hypotheses, the results of the normality analysis for the group can be explained in Table 12 as follows:

Table 12. Summary of Sample Normality Test Results

Group	N	$L_0$	Lt	Conclusion
A <sub>1</sub> B <sub>1</sub>	10	0.129	0.258	NORMAL
A <sub>1</sub> B <sub>2</sub>	10	0.192	0.258	NORMAL
A <sub>2</sub> B <sub>1</sub>	10	0.227	0.258	NORMAL
A <sub>2</sub> B <sub>2</sub>	10	0.210	0.258	NORMAL
A <sub>1</sub> B <sub>1</sub> B <sub>2</sub>	20	0.097	0.190	NORMAL
A <sub>2</sub> B <sub>1</sub> B <sub>2</sub>	20	0.118	0.190	NORMAL
A <sub>1</sub> A <sub>2</sub> B <sub>1</sub>	20	0.123	0.190	NORMAL
A <sub>1</sub> A <sub>2</sub> B <sub>2</sub>	20	0.154	0.190	NORMAL

Based on Table 12, it was obtained that  $L_0$  for the entire sample group was smaller than  $L_t$ . Therefore, it can be concluded that the sample came from a normally distributed population. Hence, this result implied that parametric statistics analysis could be used to test the hypotheses proposed in this research so that the first requirement for testing had been fulfilled.

#### *Homogeneity Test*

The homogeneity of variance test for each group of data on the research results of overhead passing of each treatment using the Barlett's test at a significant level of  $\alpha = 0.05$  (see Table 13). Based on the homogeneity test analysis results, it can be concluded that the sample group came from a population that had a homogeneous variance.

Table 13. Summary of Homogeneity Results for Four Groups

Group	N	$X^2_b$	$X^2_t$	Conclusion
A <sub>1</sub> B <sub>1</sub>	10	0.57	18.31	Homogeneous
A <sub>1</sub> B <sub>2</sub>	10			

Group	N	$X^2_b$	$X^2_t$	Conclusion
A <sub>2</sub> B <sub>1</sub>	10			
A <sub>2</sub> B <sub>2</sub>	10			
A <sub>1</sub> A <sub>2</sub> B <sub>1</sub>	20			
A <sub>2</sub> B <sub>1</sub> B <sub>2</sub>	20	10.96	31.41	Homogeneous
A <sub>1</sub> A <sub>2</sub> B <sub>1</sub>	20			
A <sub>1</sub> A <sub>2</sub> B <sub>2</sub>	20			

The research hypotheses were conducted using the two-way technical analysis of variance (ANOVA). Then, the answer to the test was explained as follows:

**There were differences in the learning outcomes of overhead passing in volleyball games between the Contextual Teaching and Learning (CTL) and the Expository Strategies.**

Based on the results of the analysis of variance in the appendix, at the level of  $\alpha = 0.05$ ,  $F_h > F_1$  was obtained, namely  $28.99 > 4.08$ . Therefore, it can be concluded that there were differences in the results of overhead passing learning in volleyball games between *Contextual Teaching and Learning* (CTL) and expository strategies. Then, the research proceeded with Tukey's test in groups A<sub>1</sub> and A<sub>2</sub>, where  $Q_h = 10.76$  and  $Q_t = 3.79$ . Based on these results, it can be concluded that there were learning outcomes of overhead passing in volleyball games between *Contextual Teaching and Learning* (CTL) and expository strategies.

**Learning Outcome of Overhead Passing in Volleyball Games on Students with High Motivation Taught Using Contextual Teaching and Learning (CTL) Strategy was better than Expository Strategy.**

Then, the researchers continued with the Tukey's test in groups A<sub>1</sub>B<sub>1</sub> and A<sub>2</sub>B<sub>1</sub> with  $Q_h = 17.39$  and  $Q_t = 2.95$ . Based on these results, it can be concluded that the results of overhead passing learning in volleyball games were students' high motor skills after being taught using *Contextual Teaching and Learning* (CTL) strategy was better than those taught using expository strategy.

**Learning Outcome of Overhead Passing in Volleyball Game on Students with Low Motivation Taught Using Contextual Teaching and Learning (CTL) Strategy was not better than Expository Strategy.**

Furthermore, the researchers carried out Tukey's test in groups A<sub>1</sub>B<sub>1</sub> and A<sub>2</sub>B<sub>1</sub> with  $Q_h = 1.80$  and  $Q_t = 2.95$ . Based on these results, it can be concluded that the learning outcomes of overhead passing in the volleyball game on students with low motor skills taught using the *Contextual Teaching and Learning* (CTL) strategy was not better than the expository strategy.

Based on the results of the analysis of variance, at a level of  $\alpha = 0.05$ ,  $F_h > F_1$  is obtained, namely  $47.80 > 4.08$ . Therefore, the overall conclusion can be drawn on overhead passing learning in the volleyball game: *There was an interaction between learning strategies and student motivation of overhead passing in a volleyball game.*

## **Discussion**

### **Differences in Learning Outcomes of Overhead Passing in Volleyball between Students Taught using *Contextual Teaching and Learning* (CTL) and Expository Strategies**

Based on the research results, there were differences between *Contextual Teaching and Learning* (CTL) and expository learning strategies. It meant that the CTL strategy was better in achieving the learning objectives of passing when compared to using the expository learning strategy. Cahyani and Mustadi (2021) define the CTL strategy as a learning concept that helps teachers relate the material they teach to students' real-world situations and encourage their students to make connections between their knowledge and its application in their daily lives. It is indirectly a principle that states that everything is regulated, maintained, and realized by oneself. In CTL learning, this principle invites students to unleash their potential.

In the work by Subiantoro and Hidayat, (2013), there was a significant difference in the CTL learning strategy towards overhead passing in volleyball passing. In mastery of overhead passing, the benefits of volleyball were enormous. Belajar et al. (2021) state, "passing is a volleyball game technique carried out in a certain way whose goal is to pass the ball played by the team." It is apparent in the theory that overhead passing is one of the techniques often used as bait (set-up) to present the ball in doing a smash. Therefore, teammates can play or attack well against their opponents. The overhead passing technique must be done correctly and adequately. A good and precise top passing will make it easier for the team to play the ball or carry out attacks to gain higher scores. In addition, a teacher's learning strategy will also affect the level of achievement of student learning outcomes. Cahyani and Mustadi (2021) mention that a learning strategy is a comprehensive learning strategy for learning in a learning system, in general guidelines and a framework of activities to achieve general learning objectives, described and philosophical views or specific learning theories. Based on the opinion above, learning strategies can also determine the teachers' success in teaching students about volleyball material, especially overhead passing.

### **Differences in Learning Outcomes of Overhead Passing on Volleyball between Students with High Motivation Taught using *Contextual Teaching and Learning* (CTL) and expository learning strategies.**

The research results showed significant differences between students with high motivation taught using *Contextual Teaching and Learning* (CTL) and expository learning strategies on overhead passing learning outcomes. Based on these findings, it can be concluded that the students' passing learning outcomes had high motivation influenced by the variation of the two learning strategies. Subiantoro and Hidayat (2013) define that contextual teaching and learning strategy is a learning concept that helps teachers relate the material they teach to students' real-world situations and encourages students to connect their knowledge and its application in their daily lives. The teacher's task is to provide students with various facilities and adequate learning resources in the contextual learning strategy. The teacher conveys the subject matter in the form of rote learning and regulates the learning environment and strategies that allow students to learn. Olahraga and Adeherawatigmailcom (2020) state that a conducive learning environment is vital and supportive for contextual teaching and learning and overall learning success.

An expository learning strategy, according to Halik (2016), is a learning strategy that emphasizes the process of delivering material verbally and a teacher to a group of students with the intention that students can master the subject matter optimally. Expository learning strategies are often associated with a lack of practice in learning, using open monotony, rigidity, emphasis on learning based on facts and memorization, the lecture method, and others. Learner-based learning is generally proposed as the antithesis of expository learning strategies in which the learners become the recipients of knowledge. Expository learning strategies are more suitable for transferring knowledge. Teachers and learning resources have a significant role in transferring information, skills, values, and learning resources to students.

In learning overhead passing, motivation is an element of top passing success. Ling and Ho (2020) claim that motivation changes a person's energy marked by the emergence of "feeling" and is preceded by a response to the existence of a goal. Motivation is a determining factor and serves to cause a condition that underlies and directs the act of learning. It can determine whether or not it is good in achieving goals. The greater the motivation, the greater the success. It can make students look persistent, not give up, and study hard to improve learning achievement. The motivation that arises within the student is intrinsic; meanwhile, the motivation that arises outside of a student is extrinsic. Students with high motivation are suitable to be taught with the *Contextual Teaching and Learning* (CTL) strategy, which prioritizes the characteristics of high school students who want always to be independent. Thus, it can be concluded that the learning outcomes of overhead passing with high motor skills taught using *Contextual Teaching and Learning* (CTL) strategy was better than those taught expository learning strategy.

### **Differences in the Learning Outcomes of Overhead Passing in Volleyball for Students with Low Motivation Taught Using *Contextual Teaching and Learning* (CTL) and Expository Learning Strategies**

The research results showed significant differences between students with low motivation taught using *Contextual Teaching and Learning* (CTL) and expository learning strategies on overhead passing learning outcomes. Based on these results, it can be concluded that the learning outcomes of overhead passing in a volleyball game for students with low motivation skills taught using the *Contextual Teaching and Learning* (CTL) strategy were not better than those taught using expository learning strategy. Belajar et al. (2021) said differences between high and low motivational skills on physical education learning outcomes, and there was an interaction between learning strategies and learning motivation abilities on physical education learning outcomes. Ariani (2017) states that expository learning emphasizes that a teacher delivers material verbally to students to master the subject matter optimally. When carrying out the overhead passing movement, it is vital to deliver material verbally to master the material. If students do not master the material optimally, it will be challenging to teach overhead passing to students, especially for high school students where increasing motivation has already complicated. Therefore, the learning strategy had a more significant effect than the *Contextual Teaching and Learning* (CTL) strategy when students had low motivational skills. Expository learning strategies have advantages, including teachers controlling the sequence and breadth of learning material and finding out to what extent students master the subject matter delivered. The students can hear, see, or observe through narratives about a subject.



### The Interaction between Learning Strategies and Motivation on Learning Outcomes of Overhead Passing in Volleyball

Meanwhile, the fourth hypothesis testing showed an interaction between learning strategies and motivation on students' passing learning outcomes. Therefore, the overall conclusion can be drawn that there was an interaction between learning strategies and motivation on the learning outcomes of overhead passing in volleyball. It means that students have good learning motivation in following basic volleyball skills training, which is in the good category (Astuti, 2019).

This *Contextual Teaching and Learning* (CTL) strategy leads to understanding the learning that connects the achievement of knowledge through a process that links that knowledge with actual situations or circumstances and previous experiences. Belajar et al. (2021) claim there was a difference between high and low motivational abilities on physical education learning outcomes. There was an interaction between learning strategies and learning motivational abilities on physical education learning outcomes. Ariani (2017) states that learning strategy is a comprehensive learning strategy for learning in a learning system, in general guidelines and a framework of activities to achieve general learning objectives, described and philosophical views or specific learning theories.

The learning strategy in this research was implemented in two ways, namely the *Contextual Teaching and Learning* (CTL) strategy and the expository learning strategy. Both of these learning strategies will be useful and successfully used to teach volleyball if supported by motivation because motivation is a determining factor and functions to cause. This condition underlies and directs learning actions. It can determine whether or not it is good in achieving goals. The motivation can push the students to look persistent, not give up, and study hard to improve learning achievement. Every student has the motivation to take advantage of students' motivation to succeed in learning volleyball. It is also necessary to have the right learning strategies: The CTL-learning strategies and expository ones. Thus, motivation is closely related to the potential that students can display. Hopefully, there will be an interaction between learning strategies and student motivation on volleyball learning outcomes (see Figure 1).

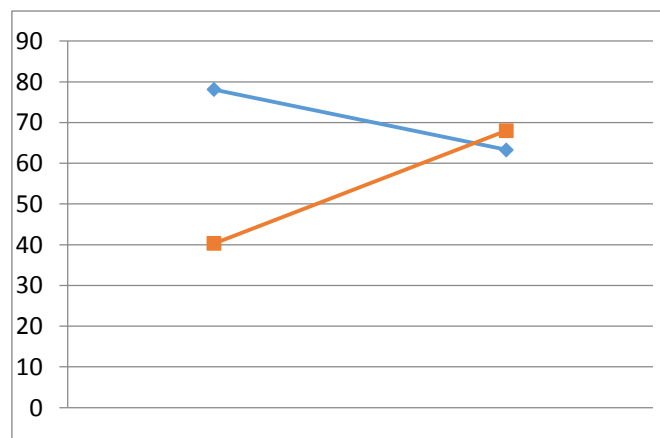


Figure 1. Interaction Diagram in the Research

## Conclusion

The conclusions that researchers can put forward in this research were suitable with the objectives and research problems and based on the results of data analysis using *Analysis of Variance* (ANOVA) and *Tuckey's Test*.

1. Overall, the *Contextual Teaching and Learning* (CTL) strategy was **better** than the expository learning strategy on overhead passing on volleyball learning outcomes.
2. There was an interaction between learning strategies and students' motivation on the learning outcomes of overhead-Passing on volleyball.
3. The *Contextual Teaching and Learning* (CTL) strategy was **better** than the expository learning strategy on the learning outcomes of overhead passing in volleyball on students with high motivation.
4. The expository learning strategy was not better than the *Contextual Teaching and Learning* (CTL) strategy on overhead passing in volleyball on students with low motivation.

Based on the research results, hopefully, further research can develop to add scientific sources that have many innovations in choosing learning strategies and student motivation for learning outcomes of basic overhead passing techniques. Therefore, teachers can apply learning strategies that become the way teachers teach under the objectives of learning physical education.

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## References

- Akhmad, I. (2016). Standar kompetensi mata pelajaran pjok. *Kemendikbud Direktorat Jenderal Guru Dan Tenaga Kependidikan*, 1–8.
- Ariani, T. (2017). Penerapan Strategi Pembelajaran Ekspositori. *Inpvasi Dan Pembelajaran Fisika*, 18–26.
- Astuti, Y. (2019). The Effect of Circuit Training Methods, Circuit Series and Learning Motivation on Students' Volleyball Basic Skill. *Journal of Education Research and Evaluation*, 2(3), 120.
- Belajar, H., Atas, P., Voli, B., Siswa, P., & Xi, K. (2021). = 28,99 dan Q, 07, 19–24.
- Blume, F., Göllner, R., Moeller, K., Dresler, T., Ehli, A. C., Gawrilow, C., ... Irawati, R. K. (2014). Relationship Between Learning Motivation to Learning Result Mathematics Students. *Jurnal Pendidikan Vokasi*.
- Cahyani, N., & Mustadi, A. (2021). Learning Motivation of Elementary School Children: Is it Possible to be Increased Using the Teams Games Tournament Model? *Al-Bidayah: Jurnal Pendidikan Dasar Islam*, 12(2), 183–198. <https://doi.org/10.14421/al-bidayah.v12i2.583>
- Destriana, D., Muslimin, M., & Destriani, D. (2021). The Development of Overhead Pass Learning Models in Volleyball. *Halaman Olahraga Nusantara (Jurnal Ilmu Keolahragaan)*, 4(2), 192.

- Dewi, R., & Verawati, I. (2021). The Effect of Manipulative Games to Improve Fundamental Motor Skills in Elementary School Students. *International Journal of Education in Mathematics, Science and Technology*, 10(1), 24–37. <https://doi.org/10.46328/ijemst.2163>
- Eriko, N., & Febriyanti, I. (2014). Perbandingan Tingkat Kebugaran Jasmani Antara Mahasiswa Pendidikan Olahraga Dengan Mahasiswa Pendidikan Kepelatihan Olahraga. *Jurnal Pendidikan Olahraga Dan Kesehatan*, 2(1).
- Halik, N. (2016). Contextual Teaching and Learning Method to Third Year Students of MTsN Balang-Balang Kabupaten Gowa. *ETERNAL (English, Teaching, Learning and Research Journal)*, 2(2), 147–166.
- Haqiyah, A., Muhamad, M., Bujang, B., Mylsidayu, A., & Mamesah, E. D. (2020, February). Body Mass Index and Physical Fitness Profile of Physical Education Students. In *4th International Conference on Sport Science, Health, and Physical Education (ICSSHPE 2019)* (pp. 384-388). Atlantis Press
- Haryanto, A. I., Gani, A. A., Ramadan, G., Samin, G., Fataha, I., & Kadir, S. S. (2021). (2018). JUARA : Jurnal Olahraga. *JUARA : Jurnal Olahraga*, 3(2), 181–192.
- Herawati, A., Abduloh, A., & Resita, C. (2021). Motivasi Belajar Siswa dalam Meningkatkan Pembelajaran Bola Voli Passing Bawah di Kelas VIII SMPN 1 Pondoksalam Purwakarta. *Jurnal Literasi Olahraga*, 2(1), 1–9. <https://doi.org/10.35706/jlo.v2i1.4456>
- Jasmani, D. S.-P., & Keolahragaan, F. I. (2003). Penerapan Pendekatan Contextual Teaching And Learning ( Ctl ) Terhadap Hasil Belajar Dribble Bola Basket (Studi Pada Siswa Kelas Viii Smp It Babussalam Probolinggo) Muhammad Subhan Sudarso Abstrak, 689–693.
- Jasmani, M. S.-P., Ilmu, F., Jasmani, D. S.-P., & Ilmu, F. (n.d.). Pendekatan Contextual Teaching And Learning Terhadap Hasil Belajar Dribble Bola Basket (Studi Pada Smak Santo Albertus Malang) Risto Gerol Foekh Abdul Rachman Syam Tuasikal, 181–184.
- Jasmani, S.-P., Keolahragaan, F. I., Jasmani, S.-P., Keolahragaan, F. I., & Jasmani, P. (2016a). Pengaruh Target Belajar Individu Terhadap Motivasi Dan Hasil Belajar Bola Basket (Studi pada Siswa Kelas XI SMA Negeri 1 Gedangan , Sidoarjo ) I Gusti Agung Adri Pranawa Anung Priambodo Abstrak, 49–58.
- Jasmani, S.-P., Keolahragaan, F. I., Jasmani, S.-P., Keolahragaan, F. I., & Jasmani, P. (2016b). Pengaruh Target Belajar Individu Terhadap Motivasi Dan Hasil Belajar Bola Basket (Studi pada Siswa Kelas XI SMA Negeri 1 Gedangan , Sidoarjo ) I Gusti Agung Adri Pranawa Anung Priambodo Abstrak.
- Kanca, F. (2017). Determination of a diffusion coefficient in a quasilinear parabolic equation. *Open Mathematics*, 15(1), 77-91.
- Khofi, M. I. (2019). Penerapan Model Pembelajaran Kooperatif Tipe Make A Match untuk Meningkatkan Keaktifan dan Hasil Belajar Siswa pada Mata Pelajaran PDO kelas X TKR 1 di SMK Negeri 3 Jombang. *Jurnal Pendidikan Teknik Mesin*, 8(2).
- Ling, G. H. T., & Ho, C. M. C. (2020). A new decade for social changes. *Technium Social Sciences Journal*, 7, 312–320. Retrieved from <https://techniumscience.com/index.php/socialsciences/article/view/332/124>
- Mustafa, P. S., & Dwiyoogo, W. D. (2020). Kurikulum Pendidikan Jasmani, Olahraga, dan Kesehatan di Indonesia Abad 21. *JARTIKA Jurnal Riset Teknologi Dan Inovasi Pendidikan*, 3(2), 422–438.
- Olahraga, J. L., & Adeherawatigmailcom, K. P. E. (2020). Pondoksalam purwakarta, 2(1), 1–9.
- Penelitian, L., & Sinuraya, J. F. (2018). Hubungan Motivasi Dan Hasil Belajar Pada Materi Passing Bawah Bola Voli Menggunakan Model Pembelajaran Kooperatif Tipe Stad. *Jurnal Penelitian Bidang Pendidikan*,

24(2), 74–79.


- Perwita, L. W., & Indrawati, T. (2020). Peningkatan Proses Pembelajaran Tematik Terpadu Menggunakan Model Cooperative Learning Tipe Talking Stick di SD. *e-Journal Pembelajaran Inovasi, Jurnal Ilmiah Pendidikan Dasar*, 8(5), 41-56.
- Putro, S. E., Rinawati, A., & Muh, U. (2013). Pengaruh Kinerja Guru Terhadap Motivasi Belajar Siswa. *Jurnal Cakrawala Pendidikan*, 5(2), 278–289.
- Rosita, I. (2014). Journal of Physical Education, Sport, Health and Receptions. *Journal of Physical Education, Sport, Health and Recreation*, 4(2), 102–108.
- Subiantoro, F., & Hidayat, T. (2013). Penerapan Model Pembelajaran Cooperative Learning (Jigsaw) Terhadap Hasil Belajar Service Bola Voli (Studi Pada Siswa Kelas VII SMPN 2 Tembelang Jombang). *Jurnal Pendidikan Olahraga Dan Kesehatan*, 1(2), 265–273.
- Ulfah, M. (2016). Penerapan model project based learning pada pokok bahasan optik geometri untuk meningkatkan prestasi belajar peserta didik kelas X MIA 3 SMAN 2 .... *Penerapan Model Project Based Learning Pada Pokok ....*
- Verawati, I., Dewi, R., & Ritonga, D. A. (2021). Development of Modification of Big Ball Game with Play Approach in Order to Develop Basic Movement Skills in Elementary School Students. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 4(2), 3186–3192. <https://doi.org/10.33258/birci.v4i2.2051>

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