



## Implementation of D'volleyball learning application in junior high schools to improve student's learning outcomes

**Destriani<sup>1</sup>, Destriana<sup>2</sup>, Ahmad Richard Victorian<sup>3</sup>, Soleh Solahuddin<sup>4</sup>, Reza Alfarandi<sup>5</sup>**

<sup>1,2,3,4,5</sup> Department of Physical Education and Health, Universitas Sriwijaya, Indonesia

E-mail: [destriani@fkip.unsri.ac.id](mailto:destriani@fkip.unsri.ac.id)

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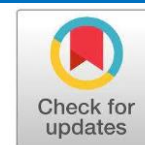
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**Abstract:** This research aims to determine the results of implementing the learning media D'Volleyball Learning Application to improve student's learning outcomes in junior high schools. This research uses an action research method consisting of two cycles. The action takes the form of volleyball learning using the D'volleyball learning application media. The sample in this research was 31 students at State Junior High School 1 Tanjung Batu class VIII, consisting of 11 male students and 20 female students. Data was obtained by conducting pre-cycle and post-tests after each cycle test to determine the level of completeness of students' learning outcomes in volleyball game bottom serve learning material. A significant spike in improvement was seen in the three aspects assessed after being given action in the 2nd cycle. Students' knowledge was improved at 29.23% after cycle 1 and 83.87 after cycle 2, skills were improved at 32.25% after cycle 1 and 83.87 after cycle 2, and attitude were improved at 61.29% after cycle 1 and 80.65% after cycle 2. The implementation of D'Volleyball Learning Application media in learning has been proven effective for use in the learning process at State Junior High School 1 Tanjung Batu.

**Keywords:** implementation; learning media; volleyball; physical education.

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### INTRODUCTION

Technological progress is increasingly unstoppable and continues to grow rapidly in the current era of globalization. This happens both in everyday life and in a special scope, which in this research is education. Technology can help humans as a means of carrying out daily activities both at work and in education (Maritsa et al., 2021). However, this development is a challenge for activists in the education sector not to be left behind or be technologically illiterate. One of the challenges for teachers today is the use of technology in education (Cayeni & Utari, 2019). Therefore, a creative and innovative attitude is needed in utilizing technology so that the learning process is no longer monotonous and boring and is not only limited to traditional learning. Optimal use of Information and Communication Technology in "now-day" learning is an important need in education.

One use of information and communication technology in learning is using media. In the teaching and learning process, message sources can take very diverse forms. Learning messages are usually in the form of lesson materials or materials delivered to students in various documents such as pictures, photos, diagrams, comics, films, slides, etc. Media are all forms that humans use to convey messages and spread ideas, opinions, or thoughts so that what they want to convey can be accepted by the target. Currently, learning



media has become more advanced and developed along with the times and can be used to achieve learning goals (Sartika, 2021).

Using media in the teaching and learning process can help improve student learning outcomes and achieve learning goals. Media and learning methods greatly influence students' cognitive thinking abilities (Indriyani, 2019). Media use in teaching and learning can encourage interest and foster students' learning motivation. One of the efforts made to improve the quality of student learning processes and outcomes is using learning media in the teaching and learning process (Cahyani, 2020). Learning media designed systematically and appropriately will make teaching and learning more effective and efficient. Students will carry out many different activities because the teaching and learning process is not only through explanations from teachers or educators but also through various activities such as observing, doing, demonstrating, etc. Apart from that, the use of media is expected to overcome space and time limitations, limited human sensing abilities, as well as differences in learning styles and characteristics of students.

Learning media is very important to help teachers create, organize, and manage learning. Learning plans vary depending on the type of learning to be carried out (face-to-face or distance learning), the material students study, the learning opportunities and media available, the learning environment, psychological conditions, and student interactions. In reality, education may be smoother than expected. Of course, there are still learning obstacles that result in students needing to complete their competency achievements (Mustafa & Winarno, 2020). The findings showed a rise in students passing learning goals. The results of STKIP Pasundan students' physical education, health, and recreation have improved significantly from the website's material (Hambali et al., 2022).

The media used is the D'Volleyball learning application web, which is a volleyball learning website that can be accessed online. This website is a series of research results developed by the author from 2022 to 2023 (Destriani et al., 2022). The use of web-based learning media is the main focus of this research, which is a website created as an alternative media for Physical Education learning with volleyball learning material that can be used by teachers, lecturers, pupils, and university students, so it is hoped that it can provide ease in understanding basic concepts of volleyball. This website contains volleyball material with several functions that can be selected from basic volleyball playing techniques such as basic upper passing techniques, lower passing, basic lower serving techniques, upper serving, basic smash techniques, basic blocking techniques, and then several steps that are carried out sequentially for each basic technique, and also a video function to explain the basic techniques of playing volleyball. This website allows students to study from anywhere.

According to the interview with PE teachers at Tanjung Batu Public Junior High School, students are often bored in PE classes, which tend to be monotonous because of the lack of variety, and teachers only use books as learning media. Based on the background, it is necessary to research the implementation of the web-based learning application D'Volleyball Learning at the Tanjung Batu 1 State Junior High School. The

purpose of this research is to find out how the web-based learning media D'Volleyball Learning Application is implemented and the learning outcomes after implementing the learning application.

The use of learning media is the focus of this research. The media used is the D'Volleyball learning application, which is a volleyball learning application that can be accessed online. D'Volleyball learning application is an application created as an alternative medium for physical education learning with volleyball learning material that can be used by teachers, lecturers, pupils, and university students, so it is hoped that it can make it easier to understand the basic concepts of volleyball. This study continues a previous study, which developed a website-based volleyball learning media.

### **METHOD**

This research uses an action research method consisting of two cycles. Data was obtained by carrying out pre-test and post-tests for each cycle to determine the completeness of students' knowledge, skills, and attitude in learning volleyball under serve before and after being given action in the form of volleyball learning using the D'volleyball learning application media. Knowledge data was collected using the cognitive test, skills data was collected using the serve skill test, and attitude data was collected using observation, which was recorded in an observation sheet.

The sample in this research was 31 students at State Junior High School 1 Tanjung Batu class VIII, consisting of 11 male students and 20 female students. This research was carried out using several stages consisting of planning, implementation, observation, and reflection. This learning media can be accessed via <https://dvolleyball.penjasapps.com/>. Classroom Action Research activities take place with an action. There are several in classroom action research, each cycle has four stages, namely:

1. Planning is determining what goals you want to achieve in the future according to your abilities and the stages that will be carried out. This activity prepares teaching materials, lesson plans, learning materials, volleyball questions, and other preparations needed for the learning process.
2. Taking action is an action that a teacher has determined by the plan that has been made. Practicing the results of the plan itself means simulating the implementation of actions that have been given an implementation time and plans that will be carried out.
3. Observation is carried out to observe directly to obtain accurate information whether it is according to what we planned. Observations can be in the form of information about data. The observation was conducted mainly for the attitude aspect, recorded in an observation sheet.
4. Reflection is an activity carried out in the teaching and learning process by providing assessments in written or verbal form from students to the teacher. The results of this reflection were a reflection for the teacher to know the strengths and weaknesses and improve the learning system. On the other hand, the teacher provided learning with improvements, which were drafted after the reflection process.

The stages of implementing classroom action research can be seen in the chart below:

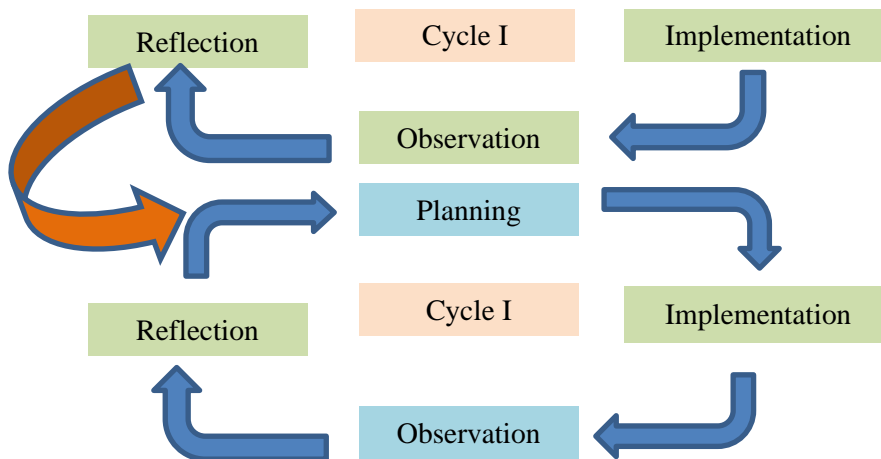


Figure 1. Action Research Implementation Stages (Arikunto, 2014)

The display menu on the website is as follows:

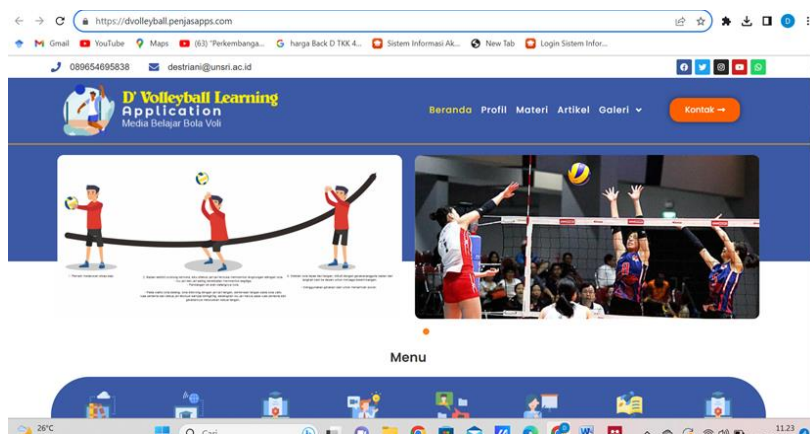


Figure 2. Home Learning Media D'Volleyball Learning Application

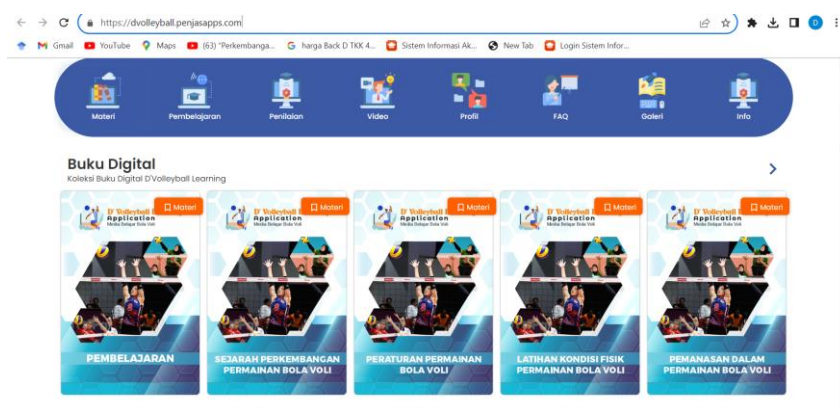


Figure 3. Menu display on the website

Student learning outcomes are determined if the student has obtained a score  $\geq 75$  then it can be said to have been successful.

Table 1. Categories and Criteria for Learning Completion

No	Test Scores	Criteria
1	75-100	Completed
2	0-75	Incomplete

(Minimum completion criteria for State Junior High School 1 Tanjung Batu)

## RESULTS AND DISCUSSION

Before carrying out the action research, the sample was given a test to determine the initial level of completeness of students in knowledge, skills, and attitudes in the material of serving under the game of volleyball.

Table 2. Frequency of Student Knowledge Test Results at the Pre- Cycle Stage

No	Level of Completeness	Frequency	Percentage (%)
1	Completed	6	19.35
2	Incomplete	25	80.65
	Total	31	100

The results of the student knowledge test in [Table 2](#) show that only 19.3% of students achieved a completeness score in the knowledge aspect of volleyball under servicing material, while 80.7% of students still need to complete it. Furthermore, the table below shows the test results on aspects of students' skills before being given action.

Table 3. Frequency of Student Skills Test Results at the Pre-Cycle Stage

No	Level of Completeness	Frequency	Percentage (%)
1	Completed	7	22.58
2	Incomplete	24	77.42
	Total	31	100

In [Table 3](#) above, the results of the pre-cycle test show that only 22.58% of students achieved a completeness score in the skills aspect of volleyball under servicing material, while 77.42% still need to complete a completeness score. Furthermore, [Table 4](#) below shows the test results on aspects of students' attitudes before being given action.

Table 4. Frequency of Student Attitude Test Results at the Pre- Cycle Stage

No	Level of Completeness	Frequency	Percentage (%)
1	Completed	15	48.38
2	Incomplete	16	51.62
	Total	31	100

[Table 4](#) shows the results of students' pre-cycle tests on the attitude aspect. From [Table 4](#), we can see that 48.38% of students achieved a completeness score, and 51.62% of students did not achieve a completeness score. Furthermore, after the first action cycle, students were given a test to determine their level of completeness after being given action in the form of volleyball learning using the D'volleyball learning application media. The test results after implementing the first cycle of actions on the knowledge aspect can be seen in [Table 5](#).

Table 5. Frequency of Student Knowledge Test Results in Cycle I

No	Level of Completeness	Frequency	Percentage (%)
1	Completed	9	29.03
2	Incomplete	22	70.97
	Total	31	100

After being given action, there was an increase in the level of completeness in the knowledge aspect of students from only 19.35% to 29.03%. Meanwhile, students who did not achieve completeness decreased from 80.65% to 70.97%. Furthermore, in [Table 6](#), you can see the results of students' skills tests after implementing cycle one actions.

Table 6. Frequency of Student Skills Test Results in Cycle I

No	Level of Completeness	Frequency	Percentage (%)
1	Completed	10	32.25
2	Incomplete	21	67.75
	Total	31	100

[Table 6](#) shows an increase in students who achieved completeness scores from 22.58% in the pre-cycle test to 32.35% after being given cycle one action. Meanwhile, the number of students who did not achieve completeness decreased from 77.42% to 67.75%. Furthermore, in [Table 7](#), you can see the results of students' attitude tests after implementing cycle one actions.

Table 7. Frequency of Student Attitude Test Results in Cycle I

No	Level of Completeness	Frequency	Percentage (%)
1	Completed	19	61.29
2	Incomplete	12	38.71
	Total	31	100

[Table 7](#) shows the increase that occurred in the level of completeness of students' attitudes after being given action in cycle 1. Previously, in the pre-cycle, students who achieved a completeness score only reached 48.38 % and increased to 61.29% after being given the measure. Meanwhile, the number of students who did not get the level of completion decreased from 51.62% to 38.71%.

After getting the test results post-action cycle 1, the researcher carried out the reflection stage by making improvements to be implemented in action cycle 2. Based on the analysis of student test results in cycle I, the researcher concluded that it was necessary to carry out the next cycle, considering that although there was an improvement, students still needed to reach the minimum completion criteria. After implementing the second cycle, the results of the students' knowledge test were obtained on the knowledge aspect of learning volleyball on the bottom serve material, which can be seen in [Table 8](#) below.

Table 8. Frequency of Student Knowledge Test Results in Cycle II

No	Level of Completeness	Frequency	Percentage (%)
1	Completed	26	83.87
2	Incomplete	5	16,13
	Total	31	100



**Table 8** shows a significant increase in students' completeness in the knowledge aspect after being given cycle two actions. Students who reached the complete category increased from 29.03 % to 83.87%. Meanwhile, the number of students who did not get the complete category decreased from 70.97 % to only 16.13% in cycle 2. Next in **Table 9** is a description of the students' completeness scores in the skill aspect of learning volleyball on the bottom serve material using the D'volleyball learning media application.

**Table 9. Frequency of Student Skills Test Results in Cycle II**

No	Level of Completeness	Frequency	Percentage (%)
1	Completed	26	83.87
2	Incomplete	5	16,13
	Total	31	100

**Table 9** shows the increase that occurred in the level of student completion after being given the 2nd cycle of action. The number of students who reached the complete category became 83.87 % from previously only getting 32.25%. Meanwhile, only 16.13 % of students did not achieve completeness compared to the previous 67.75%. Next, in **Table 10** below, you can see the test results of students in the attitude category after implementing the 2nd cycle of action.

**Table 10. Frequency of Student Attitude Test Results in Cycle II**

No	Level of Completeness	Frequency	Percentage (%)
1	Completed	25	80.65
2	Incomplete	6	19.35
	Total	31	100

**Table 10** shows the test results of students in the attitude category in learning volleyball on the bottom serve material. There was an increase in the number of students who reached the complete category from 61.29 % to 80.65%, and there was a decrease in students who did not get the complete category from 38.71% to only 19.35%.

This research aims to determine the results of implementing the learning media D'Volleyball Learning Application in junior high schools. In the beginning, a short case story and an account of different perceptions of self-directed learning are followed by a clarification of different aspects of self-directed learning, such as why it is advisable, what affects the tendency to self-directed learning, and if self-direction is essentially innate or learned (Loeng, 2020). The students' completeness scores increased after being given action in cycle 1, but the results of reflection showed that the improvement that occurred could not still be better if action was given with several modifications, which were then implemented in cycle 2. The increase after being given action in cycle 1 was 9.68% in the knowledge aspect, 9.77% in the skills aspect, and 12.91% in the attitude aspect. Meanwhile, after being given action in the 2nd cycle, a significant spike in improvement was seen in the three aspects assessed. The increase after being given action in cycle 2 was 54.84% in the knowledge aspect, 51.62% in the skills aspect, and 19.36% in the attitude aspect. This increase occurred allegedly due to the implementation of media D'Volleyball Learning Application learning is better because teachers and students are more accustomed to using this learning media. In carrying out class actions

in the second cycle, improvements need to be made by managing the class, practicing speaking, and training students' independence without having to ask friends and teachers, students must understand the problems in understanding the material presented by the teacher by discussing with colleagues (Jayadiningrat & Ati, 2018).

This research shows the benefits and results of implementing D'Volleyball Learning Application media, which can be accessed via the Internet on student learning outcomes. This is in line with the opinion that using learning tools that can be accessed via the Internet can affect learning outcomes to be applied in PJOK learning (Purba et al., 2021). Apart from that, several previous studies have shown positive results from the application and use of media in learning (Abidin, 2016). The use of application media that can be accessed from the internet has been proven to make learning more effective and efficient.

Through web-based learning media, the D'volleyball learning application can encourage students to understand better the material presented and explained by the teacher. Besides making time more efficient, teachers can convey material in detail because students can directly access learning applications independently. Changes in a positive direction that can be seen in the research results after being given the 2nd cycle of action show that the media used to achieve the learning objectives. Learning media can be effective if it meets the criteria, where it can influence and change and provide positive results in various aspects for students (Nurrita, 2018).

Learning is a conscious activity carried out by an individual and an experience that can lead to changes in behavior, including the cognitive, affective, and psychomotor domains (Mustafa & Masgumelar, 2022), thus, students need to pay attention to the existing learning process. Learning is a conscious activity carried out by an individual and experiences that can lead to changes in behavior, including the cognitive, affective, and psychomotor domains thus students need to pay attention to the existing learning process. Based on the results of the completion scores in cycle I and cycle II, it can be said that the implementation of the web-based learning media D'Volleyball Learning Application in learning shows changes in behavior in the three aspects assessed, or in other words, it has proven to be effective in the learning process.

## **CONCLUSION**

One of the uses of information and communication technology in learning is by using media in the teaching and learning process which uses the D'Volleyball Learning Application media which can be accessed via the internet. This research shows an increase in learning outcomes in 3 domains, namely in the cognitive, affective and psychomotor domains which can be seen in the research results after the second cycle of action was given, showing that the media used can improve learning outcomes in volleyball service material. It can be concluded that the implementation of the D'Volleyball Learning Application media in volleyball service material is effectively used in the learning process.



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