

# Physical education teachers' perspectives on the need for volleyball learning assessment application development

Destriani<sup>\*1ABIJN</sup>, Destriana<sup>1ACDI</sup>, Ahmad Richard Victorian<sup>1ACDFH</sup>, Irfan Rasyad<sup>1FGH</sup>, Ade Surya Kencana<sup>1FGH</sup>

<sup>1</sup>Physical Education, Health, and Recreation, Sriwijaya University, Indralaya, Indonesia \*Corresponding author: destriani@fkip.unsri.ac.id

#### Abstract

**Research Problems:** The absence of a suitable volleyball learning assessment application hinders physical education teachers from conducting effective evaluations, highlighting the need to explore their perspectives on developing such an application. **Research Objectives:** This study aims to determine the perspective of Physical Education teachers on the need to develop a volleyball learning assessment application. Through this study, various problems faced by teachers in the assessment process were identified and how the application can be an effective solution. **Methods:** The research method uses a qualitative questionnaire distributed via Google Forms to physical education, sports, and health teachers. The sample obtained was 123 Physical Education teachers. Data analysis in this study used descriptive statistics in the form of a frequency table. **Results:** Based on the results of the study, it was obtained that with the results 6.3 % strongly agree, 15% agree, 14% neutral, and 5% disagree, 3% strongly disagree. **Conclusion:** The study concludes that in general Physical education teachers have a positive view of the need to develop a volleyball learning assessment application, so that assessment with the application will provide several advantages, such as making it easier to record and manage grades, increasing the accuracy of assessment data, and saving time in assessment. As a recommendation, so that in the future it can be used to support progress and ease in conducting assessments in volleyball material.

Keywords: Perspective; Teacher: Physical Education; Needs; Assessment; Volleyball.

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Received: 30 December 2024Revised: 20 March 2025Accepted: 3 May 2025Authors' Contribution: A – Conceptualization; B – Methodology; C – Software; D – Validation; E - Formal<br/>analysis; F – Investigation; G – Resources; H - Data Curation; I - Writing - Original Draft; J - Writing - Review<br/>& Editing; K – Visualization; L – Supervision; M - Project administration; N - Funding acquisition

## **INTRODUCTION**

Sports education in Indonesia is an integral part of the national education curriculum which aims to develop physical fitness, motor skills, and character of students, which in its implementation is known as Physical Education (PE) (Shabrina et al., 2025). Learning PE, especially in volleyball material, skill assessment is an important aspect to measure students' abilities. However, research shows that teachers often face challenges in conducting accurate and efficient skill assessments in classes with large numbers of students. This leads to the need to develop tools such as assessment applications, which can facilitate teachers in the assessment process and provide more effective feedback to students. The practical implications emphasize the importance of technology integration in the physical education learning process to improve the quality of education in this field (Fauzan et al., 2024). The aim of the study was to evaluate students' assessment of their learning after a teaching period of volleyball training in a university course. The teaching was research-based and linked to relevant theories of motor

learning, small-sided games (SSG), teaching games for understanding (TGfU), and motivational climate (Moa et al., 2024).

Physical education teachers are required to have skills in evaluating various physical skills in sports, including volleyball. Destriani et al. (2019) revealed that teacher involvement in assessing the students' competencies in a few sports such as volleyball has the potential to affect students' motivation and engagement to participate more actively in physical education classes. A proper system of assessment will increase students' perception of themselves as competent individuals and promote autonomy in learning.

Although there are many applications available, there are still some challenges related to the development of volleyball learning assessment applications, and some instructors may be comfortable with traditional assessment methods and may not want to change to a new system. Physical Education learning assessment is important in measuring the development of physical skills and students' understanding, especially in volleyball material. Through proper assessment, teachers can obtain information regarding the progress of students in technical proficiency, motor proficiency, and tactical proficiency in the game. However, use of manual assessments is subject to demerits, such as difficulties in accurate documentation, limited availability of time at hand, and subjective factors capable of skewing the outcome of the assessment (Alif et al., 2021). This manual process can also be challenging for teachers to document and monitor student progress on an ongoing basis (Priambodo et al., 2022). These obstacles indicate the need for more efficient and accurate solutions, especially with the increasingly developing technology in supporting education.

Research conducted by (Maisharah et al., 2023) found that the application of technology in assessment can increase efficiency and accuracy, especially when carried out in an integrated manner with a digital learning system. Digital-based assessment applications have the potential to help Physical Education teachers in conducting assessments more quickly, objectively, and well-documented. In addition, digital applications allow student assessment data to be stored and accessed again for evaluation needs and long-term development monitoring, digital applications can reduce assessment errors because data is automatically recorded and can be stored for a long time (Bayu et al., 2021; Koekoek et al., 2018). This not only helps teachers with assessment, but also encourages a more accurate, data-based assessment approach.

Although technology has great potential, the success of implementing applications in volleyball learning assessment cannot be separated from the needs and views of Physical

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Education teachers as the main users. Each subject, including Physical Education, has different assessment characteristics, so the features and design of the application need to be adjusted to the specific needs of teachers in the field. Volleyball is a complex sport with several basic techniques such as passing, serving, blocking and attacking (Deddy & Dewi, 2024). Physical Education teachers need an application that is not only practical but also able to accommodate various volleyball assessment indicators, such as basic technical skills, movement coordination, and teamwork aspects (Irfan & Komaini, 2019). Understanding the perspectives and needs of Physical Education teachers can be a strong basis for developing applications that are truly effective and can be widely implemented. On the other hand, Teshome et al. (2022) assessments in volleyball lessons are often inadequate due to the limited tools that can provide objective and fast evaluations. Many teachers find it difficult to monitor individual student progress, especially in large groups. The use of technology-driven testing tools can be a practical remedy to this issue, by providing more accurate and timely data-driven measures.

Based on the issues discussed, the issue can be articulated as follows: What is the perception of Physical Education teachers towards the need for the creation of assessment apps in volleyball learning? The purpose of this study is to examine the perception of Physical Education teachers towards the need for developing assessment applications for learning volleyball, and to provide recommendations regarding the development of assessment applications more in line with the needs of teachers and students.

### **METHOD**

The quantitative approach with descriptive survey study design is used in this research. This approach was applied to explore and investigate Physical education teachers' perspectives on whether volleyball learning assessment application development is needed. Quantitative approach has the tendency to gather information in the form of figures or ratings from the scale used on the questionnaire and thus statistical analysis can be conducted to unravel trends or patterns in teacher opinion and needs (Moore, 2018). The sample obtained was 123 PJOK teachers. This research activity was carried out for 2 months, starting from June to July 2024. The research method used a qualitative approach using a questionnaire distributed through a WhatsApp group using a Google form to physical education, sports and health teachers.

The instrument for collecting data in this study was a questionnaire prepared based on indicators concerning the needs of physical education teachers to assess volleyball learning. The questionnaire consists of a few parts: (1) Demographic information: It has questions regarding respondent demographics, age, teaching experience in years, and educational level;

(2) Perception of the assessment process: This question is framed to understand the perception of teachers regarding the manual volleyball skills assessment process; (3) Application development requirements: This section describes features that teachers consider important in an assessment application, such as ease of use, accuracy, and promptness of feedback; and (4) App efficacy expectations: This item explores teachers' expectations of the perceived benefits of the app, such as assessment efficiency and validity of student data.

Data collection was conducted through an online survey using Google Forms. The questionnaire link was distributed to the respondents through the network and social media groups of the physical education teacher profession. Two weeks' time was also provided to fill in the questionnaire, with occasional reminders sent to increase the level of participation. Data was analyzed through descriptive statistics. These descriptive statistics will show the distribution of the response of the respondents and provide an overview of teachers' needs and attitudes towards the volleyball testing application. This analysis was carried out with the help of SPSS to ensure the accuracy of the calculation and interpretation of the results (Zainudin et al., 2019). To ensure that the instrument used has adequate validity and reliability, an initial trial was conducted on a small number of respondents outside the main sample. The validity test uses content validity with the help of experts in the field of physical education, while the reliability of the instrument is tested using the Cronbach Alpha method. The expected Alpha value is >0.70 which indicates good reliability (Ardiyanti & Dinni, 2018).

This questionnaire uses a 5-point Likert scale, where respondents are asked to state their level of agreement with each statement, ranging from "Strongly Disagree" to "Strongly Agree.", with the instrument grid as follows:

No.	Measured Aspects	Indicator
1	Ease of Use Needs	Teachers need an easy-to-use application for volleyball assessment.
2	Time Efficiency	The application should be able to help save teachers' time in the assessment process.
3	Objectivity and Accuracy of Assessment	The application developed must be able to support objective and accurate volleyball skill assessment.
4	Systematic and Structured Needs	Teachers need an application that can record assessment results systematically and in a structured manner.
5	Feature Compatibility	The application must have features that suit the needs of volleyball learning.
6	Accessibility	Applications should be easy to access and use in schools.

Table 1. Indicators of Perspective Aspects of Volleyball Assessment Development Needs

No.	Measured Aspects	Indicator
7	Need for Feedback	Teachers need applications that make it easier to provide feedback to students.

# RESULT

A survey conducted on 112 physical education teachers showed that many respondents strongly support the development of volleyball learning assessment applications. The following are the results of the questionnaire distribution as follows, namely for the aspects measured by user needs and ease of use and time efficiency with indicators that teachers need applications that are easy to use by utilizing the following technology:



Figure 1. Aspects Ease of Use Needs and Time Efficiency

Based on the indicator, teachers need an application that is easy to use in volleyball assessment and saves teachers' time in the assessment process based on the image above, 59.3% strongly agree, 13.1% agree, 17,9% 0% are neutral, and 4.9% and 4.1 are less agree. Based on this indicator, teachers need an application to facilitate assessment by 59.8%. For the assessment application, it can shorten the implementation time with a percentage of 33.1% strongly agree, 25.4% agree, 21.6% are neutral, 10,7% are less agree, and disagree by 9.2%.



Figure 2. Aspects Objectivity and Accuracy of Assessment and Accessibility

Indicators for the need for volleyball assessment development are 50% strongly agree, 31.1% agree, 5.7% neutral, and 10.7% and 2.5% less agree. Based on this indicator, teachers need an application to facilitate assessment. Based on the teacher indicators, manual

assessment takes more time to conduct the assessment with a percentage of 35.2%, 30% agree, 20.5% are sufficient, 6.6% disagree, and 7.4% disagree.



Figure 3. Aspects Need for Feedback

The comparison indicator of application accessibility can be accessed anywhere and anytime by 25.4% strongly agree, 36.1% agree, 13.9% neutral, 9.0% less agree, and 15.6% disagree, and the application can help teachers in assessment 50.0% strongly agree, 31.1% agree, 10.7% neutral, 2.5% less agree, and 5.7% disagree

As many as 63% or around 71 teachers from the total respondents showed a level of agreement of "strongly agree" to the statement stating that these teachers need a special application for volleyball learning assessment. This indicates that many teachers feel the need for technology-based tools to facilitate and increase objectivity in the volleyball skills assessment process. In addition, 15% of teachers stated "agree" with the need for application development, 17% of teachers were neutral, while the remaining 5% showed disagreement. The high percentage at the "strongly agree" level indicates that teachers feel that assessment applications can be a solution to overcome various challenges in assessing volleyball skills, especially in terms of efficiency and accuracy.

In this survey, respondents also identified several features that they considered important to include in the application. The most popular features included automatic documentation of assessment results, instant feedback to students, and the ability to store student progress data. Respondents considered these features important to facilitate monitoring student progress periodically.

#### DISCUSSION

Discussion The results of this survey indicate a strong need among physical education teachers for the development of a volleyball assessment application. Most teachers feel that the application can help them carry out assessment tasks more objectively, accurately, and efficiently. Like this study is to analyze efficiency of teacher candidates inmovement analysis,

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self-evaluation and peer evaluation for four basic volleyball skills (forearm pass, setting, underhand serve and overhand serve). In the process of obtaining data, four observation forms were used. In the evaluation of forearm passing and overhand serve, observation forms developed by Soytürk (2019) were used as evaluation tools and and this research uses conventional assessment.

The assessment that has been carried out manually is considered less effective, especially because it takes a long time and is difficult to provide quick feedback to students. These results are in line with findings from previous studies showing that technology can support efficiency and accuracy in physical learning assessment (Qushem et al., 2021). The development of learning media is very necessary, especially if it is developed in accordance with the rapid progress in the field of technology and communication (Sapriyah, 2021). Wearable devices have been used to assess and monitor volleyball performance. Given the diversity of technologies used and variables measured, this study aims to synthesize and review wearable technologies used to assess and monitor volleyball players' physical performance (Sousa et al., 2023).

The high percentage of teachers who strongly agree indicates that teachers not only understand the potential benefits of the application, but also realize how technology can be a supporting tool in overcoming the time and energy constraints that have been experienced so far. Tóth & Csapó (2022) it was stated that the use of applications in the assessment process can help teachers to record and manage student data in a more structured way. This can also increase student motivation through faster and data-based feedback, so that students are more motivated to improve their teacher skills. The results of the data analysis also showed that teachers wanted certain features in the assessment application. Automatic documentation, instant feedback, and storing student progress data were the most desired features. These features would greatly assist teachers in reducing the administrative burden and allowing them to focus on developing student skills. As several studies have shown, automatic documentation has the potential to improve instruction quality and enable educators to provide ongoing assessment (Messer et al., 2024).

Additionally, software that allows storing student development information can help to make it easier for educators to track the progress of their students from year to year and get a deeper sense of their development. It may also aid in creating more specialized and specific learning plans. Yu et al. (2022) learning applications with the feature of real-time feedback have the ability to get students more involved in the process of learning since they can know

their weaknesses and strengths in a matter of minutes. Based on the results of this survey, one can say that the development of a volleyball learning assessment application is not only necessary but also appropriate, as evidenced by the highly indicated need by physical education teachers. The use of this program is expected to improve the quality of the learning and assessment process in physical education classes, so that students can have a more meaningful learning experience and allow the improvement of students' skills. Teachers are able to make more systematic assessments and avoid subjective errors that can be experienced in manual assessments using this application.

## CONCLUSIONS

The results of the study revealed that the majority of the physical education teachers faced significant challenges in conducting manual volleyball skill tests, the teachers admitted that manual assessment methods tend to be very time-consuming, especially in classes with large numbers of students. Teachers also felt limitations in terms of objectivity and accuracy when assessing skills that are dynamic and require careful observation. This study identified that teachers need applications that can help in various aspects of assessment. The features most desired by teachers include ease in documenting assessments, speed in providing feedback, and the ability to store student assessment data for a long period of time. Teachers also expect applications that can automatically record scores and assessment results, so that teachers do not need to record manually, with the hope that this application will not only increase assessment efficiency but also increase student motivation in learning. Teachers believe that by using the application, assessment becomes more objective and structured, which can motivate students to improve student skills based on the feedback given and with this assessment application can help reduce the administrative burden of physical education teachers and allow them to focus on teaching.

#### ACKNOWLEDGMENTS

Thank you to all those who have helped in this research process and this research was funded by: Budget of DIPA Public Service Agency Sriwijaya University for Fiscal Year 2023. Number SP DIPA-023.17.2.677 515/2024, 24 November 2023. In accordance with Rector's Decree No.012 /UN9/LP2M.PT/2024 dated 20 May 2024.

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