The Development of Takraw Ball Media for Sepak Takraw Learning for Sports Education Students

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Abstract

POR Uniska students still need more confidence during takraw practice activities because the ball used (media) is very hard, and the takraw ball is factory-made. This study aims to determine the development of takraw ball learning media to determine its attractiveness level. This type of research is Research and Development (R&D) adapted by Sugiono from his method. The subjects of this research were MAB POR UNISKA students in regular class B 2020, and the data collection instrument used was a questionnaire given to material experts, media experts, and Sepaktakraw course lecturers to test the quality of rubber rattan takraw balls for MAB POR UNISKA students. The development of this takraw ball was carried out and adapted from the research and development (R&D) method, which consists of several stages following the steps of Bord and Gall, including identification of potential and problems, data collection, product design in the form of a simple takraw ball, design validation, design revision, product trial, and final product revision. The results of the assessment of simple takraw balls in sepak takraw learning include: the material expert assessment gives a final average score of 96.3 with very interesting criteria, the media expert gives a final average score of 80.6 with very interesting criteria, and the course instructor gives a score of 90.83 with very good criteria. The product trial results showed an average final score of very good attractiveness. The development of rubber rattan takraw ball learning media for MAB POR UNISKA students is very suitable for use as learning media.

Keywords: Learning Media, Learning Development, Takraw Balls
INTRODUCTION

Media is one component of communication, namely as a messenger from the communicator to the communicant. Educational media has a physical sense, now known as hardware, an object that can be seen, heard, or felt with the five senses. (Kinasih, 2022). Facilities or tools are everything needed in physical education learning, and they are easy to move (can be semi-permanent). But heavy or difficult. For example, mattresses, jump jumps, horses, single bars, parallel bars, table tennis tables, etc. (Suryobroto, 2022). Infrastructure or facilities are everything needed in physical education learning, whether it is permanent or cannot be moved. For example: playing fields, halls, swimming pools and others. (Rohmatullayaly, 2017). The creativity of PJOK teachers is needed at the elementary school level, where learning media in schools still needs to be improved. (Anggraeni, 2023).

According to Yunitaningrum (2020), the game of sepak takraw refers to a game played on a rectangular field, either open or closed and free of all obstacles. The field is limited by a soccer net made of rattan or plastic fiber woven in a round shape. (Purwanto, 2017). This game uses all limbs except hands, and the ball is played by returning to the opponent's field through the net. (Wulandari, 2019). The athletes must have good skills to achieve good sepak takwar sports. The basic ability to play sepak takraw is very important and indispensable. With mastering basic skills, the game of sepak takraw can be played properly. (Budyastuti, 2021). suggests that the basic techniques in the game of sepaktakraw are: 1) kicks include; 2) the front head (heading), including forehead, right head, left head, and back head; 3) suddenly, 4) understand, 5) shoulder-to-shoulder, 6) serve, 7) smash, and 8) blocking.

These basic techniques will be mastered well if trained properly and gradually. Nevertheless, that does not mean that sepaktakraw achievement is only determined by the owner of good basic techniques. Other factors play a role in improving achievement. (Semarayasa, 2017). It is explained that (Lukman, 2022) sepaktakraw sport has developed into a competitive sport.

Students new to or practicing the basic techniques of sepaktakraw are not used to the hard takraw ball, so students feel pain when kicking or heading the ball. Furthermore, they feel afraid to practice other basic techniques because the field used is a badminton court where, around the field, many objects are easily broken if hit by a takraw ball. Takraw ball development, considering climatic variables and field surface types, can help players adapt to various playing conditions (Tan & Lim, 2017).
Learning media is anything that can be used to help the teaching and learning process. Learning media can be objects, images, sounds, or videos (Abduljabar, 2009). Modifying learning media is important to increase the motivation and courage of students in implementing sepak takraw courses.

**METODH**

The research used development procedures that have been modified (Sugiyono: 2015). The development research procedure is guided by the instructional media development design by Brog & Gall. Development research takes ten steps to produce a final product ready to be applied in educational institutions. However, due to the time available, the researcher limited the development research steps from ten steps to seven steps.

The sample of this research is regular class B 2020 POR UNISKA MAB students, as many as twenty students. The data collection instrument in the research in question is to obtain materials, information, facts, and reliable information. This research uses questionnaires and observation methods. The analysis method used in this research uses a needs, validation, and stage questionnaire.

![Figure 2. R&D Stage](image)

**RESULT**

The main result of this research and development is a takraw ball. This research and development was carried out by adapting (Assyauqi, 2020). The results of each stage of the research and development procedure carried out are as follows:

1. **Potential and Problem Analysis**

Using takraw balls made from rubber rattan is considered effective in overcoming students' low courage in kicking the ball. Besides being lightweight and easy to use, this takraw ball can also help students practice takraw techniques well on the takraw learning material studied.
2. Gather Information

Information gathering is done after analyzing the problems in the field and tools that have the potential to overcome these problems. According to the author, using rubber rattan takraw balls has great potential. (Tools, 2020) Data and information about takraw balls in the form of journals are collected and processed to produce several ball products made from rubber rattan. Researchers began the design process after the tools and materials needed to make rubber rattan takraw balls. The rubber rattan takraw ball is designed to make it easier to train basic techniques in the takraw game. The steps taken in designing a product include the following:

a) **It was making takraw balls** by weaving round rattan where the ball is made by modifying the ball that has been made and then developed again.

b) **Simple takraw ball modification.** The modification of the takraw ball is the most important part because this is where the difference lies between the balls made by researchers and the balls made by previous researchers. The modification lies in the simple ball material; the researcher uses rattan as a reference for the equation, and the material used rattan as the basic material for making the ball.

c) **Product design.** Rubber is used in modifying the takraw ball so that the ball is easy to kick and does not hurt when kicked when practicing basic takraw techniques. Another material used in making the ball is glue. All available materials are then arranged in a simple round webbing.

d) **They are making a rubber rattan takraw ball.** The ball is made using rattan and rubber. When the rattan is woven in a round shape, the next step is to weave the rubber between the rattan, and then the ends of the rubber are glued together using glue so that the rubber does not come off easily when kicked. The detailed shape of the takraw ball can be seen in the picture below.

![Shape of rubberized rattan takraw ball](https://example.com/rubberized_takraw_ball.jpg)

The results of the first stage of ball validation based on the table above obtained a ball assessment according to the condition of the validated ball. Two experts validated by assessing five aspects: ball efficiency, accuracy, aesthetics, durability, and student safety. The takraw ball efficiency assessment of ease of making and using the ball obtained a score of 85%. The accuracy aspect of the ball is related to the consistency of
the results of using the takraw ball. The accuracy and usefulness of the ball scored 67%. The aesthetic aspect related to the beauty of the ball scored 77%. The durability aspect of the ball scored 70%. The safety aspect for students scored 82%. The average of each aspect is 76.2%. The score is obtained from the average of each.

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P = \frac{85\% + 67\% + 77\% + 70\% + 55\%}{5} = 70.8\%\]

Based on the level of validity, the score is in the "very interesting" category, and the material can be declared following the developed ball. The above results can be seen in the graph below.

Figure 4. Graph of the results of stage 2 material expert validation

\[P = \frac{100\% + 94\% + 95\%}{3} = 96.3\%\]

Based on the above calculations, the material is improved and equipped with experimental procedures that meet the very interesting criteria, with a score of 96.3%. It is declared valid and ready to use from several aspects. A comparison of the validation results of media experts and material experts can be seen in the comparison chart below.

Figure 5. Comparison chart of media expert validation stage 1 and stage 2
There was an increase in media validation from the first stage to the second stage. To find out the difference between the first stage and the second stage, namely by looking at the graph, based on the graph image, results that improve the presentation can be obtained. The increase in each aspect is as follows: ball efficiency increased by 10%, ball accuracy aspect by 9%, aesthetic aspect by 3%, ball durability aspect by 10%, and safety aspect for students by 17%. On average, all aspects have increased by 9.8% from the previous score.

![Graph showing material expert validation comparison]

Figure 6. Comparison chart of stage 1 and stage 2 material expert validation

Material validation from stage one to stage two has increased. To determine the difference between stages one and two, look at the graph, where the percentage results increase based on the graph image. The increase in the score of each aspect is as follows: the aspect of the relationship between the ball and the teaching material increased by 29.75%, the aspect of educational value increased by 24%, and the aspect of sepaktakraw content increased by 35%. The average score of the three aspects was 29.5% of the score obtained.

e) Final product after revision. The final product after revision is the "rubber rattan takraw ball," ready to be used in sepak takraw teaching exercises. According to the expert lecturer’s suggestions, the ball has undergone several development and revision stages. After this product was declared valid, it was tested on MAB POR UNISKA students on August 15, 2023. The final results of making a rubber rattan takraw ball are below.

![Image of the final product]

Figure 7. The final result of making takraw balls
DISCUSSION

Field trials were conducted to determine student responses and test the product’s success. Student responses reached the criterion of being very interesting and feasible to practice sepaktakraw learning. The experiment was carried out by 20 students of regular class B 2022. Then, students fill in the data required for the research procedure. It is accomplished in turn, kicking the rubber rattan takraw ball. The experiment results concluded that using a rubber rattan takraw ball can help students improve their understanding of the basic concepts of the game sepaktakraw. This research only aims to develop products and test their success; the researcher needs to discuss the calculation of the experimental test results in detail. Researchers are limited to conducting experiments and proving that the rubber rattan takraw ball can be used in sepaktakraw learning. Judging from students’ enthusiasm, the rubber rattan takraw ball can increase the courage and enthusiasm of students in practicing basic sepaktakraw techniques in sepaktakraw learning. Furthermore, the rubber rattan takraw ball can be reproduced and used.

Developing ergonomic takraw balls has helped players learn and practice more efficiently, reduce fatigue, and optimize sepaktakraw performance. (Patel, S., & Kim, D. :2018)

CONCLUSION

Rubber rattan takraw ball learning media has the following attractiveness: at the media validity level, the score is 80.6%, and the material is 96.3%, so the average validity is 88.48. Based on this percentage, this takraw ball is very interesting (very valid) and can be used as a tool in the lecture process. Rubber rattan takraw ball learning media development has proven very interesting to apply to students. It gets a score of 81% and has reached the criteria for being very interesting, which means that the takraw ball is very interesting or feasible to use.

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