

# The Development of Takraw Ball

*by* Andi Kasan

---

**Submission date:** 08-Mar-2024 09:04AM (UTC+0700)

**Submission ID:** 2314762973

**File name:** 7\_Endang.\_71-80.edited.docx (611.79K)

**Word count:** 2488

**Character count:** 13860



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

Andi Kasanrawali<sup>1</sup>, Albadi Sinulingga<sup>2</sup>, Endang Pratiwi<sup>3</sup>, Hernawan<sup>4</sup>

<sup>1,3</sup> Department of Sport Education, Universitas Islamic Kalimantan Muhammad Arsyad Al Banjari Banjarmasin, Indonesia

<sup>2</sup> Departemen of Sport Science, University Negeri Medan, Indonesia

<sup>4</sup> Departemen of Science, University Negeri Jakarta, Indonesia

email: [kasandrawali89@gmail.com](mailto:kasandrawali89@gmail.com)<sup>1</sup>, [badisling@hotmail.com](mailto:badisling@hotmail.com)<sup>2</sup>, [pratiwiendang@unsika-bjm.ac.id](mailto:pratiwiendang@unsika-bjm.ac.id)<sup>3</sup>, [Hernawan@unj.ac.id](mailto:Hernawan@unj.ac.id)<sup>4</sup>

 : <https://doi.org/10.20884/1.paju.2023.5.1.9716>

### Abstract

Sports education students often complain that factory-made takraw ball materials are difficult to use and cause foot pain. This study aims to determine the development of takraw ball learning media to determine its convenience level. 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 Sepak takraw course lecturers to test the quality of rubber rattan takraw balls. The development of the 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, a simple takraw ball product design, 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 extremely good criteria. The product trial results showed an average final score of extremely good attractiveness.

**Keywords:** Learning Media, Learning Development, Takraw Balls

### INTRODUCTION

Educational media and hardware should conduct the physical sense criteria, a visible, heard, or felt object (Kinasih, 2022). Facilities or tools are crucially needed in physical education learning, and they should be flexible to move (semi-permanent), but

Correspondent Address : Universitas Islamic Kalimantan Muhammad Arsyad Al Banjari Banjarmasin, Indonesia

Email: [pratiwiendang@unsika-bjm.ac.id](mailto:pratiwiendang@unsika-bjm.ac.id)



Jurnal Physical Activity Journal (PAJU) This work is licensed under a [Creative Commons Attribution 4.0 International License](#).

on the other hand, should have sufficient weight, i.e., mattresses, jump jumps, horses, single bars, parallel bars, table tennis tables, etc. (Suryobroto, 2022). In other criteria, sports equipment and facilities must also have adequate standards in a permanent form and not be portable, i.e., fields, halls, swimming pools, and others (Rohmatullayaly, 2017). The creativity of sports education teachers is needed at the elementary school level due the learning media in schools still needs to be improved (Anggraeni, 2023).

According to Yunitaningrum (2020), the Sepak takraw game refers to a game played on a rectangular field, either open or closed and free of all obstacles. The field is limited by a 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 rival's field through the net (Wulandari, 2019). The athletes must develop good skills to perform the best Sepak takraw sports. The basic ability to play Sepak takraw is essential and indispensable. With mastering basic skills, the Sepak takraw can be played properly. Budyastuti (2021) suggests that the basic techniques in the game of sepaktakraw are: 1) kicks-in; 2) the front head (heading), including forehead, right head, left head, and back head; 3) suddenly, 4) understanding, 5) shoulder-to-shoulder, 6) serve, 7) smash, and 8) blocking.

These basic techniques will be mastered well if trained properly and gradually. Nevertheless, this does not mean that Sepak takraw's achievement is solely determined by excellent basic techniques. Other factors that drive Sepak takraw an improving and competitive sport are the equipment and properties (Semarayasa, 2017; Lukman, 2022)

. The beginner student practicing the basic techniques of Sepak takraw utilizes a simulated hard takraw ball and field (Tan & Lim, 2017). Takraw ball should be developed considering climatic variables and field surface types to help players adapt to various playing conditions



Figure 1 Sepak Takraw's Ball

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.

## METHODS

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 ready final product 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 20 students of regular class B 2020 POR UNISKA MAB students. The data collection instrument in the research in question is used to obtain materials, information, facts, and reliable information. This research uses questionnaires and observation methods to collect the data. The analysis method utilizes a needs, validation, and stage questionnaire.

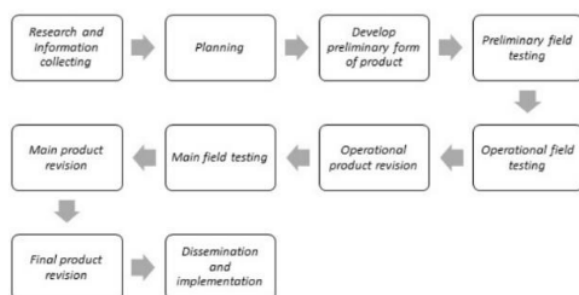


Figure 2. R&D Stage

## 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 painless, this type of takraw ball can also help students practice takraw techniques sufficiently on the studied learning material.

### 2. Information Gathering

Information gathering is accomplished after analyzing the problems in the field and tools that have the potential to overcome these problems. According to a previous study, functioning rubber rattan takraw balls have great potential (Tools, 2020). Data and Information about takraw balls in reputable 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 construct 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 and then redeveloping it.
- b) **Simple takraw ball modification.** Modifying the takraw ball is the most crucial part because the distinction lies between the balls made by researchers and those created 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 constructing the ball.
- c) **Product design.** The ball is created using rattan and rubber. Rubber is used in modifying the takraw ball to create an easy-to-kick ball and avoid injury when practicing basic takraw techniques. Another core material in constructing the ball is glue. All available materials are arranged in a simple round webbing
- d) **to develop a rubber rattan takraw ball.** 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 to bind and strengthen. The established shape impacts the ease of kicking. The detailed shape of the takraw ball can be noticed in the picture below.



Figure 3. Shape of Rubberized Rattan Takraw Ball

The results of the first stage of ball validation based on the figure 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 constructing and operating 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.

$$P = \frac{85\% + 67\% + 77\% + 70\% + 82\%}{5} = 76,2\%$$

Based on the level of validity, the score is in the "extremely interesting" category, and the material can be declared following the developed ball. The above results can be seen in Figure 4 below.

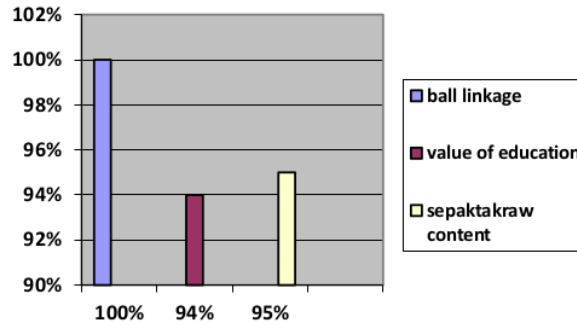


Figure 4. Graph of the Results of Stage 2 Material Expert Validation

$$P = \frac{100\%+94\%+95\%}{3} = 96,3 \%$$

Based on the calculations, the material is improved and equipped with experimental procedures that complete the extremely 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 and material experts can be seen in Figure 5 below.

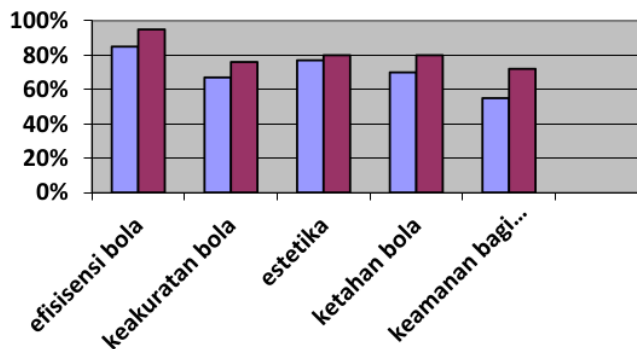


Figure 5. Comparison Chart of Media Expert Validation Stage 1 and Stage 2

There was an increase in media validation from the first stage to the second stage. The disparity between the first and second stages can be obtained based on the graph image results that improve the presentation. 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.

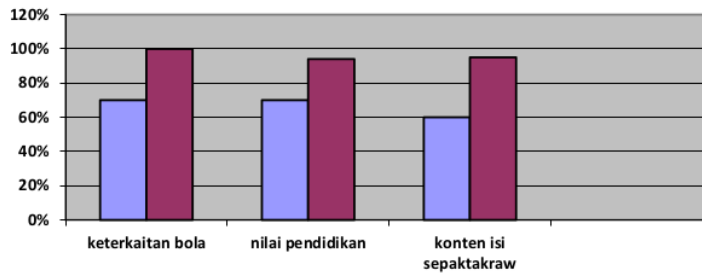


Figure 6. Comparison Chart of Stage 1 and Stage 2 Material Expert Validation

Material validation from the first stage to the second stage has increased. It was stated that the percentage results increased based on Figure 6. The score increase of each aspect is as follows: the correlation between the ball and the teaching material increased by 29.75%, the educational value aspect increased by 24%, and the aspect of Sepak takraw 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 operated 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. The final results of making a rubber rattan takraw ball are below.



Figure 7. The Final Result of Developing Sepak Takraw Balls

## DISCUSSION

Developing ergonomic takraw balls has supported players in learning and practicing more efficiently, reducing fatigue, and optimizing sepaktakraw performance (Patel et al., 2018). Field trials were conducted to determine student responses and test the product's effectiveness. Student responses reached the criterion of being extremely interesting and feasible to practice Sepak takraw 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 Sepak takraw sports. This research exclusively 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 utilized in Sepak takraw learning. Judging from students' enthusiasm, the rubber rattan takraw ball can increase the courage and enthusiasm of students in practicing basic Sepak takraw techniques. Furthermore, the rubber rattan takraw ball can be reproduced and reused.

## 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 extremely interesting (very valid) and can be utilized as a tool in the Sepak takraw learning process. Rubber rattan takraw ball learning media development has proven extremely interesting to apply to students. It gets a score of 81% and has reached the criteria for being extremely interesting, which means that the takraw ball is impressive or feasible to use.

## REFERENCES

- Abduljabar, Bandung (2009). *Physical Education and Sports Management*. FPOK UPI. Bandung.
- Anggraeni, R. D. (2023). Teacher Creativity in Physical Education Learning in Elementary Schools. *Journal of Physical Activity (PAJU)*, 4(2), 221-230.
- Assyauqi, M. I. (2020). *The Borg and Gall Development Model*. *Researchgate*. Not available: December.
- Budyastuti, Y. &. (2021). Application of constructivism theory in interactive online learning. *Papeda Journal: Journal of Basic Education Publications*, 3(2), 112-119.
- Greenson, R. R. (2018). *Technique and practice of psychoanalysis: Routledge*, Volume I., Volume I.
- Hidayat, R. B. (2020). Dominant Physical Factors Determining Sepak Takraw Playing Skills. *MensSana Journal*, 5(1), 33-39.
- Kinasih, T. I. (2022). Development Of Busy Book Educational Media To Develop Expressive Language In Children Aged 5-6 Years At Bimbat Audi Kindergarten, Serpong Sub-District, South Tangerang City. *Ceria: Journal of Early Childhood Education Study Program*, 11(2), 20-30.



- Lukman, S. M. (2022). The Relationship Between Physical Self-Concept And Parental Support With Self-Confidence Of Junior High School Students. *International Journal of Educational Review, Law And Social Sciences (IJERLAS)*, 2(6),.
- Purwanto, D. (2017). Development of Interactive Multimedia-Based Sepak Takraw Playing Skills Training Model. *Jipes-Journal of Indonesian Physical Education and Sports*, 3(1), 33–40.
- Rohmatullayaly, E. N. (2017). Body size growth patterns in the Baduy community. *HAYATI Journal of Biosciences*, 24(2), 57-64.
- Semarayasa, I. K. (2017 (May)). Utilization of mobile phone videos in learning sepak takraw scissors spike. In *2nd International Seminar on Educational Technology 2016*, 428.
- Suryobroto, A. S. (2022). Character education for the independence of elementary school students through playing four-goal soccer. *urnal of Indonesian Physical Education*, , 18(2), 155-169.
- Sugiyono. (2015). *Research & Development Methods*. Bandung. Alfabeta.
- Tan, G., & Lim, H. (2017). "The Effect of Takraw Ball Design on Endurance and Sepaktakraw Performance." *Journal of Physical Education and Sport*, 22(2), 67-81.
- Tools, M. F. (2020). *Management for quality improvement: 7 new QC tools*. CRC Press.
- Patel, S., & Kim, D. (2018). "Development of a Durable Takraw Ball: A Case Study of Materials and Design." *Scientific Journal of Football and Sepak Takraw*, 14(3), 89-104.
- Wulandari, D. A. (2019). Analysis of Sepak Takraw Upper Service Motion in Male Athletes at Sidoarjo State Sports School. *Journal of Sports Achievement*, 2 (4).
- Yayuk, S. &. (2019). The influence of principal leadership and education costs on the teaching and learning process quality and its impact on the competence of SMK graduates in Gunungkidul district. *Journal of Education Management Accountability*, 7(1), 84–96.
- Yunitaningrum, W. H. (2020). Sepaktakraw Smash Training Model Based on Training Aids. *PENDIPA Journal of Science Education*, 4(2), 6-13.
- Mohamamd Nuzulul Asfihani (2013). Development of Sepak Takraw Learning Model Through "IO" Game Using Rubber Balls for Basic Sepak Sila Techniques for Fifth Grade Students of SD Negeri Bintoro 09 Demak.
- Zulkifli. (2021) *Basic Learning of Sepak Takraw*.

Andi Kasanrawali, Albadi Sinulingga, Endang Pratiwi, Hemawan I The Development of Takraw Ball Media for Sepak Takraw Learning for Sports Education Students

Mariadi, D., Ilham, I., & Widowati, A. (2021). Development of a Hanging Ball Top Service Tool in Sepak Takraw. *Journal of Education Management and Social Sciences*, 2(1), 426-434.

Homarul Ashabi Saputra (2018). Application of Rubber Ball Modification Variations to Improve Sepak Takraw Lower Serve Skills.

Giri Wiarto. (2015). *Learning Innovation in Physical Education*. Yogyakarta: Laksitas

# The Development of Takraw Ball

---

## ORIGINALITY REPORT

---

2%

SIMILARITY INDEX

2%

INTERNET SOURCES

1%

PUBLICATIONS

0%

STUDENT PAPERS

---

## PRIMARY SOURCES

---

1

[jos.unsoed.ac.id](http://jos.unsoed.ac.id)

Internet Source

2%

---

2

O Dermawan, Defriyanto, Junaidah, S M Ayu, Busmayaril, Meisuri, M.J Muhtari. "Microsoft Visual Basic 6.0 Software to Develop Mathematics Teaching Materials", Journal of Physics: Conference Series, 2019

Publication

1%

---

3

[www.scilit.net](http://www.scilit.net)

Internet Source

<1%

---

Exclude quotes Off

Exclude matches Off

Exclude bibliography On