

DEVELOPMENT OF VOLLEYBALL BOTTOM PASSING MODEL

Fery Ariyanto¹, Firmansyah Dlis², Moch. Asmawi³

Universitas Negeri Jakarta^{1,2,3}
Fery_ariyanto@ymail.com

Abstract

This research aims to develop volleyball bottom passing exercises. Based on observations made in elementary schools in Jambi, there is still a low ability of basic volleyball passing techniques, so it is necessary to develop the form of exercise. This development uses the R&D model with the Borg and Gall model. While the data analysis technique uses effectiveness tests and gain scores. The results of the development of volleyball bottom passing training equipment meet the criteria that are quite valid for expert experts and are in the Very Meet or Decent category. The conclusion of this study is that the development of a volleyball bottom passing exercise model is very feasible to be used as a training model for basic bottom passing techniques in volleyball games

Keywords: Model; Bottom Passing; Volleyball

Submitted : 05th of April 2023

Accepted : 20th of July 2023

Published : 31th of July 2023

Correspondence Author: Fery Ariyanto, Universitas Negeri Jakarta, Indonesia.

E-Mail: Fery_ariyanto@ymail.com

DOI <http://dx.doi.org/10.31851/hon.v6i2.11365>



Jurnal Laman Olahraga Nusantara licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)

INTRODUCTION

Volleyball is one of the games learned in school and there is no doubt that the game of volleyball has become one of the sports favored by the general public. Bottom passing is a very important basic technique in the game of volleyball. Because it is usually used as a first step in arranging an attack on the opposing team by passing to teammates. In addition, bottom passing is often also used as a basis for defense when getting attacks from the opposing team. However, there are still many teachers who give physical education lessons, especially in volleyball games with monotony (Pratiwi & Anggara, 2021).

Media or tools play an important role in physical education learning. Where in teaching has a very complex and comprehensive goal to improve cognitive, affective, and psychomotor aspects. Teachers are required to develop their

creativity to find and choose varied media or tools, with the selection of varied media or tools will have a positive impact on the learning carried out and the goals expected to be achieved optimally. In a study that there is a way to improve bottom passing results by using plastic ball modification media (Rizal & Kasrman, 2020). Some ways of teaching bottom passing are effective, both using tools and without tools. While in this study researchers refer to not using tools in the form of forms of exercise by playing lying sitting. In an effort to improve volleyball learning, teachers are required to be creative in providing material. One method or approach to learning that is considered by researchers to be quite interesting and in accordance with the development or characteristics of students is through the playing method. to be able to improve volleyball playing skills, namely by means of playing methods. The point is that by modifying this game is the development of game forms that lead to mastery of basic volleyball techniques that are simple so that they are easy to understand and can be interesting to facilitate students and coaches in the training process (Hidayat Taufiq & Kurniawan Deddy, 2015). Volleyball games are team or team games, so good teamwork is needed from the players, and to establish good cooperation, it is expected that each player has technical skills basis volleyball games are: 1) Passing. 2) Service. 3) Smash. 4) Block (Sidhu, 2016).

Mastery of basic volleyball techniques is the main factor that must be taught to students in order to be able to play volleyball well (Saptono & ROZZAQ, 2013). In the early stages of the learning process, students do not have to be burdened mentally and physically. Therefore, learning techniques is still given at the first or beginning of the practice session. With integrated and continuous coaching, it will grow and increase public interest in volleyball and can produce quality players in the future. Of course, for elementary school students, modifications are needed both in equipment, field, and game rules, according to the age level of students.

Volleyball has become one of the most common content areas offered by secondary school education because it helps students develop competence in sports, motor skills and movement patterns. In teaching volleyball, teachers may not

emphasize simply developing basic skills as a whole in respectful learning conditions, for lower elementary levels, but also develop skills or tactics voluntarily and hook them into game play (e.g. pass-set-spike in three positions or designs) for upper and secondary grades. Given that the technical demands of volleyball are relatively high, students must have basic ball control skills to participate in the game.

Teachers' emphasis on teaching discrete skills in isolation rather than in contexts such as games has long been a problematic problem in physical education teaching. To provide more authentic and rich learning experiences that enable students to refine and apply skills or tactics in game situations, several instructional approaches (e.g., Sports Education, Game Teaching for Understanding, Tactical Game Model (TGM), and Practical Play (PP) have been used in Physical Education. Studies report positive learning outcomes from this instructional approach in terms of improving students' skill levels, game play, activity levels, competency levels, positive interactions, and behaviors in learning (Yusmawati et al., 2020).

Media or tools play an important role in physical education learning. Where in teaching has a very complex and comprehensive goal to improve cognitive, affective, and psychomotor aspects (Arisman & Agun Guntara, 2021). Teachers are required to develop their creativity to find and choose varied media or tools, with the selection of varied media or tools will have a positive impact on the learning carried out and the goals expected to be achieved optimally (Murjainah et al., 2020). In a study that there is a way to improve bottom passing results by using plastic ball modification media (Okilanda et al., 2021). With good modified media will improve good bottom passing as well.

Teaching volleyball, especially basic passing techniques, there are several ways of teaching effective top passing, both using tools and without tools. While in this study researchers refer to not using tools, namely a form of exercise by playing lying sitting. In an effort to improve volleyball learning, teachers are required to be creative in providing material. One method or approach to learning that is considered by researchers to be quite interesting and in accordance with the

development or characteristics of students is through the play method. In addition to the drill method, to be able to improve volleyball playing skills, namely by playing methods. By modifying this game, it is the development of game forms that lead to mastery of basic volleyball techniques that are simple so that they are easy to understand and can be interesting to facilitate students and coaches in the training process.

Bottom passing is one of the defensive techniques with the reception of the ball in a scooping style. Bottom passing is one technique to receive a difficult serve, because in this way we will be able to have the opportunity to direct the ball as we want. The most effective bottom pass during the game is by accepting the bottom pass from various difficulties that will be faced, so that the bottom pass becomes perfect or good (Darmawan & Rusli, 2019).

In the game of volleyball, a defender has a bigger role than other players. This means that the process of forming this bottom pass must be trained so that it can be really mastered properly by the athlete concerned. The process of forming the bottom pass is through the following stages: a/. Preparation, b/. Contact with the ball (touch) c/. Suffix motion (follow-trough). The preparation done by a volleyball defender can be done in various ways, namely with straight forward movements and sideways movements.

Things to note are:

Preparation to receive the ball with one foot forward from the other and the posture bent forward, Both knees are bent slightly so that the posture becomes tilted slightly upward. The position of the arms at the time will receive the ball both arms bent slightly in front of the body. The body must be prepared as much as possible so that it faces the direction of the ball rate. Players receive the ball on the inside of both lower arms, then "hook" according to the intended direction.

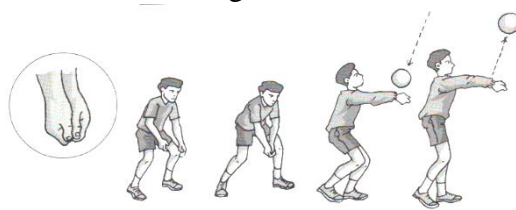


Figure 1. Execution of Bottom Passing

The posture after pushing the ball must return to the direction where we were earlier. The implementation of the ball push is the push of the arm towards the ball while bending and elbowing straight forward. The hand follows the direction of the ball and then is pushed forward following the intended direction. The abdominal muscles help strengthen the impulse so that the ball can be well directed. The most basic bottom pass when reaching out is to read the opponent's attack so that it can know the direction of a spike coming. The hard spike has such a high speed that it only takes half a second to hit the floor. This means that the player must be in the right defensive position to receive the ball before the spike is hit, because there is no time to move towards the ball after the ball is hit.

Two additional bottom passing techniques that must be mastered for individual defense are rolling and stepping foot. Rolling is a more recommended method, because with this technique the player will stand back up faster when compared to stretching the legs. Rolling is used to return to its original position after the player's body touches the floor to reach the ball. This roll is just like rolling forward and is done in a certain way so that the part of the body protected by an additional layer of muscle absorbs the impact when the player falls, due to the lack of force the player has to knock himself down. Stretching the legs is quite a comfortable technique for male players. This technique is mostly used when a player is forced to accept a ball that falls in front of a player, but can also be used in other directions (Hale et al., 2019). Another defensive technique, players use the technique of stretching their legs when the player has to move some distance before being close enough to receive the ball. This technique is usually used to receive the ball from a spike hit.

The reaching technique is the only technique that can be used well to receive attacks. The players in an emergency also use other techniques, but usually with a limited success rate. A well-executed ball grabbing movement not only attracts the attention of spectators, but also tends to frustrate opposing players who spike with all their might. It usually makes the attacking party make a mistake. The rolling technique is very important because this technique helps the player to get back on

his feet as quickly as possible (Ackerman, 2014). This technique is also a method to dampen the body when falling, while also preventing injury. Players will usually use the rolling technique after the player has to chase the ball that falls far enough from the player's original defensive position. The technique of stretching the legs is very important because this technique allows players to reach the ball in a normal position that players cannot accept. This technique is also another way to reach the ball without making the player have to drop down, which proves difficult for players with weak hands to do. The movement of stretching the legs makes the player reach the ball from a low body position, touching the floor with a gliding motion, which thereby reduces the impact effect and prevents injuries. Players learn to receive the ball using a variety of individual defensive techniques, players are ready to practice changing defensive positions to attacking by using reaching out movements as a first touch.

A model is something that describes the existence of a pattern of thinking. A model usually describes a whole range of interrelated concepts. In other words, the model can also be viewed as an attempt and to concretize a theory as well as an analogy and representation of the variables contained in the theory (Chaeril Saputra1 , Ferri Hidayad2, 2022). A model is a representation of several phenomena that exist in the real world and a representation of a process in graphic and/or narrative form, by showing the main elements and structure. In this case, it is possible to interpret the narrative model into graphic form, or vice versa.

So, from these definitions, it can be concluded that the model is a mindset process and the components contained in it, which are represented in graphic and/or narrative form. In learning system design, models usually describe the steps or procedures that need to be taken to create effective, efficient, and interesting learning activities. So a model in learning development is a systematic process in the design, construction, utilization, management, and evaluation of learning systems.

The learning process that can be developed in this research includes the development of learning from easy to difficult, including:

1. Learning to pass down to the wall
2. Pairwise bottom passing learning
3. Bottom passing by rotation
4. Passing down while passing through the rope
5. Passing down to the target on the wall using a hanging holahoop

In addition to the learning above, lower passing learning can also be done with the following learning:

1. Passing down with two touches
2. Passing down and up skip numbers
3. Passing Down and Up by Collecting Numbers
4. Passing down and themes

METHOD

In general, the results of development research are to produce new products that will later be used in training activities to make it easier for coaches to deliver bottom passing learning material in volleyball games and make it easier for teachers or coaches to achieve the expected volleyball bottom passing learning results. Place and Subject of Research The research was carried out at Jambi City Elementary School. The approach used in this study is a qualitative and quantitative approach, which is an approach to find answers to problems through the formulation of problems that have been formulated in chapter I, namely the game-based volleyball bottom passing learning model (Putra et al., 2020).

The final result of this development research is that this game-based volleyball bottom passing learning model will produce a product in the form of a volleyball bottom passing learning exercise design complete with product specifications while testing the effectiveness of the learning model made, so that it can improve volleyball bottom passing learning outcomes and can also be used as a guide in volleyball bottom passing learning model activities for school children Basis. The research and development in this exercise uses qualitative and

quantitative approaches and uses the Borg and Gall's Research & Development (R&D) development model consisting of ten steps (Borg & Gall, 1983).

RESULTS AND DISCUSSION

Table 1. Learning Environment Analysis Data

No	Question	Number of Answers	Total Number of Responses	Percentage
1	Did you develop a volleyball lesson plan?			
	Yes	40	40	100
	Not	0	40	0
2	Are the volleyball learning models you use sufficient?			
	Yes	32	40	80
	Not	7	40	17,5
3	What learning methods do you use in learning volleyball:			
	Command	37	40	92,5
	Inclusion	3	40	7,5
	Exercise	37	40	92,5
	Cooperative	26	40	65
	Play	3	40	7,5
4	What type of media is used to support volleyball learning?			
	Standard volleyball	35	40	87,5
	Volleyball modification	5	40	12,5
	Standard pitch	16	40	40
	Modivikation field	24	40	60
	Standard net	37	40	92,5
	Net modification	3	40	7,5
	Cone	40	40	100

Based on the data above, it was found that all teachers had prepared lesson plans as evidenced by lesson plan documents, while most teachers (as many as 80%) stated that the variety of volleyball learning models carried out was considered sufficient, however, the learning model variations carried out were using command and training styles, even so teachers had also carried out learning with cooperative methods.

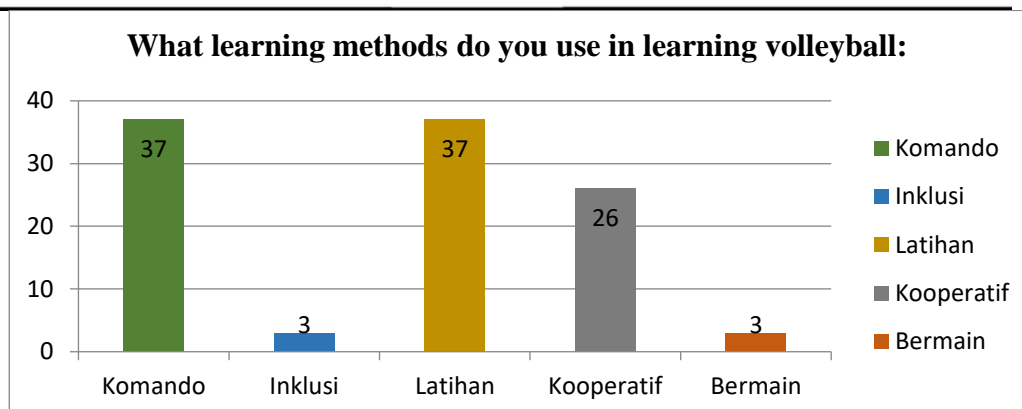


Figure 2. Bar Chart of physical education teacher learning methods in teaching volleyball material

Actually, teachers have implemented alternative physical education learning volleyball material well, however, with the characteristics of students who are very active and have a high cruising range, it seems that the learning styles and methods carried out need to be developed again, this can be seen from only a small percentage (3 teachers out of 40 teachers) carrying out their learning with a play model. This shows that the model that has been applied by teachers is more of an exercise than presenting more enjoyable learning but still includes appropriate physical activity. On the other hand, the media / equipment used by teachers still uses standard equipment for volleyball games. This has received attention for researchers to develop media and equipment modifications to better suit the development and growth of children at their age.

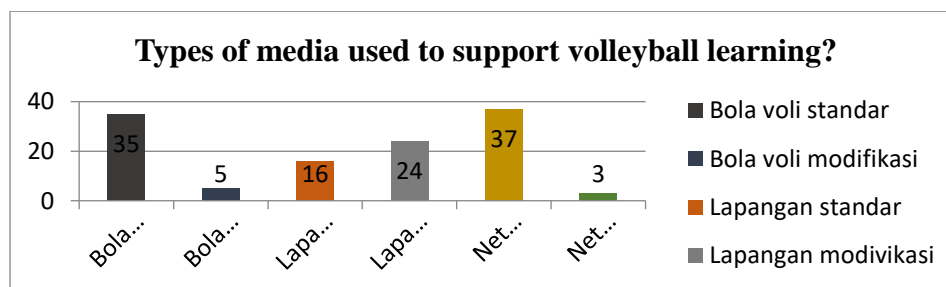


Figure 3. Bar Chart of the type of media that physical education teachers use in teaching volleyball material

Product effectiveness is carried out during operational trials. Operational trials apply learning models to actual learning environments. The method used is experimental one group pretest posttest. Here are the results of the pretest and posttest ability to pass below.

Table 2. Volleyball Bottom Passing Pretest Results

	Average2 Process Score	Average2 Results Score	Average2 Rough Numbers	average2 Z score
N=40	2,425	10,775	13,2	3.60822E-16

While the following are the posttest results after being given the treatment of the volleyball bottom passing learning model through a playing approach.

Table 3. Volleyball Bottom Passing Posttest Results

	Average2 Process Score	Average2 Results Score	Average2 Rough Numbers	average2 Z score
N=40	3,675	18,85	22,525	2.94209E-16

To determine the effectiveness of the learning model based on pretest and posttest results, researchers conducted an analysis of pretest and posttest scores using the gain score technique. This technique will show how much change is produced by the treatment of the final result compared to the pretest. The following are the results of the calculation of gain score on the pretest and posttest.

Table 4. Volleyball Bottom Passing Pretest and Posttest Gain Score Results

Student	Average2 Pretest	Average2 Posttest	Gain Score	Category
N=40	13,20	22,53	0,58	Keep

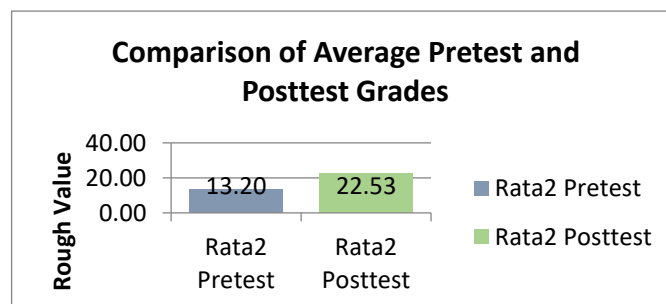


Figure 4. Average Bar Chart of Pretest Values with Posttest Values

Based on the gain score analysis above, it can be concluded that the application of the volleyball bottom passing learning model with a game approach, is able to contribute at a moderate level to improving students' bottom passing ability.

Discussion

There search and development process has been carried out systematically and gradually. The research began by analyzing the learning environment, where several problems were still found in learning, including limited learning variations and teaching styles, not many modified facilities and infrastructure. In addition, researchers analyzed development needs by distributing questionnaires to elementary school physical education teachers, and obtained 100% results expressing interest and agreement to the development of volleyball passing learning (NPR et al., 2015). The empirical primary data is the basis for researchers to start making initial product designs.

The initial product design is prepared by researchers based on literature review and discussion. The initial product draft was prepared with as many as 36 items of learning models specifically designed to support students' movement literacy through large ball games, in this case volleyball (de Freitas et al., 2014). It is not easy to develop model items because it must be equipped with names, equipment, to implementation procedures and illustrative drawings. In this process researchers are assisted by teachers, experts and colleagues. Some obstacles when designing the initial product are finding sources that are relevant to the development goals, so it is necessary to watch more videos and discuss with practitioners directly.

After the product draft is prepared, then validation is carried out by three experts. Experts are selected to validate products according to their respective fields. Experts who contribute to evaluate and provide improvement suggestions are also learning experts, volleyball experts and motor experts (Mendes Id et al., 2021). Based on expert evaluation, the product which was originally 36 items of learning models then became 30 items of learning models that met the eligibility / valid criteria. Some models were eliminated by experts, and even two experts said

the same thing for one particular model to remove because it was too difficult or considered unsafe.

After the post-validation improvement process, the product was tested on a limited basis to 10 students. Applied by teachers and observed by three observers including teachers and peers. The observer found that all model items can be implemented well, it's just that the management of model items in learning needs to be better organized. After revising the large group trial, researchers didn't find many problems, so the product can go to operational trials to see how much it contributes to improving student learning outcomes.

At the time of implementation of the model, a pre-test, treatment, and then posttest on one group of students. The pretest and posttest results show good results, so it can be concluded that the model developed really has a positive contribution to children's learning outcomes.

Conclusion

Volleyball bottom passing learning model product with game approach for elementary school, valid and feasible for use in physical education learning, Volleyball bottom passing learning model product with game approach for elementary school proved effective in improving basic volleyball bottom passing ability of elementary school students.

REFERENCES

- Ackerman, J. (2014). *Volleyball Girl's Sportszone* (2014th ed.). ABDO Publishing Company.
- Arisman, A., & Agun Guntara, R. (2021). The Research Of Students' Motor Ability In Archery Extracurricular. *Jurnal Maenpo : Jurnal Pendidikan Jasmani Kesehatan Dan Rekreasi*, 11(1), 13. <https://doi.org/10.35194/jm.v11i1.1216>
- Borg, W. R., & Gall, D. (1983). *Educational Research*. Longman.
- Chaeril Saputra¹, Ferri Hidayad², J. G. M. 3. (2022). Pengembangan Metode Pembelajaran Servis Bawah Permainan Bola Volly Siswa Kelas V SDN 15 Sembawa. *Jurnal Pendidikan Dan Konseling*, 4(23), 12209–12217.
- Darmawan, S., & Rusli, M. (2019). Peningkatan Hasil Belajar Passing Bawah Dalam Permainan Bola Voli Melalui Metode Self Check Dan Audio Visual Pada Murid Sdn 13 Arfai Manokwari. *SPORTIVE: Journal Of Physical Education, Sport and Recreation*, 3(1), 1.

<https://doi.org/10.26858/sportive.v3i1.11420>

- de Freitas, V. H., Nakamura, F. Y., de Andrade, F. C., Pereira, L. A., Coimbra, D. R., & Bara Filho, M. G. (2014). Pre-competitive physical training and markers of performance, stress and recovery in young volleyball athletes. *Revista Brasileira de Cineantropometria e Desempenho Humano*, 17(1), 31–40. <https://doi.org/10.5007/1980-0037.2015v17n1p31>
- Hale, D., Kollock, R., Pace, J., & Sanders, G. (2019). Vertical jump and agility performance improve after an 8-week conditioning program in youth female volleyball athletes. *Journal of Physical Education and Sport*, 19(1), 765–771. <https://doi.org/10.7752/jpes.2019.01109>
- Hidayat Taufiq & Kurniawan Deddy. (2015). Pengaruh Modifikasi Permainan Bolavoli Terhadap Kerjasama Siswa Pada Pembelajaran Pendidikan Jasmani, Olahraga Dan Kesehatan (Studi Pada Siswa Kelas X Boga 1 SMKN 3 Probolinggo). *Jurnal Pendidikan Olahraga Dan Kesehatan*, 03(1), 20–24.
- Mendes Id, F. G., Lima Id, A. B., Id, M. C., Quinaud Id, R. T., Collet, C., Gonç Alves, C. E., & Carvalhoid, H. M. (2021). *Multidimensional characteristics of young Brazilian volleyball players: A Bayesian multilevel analysis*. <https://doi.org/10.1371/journal.pone.0250953>
- Murjainah, Mujib, M. A., Aryaningrum, K., Arisman, & Selegi, S. F. (2020). Improvement of students' soft skills (honesty and motivation) using edmodo by Blended Learning Method. *IOP Conference Series: Earth and Environmental Science*, 485(1). <https://doi.org/10.1088/1755-1315/485/1/012117>
- NPR, Robert Wood Johnson Foundation, & Harvard T.H. Chan School of Public Health. (2015). *Sports and Health in America*. June, 73.
- Okilanda, A., Dlis, F., Humaid, H., Putra, D. D., Arisman, A., & Muslimin, M. (2021). Defense Warm-Up Exercise Material for 13-Age Athlete Using Video Technology in Covid-19 Era. *International Journal of Human Movement and Sports Sciences*, 9(4), 629–634. <https://doi.org/10.13189/saj.2021.090404>
- Pratiwi, E., & Anggara, N. (2021). Pengembangan Model Passing Bawah Bolavoli Pada Atlet Pemula Universitas Islam Kalimantan MAB Banjarmasin. *Halaman Olahraga Nusantara (Jurnal Ilmu Keolahragaan)*, 4(1), 23–37. <https://doi.org/dx.doi.org/10.31851/hon.v4i1.5106>
- Putra, D. D., Okilanda, A., Arisman, A., Lanos, M. E. C., Putri, S. A. R., Fajar, M., Lestari, H., & Wanto, S. (2020). Kupas Tuntas Penelitian Pengembangan Model Borg & Gall. *Wahana Dedikasi : Jurnal PkM Ilmu Kependidikan*, 3(1), 46. <https://doi.org/10.31851/dedikasi.v3i1.5340>
- Rizal, B. T., & Kasriman, K. (2020). Pengaruh Gaya Mengajar dan Koordinasi Mata Tangan Terhadap Keterampilan Smash Bola Voli. *Jurnal MAENPO*:

Jurnal Pendidikan Jasmani Kesehatan Dan Rekreasi, 10(2), 72.

<https://doi.org/10.35194/jm.v10i2.1065>

Saptono, T., & ROZZAQ, A. (2013). Perbedaan Pengaruh Metode Mengajar Reciprocal Dan Self Check Terhadap Peningkatan Keterampilan Teknik Dasar Bolavoli. *Jurnal Pendidikan Jasmani Indonesia*, 7(2), 111–116. <https://journal.uny.ac.id/index.php/jppi/article/view/3013>

Sidhu, A. S. (2016). Analysis of Blocking Technique in Volleyball. *International Journal of Science and Research (IJSR)*, 5(8), 766–768.

Yusmawati, Julianti, E., & Purba, R. H. (2020). Neuroscience-based physical education learning environment: An analysis. *International Journal of Human Movement and Sports Sciences*, 8(6), 36–41. <https://doi.org/10.13189/saj.2020.080706>