

Development of Learning Technique Smash Volleyball Games

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ABSTRACT

This study aims to develop a volleyball drill smash learning technique for students. The research method used in this research is research and development. This research only reached the Develop preliminary form of Produce stage or At the expert validation stage. There are 3 validation experts in this study, namely, physical education experts, volleyball game experts and linguistics. This study use a questionnaires as a research instrument to find product validation. 12 The drill smash learning technique was declared feasible based on the results of validation by physical education experts, 81.4% was obtained, the expert validation of volleyball games was 81.5%, and 82.3% was obtained from the results of linguist validation, thus based on the results of validation by product experts in the form of The learning technique of volleyball drill smash game for students is declared Eligible for use.

Keywords: *Development, Learning technique, Smash, Volleyball.*

1. INTRODUCTION

Volleyball is characterized as a ball game that requires biomechanical demands on the musculoskeletal system as well as a lot of coordination, speed, agility, and neuromuscular strength besides that in volleyball it instills very many character values such as cooperation, discipline, confidence and others, Volleyball game is one of the material contained in the curriculum of physical education and sports subjectsthe game of volleyball has now experienced quite a rapid development [1]. Passing, setter, spiking, blocking the ball are the basic movements in volleyball, which require a variety of horizontal and vertical jumps and speeds. The volleyball player who is in the team must have at least the higher vertical jump. For beginners and young players, these values are also considered an important indicator of performance, in addition to jumping height, ball spike ability, speed which may also be important factors for performance. Within this structure, a spike is a complex pattern of movement requiring flexibility, muscle strength, coordination and neuromuscular efficiency. The volleyball smashes mainly include arm-crooking smash, arm-brandishing smash, the straight arm smashes three types [2].

In Sriwijaya University physical and health education program, one of the compulsory subjects is

the basic skills of volleyball games, so what was done in this study was to conduct an initial study in the form of field observations in several universities that have physical education study programs and volleyball games to see the existing problems, so that you can find a solution by analyzing the needs in the field.

According to the results of observations made in the Physical Education study program, especially in smash material for students, students have difficulty in doing the smash technique so that this is due to the level of difficulty in the smash material itself. This is used as the basic foundation of the problem so that research is necessary. Based on the theoretical study of factors that affect learning outcomes. The factors that influence learning are internal factors and external factors. Internal factors are factors that come from within a person while external factors are factors that come from outside the individual. Both of these factors can become obstacles or support for student learning. This research is focused on internal and external factors that affect learning outcomes. The internal factors that the researchers discussed were about students' non-intellectual factors. Non-intellectual factors are certain personality elements in the form of interests, motivation, attention, attitudes, habits [3], besides there are many types of factors that affect learning, but can be classified into only two groups, namely internal factors and

external factors. External factors that influence learning include learning models, teaching methods, learning techniques, learning strategies and teaching methods which are ways of presenting learning materials to students so that learning objectives can be maximally achieved. Teaching techniques or models affect the learning process of students. If the teaching technique tends to be boring or less varied, it will make it difficult for students to learn. This learning difficulty can have an impact on students' learning outcomes in these subjects. Teachers must be able to use appropriate, efficient and effective teaching techniques or models for students so that attention in the classroom is focused on learning. Teaching materials for teachers are the key to creating creativity for teachers and combined with learning media so that learning activities will be better.

This study aims to develop volleyball smash learning techniques that can be used for students with the hope of being a solution or answer to the appropriate learning smash technique to teach volleyball learning to students so that learning outcomes will increase, and more importantly, students will feel happy and interested in learning the game of volleyball. The development of volleyball smash learning techniques can be an additional teaching material for teachers so that students are able to properly take part in learning and have an impact on improving learning outcomes, especially in volleyball smash material.

2. METHOD

The research is focused on developing a learning technique, namely the smash learning technique with a mixed methods research approach, which combines qualitative and quantitative methods. This is intended to be able to reach or process all data or information so that a comprehensive explanation will be obtained, while the research method used in this research is the research and development method from Borg and Gall, with a clear consideration of the stages of research and development. The research and development steps include: (1) the preliminary study stage; (2) the planning and model development stage; and (3) Product Validation, Evaluation and Revision. This research is only up to stage 3, namely product validation due to limited research time. Data collection in this smash learning technique development activity uses field notes to record the results of observations of student and lecturer behavior during the ongoing learning process, which is carried out during the needs analysis and during the small group trial process and questionnaire field trials, as a test instrument. expert. Data analysis obtained during needs analysis, expert validation, and in the form of qualitative data (results of observations and suggestions / input) and quantitative data (results of questionnaires. Qualitative data are analyzed during data collection and after completing data collection within a

certain period, by means of summarize the data to select the main and important things, then present the data so that it is easy to understand what happened and plan the next work, then draw conclusions and verification which are new findings in the form of descriptions and quantitative data from the results of the distribution of questionnaires analyzed using analysis techniques with a percentage .

3. RESULT AND DISCUSSION

This study resulted in 12 drill smash learning techniques while the 12 techniques were as follows: The technique of learning drill smash to start the steps and positions without the ball, The technique of learning drill smash without starting to hit the ball towards the floor without jumping, The technique of learning drill smash without starting to hit the ball against the wall without jumping, Drill smash learning technique by catching the ball in the air, The technique of learning drill smash into the wall with a start and a jump, Learning technique of paired drill smash without the prefix of the distance of 3 meters without a net, Technique of learning drill smash in pairs without the prefix of a distance of 5 meters without a net, The drill smash learning technique in pairs with the prefix of a distance of 3 meters over the net, Drill smash learning technique in pairs with a prefix of a distance of 5 meters over the net, The 3 target drill smash learning technique with assistance, Drill smash 5 target learning techniques with assistance, The technique of learning drill smash by being fed 5 times and then smashing.

These 12 techniques have been declared feasible by 3 experts, namely physical education experts, volleyball game experts, and linguists. The results of the expert test above stated that the 12 drill smash learning techniques were feasible and could be implemented to students so that they could be continued at the tested stage, but there were still suggestions and input from experts for this drill smash learning technique to be better than before.

The development of smash learning techniques uses the research and development method with steps developed by Borg And Gall. The research begins with conducting a needs analysis by identifying problems in accordance with problems in the field of skills or knowledge of students [4] besides that the analysis phase begins with teaching problems that produce a careful view of the student population and student characteristics [5].

This research begins with a needs analysis by making observations, the results of observations show that in the learning process of volleyball, especially the smash material, the problems faced are the difficulty of students doing smash when they participate in learning activities for the service of volleyball. So that the desire

of students to smash is reduced, this causes students to be less able to do smash well. Smash is a technique that must be mastered by all players because Smash is an attack that can generate numbers in a game. The placement of the smash direction is more effective in generating points and maintaining the physical performance of players [6], Besides the height of jump,

the ability to spike the ball with highest possible speed are also important factors for performance of the volleyball players [7] the spike is described as the most explosive movement form among the overhead volleyball skills [8] It requires a straight approach to the ball with a right angle and jumping with good timing [9].

Table 1. The average result of the assessment of physical education expert, volleyball expert and language on the drill smash learning technique

| No. | Classification of Drill Smash Learning Techniques | Expert Assessment (%) | | | Information |
|-----|--|-----------------------|-------------------|----------|-------------|
| | | PE Expert | Volleyball Expert | Linguist | Valid |
| 1. | The technique of learning drill smash to start the steps and positions without the ball | 81,3 | 82,6 | 80 | (Valid) |
| 2. | The technique of learning drill smash without starting to hit the ball towards the floor without jumping | 85,3 | 84 | 82 | (Valid) |
| 3. | The technique of learning drill smash without starting to hit the ball against the wall without jumping | 78,7 | 81,3 | 82 | (Valid) |
| 4. | The technique of learning drill smash by catching a ball in the air | 81,3 | 80 | 84 | (Valid) |
| 5. | The technique of learning drill smash by catching a ball in the air | 85,3 | 82,6 | 84 | (Valid) |
| 6. | Paired drill smash learning techniques without the prefix of a distance of 3 meters without a net | 82,6 | 84 | 82 | (Valid) |
| 7. | Paired drill smash learning techniques without the prefix of a distance of 5 meters without a net | 81,3 | 80 | 86 | (Valid) |
| 8. | The drill smash learning technique is paired with a distance of 3 meters over the net | 76 | 80 | 82 | (Valid) |
| 9. | The drill smash learning technique is paired with a distance of 5 meters over the net | 80 | 82,6 | 84 | (Valid) |
| 10. | 3 target drill smash learning techniques with assistance | 84 | 81,3 | 80 | (Valid) |
| 11. | 5 target drill smash learning techniques with assistance | 78,6 | 82,6 | 82 | (Valid) |
| 12. | Drill smash learning technique by being fed 5 times and then smashing | 82,6 | 81,3 | 80 | (Valid) |
| | Average | 81,4 | 81,5 | 82,3 | (Valid) |

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This problem occurs because of things such as the lack of variation in teacher teaching techniques, teaching material sources and learning media is said to be very little, then literacy analysis where there is still a lack of learning techniques to teach smash, then analysis of corner teacher needs really requires teaching steps that are booked so that it can teach smash technique properly.

The second stage in this research is product design starting from designing goals to be achieved in the learning process, and formulating objectives to be achieved besides that the design / design phase helps to focus and improve the researcher's efforts and create designs where then can build teaching content an interesting and learning experience. The goals in this case lead to the development of courage, independence, and motor development of children in the field, including; planning the preparation of learning materials for service learning techniques, planning the use of effective language, planning procedures for implementing top service techniques, planning for

experts in their fields, and planning the learning process or daily activity plans so as to assess instructional objectives, these instructional objectives are obtained based on lecture program units so that it is in accordance with the learning provided by the physical and health education lecturers.

A review of the material, namely the understanding of the history of the volleyball game, the facilities and infrastructure used, heating and cooling, understanding of the smash, basic smash techniques, learning techniques developed by the smash, at this planning stage also aims to conduct expert tests where the objectives to be achieved are get the feasibility or validity of learning techniques made with the direct assessment of experts, in line with it the need to create a concept or framework by starting with the construction of this structure means that it needs accurate guidelines for manufacture as defined during the analysis phase including the schedule of course completion, arrangement individual lessons during the course, forms of teaching strategies and all necessary resources according to a given schedule [10], this study presents 3 experts in the feasibility assessment of the volleyball drill smash learning technique, namely physical education specialist, volleyball expert, and linguist. The results of this research on design resistance found that the learning developed was declared valid or suitable for use based on the results of validation by physical education and health experts, an average of 81.4% was obtained, volleyball game experts obtained an average of 81.5% and linguists obtained an average -Average 82.3% so that it is declared Eligible for smash learning in students. 12 learning techniques that are declared feasible and can be used for learning are as follows: drill smash learning techniques with the start of the steps and positions without the ball, the drill smash learning technique without first hitting the ball towards the floor without jumping, the drill smash learning technique without hitting the ball against the wall without prefix jump, drill smash learning techniques by catching the ball in the air, learning techniques for learning drill smash against the wall with a prefix and a jump, learning techniques for learning drill smash in pairs without the prefix of a distance of 3 meters without a net, learning techniques for learning drill smash in pairs without a prefix of a distance of 5 meters without a net, learning techniques drill smash in pairs with a starting distance of 3 meters over the net, paired drill smash learning techniques with a prefix of 5 meters over the net, 3 target drill smash learning techniques with assistance, 5 target drill smash learning techniques with assistance, drill smash learning techniques with 5 passes then smash. Same result of [11] regarding the development of a volleyball smash training model in extracurricular, the results of the analysis stated that this development product was suitable for use in extracurricular activities, based on the results of expert

tests and field tests, it can be concluded that the smash bolavoli training model is valid for use in extracurricular activities, [12] development of learning model for volleyball smash Against Smash Skills in Class VIII Students this study was found that the development of the volleyball smash learning model can improve students' understanding of the smash technique, with this increased understanding, the results of learning smash for class VIII students increased, besides this research found a product, namely the smash learning model, beside that [13] study only discusses the characteristics of movement which are a performance factor in spiking / (smash), hitting volleyball besides this research to see technical-coordinative differences for female players so that this study only aims to investigate the relationship between movement characteristics and spike performance, (smash) women and to identify the most relevant aspects of jumping height and ball speed, the understanding and mastering of good volleyball techniques will help student to hit correctly, a teacher must pay attention on the students, hose high and low eye-hand coordination, the student with those coordination will have good smash compared to the low coordination athlete, those coordination are complex skills requiring movement to foster and improve coordination [14].

This research resulted in 12 development techniques for learning volleyball smash games that can be used for physical education students. With the results of this development, it is hoped that the results of this research can be applied in learning volleyball smash games so that there is an improvement in student learning outcomes.

According to [15] the learning model smash a volleyball pattern approach play can help students learn effectively and efficiently and the impact of positive against the motivation and the active involvement of students in following the process of learning, besides [16] volleyball smash training model were able to improve volleyball smashing and effective to improve smash capabilities of volleyball players, then other supporting research is [17] development model could be developed and applied in volleyball smash learning and effectively improved volleyball smash learning outcomes for junior high school students, [13] for ball velocity, upper body antropometrics and angular joint velocities emerged as the most important criteria. The importance of specific joints may depend on variations in striking technique, [18] data evidenced that each role has specific characteristics. In Reaction Times, the Strikers were the fastest to answer to stimuli, while the Defender group provided a worse performance, particularly when defensive actions, that probably require more cognitive elaboration, had to be processed, [19] free arm motion improved standing lateral jump performance on average. This improvement was due to increased takeoff velocity and improved lateral and

vertical positions of the center of gravity (CG) at takeoff and touchdown so the result is the development technique could used in volleyball games learning.

4. CONCLUSION

The conclusions from this research is the production of products that are declared valid by physical education and health experts, volleyball game experts and linguists, resulting in products in the form of 12 volleyball drill smash learning techniques in the form of drill smash learning techniques, the start of steps and positions without the ball, learning techniques. drill smash without prefix hitting the ball towards the floor without jumping, drill smash learning techniques without prefix hitting the wall ball without jumping, drill smash learning techniques by catching the ball in the air, learning techniques for learning drill smash against the wall with a start and a jump, learning techniques for learning drill smash in pairs without 3 meter distance prefix without net, paired drill smash learning technique without 5 meter distance without net prefix, paired drill smash learning technique with 3 meter distance prefix over the net, paired drill smash learning technique with 5 meter distance prefix over the net, drill smash learning technique 3 tar get with the help, the 5 target drill smash learning technique with the help, the drill smash learning technique by being fed 5 times then smash. The implementation of this research is expected to be used by volleyball lecturers when teaching so that it is expected to improve the volleyball smash learning outcomes.

AUTHORS' CONTRIBUTIONS

The authors of this study contributed to all parts of the research, both during the preparation of proposals, conducting research, data collection, data analysis and article writing.

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REFERENCES

- [1] G.D. Mulyani, & G. Sumarno, Pengaruh Pengajaran Handball Like Games Terhadap Penguasaan Keterampilan Gerak Dasar Lempar Tangkap Dalam Pembelajaran Penjas Sekolah

- Dasar, *Jurnal Pendidikan Jasmani Dan Olahraga*, 2017, DOI: <https://doi.org/10.17509/jpjo.v2i1.6402>
- [2] X.X.S, Qikai, Experimental Study on the Characteristics of Volleyball Smash [J]. In *Sports Forum* (Vol. 7), 2012.
- [3] Y, Riyani, Faktor-faktor yang Mempengaruhi Prestasi Belajar Mahasiswa. *Jurnal EKSOS*. 8 (1), 2012, pp.19-25
- [4] S.Y. Cheung, Y.Wang, M., Zhou, L., & J. Shi, When Gong, and how does functional diversity influence team innovation? The mediating role of knowledge sharing and the moderation role of affect-based trust in a team. *Human relations*, 69(7), 1507-1531, 2016, DOI: <https://doi.org/10.1177%2F0018726715615684>
- [5] A.H, Nichols & K. Greer, Designing for engagement: Using the ADDIE model to integrate high-impact practices into an online information literacy course. *Communications in information literacy*, 10(2), 6, 2016, DOI: 10.15760/comminfolit.2016.10.2.27
- [6] A.I.A., Medeiros, J.M., Marcelino, R., & Mesquita, I, Revisão Palao, sistemática sobre a performance desportiva no voleibol de praia a partir da análise do jogo. *Revista Brasileira de Cineantropometria & Desempenho Humano*, 16(6), 2014, pp. 698-708, DOI: <http://dx.doi.org/10.5007/1980-0037.2014v16n6p698>.
- [7] B. Forthomme, J.L., Croisier, G, Ciccarone, J.M., Crielaard, and M. Cloes, Factors correlated with volleyball spike velocity. *American Journal of sports medicine*, 2005.33(10): p. 1513-1519. DOI: <https://doi.org/10.1177%2F0363546505274935>
- [8] A. Celik, Acute effects of cyclic versus static stretching on shoulder flexibility, strength, and spike speed in volleyball players. *Turkish Journal of physical medicine and rehabilitation*, 63(2), 2017, p. 124-132. DOI: <https://dx.doi.org/10.5606%2Ftftrd.2017.198>
- [9] M.H.K, Tiwari, Relationship of selected kinematics variables with the performance of back court spike in volleyball, *International journal of scientific and research publications*, 2(11): 2012, pp. 1-5.
- [10] D. Drljača, B. Latinović, Z. Stanković, & D. Cvetković, Addie model for development of e-courses. In *Documento procedente de la International Scientific Conference on Information Technology and Data Related Research SINTEZA*, 2017, pp. 242-247
- [11] I. Muttaqin, .M.E, Winarno, & A. Kurniawan, Pengembangan model latihan smash bolavoli pada kegiatan ekstrakurikuler di SMPN 12 malang. *Jurnal pendidikan jasmani*, 26(2), 2016.
- [12] T.K, Prasetyo, *Pengembangan buku teks berbasis augmented reality untuk Program Keahlian Teknik Gambar Bangunan di Sekolah Menengah Kejuruan* (Doctoral dissertation, Universitas Negeri Malang), 2017.
- [13] P. X Fuchs, A. Fusco, J.W. Bell, S.P Von, S.P Duvillard, C. Cortis, & H. Wagner, Movement characteristics of volleyball spike jump performance in females. *Journal of science and medicine in sport*, 22(7), 2019, pp. 833-837. DOI: <https://doi.org/10.1016/j.jsams.2019.01.002>
- [14] M.A.N Pritama, Sugiharto & S. Rahayu, Pengaruh Metode Latihan Smash dan Koordinasi Mata Tangan dengan Menggunakan Umpan Langsung dan Tak Langsung Umpan pada Bulutangkis. *Journal of physical education and sports*, 3 (1), 2014.
- [15] I. Akhmad, Model Learning approach to spike a volleyball Play for junior high school students. *Journal of physics: conference IOP publishing Series* (Vol. 1387, No. 1, 2019, pp. 012057
- [16] D.P. Parlindungan, The Effectiveness Of Volleyball Smash Training Model On Improving Smash Capabilities Of Volleyball Players. *Proceedings of the international conference on social sciences (ICSS)*, Vol. 1, No. 1, 2018.
- [17] W.W. Budiarti, A. S., Hanif, & S. Samsudin, Volleyball Smash Learning Model for Middle School Students. *Budapest international research and critics in linguistics and education (BirLE) Journal*, 2(4), 2019, pp. 239-244.
- [18] S. Montuori, G. D'Aurizio, F. Foti, M. Liparoti, A. Lardone, mPesoli, M., ... & Sorrentino, P. Executive functioning profiles in elite volleyball athletes: Preliminary results by a sport-specific task switching protocol. *Human movement science*, 63, 2019, pp. 73-81. DOI: <https://doi.org/10.1016/j.humov.2018.11.011>.
- [19] B. M., Soheli, A. A., & G.J, Alderink, Effect Ashby, of arm motion on standing lateral jumps. *Journal of biomechanics*, 96, 2019, pp. 109339. DOI: <https://doi.org/10.1016/j.jbiomech.2019.109339>