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Variation exercise model *smash* volleyball game

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ABSTRACT

Smash variation exercises are exercise must in volleyball game for produce attack variations that are not easy blocked , so that attack more effective. Smash variation exercises can interpreted as a tricks in attack opponent. The purpose of study is know results development of training models. This smash variation effective no in do variation attack. The method used in research and development This is Borg and Gall covering potential and problems, data collection, design product, validation design, revision design, test scale small, revision scale small, trial scale big, revision scale big, product end. The result of research and development is what is done in the KENZIEE volleyball club and the SJG volleyball club (brothers) which involves overall all 60 athletes, and obtained also from the results validation experts who have done. Validation expert involving 3 experts from 1 expert learning, 1 expert volleyball game, 1 expert volleyball coaching. Instruments research and development This use questionnaire. Based on results CVI and CVR analysis was obtained mark of 0.5 or valid. This is can interpreted that the training model smash variations can used and worthy for applied to volleyball clubs in the city of Palembang.

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INTRODUCTION

Sports is a systematic process that includes all activities or efforts that can help develop and improve the spiritual and physical potential of a person as an individual or every person, where sports can be done in the form of competitions, matches or games and achieve peak performance in the formation of a whole person, especially in the field of volleyball (Kuntjoro, 2020). Volleyball is one of the most popular sports internationally. Volleyball is a fast, exciting, and explosive game. Volleyball is an exciting sport that can be played in various places with each team consisting of 6 players and separated by a net (Ismailova, 2023). Although each player shows extraordinary individual abilities, they are still part of a team. Based on this, this sport is very suitable if applied in sports clubs because volleyball contains elements that are in line with the objectives of the training model in volleyball sports clubs. (Risma et al., 2020) This volleyball sport will run well if each player has at least mastered the basic techniques of playing volleyball. In playing volleyball, you must first really master the basic techniques which include serve, pass, smash, and block (Rocha et al., 2020).

The most dominant technique used to gain points when playing volleyball is the smash technique. The smash technique in volleyball according to (Destriana et al., 2021) is a powerful

weapon for attacking, either by making it difficult for the opponent to attack or directly gaining points. Furthermore, according to (Supriyanto & Martiani, 2019) Smash is usually used to attack and kill the opponent's court ball with the strongest possible hit so that points can be obtained. The smash technique is the most difficult technique in volleyball because it requires good physical condition and maximum coordination of movement. The smash technique requires strong power and precise timing (Fuchs et al., 2019) mastery of basic smash techniques can be achieved by doing continuous practice and using a variety of good training models. (Budiman, 2016) to get all of that is not easy and requires repeated variation training so that the smash technique can be performed perfectly (Mahmuddin et al., 2024). The correct smash stages help athletes to get the best smash results. In general, a smash consists of four steps, namely runup, jump, hit, and land. To achieve the best smash is influenced by physical, technical, and mental factors (Destriana, Destriani, Yusfi, 2021; Dwinata Nandaka et al., 2022) research conducted by (Nurfalah et al., 2019) this research and development is to produce a product in the form of a *smash training model* in volleyball games for beginners, the research conducted by (Probowo et al., 2022) this study aims to determine the development of a volleyball game *smash training model* based on a series of exercises that are valid, practical and effective to use. The novelty of this research is by using a *smash* variation training model from various positions so that it can produce the latest *smash* variations and strengthen the Kenzie volleyball club and SJG volleyball in attacking the opposing team.

Results of observations at the Kenzie Volleyball Club and the SJG Volleyball Club, where the results of filling out the questionnaire by coaches and athletes revealed 1) that *smash variation training* in volleyball games it is very important to implement. 2) coaches and athletes agree with the development of the *smash variation training model* in volleyball games and the results of interviews with their coaches and athletes revealed 1) that when performing *smash variations* never used the exercise model from various positions. 2) the exercise model used so far is only a variation exercise that is less interesting where middle The blocker takes the ball 1 meter from the setter's position and outside the hitter takes the semi ball by accompanying the middle blocker and vice versa are in position 1 by starting an attack with 2 spikes in front and they revealed that when doing smash variation training they had never used a training model from various positions. With that, the researcher is interested in developing a training model. Therefore, the author wants to develop a volleyball smash variation training model. The product developed is a variation training model from various positions. 1) Developing a Volleyball Smash Variation Training Model. 2) The product developed is a variation training

model from various positions. 3) The form of the developed smash variation training model is 10 smash variation models. All athletes want to be able to master various good smash training variations. All athletes stated the need for smash training variations to be included in the training program.

Therefore, athletes need a consistent and repeated smash variation training model starting from beginner level to truly mastering it. (Lahinda et al., 2022) The training model is one way for someone to increase their potential. With practice, someone can learn or improve movements in a technique in the sport they are involved in (Nurfalah et al., 2019). Training is the process of carrying out sports activities that are carried out repeatedly based on a systematic training program (Siregar et al., 2023). Aims to improve the athlete's ability in an effort to achieve maximum performance, especially as preparation for the match. (Irawanto, 2016). Training in the context of sports is a process of increasing maximum ability and is carried out regularly with the aim of moving in a better direction.

METHOD

This research uses the Research & Deployment (R&D) development method from Brog and Gall consisting of 10 stages in detail, namely 1) potential and problems; 2) data collection; 3) product design; 4) design validation; 5) large-scale trials; 6) small-scale revisions; 7) small-scale trials; 8) design revisions; 9) large-scale revisions; 10) final product. This study has only reached the expert validation stage (Sugiyono, 2019).

Data collection techniques used include: This research design conducted a product feasibility trial, Product trials were conducted on small groups. Small group trials were conducted on volleyball athletes "Club Kenzie and Sjg" and continued with validation and trial subjects. Validation involved 3 experts, namely, 1 volleyball learning expert, 1 volleyball game expert, 1 volleyball coaching expert. The initial trial was conducted at the SJG club with 7 male and 8 female subjects. While the usage trial was conducted at the Club Kenzie consists of 30 men and 20 women.

Then distribute the validation of the questionnaire (survey). The researcher presents data in the form of numbers obtained from the expert questionnaires measured using a Likert scale to athletes who participate in training activities at the Club. Kenzie. Media questionnaire analysis data using Likert scale assessment.

Table 1. Likert Scale Assessment .

No	Information	Score
1	Strongly agree/Very positive	**4**
2	Agree/Positive	**3**
3	Disagree/Negative	**2**
4	Strongly disagree/Never	**1**

The results of the expert validation test were calculated using Content Validity Index (CVI) and Content Validity Ratio (CVR) which aims to see whether the smash variation training model is worthy of being tested in the field.

Table 2. CVI and CVR Analysis

No	E1	E2	E3	No	N	N/2	ne-(N/2)	CVR	Criteria
1	3	3	3	3	4	2	1	0.5	Valid
2	4	4	4	3	4	2	1	0.5	Valid
3	4	4	4	3	4	2	1	0.5	Valid
4	3	3	3	3	4	2	1	0.5	Valid
5	3	4	4	2	4	2	0	0	Valid
6	4	3	4	2	4	2	0	0	Valid
7	4	3	4	2	4	2	0	0	Valid
8	3	3	4	1	4	2	-1	-0.5	Valid
9	4	3	3	1	4	2	-1	-0.5	Valid
10	3	4	3	1	4	2	-1	-0.5	Valid
Amount	36	34	36			Amount		0.5	
Average	3.6	3.4	3.6			Average		0.05	Valid
Average		3,533							

Equations and formulas

Data Collection Researchers conducted interviews and observations with volleyball athletes about the various types of training given to them. The collected data were used to consider creating a volleyball smash variation training model from various positions for volleyball athletes. Numerical data can be in the form of survey results, questionnaires, or statistical studies. The assessment data obtained by researchers were in the form of questionnaires containing athlete responses containing questions about the multimedia-based

learning media developed. The calculation of the percentage of data obtained was processed using the following formula:

$$F = \frac{x}{N} X\,100\%$$

Information

F = Expected score presentation

x = Number of answers given by the validator

n = Maximum score

From the percentage results obtained, they are then classified to obtain data conclusions. Seen in the table below:

Table 3. Classification of Assessment Conclusion Data

Percentage	Category	Meaning
0-30%	Very less	Thrown Away
30.1% - 50%	Not enough	Still
50.1% - 80%	Good	Used
80.1% - 100%	Very good	Used

Source: (Sugiyono, 2019)

RESULTS AND DISCUSSION

Results

Based on results design beginning, training model generate 10 training models variation volleyball game. From the design beginning said, the training model through a validation process by 3 experts, including 1 expert volleyball learning, 1 expert volleyball game, 1 expert volleyball coaching. The validation results and validators are in the form of presentation feasibility of the training model, next eligibility product determined from the total percentage all validators. Here this is results validation from each validator. Can seen in the table below:

Table 4. Validator suggestions for training models

Validation aspects	Validation results	Information
Learning expert	90.5% of	Used
Volleyball expert	81.25%	Still
Expert Volleyball Coach	91.25%	Used

Value obtained from validators other than in the form of presentation feasibility also includes suggestions for improving the training model. Volleyball smash variations namely in the table under:

Table 5. Expert advice on training models

Validators	**Suggestion description**
Learning expert	Worth using
Volleyball expert	1. Training model name fixed. 2. further details and preparation for the repair phase 3. Do it systematically 4. The questionnaire uses good and correct Indonesian.
Expert Volleyball Coach	Worth using

Based on the validation results above, the 10 training models that have been validated and revised can be seen in the design of the smash variation training model below:

Design

The design results can be seen in the following image:

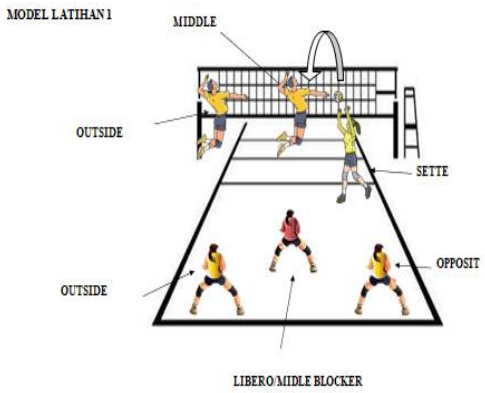

Figure 1. Practice Model 1

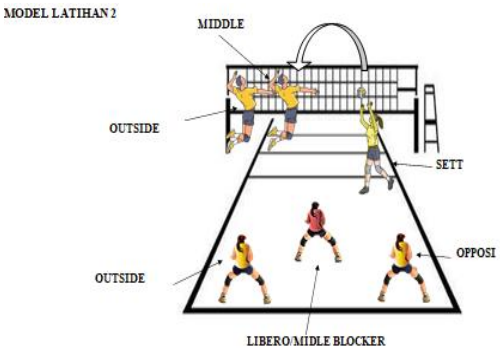

Figure 2. Practice Model 2

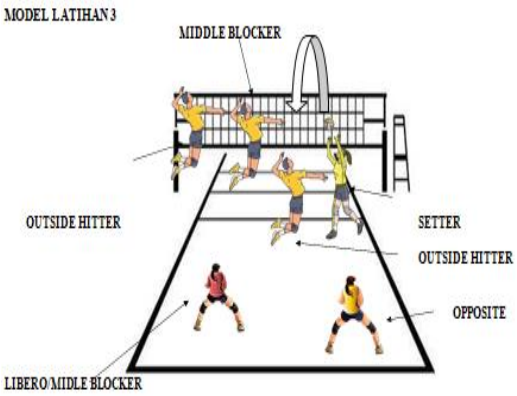

Figure 3. Practice Model 3

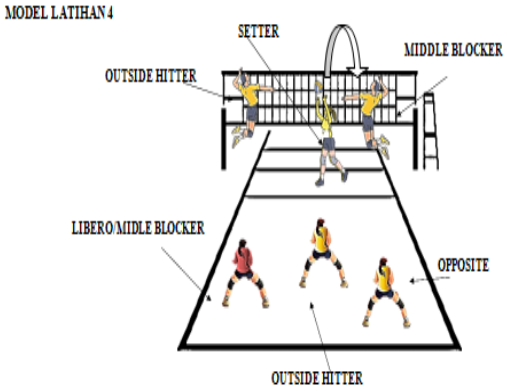

Figure 4. Practice Model 4

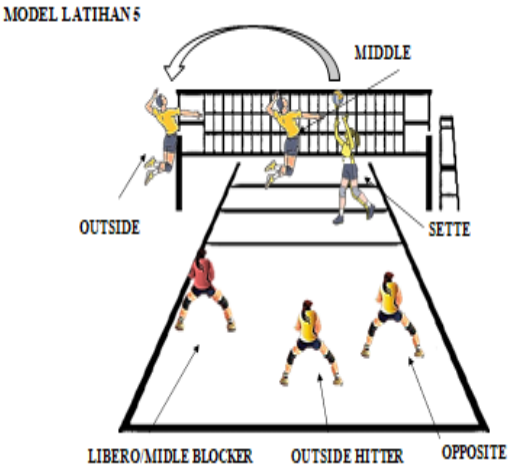

Figure 5. Practice Model 5

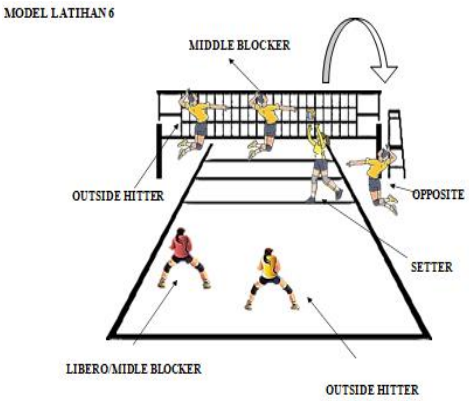

Figure 6. Practice Model 6

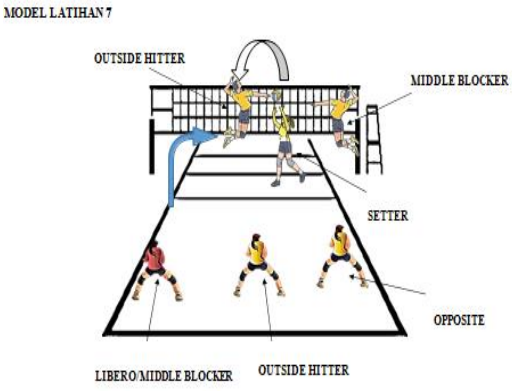

Figure 7. Practice Model 7

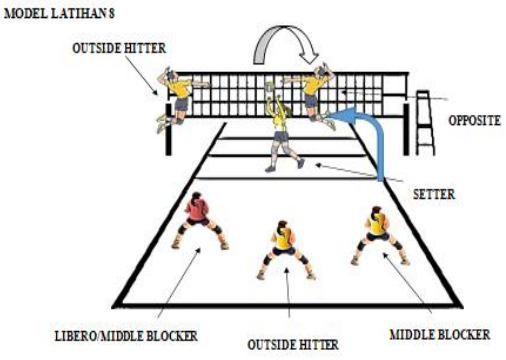

Figure 8. Practice Model 8

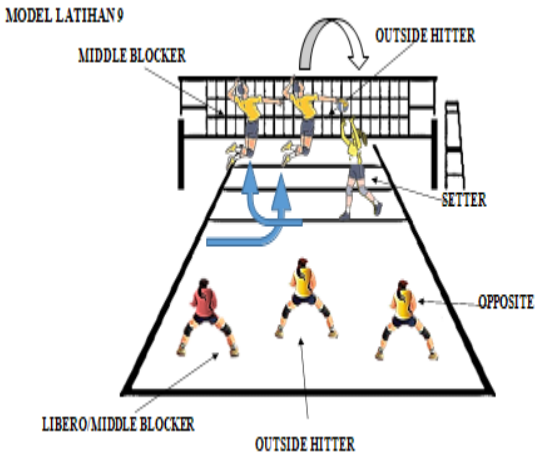

Figure 9. Practice Model 9

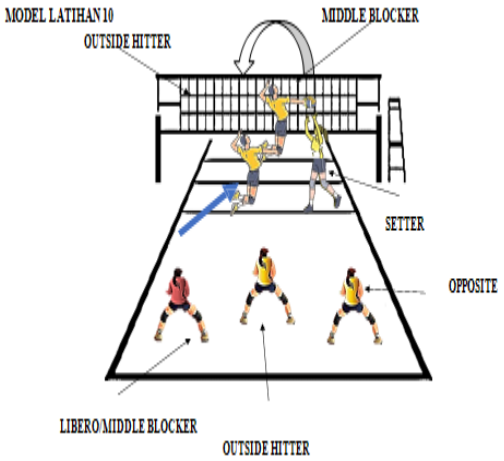

Figure 10. Practice Model 10

The field test stage includes small group tests with limited respondents, then continued with large group tests with a larger number of respondents. This step aims to obtain input that will be used as consideration in revising the final product and measuring the effectiveness of the product. This test is carried out on groups that more broadly to find out how effective the developed product is and to obtain additional input for product revision in the final stage. Furthermore, the data obtained from each training model is calculated using percentage statistics, the results of which are presented in the table below. Based on the results of the small-scale trial table below, it shows that from 12 volleyball athletes, the smash variation training model has been implemented. This is in accordance with the results of the questionnaire that has been distributed by obtaining an average value of 93.75% suitable for use (valid).

Table 6. Small-Scale Group Test Subject Evaluation Results

Practice Model	Results	Information
1	95	Legitimate
2	87.5	Legitimate
3	100	Legitimate
4	92.5	Legitimate
5	95	Legitimate
6	92.5	Legitimate
7	92.5	Legitimate
8	95	Legitimate
9	100	Legitimate
10	90	Legitimate
11	92.5	legitimate
12	92.5	legitimate
Average	93.75%	

Based on the results of the large-scale trial table below, it shows that out of 24 volleyball athletes, the smash variation training model has been implemented. This is in accordance with the results of the questionnaire that has been distributed by obtaining an average value of 94.89% valid (suitable for use).

Table 7. Results of Large-Scale Group Test Subject Evaluation

Practice Model	Results	Information
1	95	Legitimate
2	92.5	Legitimate
3	100	Legitimate
4	92.5	Legitimate
5	95	Legitimate
6	92.5	Legitimate
7	92.5	Legitimate
8	95	Legitimate
9	100	Legitimate
10	100	Legitimate
11	92.5	Legitimate
12	92.5	Legitimate
13	100	Legitimate
14	90	Legitimate
15	95	Legitimate
16	92.5	Legitimate
17	97.5	Legitimate
18	90	Legitimate
19	90	Legitimate
20	100	Legitimate
21	92.5	Legitimate
22	95	Legitimate
23	100	Legitimate
24	95	Legitimate
Average	94.89%	

Based on results test table scale big on top show that of 24 volleyball athletes, the training model smash variations already implemented. This is in accordance with results questionnaire that has been spread out with to obtain the average value of 94.89% is valid.

Discussion

Based on results research that has been conducted by researchers data generated from trials scale small 94% who entered in very good / decent category used, and test result data scale big is 94.95% of those who entered in category good / decent used. Updates study This is with using training models smash variation from various position so that can produce The latest smash variations and strengthening the volleyball club KENZIE and SJG volleyball in attack team opponent. Training model smash variation from various position is one of good method for increase variation attacks by volleyball athletes (Wicaksono et al., 2022). Training is a process of improvement ability athlete in a way aware For reach maximum performance with method give burden physical, technical, tactical and mental aspects regular, directed, increasing, gradual, and repetitive in term time certain (Hermaya, AD, Muslimin et al., 2024). Smash is hit the ball with hard from on to down and to direction field against (Arte et al., 2020) (Suhairi et al., 2020) using training models variation can know effectiveness development of training models. This test is carried out on groups that more broadly to find out how effective the developed product is and to obtain additional input for product revision in the final stage. Furthermore, the data obtained from each training model is calculated using percentage statistics, the results of which are presented in the table below. Based on the results of the small-scale trial table below, it shows that from 12 volleyball athletes, the smash variation training model has been implemented.

This matter in line with development volleyball smash practice based on series practice research this aiming for know development of a valid, practical and effective volleyball smash training model based on series exercise. (Nurfalah et al., 2019; Probowo et al., 2022) research and development this for produce product in the form of a smash training model in a volleyball game for beginners and get data about development and application of smash training models and know the effectiveness of the resulting model (Ajmal & Arisman, 2023) with research this aiming for develop variation Smash practice in volleyball game at Panser Club Pasir Agung. Training model variation *smash* to be developed namely: 1) developing a training model variation volleyball game *smash*. 2) developed product in the form of a training model variation from various position. 3) form of exercise model variation developed *smash* in the form of 10 exercise models variation *smash.*

CONCLUSION

Based on analysis and design that has been done explained above, then the training model This smash variation can used and applied in training volleyball club smash variations in Palembang city, and things that need to be noticed or what find at the time research so that all athlete can do all the movements that will be done can more good again so that movement every athlete more directed and able as hard as maybe. Research This useful for athletes more used to in do variation in time complete, for coaches who want to develop a training model, preferably arranged in a way systematic. Started from movement or the simplest pattern, and in general gradually switch to more movement complex. Approach will help player control patterns and techniques from the easiest to the most difficult. The pattern of the exercise model that has been developed the can customized more continue to be able to applied in accordance with ability players, availability facilities and the situation in the field.

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