VOLLEYBALL SMASH SKILL TRAINING MODEL FOR BEGINNER ATHLETES

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Abstract

The purpose of this research is to find out the training model using Volleyball smash skills for novice athletes. The method used is Research &Development with mixed methods research approach that combines qualitative and quantitative methods. The number of samples as many as 40 respondents. The steps of this study include: 1) preliminary study stage; 2) the planning stage of model development; and 3) the stage of validation, evaluation, and revision of the model. Furthermore, conduct the following effectiveness tests: (1) Establish the research subject group (R); (2) Carrying out a pre-test of smash capability (Q_1); (3) Give treatment to the research subjects by applying a training model smash volleyball in novice athletes (P); (4) Carrying out post-test smash capability volleyball (Q_2); (5) Look for the average pre-test and post-test scores and compare between them; (6) Look for differences between the two averages through statistical methods (t-test) to determine whether or not there is a significant influence on the use of the model. The conclusion of this study resulted in the final product in the form of an exercise model and was very effective and efficient to improve the skill smash of novice athletes.
Keywords: Exercise Model, Smash, Volleyball

INTRODUCTION

Volleyball sport is a large that has spread to all corners of the world and is growing rapidly including in Indonesia. Volleyball sport is a sport much loved by people to remote areas. Considering Volleyball sport is not so difficult and can be done indoors or outdoors with permanent or non-permanent conditions such as ordinary land fields that we often encounter when visiting an area. If we look at the development of the sport Volleyball novice athletes are found from many clubs in the area recruited by elite clubs in the city to be trained to be outstanding athletes.

Volleyball sports among athletes is a forum for them in honing the skills of individuals and groups even the character and strategy of players and coaches.

Volleyball is a sports game played by two opposing groups, each group has six players (Nurcahyo, 2013). Volleyball is also a game played by two teams, each of which is six players. (Prasetiyo et al., 2017).

Volleyball sports for novice athletes should be well planned, considering that good and planned beginner athletes will always have a developmental impact for athletes in the future. In coaching novice athletes, a coach and athlete must create a training planner with technical and tactical tailored to the needs of today's athletes as well as the upcoming masses, Planning training programs made is an effort for athletes to develop in a better direction, Technical and tactical and able to compete competitively. During training, coaches and athletes attempt new technical and tactical plans, whereas the result of their efforts can be seen in the game, which forms an integral part of the process of competitive sport. That is why the training is planned according to the upcoming game (Zetou, 2011).

Exercise is an activity that is carried out systematically and planned in improving the functional body (Chan, 2012). The process of developing the ability of physical movement activities is done systematically and progressively improved to maintain or improve the degree of physical fitness in order to achieve optimal physical work ability (Intan watulingas et al., 2013).

a physical training program to develop an athlete in the face of matches is very important (Lubis, 2013). The improvement of skills and energy capacity should also be considered (Nugroho, 2007).

Training is an activity to improve the skills (skills) of exercising by using various equipments in accordance with the purpose and needs of sports"(Sukadiyanto, 2011)

The training process is part of a systematic effort programmatic increasingly increasing the amount of training load, in order to create the highest athlete achievement (Bompa &Buzzichelli, 2009).

There are several aspects that need to be carefully considered in an exercise in an effort to achieve the maximum possible achievement. The four aspects are (1) physical exercise, (2) technical exercises, (3) tactical exercises, (4) mental exercises". (Harsono, 2015). The four aspects for more details can be seen in the following description.

Physical training

Physical exercise or physical activity has a direct effect on the cardiovascular system, both acute and

chronic effects (Sandi, 2016) It means that physical exercise will be beneficial if done correctly, on the contrary if it is wrong in applying it has acute and chronic effects.

Technic Training

Exercises to refine the movement techniques needed to be able to perform sports such as technical techniques of servicing, smashing and so on. This exercise is intended to establish and develop motor habits or neuromuscular development.

Tactical Training

Tactics can be categorized in terms of reading an opponent's game or how he mastered the game, so he has a stunning movement that becomes a perfect unity of motion in a team. Tactics must be known and mastered by every member of the team, so there is no chance of other teams messing with our squad's defenses. The basis for being able to apply tactics in a match in a particular sports branch required adequate basic technical skills (Okilanda et al., 2021).

Psychological Training

The mental development of athletes is no less important than the development of the other three factors.

Mentally one is the spearhead of the success of other factors including mastering Volleyball technique (Effendi, 2016).

The creation and preparation of training programs for novice athletes must also be adjusted to the complementary calendar so that the training program is not disrupted by the competition schedule. The creation of a training program for novice athletes is strongly emphasized on the use of basic Volleyball techniques, which consist of several techniques namely Serviceperson, block and smash (Mustaqim, 2019). The basic techniques above are the abilities that must be possessed by a player or beginner athlete in depth in order to achieve achievements, Coaching becomes a factor that needs to be taken into account well in the development of novice athletes.

Beginner athletes in playing Volleyball tend to be passionate in practicing smash skills compared to other basic technique exercises. Whereas in Volleyball game to practice good smash skills are indispensable basic technique skills Smash Volleyball good anyway. The technique of doing a smash is not only a hard hit but more emphasized how

an athlete hits and directs the punches of hard-to-reach opponent areas, so that the smash attacks carried out can reach the numbers. To do this is certainly not easy, it is necessary to use good basic techniques and accompanied by a planned and regular skill training according to the needs of the level of proficiency that an athlete wants.

State of The Art

Based on the study of smash skill training model made in this study is an exercise model that aims to help teachers and trainers in providing material about smash Volleyball skills to improve the ability of smash in novice athletes. In previous studies the exercises were given not yet based on targets that pay attention to the accuracy of the smash. while in this study is given based on the target so that the accuracy of the smash given is more appropriate to improve the ability of the beginner athletes smash

Smash

Volleyball's game is a quick game, it can be seen between attack and defense is very unbalanced. The attack is very high success rate, while the defense is very low. This is proven by the new rules on rally point system (game 25) so no team will choose the service first, if there is it because the team's defense is

able to produce points. The volleyball game is a ball-shaped sport in the air back and forth over the net with the intention of dropping the ball inside the opponent's field to seek victory. (Winarno et.al., 2018). the act of hitting the ball down with great force, usually jumping up, going into the opposite part of the field (Mujriah, 2017). Smash techniques are classified as "open smash, semi smash, quick smash, push smash, and pool straight smash". (Mustaqim, 2019).

Smash is a technique that has a movement consisting of: "namely prefix, repulsion, when flying in the air, beatings and landings". (Parlindungan, 2017).

There are six basic skills in the game of volleyball namely Serves, Dig, Smash, Volley, Block, Defense (Beutelstahl, 2008,). Volleyball is a sport that requires discipline as well as basic and physical skills in training. Based on the basic motion needs in Volleyball games that can support the ability of researcher athletes to design a model of basic motion exercises smash volleyball.

The model developed by researchers based on the stages of smash are: Prefix, Repulsion, Hitting,

Landing. While the focus of the model designed is Open smash using target accuracy exercises. Researchers also gave a variety of exercises from various stages of smash combined with tools to improve the ability of athletes in performing smashes. To explain the model created the researcher can look at the following model design chart:

Figure 1. Stages Smash

METHOD

The purpose of this research is to develop and test the effectiveness of the product in the form of a model of Volleyball smash skill exercises in novice athletes conducted at the bungo club Volleyball club

Characteristics of Model that developed

The characteristic of this study is to develop a form of Volleyball smash exercises, especially open smash that is modified and given a variety of exercises and smashes based on the stages of Volleyball smash to high school-age novice athletes.

Characteristics of the developed smash skill exercise model has an update on:

a. Volleyball smash skill training model based on the basic stages of smash techniques with the addition of a variety of simple and no-tools specifically in high school-age novice athletes

b. The use of the tools used is expected to motivate athletes in the implementation of exercise

c. The modified smash skill training model and in this variety of exercises will also assist athletes in improving basic smash abilities as well as open smash abilities for novice athletes.

Research Subjects

The main research subjects in the exercises kill model smash Volleyball in novice athletes with the following details: a) 6-12 athletes on small group trials; b) 30-100 athletes on large group trials; c) 30-200 athletes will be involved in the effectiveness test.

The method used is Research &Development (R&D) from Borg and Gall. Research on the development of Volleyball smash skill training model in

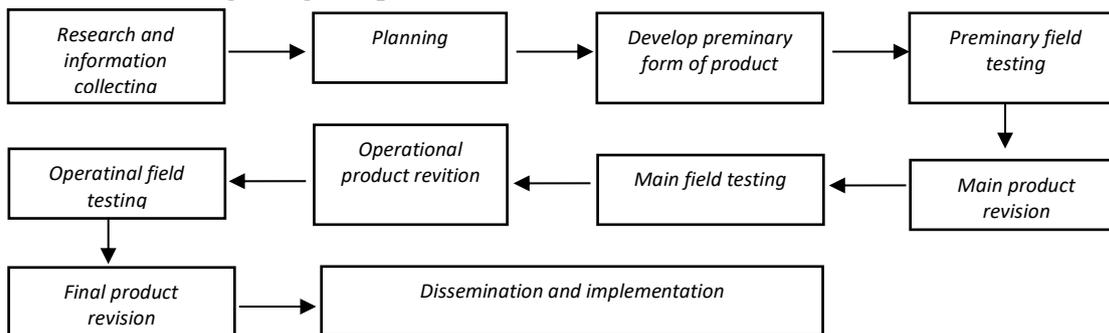novice athletes consists of several stages,

with the following design steps:

Figure 2. Adaptation And Development Procedure Development Procedure Scheme
(Borg and Gall, 1983)

Product Design

product development planning model Volleyball Smash Skill Training for novice athletes.

1. Prefix 1-2
2. Repulsion 1-2
3. Punch 1-2
4. Landing 1-2
5. Smash Open target 1-13

Expert Judgement

Expert Review is conducted by three experts, consisting of Volleyball experts (lecturers and also Volleyball coaches). The validation is done on the design results in the form of writing and drawings. The results of the expert evaluation will be based on input in improving the design of the skill training model smash Volleyball in novice athletes. If there is a revision will be made revisions, and if there are no revisions will be continued to the application directly in the field by a small group.

Small Group Try-out

Small group trials were conducted with a sample of 15-20 athletes. Prior to the small group trials, the research subjects conducted initial tests in the form of tests aimed at knowing the techniques and abilities of athletes performing open smashes. The results of the input from small group trials were used as material to improve the practice model of Volleyball smash skills in novice athletes. If there are revisions found at the trial stage of a small group, it will be revised immediately if there are no revisions will be continued in the larger group.

Field Try-out

Field trials were conducted on more research subjects, namely as many as 30-200 high school-age beginner athletes. The conclusion of the field trials is the final foundation for the improvement and improvement of a new product of the Volleyball smash skill training model in novice athletes. Evaluation at this stage is the final evaluation of the model developed.

Furthermore, the practice model of volleyball smash skills in novice athletes is considered worthy to be deployed or used.

Effectiveness Test

Quantitative approach is used to find the effectiveness of the model with pre-experimental research design in the form of the one group pretest-posttest design. The steps taken in this effectiveness test are as follows: (1) Establishing the research subject group (R); (2) Carrying out a pre-test of smash capability (Q_1); (3) Provide treatment to research subjects by applying Volleyball smash Skill Training model to novice athletes (P); (4) Carry out post-test volleyball smash ability (Q_2); (5) Look for the average pre-test and post-test scores and compare between them; (6) Look for differences between the two averages through statistical methods (t-test) to determine whether or not there is a significant influence on the use of models. The steps in the effectiveness test can be described as following chart:
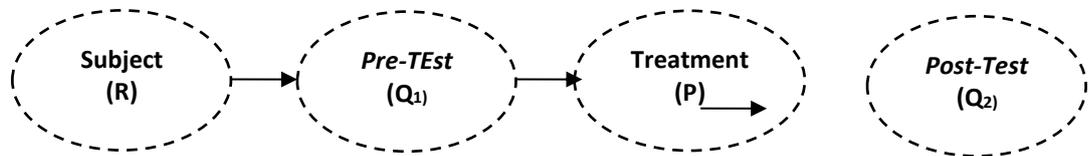

Figure 3. Research Design in Model Effectiveness Test

Data Analysis Techniques

The data collected is then used as material to find out the effectiveness of the skill training model smash Volleyball in novice athletes developed. From the data of pre-test results and post-test model of smash skill training in novice athletes at the time of effectiveness test it is necessary to look for the difference between the two averages through the statistic method (t-test). The data was analyzed using t-tests to determine whether or not there was a significant influence on the use of developed models. The t-test procedure is as follows:

$$t = \frac{\overline{X}_1 - \overline{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r\left[\frac{s_1}{\sqrt{n_1}}\right]\left[\frac{s_2}{\sqrt{n_2}}\right]}}$$

Figure 4. T-test formula.

information:
$\overline{B}$: Average difference
SB : Different Standard Deviations
$\overline{X}_1$: Average X_1
$\overline{X}_2$: Average X_2
r : Correlation Coefficient
S_1 : Standard Deviation 1
S_2 : Standard Deviation 2
S_1^2:Variance 1
S_2^2:Variance

RESULTS AND DISCUSSION

Table 1. Small Group Trial Recapitulation Results (n=20)

No.	Indicators	∑×	∑×i	%	information
1	Ease	1252	1440	87%	Very Good
2	Security	1238	1440	86%	Very Good
3	Attractiveness	1224	1440	85%	Very Good
4	Benefits	1252	1440	87%	Very Good
	Total	4966	5760	86%	Very Good

Based on the results of small group trial recapitulation conducted by researchers can be concluded that as many as 18 models are eligible to be applied to large test processes

Table 2. Large Group Trial Recapitulation Results (n=40)

No.	Indicators	∑×	∑×i	%	information
1	Ease	2304	2880	80%	Excellent
2	security	2332	2880	81%	Excellent
3	Attractiveness	2361	2880	82%	Excellent
4	Benefits	2361	2880	82%	Excellent
	Total	9358	11520	81%	Excellent

Based on the description of the results of recapitulation on large-scale test treatment can be seen as a whole that the Volleyball smash model for high school-age novice athletes is well categorized and can be applied and followed up and conducted model effectiveness tests.

Effectiveness of The Model

Table 3. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pre Test	40	6	20	12,8	3,976
Post Test	40	9	24	17,35	3,718

Based on the table above it is known that in the pre-test value obtained the lowest smash total of 6 and the highest smash total of 20, while the average total smash pretest is 12.8 with a standard deviation of 3,976. Then in the post-test value obtained the lowest total smash is 9 and the highest total smash of 24, while

the average total value of smash posttest is 17.35 with a standard deviation of 3,718.

Normality Test

To test whether the data distribution is normal or not, it can be done by looking at the normal probability plot chart and sapphire-wilk test. The value of the sapphire-wilk test is required to have a p value of > 0.05 to be declared normally distributed. Here are the results of the normality test.

Table 4. Normality Test

	Statistics	Df	Sig.
Pre Test	0,949	40	0,071
Post Test	0,959	40	0,156

Based on the table above the normality test results using saphiro-wilk test obtained a significant value of 0.071 on pre-test data and 0.156 in Post-test data means greater than 0.05, it can be concluded that the data is normally distributed. Furthermore, homogeneity tests are carried out.

Homogeneity Test

For this study will be used Levene test, to test the homogeneity of variance whose data group is more than two. A significance value (p) > 0.05 means, homogeneous data groups (derived from populations with the same variance) and vice versa. Here are the homogeneity test results.

Table 5. Homogeneity Test

	Levene Statistic	df1	df2	Sig.
Pre Test - Post Test	0,190	1	78	0,664

The criteria in the test is if significant (Sig.) > 0.05 then there is no difference between the treatments. If significant (Sig.) < 0.05 then there is a significant difference in treatment atar. Based on the above output it is known that the significance value of 0.664 means greater than 0.05 so it can be concluded that the data is homogeny.

T-Test Paired Sample Test

The goal to be achieved in this study is to test the effectiveness of products developed in the form of a skill training model smash Volleyball In novice athletes. Here are the results of Piered Samples Statistics.

Table 6. Piered Samples Statistics Test

	Mean	N	Std. Deviation	Std. Error Mean
Pre Test	12,80	40	3,976	0,629
Post Test	17,35	40	3,718	0,588

Based on the table Piered Samples Statistics above obtained that the average value of pre-test smash is 12.80 while the average value of post-test smash is 17.35, meaning the average value of post-test smash is higher than the average value of pretest smash. To see the difference is significant or can not be seen in the following Test Paired samples Test.

Table 7. Piered Samples Test

	Mean	Std. Deviation	Std. Error Mean	t	Df	Sig. (2-tailed)
Pre Test – Post Test	-4,550	3,412	0,539	-8,435	39	0,000

Based on the table above obtained the difference between the average value of pre-test smash with the average value of post-test smash is -4,550. Then obtained the value of Sig. (2-tailed) of 0.000 which means smaller < 0.05 means there is a significant difference between the average pretest smash value and the average posttest smash value. So, it can be concluded that the product developed in the form of a model of volleyball smash skill training in novice athletes is very effective.

DISCUSSION

The results prove that this model is effective for novice athletes with an average post test smash score of -4,550. Then obtained the value of Sig. (2-tailed) of 0.000 which means smaller < 0.05 means there is a significant difference between the average value of pretest smash with the average value of posttest smash. based on the results of the data analysis then the product developed in the form of a skill training model smash Volleyball In novice athletes is very effective. the results of this study are in line with the results of research conducted by (Hamdani, 2017) with the title "Influence of variations of exercise on the smash skills of Volleyball Logas VC Putra singing district Kuantan singing

district". This study illustrates the effect of smash variation on smash skills with a percentage rate increase of 8.85%.

Product Enhancements

Based on the results of the numbers in the table described in the previous sub can be concluded that the product of the skill training model smash Volleyball for beginner athletes of high school age can be used and it is very feasible to apply to the process of Volleyball training for high school age athletes. The product that has been developed is certainly there are drawbacks and advantages, in order to achieve the improvement of the following products inputs:

a. It needs adjustments for athletes in doing Volleyball smash model exercises.
b. The tools used in training need more to be more comfortable and effective
c. Coaches should do examples of model movements in training, given the understanding of each athlete is different so that with the practice of the trainer can align the understanding of the model taught.

Product Discussion

The model products in this study have been studied and studied in depth by researchers and by severe experts in order to minimize deficiencies or weaknesses and make improvements to be a superior model product. The advantages in this model product include:

a. This model is able to boost the spirit of athletes in smash exercises with many variations of Exercise
b. Highly effective and efficient training model
c. Increase the smash Volleyball athletes.
d. This smash model can help trainers or teachers in training
e. Models are made from easy to difficult levels but still adapted to the characteristics of novice athletes
f. In addition to references to the Club
g. Athletes are also required to think quickly, appropriately.
h. The models used are highly varied which can increase the level of enthusiasm of athletes in exercise.

Product Limitations

Development research conducted in the study has been conducted to the maximum in accordance with the rules and abilities of researchers, this research still allows the absence of deficiencies or

limitations. The limitations are as follows:

a. Facilities and infrastructure used are still limited
b. The scope of coverage in this study is still limited and not too wide
c. The product used is far from perfect.
d. The explanations and regulations in the smash model contained in this study have not been so detailed.

CONCLUSION

Based on the data obtained, from the results of field trials and discussion of the results of research can be concluded that:

1. This research produced the final product in the form of a smash Volleyball skill training model for novice athletes
2. Smash skill Volleyball practice mode for novice athletes is very effective and efficient to improve the smash ability of novice athletes.

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