Smash Training Model in Badminton Game in College Students of the Faculty of Sports Science, Makassar State University

Muhammad Ishak[1], Moch. Asmawi[2], James Tangkudung[3], Firmasyah Dlis[4], Sahabuddin[5]
[1,5]Faculty of Sports Science, Makassar State University, Indonesia
[2,3,4]Postgraduate Program in Sports Education, Jakarta State University, Indonesia
Email: m.ishak@unm.ac.id

Abstract

In general, the purpose of this research and development is to produce a model of smash practice in badminton games for beginners. In addition, this research and development are carried out to obtain in-depth information about the competencies, characteristics, and initial abilities of FIK UNM students in the implementation of lectures, especially in Badminton Learning materials. The design in the research and development of this learning model uses the research and development model approach (*Research & Development*) from Brog and Gall. While the subjects in this research and development are all students of the Faculty of Sports Science, Makassar State University, which numbers 40 people. The instruments used in this research and development are questionnaires and questionnaires used to collect data at the stage of (1) needs analysis; (2) expert evaluation (initial product evaluation); (3) limited trials (small group trials); and (4) *field testing*. For the effectiveness test, the model used the badminton smash test and the rubric for assessing the correctness of the smash movement. To see the results of the effectiveness of the model, a statistical test was used using the test-test formula with a signification level of α = 0.05. Based on the development results, it can be concluded that: (1) The *smash* practice model in the badminton game for beginners can be developed and applied in training, and (2) The smash practice model in the badminton game for beginners has been developed, obtained data on the effectiveness and results of the development of *the smash* practice model in badminton games for beginners as well as can and deserve to be used in badminton training.

Keywords: *Model, Practice, Smash, Badminton.*

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A. INTRODUCTION

Sports achievements are produced through coaching and development programs, gradually and continuously (Ulfian & Damrah, 2019). Improving sports achievements, is not an easy thing (Williyanto & Raharjo, 2016), but it is necessary to foster and develop sports science and technology, human resources, and natural resources optimally (Pratama et al., 2020). As a barometer of success in fostering sports achievements in Indonesia, it can be seen from Indonesia's achievements at the international level (Mansur et al., 2020). Training is a systematic process and practice that is carried out repeatedly with incan reateasinglycreasing the amount of training load and training intensity (Sari Helen Purnama, 2017), while achievement is an accumulation of physical qualities, techniques, tactics, and psychic or mental maturity (Hinda Zhannisa & Sugiyanto, 2015) so that aspects need to be thoroughly prepared, ecabecausee aspect will determine other aspects (Maulina, 2015).

Badminton is a world-famous sport, because can attract interest from various age levels (Hinda Zhannisa & Sugiyanto, 2015), can be played from various skill levels, and is favored by both men and women (Wiriawan, 2013). Badminton can be played indoors or outdoors as well as for recreation as well as a competition that aims to achieve optimal achievements (Dini & Wastuty, 2020). Badminton is a sport that requires excellent abilities *(aerobics and aerobics)* (Hammado et al., 2020). The ability in question consists of four main aspects, namely: physical preparation, technical preparation, tactical preparation, and psychological perpersonhe the same thing is also stated that the four important needs be need be considered in a sport, namely aspects: (1) physical, (2) technique, (3) tactics, and (4) mental (Sahabuddin, 2017). Badminton is the same as other game sports, where one must first master the basic techniques of the game used. These basic techniques have characteristics that match the form of the game. In Badminton games, the In ere are three types of serves, namely short serve, serve, height, and *flick* serv In e or half-high serve (French et al., 2016). However, nature badminton games the basic smash technique is the main technique in the match as a punch that must swoop and hard to kill.

Badminton is one of the skills in hitting shuttlecocks and receiving shuttlecocks, by using equipment in the form of batting rackets, balls, and nature field nets as playing equipment (Pratama et al., 2020). This game is not difficult to do, let alone hitting the shuttlecock and or accepting the shuttlecock, but to be proficient in mastering various punches in badminton games requires the skill of holding a racket and the efficiency of foot movements to hit the ball to be achieved properly (Dionika, 2021). Basic techniques are the process of developing the skills of a movement practice as well as possible to complete its tasks in a sport (Pritchard et al., 2019). In the badminton game, several technical exercises must be mastered including the technique of holding a racket, the technique of hitting the ball, and the techn,ique and mastery of footwork (Wang & Liu, 2011). Punch techniques in badminton games can be divided into three types of punches (Hana Puspita Santoso, 2017) namely from the top of the head such *smash, lob, drop shot*, blows from the side of the body, or drive (shot, netting and lob clear), and punches from below such as *drop shot, lob, and netting* (Rahmat et al., 2019). To play badminton well, a player must be able to hit the shuttlecock, each of which has a different direction and speed (Limatahu et al., 2020). Mastery of techniques in the badminton game will be able to be possessed by a player if he exercises continuously (Subarjah, 2018). In addition to the basic techniques that have been described before, the success of performing these techniques is inseparable from the correct *footwork* (Ramadhan et al., 2018), which are foot movements to place the perfect body position to face the shuttlecock, so that they can perform punches well and focused (Promrit & Waijanya, 2019).

Exercise has a meaning as a process of behavior change as a result of interaction between individuals and their environment (Ridwan et al., 2019). A model is a picture of reality that is intended to explain the behavior of what is said (Ismail et al., 2019). The model is used to select and compile learning strategies, skill methods, and learning activities to put pressure on one part of the learning (SUSANTO, 2017). The

exercise model is a plan that is used to design. The content contained in the exercise model is in the form of teaching strategies used to achieve instructional goals (Fattahudin et al., 2020).

Exercise can be defined as systematic participation (Asfiyani & Sulistyarto, 2016) and aims to improve physical functional capacity and endurance of exercise (Wiriawan, 2013). In the field of sports, the ultimate goal of training is to improve the appearance of sports (Hasibuan & Simamora, 2018). Exercise is all in the process of improving the body (including all efforts in the process of maintaining achievement) (Lutan, 2012) and stimuli are carried out that increase through directed and systematic movements to adjust the muscles and functions of body organs (Al Farisi, 2018). The purpose of the exercise is to activate the genetic apparatus of a cell, so it is not able to produce more proteins (Edmizal & Maifitri, 2021). So through the exercise, the nature of a cell does not change, what increases is the usefulness or function of a cell becomes greater through exercises that make a person's achievement ability greater (Destriana et al., 2021).

The training model has a broader meaning than the strategy, method, or training procedure (Armanda et al., 2021). The term exercise model has four specific characteristics that are not possessed by the strategy or exercise method: (1) Logical theoretical rationals compiled by the educator, (2) The objectives of the exercise to be achieved, (3) The teaching steps necessary for the exercise model to be carried out optimally, (4) The training environment necessary for the exercise objectives to be achieved (Rubiyatno & Suganda, 2021).

Smashes are *overhead* punches (passing over the top of the head) that are directed downwards and performed with full force (El-Gizawy & Akl, 2014). This punch is identical to an attacking punch (Mangun et al., 2017). Because it is his main purpose to kill the opponent. Smash punch is a form of hard punch that is often used in badminton games The character of this punch is hard and the pace of the Shuttlecock is hard (Armanda et al., 2021). to be able to get a hard blow requires good elastic strength of the arm, elastic strength is a type of strength where muscles can move quickly against a prisoner (Yudhaprawira et al., 2022), which has a combination and contraction speed and speed of motion is called *power*. A *smash* punch is an *overhead* punch that relies on the strength and speed of the arm and the cut of the wrist so that the ball slides sharply swooping (Limatahu et al., 2020). Both straight smashes and cross smash, both can be hit with the same swing (Rustandi & Safitri, 2019). *A good smash* is characterized by good technique improvements as well (Kusnadi et al., 2019), when the cock and racket experience good approval, of course, the *smash* technique will be more meaningful (Rahmat et al., 2019), therefore the improvement of *the smash* technique with a good method can improve the stages of movements performed in *the smash* (Wahib et al., 2020). The characteristics of this punch are hard (Pranata et al., 2019), the pace of the cock is fast towards the field floor (Armanda et al., 2021), so this punch requires aspects of the strength of the muscles of the limbs, shoulders, arms, and flexibility of the wrist as well as harmonious coordination of gestures (Dewi et al., 2021). This *smash* punch is one of the techniques in the

badminton game with a very high level of difficulty for beginners because the introduction of rackets and cocks must be precise (Ahmad, 2020), besides that the ability to chase *cocks* must be fast, in this case, it must be supported by good biomotor components (Benovri, 2018), exercises that continue can improve the biomotor components present in badminton smashes appropriately (Mangun et al., 2017).

Based on the facts and conditions in the field, several badminton coaches in the area, gave training not prioritizing systematic basic technique movements, they assumed that a shuttlecock that was hit hard, then crossed over the net, was a smashing punch that matched what was expected, even though what was desired from a smashing punch was a shuttlecock that produced speed, sharp and directed across the net. At first, novice athletes are quick to master smash punches, but there are still many stages that must be considered such as racket grip, body posture, foot position, and recognition of the racket to the final attitude. From this series, it is very important to be mastered by novice athletes to develop a series of movements that are by the anatomy of the body, so that it can be analyzed and detected inappropriate smash techniques. The smash training model in badminton games was developed concerning the development of techniques for novice athletes that are adapted to motor skills and knowledge.

The needs analysis that researchers do through observation and observation of the training process that takes place in the field of incorrect movements will make it difficult to develop advanced movements or high skills so that the athlete has limitations in performing several types of smash punches in badminton games. therefore, high mastery of skills is needed and it is necessary to introduce new/standard technical training models in achieving badminton achievement coaching, especially for beginners. Furthermore, researchers tried to develop models of smash technique exercises in badminton games that are more targeted from the beginning to the end attitude and range from easy movements to difficult movements. In this study, researchers are expected to be able to find out an overview of smash training models that can be applied in training by the principle of playing. Thus the researcher intends to develop a model of smash technique exercises in UNM Fik students who are categorized as for beginners (knowing / practicing) badminton games. The characteristics of the model developed by the researcher that distinguishes it from previous studies are as follows:

1. The badminton training model developed includes the basic smash technique exercises in badminton games for beginners.
2. Systematically the subject of the study was introduced to various types of basic technique exercises that varied more from understanding the basic concepts of the model to the very detailed movements of its implementation. This is very basic and must be applied to badminton players who are categorized as for beginners so that it becomes the basis for them to go to the next level after mastering well the basic techniques they have trained.
3. The subjects of this study are categorized as beginners, namely beginners not in terms of age, but beginners seen from the first time knowing and learning

badminton and their skill level. Based on the life span of human growth and development, students aged an average of 18 to 22 years are grouped in early adulthood. At that time, the physical and psychic had begun to experience maturity, but most of the students still did not know and master the basic technical skills of badminton because it was not a PJOK subject when in basic and secondary education.

4. The model was developed by combining the physical exercises required for field tests into the basic technique exercise model, it aims to take advantage of the time because the subjects of this study are bound by the schedule of courses on their respective campuses so that physical training is combined with technical exercises, then technical and tactical exercises and mental exercises that always accompany the physical training component, techniques, and tactics.
5. Badminton requires physical components such as endurance, strength, explosive power, moving speed, coordination, flexibility, and agility. The elements of exercise of such a physical component are given from the moment the subject of the study performs the introduction of a model very basic so that it is easy to understand until the circuit of some very complex movement.

B. METHODS

This research uses research and development methods Research and Development (R&D) from Sugiyono (Sugiyono, 2012) there are ten steps of development procedures including 1) Potential and problems. 2) data collection, 3) Product design, 4) Design validation, 5) Design revision, 6) Product trial, 7) Product revision, 8) Usage trial, 9) Product revision, 10) bulk product. Of the ten kinds of steps above, it was partially modified by the researcher into seven steps with consideration of the need to produce the product. The development procedure is not a standard procedure that must be followed as a whole (Ardhana, 2002) states that researchers have different needs in developing a product, so the seven steps used by researchers are 1) Potential and problems, 2) Information collection, 3) Product design, 4) Product trials, 5) Design revision, 6) Design validation. 7) End products. This research uses quantitative and qualitative data, which are obtained from the results of questionnaire collection and the results of suggestions and inputs based on validation experts and students of the Faculty of Sports Science, Makassar State University on n gan moisturizing products resulting from a description of the implementation of product trials.

C. RESULTS AND DISCUSSION

1. Normality Test

The calculation of the variable normality test *pretest* model *Smash technique training in badminton games* of Makassar State University students (X_1) and *post-test*

smash technique exercise model in FIK UNM students (X_2) is summarized in table 1. the following:

Table 1. Normality Test Results of Pretest and Posttest Variables

		Before	After
N		40	40
Normal Parameters[a]	Mean	40.2000	60.3500
	Std. Deviation	4.19524	4.00352
Most Extreme Differences	Absolute	.116	.096
	Positive	.083	.085
	Negative	-.116	-.096
Kolmogorov-Smirnov Z		-.116	-.096
Asymp. Sig. (2-tailed)		.189	.200

Based on table 1 above, *the Kolmogorov Smirnov* value for *pretest* data in badminton games in students of the Faculty of Sports Sciences (X_1) was obtained by,116 with *Asymp. Sig. (2-tailed)* = 0.189 > 0.05, which means the distribution model is normal. Meanwhile, the amount of *Smirnov's kolomogrov* value for *the posttest* data of smash skills and badminton services in students of the Faculty of Sports Sciences (X_2) was .096 with *Asymp. Sig. (2-tailed)* = .200 > 0.05, which means the distribution model is normal. Based on the analysis, it shows that the two-variable data are normally distributed.

2. Variance Homogeneity Test

The variance homogeneity test aims to find out whether samples taken from the population are of the same variance and do not show significant differences from each other. The statistical analysis used to test the homogeneity of this variance is the F test (*Levene's Test for Equality of Variances*). The results of the analysis are briefly presented in the following table 2.

Table 2. Variance Homogeneity Test Results

Levene Statistic	df1	df2	Itself.
4.159	10	28	. 120

Based on the homogeneity test in **table 2.** aforementioned, it is known that Sig = 0.120 which is greater than the significance level of 95%; this is indicated by Sig > 0.05. Because Sig = 0.1 20 > 0.05, it is concluded that there is no difference between the variance of *pretest and post* data in badminton games in FIK UNM students which means homogeneous.

3. Average Value

Table 3. Average Value Test Results

Paired Samples Statistics

		Mean Mean	N	Std. Deviation	Std. Error
Pair 1	*Pre Test*	40.2000	40	4.19524	.66332
	Post Test	60.3500	40	4.00352	.63301

Based on the *output* results in **table 3.** above the average value of the pretest given the exercise model in the badminton game is 40. 20 and after being given treatment with the exercise model is 60.35. meaning that the average value of the smash exercise model in the badminton game there is an increased.

4. Correlation Coefesience

Table 4. Correlation Coefesiencency Test Results

		N	Correlation	Itself.
Pair 1	*Pre Test & Post Test*	40	.541	.000

Based on the results of the output **table 4.** above that the coefficient before and after given the smash practice model in badminton games is 0. 541 with a p-value of 0.00 < 0.05 so the conclusion is significant**.**

5. Difference Significance Test

Table 5. Difference Test Results

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pre Test - Post Test	-2015000	3.93244	.62177	1889234	21.40766	32.407	39	.000

In the significance test, the difference can be the result of t-count = 32.407, df = 39 and p-value = 0.00 < 0.05 which means that there is a significant difference before and after being given *the smash* practice model *in the badminton game*. Based on the information, it can be said that the smash practice model *in badminton games* for beginners is developed effectively and can increase smash in badminton games.

6. Discussion

The game of badminton is not focused only on the orientation of the maturity of players' skills but is focused on the aspect of the game that relies on agility (Rustandi & Safitri, 2019), so there is a need for support in increasing the maturity of players,

namely with physical abilities and good physical fitness in athletes. Currently, there are many badminton clubs in Indonesia. These badminton clubs have different products to develop badminton skills based on age level in achieving achievements (Vernando et al., 2017) so that a championship is often held as a channel for talent and achievement. Sports clubs must have a clear badminton coaching background and plan for their athletes, not only as long as they are established but have a planned program to advance athletes (Dewi et al., 2021).

Badminton players at the Faculty of Sports Science, Makassar State University are still lacking in the level of smash punch accuracy skills, this is known when players carry out lecture activities. There is a lack of variety of smash punches. the punch is one of the attacking punches as a mastery of the basic technique of the player's punch in generating points (Benovri, 2018). A coach or teacher must be able to provide training materials aimed at developing supporting factors for the creation of maximum results because badminton smash punches require the most energy (Mangun et al., 2017). The characteristics of the age of 8-12 years are included in the Learning to Train category (Ahmad, 2020), starting to introduce various skills and develop basic badminton skills. The provision of the training portion must be adjusted to the characteristics of the athlete, so that there is no excess load on each athlete so that training material can be accepted as support in improving achievement (Pranata et al., 2019).

The achievement of achievements in sports needs many things that must be pursued (Sari Helen Purnama, 2017), including the training method, the achievement of maximum achievement can be obtained by the correct and programmatic training process as the main needs of an athlete in terms of physical condition (Hasibuan & Simamora, 2018), mental ability, mastery of techniques and tactics through coaching according to the training program that has been given by the coach. therefore with the existence of products developed by researchers whose purpose is to make it easier for coaches to provide training materials according to the needs of their athletes. The product developed will be used as a training process to be used as a reference for athletes' learning in the form of a model of training the basic technique of badminton to smash punches at the Faculty of Sports Science. To get achievements in the field of sports through systematic coaching, athletes who have high motivation will be encouraged to carry out the exercises given by the coach to achieve the goals set (Ridwan et al., 2019).

Latihan is the process by which an athlete is prepared for the highest performance (Al Farisi, 2018). In other words, training is a systematic exercise process and is carried out repeatedly and increasingly the number of training loads is increasing (Putra et al., 2020). Systematic means that training is carried out regularly, planned, on schedule, according to certain patterns and systems, methodical, and continuous from simple to more complex (Artha, 2021). Repetitive means that the movements performed must be trained repeatedly so that the movements in question look difficult and the coordination that is still low becomes easier (Dionika, 2021). Automatic reflection of its implementation. Similarly, the pattern and coordination of

movements become smoother so that it saves more energy so that students can learn and carry out exercises effectively and efficiently and players or students can master smashes quickly and correctly.

D. CONCLUSION

Models *of smash* exercises in badminton games for beginners can be developed and applied in practice. The *smash* practice model in the badminton game for beginners that have been developed, obtained data on the effectiveness and results of the development of smash practice models in badminton games for beginners as well as can and deserves to be used in badminton training.

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