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## New exercise model in Sepaktakraw Games

Tri Aji<sup>1</sup>, Achmad Sofyan Hanif<sup>2</sup>, Hidayat Humaid<sup>3</sup>, Jufrianis<sup>4</sup>

<sup>1 2 3 4</sup>Postgraduate State University of Jakarta, Jakarta, Indonesia, Physical Education Study Program, East Jakarta

triaji11@yahoo.com<sup>1</sup>, sofyan\_dean@yahoo.com<sup>2</sup>, hidayathumaid@ymail.com<sup>3</sup>, jufrianis93@gmail.com<sup>4</sup>

**Abstract.** The research and development of this model aims to improve the achievements of sepaktakraw sports with a new sports training model in sepaktakraw games. The research method used is a method of research and development with development measures designed by Borg and Gall with the number of populations and samples in this study is as many as 65 sepaktakraw athletes central java covering jepara, kendal and semarang areas.. Based on the processing of data with statistical science with a total sample of 65 sepaktakraw athletes in can grade B based on the effectiveness test results using t-test of *the difference of pretest results* obtained price  $t_0 = 150,338$  greater than the price  $t_t = 0,000$  and *the posttest value* obtained price  $t_0 = 197,550$  greater than the price  $t_t = 0,000$  (at the level of significance 0.05), then the nil hypothesis is **rejected**. So it can be concluded that, there is a significant difference between the *pretest* and *posttest* test results of the new game practice model in sepaktakraw games. From the research data obtained the *average pretest price* with mean = 85,533 smaller than the average *posttest* mean = 92,233. Thus it can be stated that, the product of a new game training model in sepaktakraw games is **effectively** used to improve the achievements of sepaktakraw athletes in indonesia. Thus it can be stated that, the product of a new sports model in sepaktakraw games is effectively used to improve the achievements of takraw football athletes in Central Java in particular, and nationally as well as internationally in general.

**Keywords.** New Sports Model, Games, Sepaktakraw

### Introduction

Sepaktakraw sports originally derived from the game of football, this game is a malay game, which grows and develops in the Archipelago, which is played in circles by 6 to 9 people, where each player tries to keep the rattan ball to stay in the air for as long as possible, using all limbs except hands. The game expanded to the Indo-Chinese peninsula and several other Southeast Asian countries.

Takraw football is a team or team game, but nevertheless the success of that squad or team is heavily influenced by the skills of the individual who plays in that squad or team. In order to play takraw football well, a player who is an individual in the team must master the basic techniques of playing well, this is the main capital to be able to combine players in one solid egu, so that the game can be optimal.

Takraw football is a game played with takraw balls with all limbs except hands, played in a rectangular field played by each squad of 3 players, and the ball should not touch the ground. (Hanif. S 2016). Sepaktakraw or commonly abbreviated "takraw", commonly referred

to as "kick volleyball" or "soccer volleyball". The sport is a combination of football and football, which is played on a field the size of a badminton court by two teams of three players on each team with a five-foot-high net separating the two teams. Each team has a three-time chance of touching the ball, which is weaned, using legs, knees, shoulders, or head before crossing the ball into the opponent's game area.

Sepaktakraw's game begins with a service, which is performed by tekong to the opponent's field area, then the opposing squad player tries to play the ball using his feet and head and limbs in addition to the hands, as many as three touches. (Syarifuddin and Hari, Sepaktakraw Game (Padang: Sukabina Press, 2014). Sepak takraw is a powerful high-powered team sports game where it takes players who are physically healthy, strong and expert in techniques especially the lower body. Sepak takraw requires players to master various performance skills such as jumping, blocking, diving or spiking related to the need for strength of strength, agility and speed during the duration of the game. (Jawis, M. N., Singh, Rabindarjeet, Singh, H. J., Yassin, M. N.. (2005). Anthropometric and physiological profiles of sepak takraw players. *British Journal of Sports Medicine*.39 (11), 825-829. ITMAR-2014/Full Paper Proceeding/Vol-1,272-279).

Sepaktakraw is one of the cultures of Indonesia in the field of sports that needs to be preserved by the children of the nation. This game is very unique because it has acrobatic movements displayed by the athletes so it looks very beautiful when played. In sepaktakraw game each athlete has their own task, tekong standing in the middle between the right and left flanks tasked with doing the first soccer or service to the opposing area, this is the first attack carried out by a team. While the left apit stands on the left as well as the right apit, the task of the right apit is usually as a feeder and left apit as a *spiker* or smasher. But it doesn't close the possibility of the coach making the right flank strategy as a *spiker* and the left apit as a feeder. To start a game of sepaktakraw the first time the ball is in service or crossed through the top of the net to the opponent's pitch afterwards through a foot-to-toe pass or using the thigh and head of the ball then crossed again towards the opponent who performs the service *with smesh technique* until one of the squad can't return the ball. When an opponent performs the main task of all players is to receive the first ball or defend. Defending is also the first step before the player passes and then can counterattack *through Smesh*. To train tekunik in sepak takraw games it takes a variety of training models using SCIENCE AND TECHNOLOGY. One of them is a defensive exercise model.

With the development of the game in the sepak takraw branch can later become an opportunity and have the potential to be an alternative breakthrough in improving achievement in Sepak takraw.the most important point in this research will be the main goal of developing this game to healthy society and increase the participation of as many people as possible from the community to the sport is much more important than the success or achievement of the sport itself, if we all already have a good sports culture , then actually we are ready to be the most important legacy of the sporting event that takes place. In addition, it can improve the sporting achievements of the younger generation in the eyes of the world. Sport is all aspects related to sport that require arrangement, education, training, coaching, development and supervision.

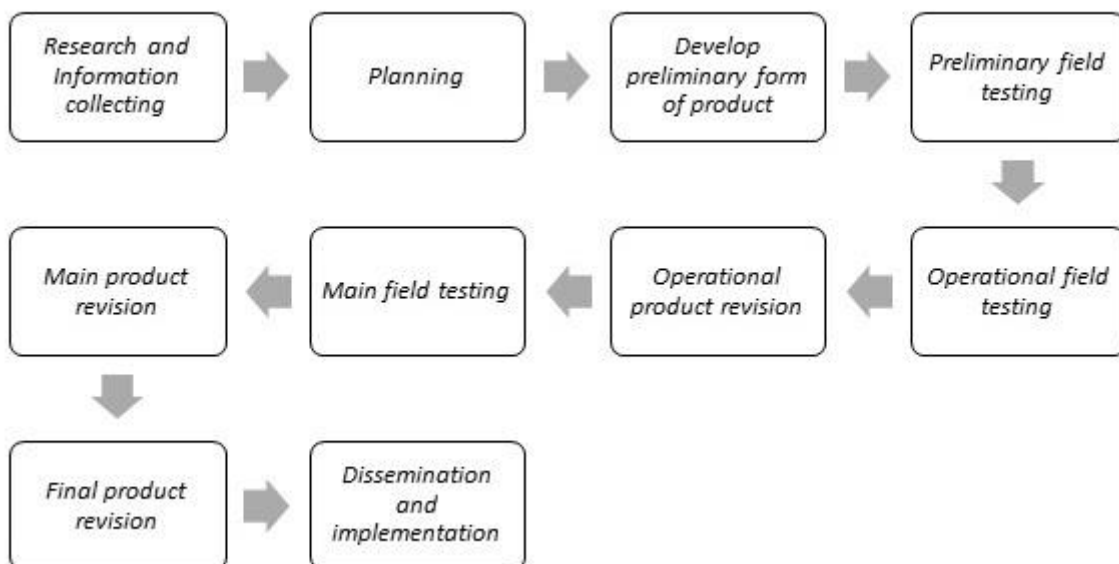
The highly anticipated hope with the next generation is in the world of early childhood education, where by in schools will create a pattern of nurseries, the development of sports with the world of physical education, therefore the development of new numbers will be expected to create successor athletes who will become mainstays of Indonesia later.

The number of complaints in playing sepak takraw is very difficult, hard ball becomes one of the alternatives to modify a new game model that will later become a solution for children of elementary school students as well as for beginners in playing sepak takraw sports.

To that end, researchers are trying to make a modification of a new sport in the game of sepak takraw.

### Research methods

Research and Development of new game models in sepaktakraw games using research and development methods from Borg and Gall *consisting* of ten steps, among others: (1) Conducting research and information collection (library study, subject observation, preparation of subject reports) (2) Planning (skill definition, goal formulation, teaching ordering, and small-scale trials) (3) Developing initial product forms (preparation of teaching materials, drafting handbooks, and evaluation equipment) (4) Conducting initial field tests (using 6-12 subjects) (5) Revising the main product (in accordance with the suggestions of the preliminary field test results) (6) Conducting the main field test (with 20-50 subjects). (7) Revise the product (based on the suggestions and results of the main field trial). (8) Field test with 30-100 subjects (9) Final product revision (10) Make a report on the product in the journal, working with publishers who can conduct commercial distribution. For more details can be seen in the following image:



Gambar 1. R&D Development Model

Source: Sugiyono, Education Research Method, Quantitative, Qualitative, and R&D, 2009, p.298

### Data Analysis

Data analysis using effectiveness test, aims to (1) to find out if mental training book design has been applied properly and correctly by lecturers, and (2) how effective the results of application of teaching materials products to the purpose of this study. Thus a quantitative approach is used to seek such effectiveness with the design of pre-experimental research *in the form of the one group pretest-posttest design* (Ali Maksum, 2012).

**Table 3.1 Research Design in Product Effectiveness Test**

Subject	Pre-Test	Treatment	Post-Test
R	O <sub>1</sub>	Q	O <sub>2</sub>

The steps taken in this trial include; (1) establish a group of research subjects; (2) carry out *pre-test* ( $O_1$ ); (3) try the product that has been developed; (4) carry out *post-test* ( $O_2$ ); (5) look for *pre-test and post-test average scores and compare between the two*; (6) look for the difference between the two averages through statistical methods (t-tests) to determine whether there is a significant influence on product use.

## RESULTS AND DISCUSSIONS

The results of research and development of new game models in sepak takraw games that have been developed are written in the form of exercise models that can be presented in variations of sepak takraw game exercises.

The results of the research in the field by conducting the data collection and drafting of products New game model in sepak takrawgame , the next step is to conduct an expert test where the goal that is to achieve the feasibility or *vallidasi* of the book product made with a direct assessment from the expert.

Researchers presented four experts in the feasibility assessment of mental training material products created, of which four experts are experts in sepak takraw sports. The conclusions of the expert tests are summarized in the following table:

**Table 2 Expert Test Conclusions On Sepaktakraw's New Game Model Products**

№	Product Material Name	Acceptance Model		Description
		Worth	Not Worth It	
1.	Exercise model survives from the left side with an ok racket	Yes		Decent/Valid
2.	Exercise model survives from the middle with an ok racket	Yes		Decent/Valid
3.	Exercise model survives from the right side with an ok racket	Yes		Decent/Valid
4.	Defensive exercise model crosses right with ok racket	Yes		Decent/Valid
5.	Exercise model survives crossing left with ok racket	Yes		Decent/Valid
6.	Exercise model survives with board hitch on left with ok racket	Yes		Decent/Valid
7.	Exercise model survives with plank hitch in the middle with racket	Yes		Decent/Valid
8.	Exercise model survives with board hitch on right with racquet	Yes		Decent/Valid
9.	Service training model from left side ok	Yes		Decent/Valid
10.	Service training model from the right side is ok	Yes		Decent/Valid
11.	Service training model from the right side is ok	Yes		Decent/Valid
12.	Service training model crosses right direction ok	Yes		Decent/Valid
13.	Service Training Model crosses the left direction ok	Yes		Decent/Valid
14.	Exercise model survives from the left side then the ball in smash ok	Yes		Decent/Valid
15.	The exercise model survives from the middle then the ball in smash ok	Yes		Decent/Valid
16.	The exercise model survives from the right side then the ball in smash ok	Yes		Decent/Valid
17.	Defensive exercise model crosses right then balls in smash		Not	Invalid

18.	Model Exercise survives crossing left then balls in smash		Not	Invalid
19.	Model Exercise survives with a board hitch on the left then the ball in the smash		Not	Invalid
20.	Model Exercise survives with a board hitch in the middle then the ball in the smash		Not	Invalid
21.	Exercise model survives with a board hitch on the right then the ball in the smash		Not	Invalid

Based on expert tests conducted can be drawn the conclusion that the product of a new sports training model in sepaktakraw games with 21 training materials is feasible and can be used in the new game model in sepaktakraw games, as well as there are 4 models that are not worth using in the new game model in sepaktakraw nerds targeted expert tests in the sport of sepak takraw

The result of the development of this model is the product of a new game training model in sepaktakraw, among others: (1) Exercise Model defends from the left side with an ok racket, (2) The exercise model survives from the middle with an ok racket, (3) The exercise model survives from the right side with the racket ok, (4) The exercise model survives across the right with the racket ok, (5) Defensive exercise model crosses left with racquet ok, (6) Exercise model survives with board hitch on left with racket ok, (7) Exercise model survives with center board obstruction with racket, (8) Exercise model survives with board hitch on right with racket, (9) Service training model from left side ok, (10) Service training model from right side ok, (11) Service training model from right side ok , (12) Service training model crosses right direction ok, (13) Service Training Model crosses left ok, (14) Training model survives from the left side then the ball in smash ok, (15) The training model survives from the middle then the ball in smash ok (16) The exercise model survives from the right side then the ball in the smash is ok

### Data analysis

To test the effectiveness of the application of new game exercise model products in this sepaktakraw game use statistics with the technique "t-test". Data on *pretest* results and *posttest* mental training material knowledge skills uses *the Lillifors* test at significance level = 0.05. With the calculation results shown in the following table:

Paired Samples Statistics							
			Statistics	Bootstrap <sup>a</sup>			
				Bias	Std. Error	95% Confidence Interval	
							Lower
Pair 1	Pretest	Mean	75,63	,01	,32	54,73	50,30
		N	65				
		Std. Deviation	1,310	-,026	,155	1,318	1,192
		Std. Error Mean	,321				
	Posttest	Mean	82,23	,03	,37	61,30	53,17
		N	65				
		Std. Deviation	3,561	-,050	,137	1,116	1,888
		Std. Error Mean	,319				

a. Paired Samples Statistics

Paired Samples Correlations							
	N	Correlation	Sig.	Bootstrap for Correlation <sup>a</sup>			
				Bias	Std. Error	95% Confidence Interval	
						Lower	Upper
Pair 1 Pretest & Posttest	65	,761	,005	,001	,135	,002	,332

a. Paired Samples Correlations

Paired Samples Test								
	Paired Differences					Q	Df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 Pretest - Posttest	-7,700	3,769	,305	-5,534	-3,666	-11,357	64	,000

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Pretest	65	75,33	1,315	,323
Posttest	65	82,13	1,569	,369

One-Sample Test						
	Test Value = 0					
	Q	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Pretest	150,338	64	,000	85,533	84,67	86,40
Posttest	197,550	64	,000	92,233	91,27	93,19

#### Description:

Mean : Average test results

N : Number of samples

Sig. : Signifikasnsi level 0.05

Btargeted effectiveness test results using t-test of the difference in *pretest results* obtained price  $t_0 = 150,338$  greater than the price  $t_t = 0,000$  and *posttest value obtained* price  $t_0 = 197,550$  greater than the price  $t_t = 0,000$  (at the level of significance 0.05), then the nil hypothesis is **rejected**. So it can be concluded that, there is a significant difference between the *pretest* and *posttest* test results of the new game practice model in sepak takraw games. From the research data obtained the *average pretest price* with mean = 85,533 smaller than the average *posttest* mean = 92,233. Thus it can be stated that, the product of a new game training model in sepak takraw games is **effectively** used to improve the achievements of sepak takraw athletes in indonesia.

#### Conclusion

This new sports model in sepak takraw game is expected to be an alternative to facilitate the activities of coaches in the training process and improve the achievements of Indonesian sepak takraw athletes. And it is expected that the implementation of the final product results in

the form of the development of a new number game model in the takraw football branch can be used after the feasibility and effectiveness of the model is known. In some basic techniques training sepak takraw can be used and implemented at schools, universities and national and even international levels.

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