



Model Development of Volleyball Thrower

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Abstract

The purpose of this research is to create ball thrower which is utilized for motor skill practice for volleyball athletes. This research utilized qualitative approach, and major data gained through observation, interview and documentation. The procedure used was research and development model by Borg and Gall, which contains of 10 steps as follow: (1) information research and collection, (2) planning (3) developing product' initial form, (4) initial field test, (5) major product revision, (6) major field test, (7) operational product revision, (8) operational field test, (9) final product revision, (10) dissemination and implementation. Ball thrower tool model can be used for motor skill practice, safe and secure as well as improving practice result. Volleyball AW_2016 Launcher tool models can be used to exercise the skills of volleyball athletes for motion.

How to Cite

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INTRODUCTION

Indonesia Volleyball Association (PBVSI) (1995:1) mention that the archetypal game of volleyball i.e. reflecting sphere (mem-volley) continuously passes over the net. Whereas the aim of the game of volleyball according to Indonesia Volleyball Association (PBVSI) (2005:1) is skipping a ball over the net to be able to touch the opponent's Court and flooring to prevent your opponent from the same business. According to Dieter Beutelstahl (2008:8), the technique is a procedure that has been developed based on practice, and aim at solving a certain movement problems in the most economical and useful. Further, skill techniques according to Cecile Reynaud (2011:23) are grouped into two, namely: 1) the engineering skill attack which consists of serving, passing, and attacking, and 2) engineering skills survive consisting of block and dig.

Various basic engineering skills must be learned and mastered to be able to volley the ball according to the technical principle of volleyball. Through a long and continuous exercise, volleyball athletes learn, master and improve motion skills serve, pass/dig, set, spike, and the block was needed in the tactics and attacking volleyball sports game.

The observation result from the aspect of volley ball exercise facilities and infrastructure showed that no one uses the technique skill tools based on the innovation of science and technology of sport. Interviews on aspects of facilities and infrastructure show that athletes and trainers use building walls (for those who use indoor volleyball courts) to practice motion skills of serve, pass, and spike. Interviews with coaches or club officials also confirmed that coaches or clubs does not have the equipment to practice motion skills due to cost factors or expensive equipment prices. Based on observations on aspects of the exercise, the exercise of athletes in learning the skills of volleyball can be done by using the ball feedback from the coach. Coach hits the ball when athletes practice forearm / under pass, set-up, over-head pass, block and spike skills in each training session. Coach does a lot of hits to meet the needs of passing ball during athletes practice volleyball skills. In accordance with the results of interviews with trainers and athletes, motion skills should be trained by using a repetition model of movement (drilling) which is performed with the help of a passing ball of the trainer. Repetition of movements should focus on the search for a form of movement, rectification of the motion of errors often done by the athlete, and the habituation of

movement or technique. Besides the passing ball of the trainer, passing ball is goes on by paired exercises or using building walls.

The problem arises is the result of passing ball frequently changes, the height, the target, and the speed of the ball, and it is affecting the results of athletes training in learning the skills of motion, so it is necessary to produce a tool that can produce bursts of ball with constant speed and accuracy. This tool will help to practice volleyball skills.

Furthermore, it is necessary to create the environment and pay attention to the factors that support the quality of athlete training, so that athletes can learn, practice, repeat the movement and able to master the techniques of attacking skills and also the defense technique. The quality of exercise is not only dependent on the trainer, but many factors can affect the performance of the athlete. Bumpa (2009: 8) states that the factors that affect the quality of the exercise include: a) trainer knowledge and personality, b) facilities and equipment, c) supporting science, and d) matches or competitions. The training facility is a supporting factor that determines the quality of the exercise, including equipment or equipment, so as to create a quality workout, it should pay attention to the adequacy of equipment or equipment in the exercise.

Elite sports can not develop independently, requiring the synergy of all stakeholders to ensure the sustainable development of sport. The lack of sustainable coaching is against the demands of the elite sport that will only succeed if it has fulfilled long-term coaching principles. Rusli Lutan (2013: 33) states that as a system, elite sports coaching involves a number of key components and research results reveal at least 10 major components, including sports infrastructure: training facilities, and scientific research: input of sports science and technology. The function of science and technology of sports is to seek innovation in coaching and in the development of science and technology, the existing technology makes sports activity is no longer a difficult activity.

According to Ministry of Youth and Sports (2014) thesedays, science and technology is seen as something difficult and is in the clouds. Science and technology should be earthed in the way each sport immediately apply the science and technology, because there is interaction between the trainers in the field with the scientists to improve the performance of athletes. If many sports technology innovations are realized in research, then the future is not impossible results can be one way in supporting sports coaching.

Through sports technology research is expected to technological innovation in sports field will develop. This has been done by many countries that have advanced in the field of sports achievement.

METHOD

This research uses a research and development approach because it fits with the purpose of research, that was the development of a model of a ball thrower for volleyball athletes. While the selected model is Borg and Gall. With that understanding, the series of research and development steps are conducted cyclically, and at each step to be passed always refers to the result of the previous step until finally obtained a product.

Borg and Gall (1983:775) describes a series of stages were taken in this model, such as research and information collecting, planning, develop preliminary form of product, preliminary field testing, main product revision, main field testing, operational product revision, operational field testing, final product revision, and dissemination and implementation.

RESULTS AND DISCUSSION

Research results were the form of product model tool Launcher volleyball. This product is called a model tool Launcher volleyball AW_2016, is a work system that aims for the sake of ball exercises for athletes in the study of motion skills receive-serve, pass/dig, set-up, block and spike volleyball. Model capabilities the tool Launcher volleyball are: being able to throw as many as 900 times/h, pebbles while letting stand the used 3 hours continuously, can provide precise and steady pebbles while letting, maximum 98.3 km/h pebbles while letting speed.

Volleyball AW_2016 Launcher model can meet the needs of pebbles while letting the ball to exercise the skills of volleyball, motion can be arranged on an angle, direction, and velocity of pebbles while letting, can be used to learn the skills of motion exercises receive serve, pass/dig, set-up, block, and spike volleyball, and economical.

Based on the test results of expert/experts, test a small group, large group testing, test the effectiveness of the model as well as the results of the analysis of the data shows that the model of the tool Launcher volleyball meets the criteria of a valid, practical and effective. The resulting research product revealed useful, safe and comfortable in rehearsal learn volleyball skills of motion. Interview results indicate that the model is a tool useful for volleyball practice Launcher volleyball. The highest answer the respondent showing the product model can help in the process of exercise coaches volleyball retrieved from the capabilities of the tool ball. Model tool able to catapult balls are run continuously and so has the nature of drilling to meet the needs of pebbles while letting during exercise. Fulfillment needs pebbles while letting the balls used for athletes in the study of motion skill or technique of volleyball. This condition used coaches and athletes in the meet the needs of practice. Thousands throw products generated ball Launcher used athletes to repeat the movement as the process of exercise, this is what is termed the drilling. The repetition of movement by using the results of pebbles while letting the ball to learn various skills of volleyball game technique or motion. Model tool Launcher volleyball volleyball drills used for secure, most respondents and convincing answer is the absence of physical contact or touch between models and athletes during Launcher tool used in the process of practice. It is derived from the ability of the products can be adjusted the position, the type of target, and pebbles while letting pebbles while letting. In addition, the ability of the model with an adjustable ball direction angle, pebbles while letting pebbles while letting, and typically a factor terhindarnya physical contact during volleyball practice used in the process. The ability of speed, direction, and angle of the roll can be a factor model tool Launcher volleyball comfortable use. Ball speed selection with pebbles while letting results 0-98 km/h, and right on target result of setting direction and angle makes the results of pebbles while letting may be used to fulfill rehearsal tactics and attack. Results of pebbles while letting the balls used for athletes practicing receive serve, block, and pass/dig for tactics to survive. Practice set-up and spike is attacking tactics that can be trained with this ball Launcher tool model. The



Figure 1. Product Research: Activating Tools Model Volleybal

influence of indirect use of the ball Launcher tool model product is related to physical conditions. This refers to the relatively fast repetitions in each athlete's motion due to appearance of the pebbles while letting the product model tool Launcher. This situation demands the stamina of athletes who are good to always show the appearance of exercise as the demands of exercise. This meaning that the model tool Launcher volleyball is a model designed and developed on the basis of a strong theoretical foundation, and can be implemented practically in the classroom/field.

CONCLUSION

Based on the steps of development in this research, the research has met the target of capaiannya which is an end product that is produced through a systematic development process. The products generated through research is a new product model in the tool Launcher volleyball. Volleyball AW_2016 Launcher tool models can be used to exercise the skills of volleyball athletes for motion.

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