

Development of Target Basket Tools for Set-Up and Receive Serve Precise Practice in Volleyball Games

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Abstract

The purpose of this research is to make design and know the effectiveness of target basket tool which is developed. The research methodology used is research and development. The results showed the quality of the product, based on a volleyball expert's evaluation obtained a mean score of 92.8 with the criteria "very good". The effectiveness of the target basket device is obtained from the comparison data of the feed drill and receive serve using the tool and without the tool by 12 athletes with the test based on the time and number of set-up and receive the same serve. The average difference in the number of tosser set-up is 3; the average time difference of tosser is 0.49 minutes; the average difference between receive-receive libero and defender is 4, and the average time difference between libero and defender is 0.58 minutes with the information that using tools faster and more than without tools, so the target basket tool is effective. The conclusion of this research is the product of effective target basket tool used for set-up and receive serve exercise for an athlete and junior volleyball athlete which also help the ball making so that time and energy more efficiently. An important finding underlying the creation of this target basket tool is the development of drill net tools that also the effectiveness of the tool is very useful for training in improving basic techniques in volleyball. Suggested target basket can be socialized and used for all circles of athletes as it proves to be effective as a training tool.

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INTRODUCTION

The development and advancement of sports technology are indispensable for the advancement of sporting achievements. Roy Suryo in Mohammad Abdul Syakur, et al. (2017) explained that "this technology must be one of the major components in the national sports system, which must be managed in earnest". The usefulness of the sporting apparatus, of course, the tools of the invention of science and technology have been much developed, as in volleyball is a model of AW_2016 volleyball thrower used for motion training exercises for volleyball athletes (Agung Wahyudi, 2017).

The game of volleyball is one of the growing sport in Indonesia. The coaching of volleyball athletes will be conducted conductively if done together with high-quality control and involving various elements involved, such as the athletes, coaches, builders, and managers. Many factors affect the outcome of athlete training, one of which is the creativity of the trainer in creating and developing tools for practice. Adequate sports equipment will reflect the quality of coaching done, so the coaching goal will be achieved well.

Sporting equipment is part of sports infrastructure. Dartija (2015), explained that sports facilities are equipment and equipment used for sports activities. While, Saryono (2008) explained that sports infrastructure can be defined as standard-size infrastructures, such as field, basketball, tennis court, hall, football stadium, athletic stadium, and others. Thus, sports facilities and infrastructure are the main capital in the organization of sports activities, through the increased availability of sports facilities of good quality and adequate (Ricko Irawan, 2017).

All the sports games must require facilities and infrastructure for the game can run well and smoothly, not to mention volleyball. There is some compulsory gear to be fulfilled in a volleyball game. According to Drs. Nuril Ahmadi (2007) main gear in the game of volleyball among others; (1) field, (2) field boundary line, (3) game

field area, (4) net, (5) antenna, (6) nettie, (7) net pole, (8) ball, and (9) three-ball system.

There are 4 important roles in a volleyball team, namely tosser, spiker, libero, and defender (Beutelstahl in Syarif Hidayat, et al., 2018). Tossor or set-upper is a volleyball player in charge of set-up or passing a ball with various types of bait to a smasher or a player in charge of hitting the ball, which aims to complicate the opponent or even to turn off the opponent (Nur Zahroni, 2017). Spiker duty to hit the ball to fall in the opponent's defense area. Libero is a defender who can be free in and out but can not smash the ball across the net, only duty to receive and survive only (passing up and down only). Defender or Blocker is a player who survives to receive attacks from opponents.

A reliable tosser, defender, and libero require repeated practice, so the quality is on the rise. One of the obstacles in carrying out a feeding exercise for the beginner tosser and receiving serve practice for defenders and liberos is that it takes a lot of effort and time to get the ball bounced away. Tossor, defender, and libero beginners do not have consistency or accuracy in doing a bait and receive serve, then the ball that is thrown often not directional and bounced away. Trainers need to think about designing a tool that can be used to overcome these obstacles. This tool is expected to be utilized to facilitate and simplify tosser, defender and libero beginner practicing, especially in mastering accurate and good feeding techniques..

The potential for the development of volleyball games in Blora Regency is quite good, it can be seen the establishment of several volleyball clubs for men and female. Symptoms found in the field, based on observations of researchers are as follows: (1) Beginning athletes at the Blora district volleyball club are rarely interested to be tosser or libero; (2) The feeding exercise for tosser and receiving serve training for junior defender and libero is less varied and monotonous, with only the ball, making it less effective because it takes a lot of effort and time to pick up the thrown ball; (3) Tossor, defender and libero beginner to senior even tend to produce feedback and receive serve that is less

stable and less accurate when competing; (4) All volleyball clubs in Blora district, both sons and daughters do not yet have the basic volleyball technique modification tools, so the exercises tend to be monotonous and exhausting for the novice athlete; and (5) The absence of the development of volleyball training tools conducted by PBVSI Blora district.

The problems that arise based on the symptoms that exist throughout volleyball clubs in Blora district, in particular, the absence of training aids, are as follows: (1) Achievement of novice athletes does not increase rapidly, especially in the ability to master basic volleyball techniques; (2) The mass program, seeding, and performance coaching are hampered because there is no modification of training aids; (3) Volleyball clubs only use standard and ancient equipment, so for the effective factor time of exercise is not guaranteed.

Target Basket is a name of a tool design that researchers propose to make the practice of feeding tosser and receiving serve practice by libero and defender more effectively. Basket targets basically have a function to accommodate the ball feeding and receive passing top-down, so the training time is more efficient and the coach does not need to chase the ball and waste time to collect it again. The inaccuracy of the athlete in doing the bait and receive serve, causing the ball to bounce anywhere, so it takes a lot of time and energy to take. In addition, in terms of techniques, target basket can be enabled to find out how precise or accurate tosser do the bait and how exactly defender or libero to receive serve to be channeled to tosser, and increase the number of bait and receive serve, so tosser, defender and libero increasingly skillful and accurate. Here is the design of the target basket tool in question. Basket target is a design tool design that researchers propose to make the practice of set-up tosser and receiving serve practice by libero and defender more effectively. Target Basket basically have a function to accommodate the ball set-up and receive passing top-down, so the training time is more efficient and the coach does not need to chase the ball and waste time to collect it again. The inaccuracy of the athlete in doing the bait and

receive serve, causing the ball to bounce everywhere, so it takes a lot of time and energy to take. In addition, in terms of techniques, target basket can be enabled to find out how precise or accurate tosser do the set-up and how exactly defender or libero to receive serve to be channeled to tosser, and increase the number of bait and receive serve, so tosser, defender and libero increasingly skillful and accurate. Here is the design of the basket target tool in question.

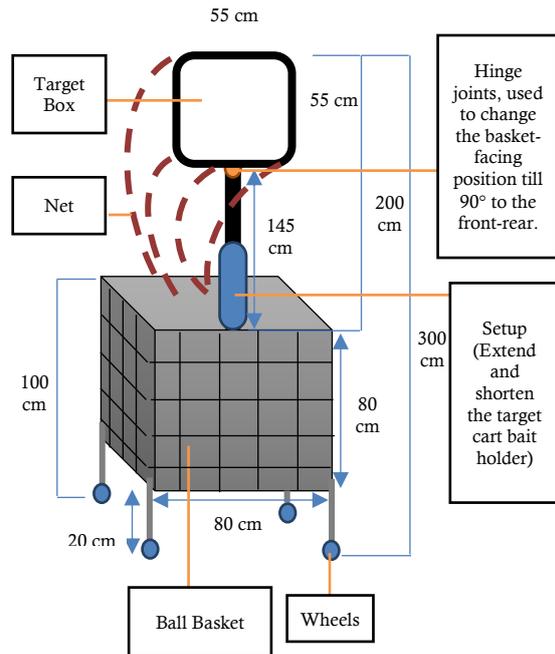


Figure 1. Design of Target Basket Tool

The design of the toolkit for tosser, defender, and libero (Target Basket) training needs to be studied for volleyball clubs in Blora district to have training tools and development outcomes that can be used in coaching programs, especially in programming programs, nursery programs, coaching the achievements of volleyball athletes, especially tosser, defender, and libero in the district of Blora. Basket targets is a development of the previously developed Bownet Volleyball Set Net tool abroad, with almost the same functionality but more emphasis on cost, easily available materials, and the addition of new features. Design of target basket tool.

Benefits if the design of t targetbaske is researched and then developed are as follows: (1) There will be an increase in the achievement

of the beginner and junior athletes (tossers, defender and libero beginner or junior), especially in terms of mastery of basic volleyball techniques. Target Basket make training time more efficient. Technically, there will be increase in the number and accuracy of the set-up exercise and receive serve, thus making the movement automation; (2) Participate in assisting PBVSI of Bora Regency and Central Java Province, especially in terms of breeding and fostering of novice athlete's volleyball performance; (3) Target Basket is very simple and does not require high cost, practical (can be shifted, lengthened, up and down, and can be disassembled) and can be used two or more in a field; (4) Because in terms of affordable prices, it does not rule out many other volleyball clubs outside Bora district who will use the target basket tool.

One of the important foundations in making the modification of the target basket tool to support the achievement of volleyball sport in regional and national scale is the existence of Government Regulation of the Republic of Indonesia Number 16 of 2007, on the National Sports Organization Chapter IX Article 72 on Science and Technology Science and Sport also affirmed that the Government and the public is responsible for developing the science and technology of sports in a planned and sustainable way to promote the national sport. In the same regulation above in the third section of Article 81 paragraph (1), it is mandated that the development of sports science and technology is conducted through research, assessment, transfer of technology, socialization, scientific meetings, and cooperation between research institutes and institutions of higher education both nationally or internationally; (3) The assessment of sports science and technology as referred to in paragraph (1) shall be used to develop prototype, design and modification in order to improve the quality of national sporting activities.

Target Basket cannot be denied as a product. Abdul Samad & Imam Wibowo (2016) suggests that the product is everything that is offered to the market to get attention, bought, used, and that can satisfy the wants or needs. Comfortable and safe products are products that

can maximize the capabilities of the product itself for a particular purpose. If the development basket target product is good and beneficial for many volleyball clubs in Indonesia, then the potential of the industry will be created.

METHODS

This research uses a development research method that is a research method that used to produce a certain product, and test the effectiveness of the product (Sugiyono in Ita Dianawati, et al. 2017). This study uses a procedural approach (descriptive), which is a procedure that outlines the steps to be followed in producing the product. According to Slamet Riyadi, et al. (2012) "Research and development strive to produce a component in the education and sports system through development and validation steps". Procedures in the research development as follows: (1) Potentials and Problems, (2) Data Collection, (3) Product Design, (4) Design Validation, (5) Design Improvement, (6) Product Trial, and (7) Try (Sugiyono, 2011).

The product development trial was carried out in two stages: a small-scale trial contains 6-person athlete of PVC Bora and a large-scale test contains of 12 club athletes Putra Mustika Bora as the subject. In this study involving 1 (one) lecturer, 3 (three) trainers, (Bora PVC Club Coach and Club Coach Son Mustika Bora), and 1 volleyball practitioner, who asked for help to see, rate, evaluate and test the product, whether the tool can be used in a volleyball club practice.

The indicators of the successful of this product are the analysis of observation results, interviews, discussions with experts/volleyball experts, volleyball coaches, athletes and volleyball practitioners, and documentation of all the subjects that have been tested in this research. The effectiveness of the basket target tool is obtained from the data of the drill ratio of the bait and receive serve technique using the tool and without the tool.

RESULTS AND DISCUSSION

The research procedure that has been done, to produce the final product is a tool called basket target. Here is the final product image of basket target.



Figure 2. End Product Target Basket Tool

Interview Result

Data analysis and the interpretation of the data obtained from interviews, observation, and documentation. Based on data analysis of research results, obtained data about target basket. In summary, interview data can be classified as follows. (1) In a small-scale test, 6 beginners and junior athletes state that basket target is safe, comfortable and standard. (2) In a broad-scale test, as many as 12 athlete beginners and junior states that target basket is safe, comfortable, and standard. (3) In a small-scale test, as many as six athletes and junior beginners claim that the target basket is very versatile, in addition to precision training can also help in the

taking of the ball. (4) in a large-scale test, as many as 12 athlete and junior athletes state that target basket is very versatile, in addition to precision training can also be helpful in taking the ball. (5) In a small-scale test, as many as six athletes and junior athletes state that target basket can be used as training suggestions and provide an effective form of exercise for both beginner and junior athletes for technical development. (6) In a wide-scale test, as many as 12 athlete and junior athletes state that target basket can be used as a means of practice and provide an effective form of training for both beginner and junior athletes to develop techniques.

Product Validation

Validation is done by an expert team by observing target basket product and accompanied by an evaluation sheet and suggestion for experts. The evaluation sheet is a questionnaire that contains aspects of product quality. Expert advice sheets are used for researchers to revise or refine the tool before it is used for trial or after a trial.

The results of the questionnaires submitted by the expert team can be concluded that the expert team considers both target basket as a training tool bait and receive serve for beginners and junior athletes. Expert 1 (Dr. Nasuka, M.Kes., Volleyball Lecturer UNNES) gives 89 points to target basket as a volleyball training tool, Expert 2 (Kusnan, S.Pd., Chairman of the Club PBV Putra Mustika Blora and Club Coach Putra Mustika Blora) gives 96 points to target basket as a volleyball training tool, Expert 3 (Ibnu Khotamin, Volleyball Club Coach PVC Blora) gives 92 points to target basket as a volleyball training tool, Expert 4 (Nur Rochim, S.Pd., Men's Volleyball Club Coach Mustika Blora) gave 93 points to target basket as a volleyball training tool, and a practitioner (Rizqika Mydhya Oktafian, S.T., Senior Volleyball Club Athlete PVC Blora) gives 94 points to target basket as a volleyball training tool.

The five values mentioned above are 89, 96, 92, 93, and 94, the averaged of the value is (92.8), the value in the conversion table is in either category gives 94 points to target basket as a volleyball training tool.

Evaluation results in the value above using the scale of the assessment 0-100 as shown in the following table 1.

Table 1. Assessment Scale and Interpretation

Scale 1 – 100	Interpretation
81 – 100	Very well
66 – 80	Good
56 – 65	Enough
41 – 55	Less
0 – 40	Less than once

Source: Nurhasan in Erwin Nizar Priambodo, 2015

Product Effectiveness

Target Basket as a effectiveness tool set-up and receive serve training in this study is seen from the comparison between the number of set-up or receive serve and the time to do the exercise using the tool (Target Basket) with the number of set-up or receive serve and time doing the exercises without using the tool. Target Basket is said to be effective as a training tool if the number of set-up and receive serve from the test results with the tool is greater than that without using the tool. Conversely, target basket is said to be ineffective as a tool, if the number of bait and receive serve from the test results with the tool is smaller than that without using the tool.

First, the comparison of the number of set-up with and without the tools, both targeted and out of target from trial results in tosser is shown in the following table 2.

Table 2. Number of Bait Tossers Comparison

Tosser	Type of bait	Time (minutes)	Amount bait on target		Difference (effectiveness)
			With tools	Without tools	
Tosser 1 single (men)	Bait smash normal/open	1	28	26	2
Tosser 2 single (men)	Bait smash normal/open	1	20	16	4

The test result on single men's tosser can be drawn the conclusion of the average normal smash set-up with a tool and without a tool is 3 normal smash set-up, with the information that within 1-minute tosser can do on average 3 times normal smash set-up more target more when using tools than without using tools.

Second, the ratio of the amount of time performing a normal smash feed using a tool and

without a test result tool on a single men's tosser is presented in the following table 3.

Table 3. Comparison of Number of Tossers Time

Tosser	Type of bait	Time (minutes)	Amount bait on target		Difference (effectiveness)
			With tools	Without tools	
Tosser 1 single (men)	Bait smash normal/open	30	1.11	1.47	0.36
Tosser 2 single (men)	Bait smash normal/open	30	1.18	1.81	0.63

The experimental results on the single men's tosser can be deduced by the average of the time difference of execution by 30 times the set-up with the tool and without the tool is 0.49 minutes, with the information that in 30 times the normal smash set-up, the tosser can perform an average time of 0.49 minutes faster when using tools than without using tools.

Third, the comparison of the amount of time to receive serve by receiving the floating service using tools and without tools, the results of trials on group athletes are presented in the following table 4.

Table 4. Comparison of Number of Receive Serve Group Athletes (Libero and Defender)

Group	Type of serve received	Time (minutes)	Amount receive serve on target		Difference (effectiveness)
			With tools	Without tools	
Group 1 Men (Libero 1 and Defender 4)	Receive serve by accepting float serve	1	22	16	6
Group 2 Men (Libero 1 and Defender 4)	Receive serve by accepting float serve	1	26	24	2

The results of trials on group athletes can be drawn conclusions on average difference receive by receiving float service with tools and without a tool is 4 receive serve, with information that within 1-minute group athlete can do on average 4 times receive serve more target many when using tools than without using tools.

Fourth, the comparison of the amount of time to receive serve by receiving the floating service using tools and without tools, the test results in group athletes are presented in the following table 5.

Table 5. Comparison of Number of Time Group Athletes (Libero and Defender)

Group	Type of serve received	Amount receive serve (accepting float serve)	Amount receive serve on target		Difference (effectiveness)
			With tools	Without tools	
Group 1 Men (Libero 1 and Defender 4)	Receive serve by accepting float serve	30	1.18	1.92	0.74
Group 2 Men (Libero 1 and Defender 4)	Receive serve by accepting float serve	30	1.60	2.02	0.42

The results of trials on group athletes (libero and defender) can be deduced by the average of time difference of implementation with 30 times receive serve with tool or without tool is 0.58 minutes, with the information that in 30 times receive serve, group athletes can do flat times 0.58 minutes faster when using or without tools.

The results of set-up test and receive serve on a wide scale stated that, seen the number of set-up and receive serve using target basket tools more than without using the tool. The difference in the result difference is good enough to prove that basket target is effectively used as a set-up tool and receive serve for volleyball athletes. Time-effectiveness is important in an exercise. In accordance with an opinion Suharno in Teddy Agoeng Soelistyo (2012) states that, the exercise is a conscious process of consciousness of the player to achieve maximum performance quality by being given physical, technical, tactical and mental loads regularly, directed, improved, gradual and repetitive.

The recommendations of the expert team on the feasibility of using the target basket product and the level of athlete training satisfaction after a series of trials is proof that basket target can be well functioned as a training tool set-up and receive serve for beginners and junior athletes.

CONCLUSION

Based on the results of the experiment testing the small and large scale target basket at the volleyball club PVC Blora and Putra Mustika, it can be concluded that the first product target basket can be used as a training tool to improve the accuracy of set-up and receive serve,

especially for beginner and junior volleyball athletes. And the second The product of effective target basket as a training tool of volleyball beginner or junior in terms of form of exercise, set-up and receive serve training using target basket can be used in a variety of patterns or forms of regular exercise such as exercise in the form of circuits for example, so the athlete will focus more on the practice than the split concentration with the condition of the exercise like the ball is bouncing everywhere, the balls are wildly resolved with the target basket tool, if this is done routinely, then the technique of feed accuracy and receive serve athletes will increase rapidly. Then in terms of time aspect, batting practice and receive serve by using target basket can reduce the delay time of the ball. Then in terms of power, because it minimizes the power of the ball taker. Then viewed from the aspect of the place, because it can be installed more than one target basket tool in one field, And target basket are also practical, how to use is very easy and can be shifted because it uses wheels and wheels can be locked to stabilize the tool.

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