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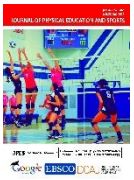

Development of Drill Shooting Training Aid at Futsal Club in Wonosobo Regency

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Abstract

The study aimed to make a drill shooting exercise tool. The subjects in this study were two media experts, two futsal experts, and 40 futsal athletes for product testing. The technique of collecting data uses interviews, observation, questionnaires, and documentation. The data analysis technique uses choices with a 1-5 Likert scale, which is very less, less, sufficient, right, and very good. The product effectiveness test gets a 20% increase in shooting practice and a 28% increase in the number of goals, meaning that the product is used. The product trial on stage 1 media experts gave an average score of 3.35 including the "good" category, and stage 2 gave an average score of 4.55 including "excellent" category. Product testing on futsal expert stage 1 gives an average score of 2.9 including the "good" category, and stage 2 gives an average score of 4.45 including "excellent" category. Small-scale product trials get an average score of 4.56 including "excellent" category. Large-scale product trials get an average score of 4,403 including "excellent" category. This study concludes that ABS SN has produced as a tool for futsal shooting drill practice, ABS SN is feasible and effectively used as a tool for drill shooting training in futsal athletes in Wonosobo Regency.

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INTRODUCTION

Sports play a role in increasing the ability of the nation to implement sustainable development systems that achieve the realization of the path through sports achievements. (Atmojo, Kristiyanto, and Purnama, 2017). Humans move with various motives to exercise to maintain and improve the quality of life (Riyoko, Soegiyanto, and Sulaiman, 2014). It means that every human being has the same opportunity to improve their quality of life, both for normal humans and those with special needs (Kurniawan, Rahman, and Soegiyanto, 2015). The sport will provide a foundation in forming a strong personality and a healthy and resilient and creative soul to face changes and competition that always moves dynamically (Lauh, 2014). Sports at this time have become a lifestyle for some people, in various places and times often meet someone, or a group of people is exercising. Someone doing sports activities has a goal to maintain fitness (Hidayat, and Indardi, 2015).

Sports are all regular activities to encourage, foster and develop physical, spiritual and social potential. Today, games are not only or no longer used as a unifier of a nation, but sets are now widely used as education, recreation, health, and achievement (Apriansyah, Sulaiman, and Mukarromah, 2017). Competitions not only aim to be healthy but exercise can also measure one's achievement or team (Septianingrum, Sugiyanto, and Kristiyanto, 2018). The development of the world of sports cannot be separated from the progress of life with society, the nation, and the country. Exercise is not only the need to maintain body fitness but has penetrated in all sectors of life. Furthermore, sports achievements can improve human dignity individually, in groups, communities, countries, and countries (Safiuddin, Margono, and Mardapi, 2017).

All types of football such as field soccer, beach soccer and futsal are highly favored by millions of people for amateur, professional and recreational purposes. One sport that resembles football is futsal. Futsal is more popular with many participants, because of its characteristics similar to field football (Uluöz, 2016). Futsal growth has led to an increase in demand for futsal-related information, to enable people to understand the sport and its quality and subtleties better. In particular, there is a desire for coaches, players, sports scientists and administrators to increase the depth of their knowledge, to help them contribute to the development of sports in their respective countries (Moore, Bullough, Goldsmith, and Edmondson, 2014). In futsal games, players will get the ball more often than when playing soccer, this requires players to do more individual techniques and need more repetition in the game, and this contributes to the impact between the ball and players during the match.

Futsal as a game played by both genders physically bringing players into standard one-on-one situations is important with fast kicking skills and requires headings (Datu, 2018). The development of futsal, although vague in its description, is exciting, partly because there is a desire to understand how the sport has formed in certain countries, especially people based in the new futsal region that aims to develop sports (Moore, Bullough, Goldsmith, and Edmondson, 2014).

Increased progress in the field of science and technology must be balanced with advancements in the field of sports and improved human resources. In this case, through the efforts and guidance and development of games, it will provide a considerable role in realizing quality Indonesian people, because sports which have a role in national development need to be fostered and developed. Of the many games in Indonesia, futsal is one sport that was nurtured and developed (Siswanto, 2015).

Development and engineering of sports equipment and equipment are needed to balance the technology of training and the implementation of sporting activity (Ngadiman, Kusuma, and Nugraha, 2011). The development of sports technology is indeed significant to be used mainly in Indonesia to improve the achievements of athletes both locally and nationally. The development and progress of sports technology are essential for the

advancement of sports achievement (Syakur, Badruzaman, and Paramitha, 2017).

Everyone doing sports activities is a variety of purposes. Healthy is undoubtedly the primary goal of someone doing sports activities. However, on the other hand, there are many more kinds of goals for someone to do sports, among others, to merely refreshing, throw tired, gather with other people, to get achievements. Based on Article 17 of Law No. 3 of 2005, the scope of sports includes activities: (1) sports education, (2) recreational sports, and (3) achievement sports. This study will discuss sports achievements, namely futsal.

Laksana (2011), states that futsal is football done indoors, whereas according to Murhananto (2008) futsal is a word used internationally for soccer in the room. Based on these descriptions the researcher argues that futsal is a massive ball game played by two teams, each of which consists of five players with the goal of scoring to the opponent's goalpost.

Futsal games that are so popular among the people of Wonosobo Regency are not directly proportional to the achievements made. The accomplishments of futsal clubs in Wonosobo Regency can be said to be poor. So far, there are only two futsal clubs from Wonosobo Regency that have participated in several competitions outside the region, namely UFOs and CISC. Besides the two teams, there is one more club that can be said to be good and has some achievements, namely KMW FC. However, in the past five years, the performances at KMW club have decreased.

The primary objective of the futsal game is to score as many goals as possible to the opponent's goalpost. To be able to score goals, one of the basic techniques used in playing futsal is shooting or kicking towards the goalpost. Sunarno (2008), states that shooting is a way to kick the ball with hard feet with the aim of creating a goal. Shooting can be done both during open play and when the ball is dead. Laksana (2011) states that the notion of a dead ball is a condition when the ball is not in the game for a while, for example when a penalty, free kick, kick in, corner kick, throw a shot from the goalpost guard, and a kick from 10 meters. One punching to the goalpost to score when the ball is dead called a penalty kick. The successful boot to the goalpost, especially penalty kicks can be influenced by the kick strength and the accuracy of the direction of the ball. Goalpost futsal is smaller than the soccer goalpost, so futsal players are required to have hard kick power and good skill to be able to score goals.

Based on the above problems, the researcher has the idea to make a tool in training shooting drill to improve accuracy.

METHODS

This study uses the Research and Development method or development research. This study uses a procedural development model, because this model is descriptive, namely a procedure that describes the steps that must be followed in producing a product.

Needs analysis is the first step in this development research. This step aims to determine whether the modification of the training aid accuracy of the kick to the goalpost is needed or not. To answer this question, the researchers conducted a futsal training survey at several futsal clubs in Wonosobo Regency by giving some issues relating to the process of futsal training and the interest of coaches and athletes in the presence of innovative development of shooting drill training tools that facilitate the training process.

Based on the results of the above needs analysis, the next step in this study is the drafting of the initial product aid for drill shooting exercises. In making this product will be made by a team that will have their respective assignments including drawing design, creating an iron tool frame, arranging electrical device-related diagrams.

The initial product draft needs to be validated in advance by experts who are by their fields before being tested on a small scale trial. The researcher appointed two experts who were considered competent in their respective areas to validate the products produced. The two experts consisted of two media experts, namely Mr. Jayadi, and Mr. Saerozi is a robotics, and

two futsal experts, namely Mr. Pamungkas Triatmaja, S.Pd. is a national level trainer and Mr. Firman Ardi Cahyana, S.Pd.

After obtaining repairs from experts, then the initial revisions are carried out. The initial product revision was received from the advice of media experts and material experts to improve the weaknesses that still exist in this study so that later revised products can be used for field trials.

Field trials consist of small scale trials and large-scale trials. A small scale trial was conducted to find the shortcomings of this product. Small-scale tests carried out on athletes at KMW club amounted to 10 people. A large-scale analysis was made to determine the feasibility and effectiveness of the product after it was repaired and revised in a small-scale trial that had been carried out. The large-scale tests in this study were organized at three futsal clubs in Wonosobo Regency, namely KMW FC, FC UFO, and CISC Wonosobo with ten clubs each. So the total sample used for the large scale trial is 30 people.

After conducting a large-scale trial, the product repaired and revised. The results obtained in a mass trial were used to improve and review drill shooting aid product, so they could find out the weaknesses and strengths of the products developed after being used in the training process at the club.

The final product of this development is a drill shooting aid tool called ABS SN. This tool is made attractive, safe, and practical so that it can support the success of shooting exercises by athletes at futsal clubs in Wonosobo Regency.

The data used in this study are qualitative data and quantitative data. Qualitative data obtained from interviews, and questionnaires in the form of criticism and suggestions from experts in oral or written as input for product revision material. While quantitative data, obtained from observations to athletes.

The data analysis technique used to test the feasibility of the product is a questionnaire that uses choices with a 1-5 Likert scale, with very less (SK), less (K), sufficient (C), good (B) and excellent (SB) categories.

The final results of the analysis of this questionnaire test are stated by:

$$P(\%) = \frac{f}{N} \times 100\%$$

Information:
P = The results will be searched in percentages
f = The number of scores that the percentage will look for
N = Criteria scores obtained from the maximum score from the questionnaire

The eligibility criteria for the question can be seen in the table as follows:

Table 1. Interpretation of Scores

Percentage (%)	Category
0 - 20	Very less
21 - 40	Less
41 - 60	Enough
61 - 80	Good
81 - 100	Very good

Source: Marhadini, Akhlis, and Sumpono, 2017

RESULTS AND DISCUSSION

The development of ABS SN is designed and produced into an initial product in the form of a drill shooting training aid. The development process through research and development procedures, namely planning, production, and evaluation.

Validation of media experts in this study was carried out in two stages. Stage 1 media expert validator with code A_1 gives an assessment score with an average of 3.4 or 68% included in the "good" category, and the media expert validator with A_2 code gives an assessment score with an average of 3.3 or 66% included in "good" category. Validator media experts A_1 and A_2 in stage 1 provide an assessment score with an average of 3.35 or 67% included in the "good" category.

The graph of media expert validation in stage 1 is as follows.

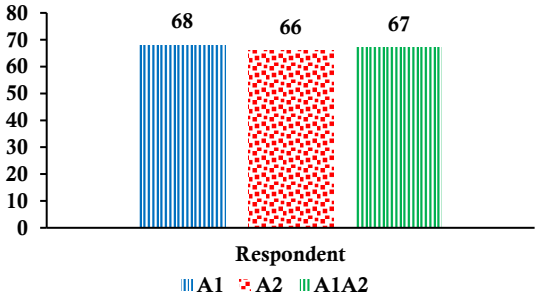

Figure 1. Diagram of Media Expert Validation Stage 1

Stage 2 media expert validator with code A_1 gives an assessment score with an average of 4.5 or 90% included in the category of "very good," and media expert validator with code A_2 gives an assessment score with an average of 4.6 or 92% including in the "excellent" category. Validator media experts A_1 and A_2 in stage 2 provide an assessment score with an average of 4.55 or 91% included in the "excellent" category.

The graph of media expert validation in stage 2 is as follows.

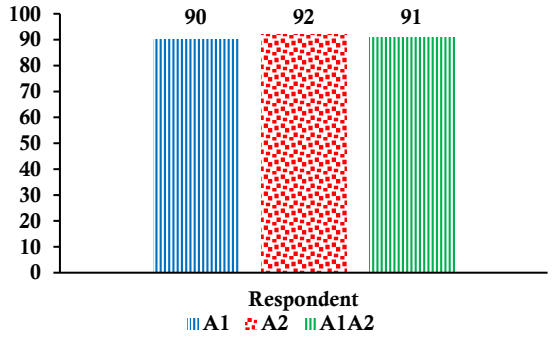

Figure 2. Diagram of Validation of Media Expert Phase 2

Validation of futsal experts in this study was carried out in two stages. Stage 1 futsal expert validator with code B1 gives an assessment score with an average of 3.1 or 64% included in the "good" category, and futsal expert validator with B_2 code gives an assessment score with an average of 2.7 or 60% included "good" category. Validator futsal experts B_1 and B_2 in stage 1 provide an assessment score with an average of 2.9 or 62% included in the "good" category.

Phase 2 of the futsal expert validator with code B_1 gives an assessment score with an average of 4.5 or 90% included in "very good" category, and the futsal expert validator with code B_2 gives an assessment score with an average of 4.4 or 88% included in "excellent" category. Validator for futsal experts B_1 and B_2 in stage 2 provides an assessment score with an average of 4.45 or 89% included in the "very good" category.

The graph of the results of the validation of futsal experts in stage 1 are as follows.

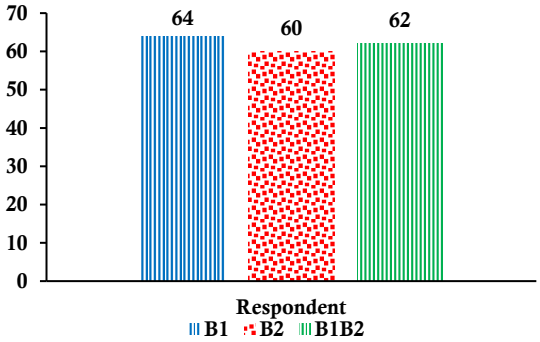

Figure 3. Diagram of Validation of Futsal Expert Phase 1

The graph of the results of the validation of futsal experts in stage 2 are as follows.

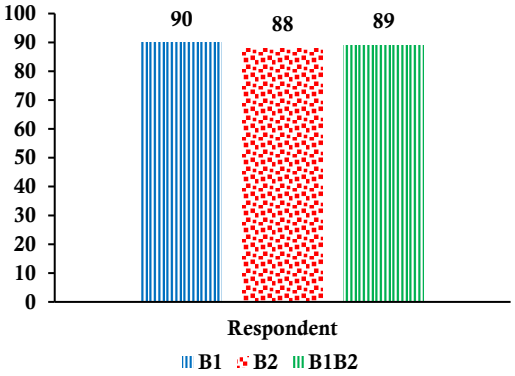

Figure 4. Diagram of Validation of Futsal Expert Phase 2

Products that have been validated by media experts and futsal experts are then tested on futsal athletes to determine the effectiveness of the product. The number of kicks that lead to the goalpost before training using the tool is 31 or 62%. The number of kicking that lead to the goalpost after practice using the device is 41 or 82%; it means that after training using the tool, the number of kicking leading to the goalpost has increased by 20%. The number of goals before practice using the device is 10 or 20%. The number of goals after training using the device is 24 or 48%, this means that after using the tool, the number of targets has increased by 28%.

Table 2. Results of Exercise Before Using ABS SN Products

Name of athlete	Number of kicks		Number of goals
	On goalpost	Deviated	
Aji K	3	2	1
Bekti	2	3	0
Aji W	4	1	1
Eko S	4	1	3
M Toha	5	0	3
Musofa	2	3	1
Faizin	2	3	0
Bayu Aji	2	3	0
Andreas J	4	1	1
Afif	3	2	0
Total	31	19	10

Table 3. Results of Exercise After Using ABS SN Products

Name of athlete	Number of kicks		Number of goals
	On goalpost	Deviated	
Aji K	4	1	3
Bekti	3	2	1
Aji W	4	1	2
Eko S	5	0	3
M Toha	5	0	4
Musofa	3	2	2
Faizin	4	1	3
Bayu Aji	5	0	2
Andreas J	4	1	3
Afif	4	1	2
Total	41	9	24

Product Effectiveness Test Chart:

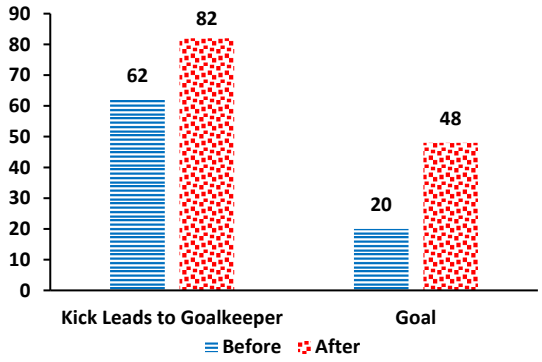

Figure 5. Comparison of Shooting Exercises Results Using the ABS SN Tool

The trial of small-scale products was carried out for futsal athletes in the KMW club in Wonosobo Regency, amounting to 10 people. The results of product trials on a small scale get an average score of 4.56 or 91.20% included "excellent" category.

Graph of small-scale product trials.

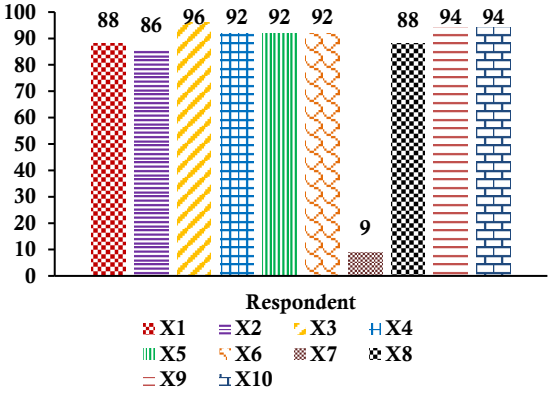

Figure 6. Small Scale Product Trial Results

Large-scale product trials were carried out for futsal athletes at KMW, UFO, and CISC clubs in Wonosobo Regency, which numbered 30 people with details of each of the ten clubs. The results of product trials on a large scale get an average rating score of 4.403 or 88% included "excellent" category.

The product of this research is not much different from the product that has been produced by previous research. There are content equations in several specifications. The following is a table of differences in product specifications with similar products that have been made by previous researchers.

Table 4. Differences in ABS SN Product Specifications with Other Products

ABS SN	Multifunctional ball launcher	Ball thrower based on Arduino microcontroller
Can throw the ball in any direction	Can only change the pitch of the ball	Can throw a ball in one direction
Using PLN electricity sources	Using an accumulator	Using an accumulator
Can be used to throw balls other than futsal balls	Can be used to throw balls other than futsal balls	Can only be used to throw futsal balls

ABS SN product is a tool made with the aim as a tool for futsal shooting drill training. The advantages of this product are as follows:

1. Easy to operate
2. Facilitate the trainer in training the shooting practice process
3. Can be used to practice ball control

4. Can be used to teach the keeper's response to the ball
5. Can be used to throw balls other than futsal balls
6. The ball that thrown can lead in all directions
7. Safe to use

ABS SN products besides having advantages also have disadvantages. The following are some product shortcomings:

1. This product is composed of components in the form of iron so that it is quite heavy.
2. Using PLN electricity with a minimum power of 1400 watts, so that if the voltage goes out, then this product cannot be operated.

There is no tool damper so that when operated at maximum speed it makes noise.

CONCLUSION

Based on the results of research and discussion on the development of ABS SN products, the following findings were obtained: (1) a product of futsal shooting drill training has been produced with the name ABS SN, (2) ABS SN is suitable to be used as a drill shooting aid for futsal athletes in Wonosobo Regency, (3) ABS SN is effectively used as a tool for drill shooting training in futsal athletes in Wonosobo Regency.

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