Jurnal Pendidikan Jasmani (JPJ)
Vol. 3, No.2,Desember 2022
ISSN: 2723-2816 (Online)

Tool Development *Defense Man Mannequin* Basketball

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Abstract

This study aims to develop the Defense Man Mannequin tool as a training tool that can provide effectiveness to coaches and athletes. This tool is used to train techniques to facilitate the performance of the trainer. This research is a research development or Research and Development (R&D). The development of the model defense tool was first validated by material experts, media experts, and field trials of 8 basketball athletes for the 1st phase of the trial, 16 athletes for the 2nd phase of the trial. The subjects of this research were the basketball athletes of Club Garuda Putih, Jambi City. Data collection techniques were used in this study by using an instrument in the form of a questionnaire. The data analysis technique of this research is a descriptive qualitative and descriptive quantitative percentage. The results showed that the Defense Man Mannequin was feasible to be used as a basketball training aid. These results are obtained from the latest validation results of a) material experts by 92% or Eligible; b) media expert at 100% or appropriate; c) Athletes in the final stage of field trials are 95.3%. Thus, the conclusion is that the mannequin defense tool has been declared suitable for use as an exercise aid.

Keywords: tool development, defense, model, basketball.

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INTRODUCTION

Science and Technology (IPTEK) is a term that we often hear in everyday life. In general, there is an assumption that the application of science and technology will guarantee the progress of society. The rapid progress of Science and Technology (IPTEK) cannot be deniedthat various research innovations are growing rapidly. Advances in Science and Technology or Science and Technology have helped various human activities in various activities, especially in the sports field, which has helped in the field of training and competitions. Humans themselves are the main subject of the science and technology factor being developed. Science and technology support helps athletes to excel.

Sports are all systematic activities to encourage, foster and develop physical, spiritual and social potential. Sports can be enjoyed by everyone in the world, regardless of one's social status. Currently, sport has become an activity that is favored by many people, both young and old. Of

all sporting activities, achievement sport is one type of sport that can be used as a tool to bring a good name to those who do this sport and can even bring the good name of families, schools, to the nation and state. Therefore, sports achievements must be increased as much as possible by way of coaching in each sport which is directed at increasing achievements which will be able to make the nation proud.

The usefulness of tools in achievement sports is of course tools from science and technology inventions that have developed a lot, such as in basketball for example, because science and technology assistance in the Scoring Board (scoreboard) has been able to assist the jury in calculating the points generated. These tools are only a small part of the many sports equipment that already uses technology. The role of science and technology is not only that, but also plays an important role in the process of realizing athlete competence during training so that they are able to achieve maximum performance. Achievement sports consist of many sports, one of which is basketball.

In the game of basketball, all players must have good basic playing techniques. The basic techniques of the game are: (a) mastery of basic techniques (fundamentals), (b) physical endurance (physical conditions), (c) cooperation (patterns and strategies), (d) basic techniques (shooting, passing, lay-up, dribbles, pivots). These basic techniques must be mastered by basketball athletes because if basketball athletes can master these basic techniques it will make it easier for an athlete to attack opponents(Sembiring & Wiyaka, 2021). In the basic technique of basketball, essentially basketball players train the body to be able to master these techniques so that they can easily attack opponents(Hasibuan & Hasibuan, 2021). In the process of achievement, facilities and infrastructure in training to support the athlete's ability in technical training is very important(Pratama & Wiyaka, 2021). Therefore, Athletes must always practice basic technical training skills to be able to miss opposing players who are guarding the basketballhoop(Syahni et al., 2021). In the game of basketball, to be able to beat the opponent, the athlete must be able to enter the ball into the basketball hoop using techniques in basketball(Muslim et al., 2020).

Based on field observations at the Garuda Putih Korem basketball club, Jambi City, basketball athletes are still practicing basic techniques using makeshift facilities and

infrastructure, then some have used cones or chairs placed in parts of the Half Court which are used to position the opponent's position with the goal is to smoothen the Offense so as to make the exercise less effective(Mahyuddin & Sudirman, 2021). This mannequin defense tool is only asmall part of the many sports equipment, the development of science and technology in sports will never stop until satisfaction is fulfilled, as well as science and technology in other fields(Lubis et al., 2017). Because satisfaction and a sense of wanting to be the best are the driving forces for someone to always use science and technology as the basis for achieving goals.In the end there will always be new ideas, new creativity (Helmi & Winata, 2017).

With not many found that modify the defense tool for basketball(Nugroho & Raharjo, 2020). So that researchers want to develop a defense mannequin tool in basketball so that it can help achieve training goals and make it easier for coaches to give repeated exercises until the desired goal is achieved(Apifa et al., 2020). This tool is expected to provide an athlete's effectiveness in the basketball training process, and make it easier for coaches when training, directing the desired training program and helping the coach focus when supervising his athletes(Aditya et al., 2020).

METHOD

Research conducted by researchers is a type of research and development (R&D). R&D research is a process or steps to develop a new product or improve an existing product, which can be accounted for.

The development research that will be carried out by the researcher is the development of a basketball defense mannequin tool. This development is carried out with gradual research.

The steps in research and development describing the ten steps of implementing research and development procedures as follows:

- Research and information collecting (research and information collecting) The process of collecting information begins with conducting a preliminary study in two forms, namely, literature study and field study. Research and development is an activity that starts with a potential problem that needs solving. In this study, the potential problem that has not been

solved is the lack of development of a mannequin defense tool in basketball. Observationand preliminary study, this activity is to collect information that can be used to solve problems. Information in this study was obtained from the results of field observations in theform of observations and interviews.

- Planning (planning) is compiling a research plan, including the materials needed in carrying out the research, the formulation of the objectives to be achieved by the research, the design or research steps.

- Product development (develop preliminary form of product). Tool development, product design, tool manufacturing process, and evaluation.

- Initial field testing (preliminary field testing). Field trials will be tested by the white garuda basketball coach of Jambi City. During the trial, observations and interviews were conducted.

- Revise the test results (main product revision). At this stage, revisions will be carried out by validation to obtain input which is then revised and a product draft that has been made to be used as a guide for developing the Defense Man Mannequin tool for basketball. In this case, the validation needed by the researcher includes validation of media experts and validation of material experts. Next, the validator is asked to evaluate the design that has been made to identify its strengths and weaknesses.

- Field testing (main field testing). Conducting a wider trial on the white garuda basketball athlete using the purposive sampling method, namely the technique of determining the sample with specified criteria.

- Completion of products resulting from field tests (operational product revision). After testing, further refinement of the product by analyzing which items need to be improved on the product made.

- Field implementation test (operational field testing). It was carried out on Garuda Putih basketball athletes in the age group (17-25 years) with purposive sampling method to

determine the feasibility of the previously validated product and to get input from the coach as an observer when conducting field trials.

- Final product revision (final product revision). This final product is a product that is produced after going through the stages of field studies, literature studies, product design, finished products, products that are validated as well as revision of phase 1, small-scale trialsand large-scale trials and at the same time revision of stage 2, and final manufactureproducts. The final product can be made after being declared effective in several tests to be used and utilized by trainers and agencies that need it.

- Dissemination and implementation (dissemination and implementation). From the results of the dissemination product, it can later be widely implemented.

RESULTS AND DISCUSSION

Results

The product "Development of the basketball sports Defense Man Mannequin tool" is validated by experts in their fields, namely a material expert and a media expert. Media experts who become validators are Lecturer of Sports and Health Education / Lecturer of Basketball Hendri Munar S.Pd., M.Pd. Researchers chose him to be a validator because of his competence in the field of basketball, especially training media and very adequate infrastructure. The media expert validation test (facilities and infrastructure) phase I carried out on January 8, 2021 was obtained by providing a product in the form of the Defense Man Mannequin tool for basketball that had been made along with an assessment sheet in the form of a questionnaire or questionnaire.

Table 1. Media Expert Assessment Results Phase I

No.	Rated aspect	Evaluation				
		SK (1)	K (2)	C (3)	B (4)	SB (5)
1.	The Defense Man Mannequin tool form.					√
2.	Defense Man Mannequin tool color.					√
3.	Stand iron can be adjusted high and low.					√
4.	Defense Man Mannequin tool size.					√
5.	Exercise tool model design					√
6.	The size of the Defense Man Mannequin tool frame.					√

7.	Provides user effectiveness.	√
8.	Make exercise more effective and efficient.	√
9.	Helping coaches to train athletes.	√
10.	Material suitability.	√

This product is stated:

1. Appropriate for use for field trials No Revisions (v)

2. Appropriate to be used for field trials with targeted revisions.

Table 2. Category of Media Expert Assessment Results Phase I

No.	Aspects that rated	The score Obtained	Score Maximum	Percentage (%)	Category
1.	Media	50	50	100%	Very good
	Total Score	50	50	100%	Very good

In the first validation stage, the percentage obtained is 100%, thus it can be stated that according to the material expert, in the first validation stage "Development of the Defense Man Mannequin tool for basketball sport" the category "very good" was declared very feasible to be tested without revision.

Table 3. Media Expert Validation Phase II

No.	Rated aspect	Evaluation				
		SK (1)	K (2)	C (3)	B (4)	SB (5)
1.	The Defense Man Mannequin tool form.					√
2.	Defense Man Mannequin tool color.					√
3.	Stand iron can be adjusted high and low.					√
4.	Defense Man Mannequin tool size.					√
5.	Exercise tool model design					√
6.	The size of the Defense Man Mannequin tool frame.					√
7.	Provides user effectiveness.					√
8.	Make exercise more effective and efficient.					√
9.	Helping coaches to train athletes.					√
10.	Material suitability.					√

This product is stated:

1. Appropriate for field trials No Revision (V)
2. Appropriate to be used for field trials with targeted revisions.

Table 4. Category II Media Expert Assessment Results

No.	Aspects that rated	The score Obtained	Score Maximum	Percentage (%)	Category
1.	Media	50	50	100%	Very good
	Total Score	50	50	100%	Very good

Phase II media expert data collection was carried out on February 19, 2021. The material expert gave an assessment with a percentage of 100% and was included in the "Very Good" criteria. The results of the validation of the material expert phase II "Development of the Defense Man Mannequin tool for basketball" was declared very feasible to be tested without revision.

Material Expert Validation Phase I

The material expert who became the validator was the Sports and Health Education Lecturer / Basketball Lecturer, Dr. Muhammad Ali S.Pd., M.Pd. The researcher chose him to be a validator because of his competence in the field of basketball. The material expert validation test phase I was carried out on January 8, 2021, it was obtained by providing a product in the form of the Defense Man Mannequin tool for basketball that had been made along with an assessment sheet in the form of a questionnaire or questionnaire.

Table 5. Results of Phase I Material Expert Assessment

No.	Rated aspect	Evaluation				
		SK (1)	K (2)	C (3)	B (4)	SB (5)
1.	Functionality of the Defense Man Mannequin tool with training needs				√	
2.	The shape of the Defense Man Mannequin tool is appropriate basketball technical training needs				√	

3.	The Defense Man Mannequin tool corresponds to use in the field during technical training		√
4.	The Defense Man Mannequin tool is appropriate to use as a tool to assist training in technique basketball basics.	√	
5.	The Defense Man Mannequin tool is appropriate to use as a tool that can help trainer in carrying out the training process.		√
6.	The Defense Man Mannequin tool is right to use for technical training independently or in a team.	√	
7.	Handy Defense Man Mannequin tool design and portable.	√	
8.	The material presented clearly has a purpose to provide effectiveness in practice.	√	
9.	The Defense Man Mannequin tool is safe for used in the training process.	√	
10.	This Defense Man Mannequin tool can be used by male and female basketball players		√

1. Appropriate for field trials No Revision (V)
2. Appropriate to be used for field trials with targeted revisions.

Table 6. Category of Material Expert Assessment Phase I

No.	Aspects that rated	The score Obtained	Score Maximum	Percentage (%)	Category
1.	Media	42	50	84%	Very good
	Total Score	42	50	84%	Very good

In the first validation stage, the percentage obtained was 84%, thus it can be stated that according to material experts, in the first validation stage "Development of the Defense Man Mannequin tool for basketball sports" the category "very good" was declared very feasible to be tested without revision.

Table 7. Material Expert Validation Phase II

No.	Rated aspect	Evaluation				
		SK (1)	K (2)	C (3)	B (4)	SB (5)
1.	Functionality of the Defense Man Mannequin tool with training needs				√	
2.	The shape of the Defense Man Mannequin tool is appropriate basketball technical training needs					√
3.	The Defense Man Mannequin tool corresponds to use in the field during technical training					√
4.	The Defense Man Mannequin tool is appropriate to use as a tool to assist training in technique basketball basics.				√	
5.	The Defense Man Mannequin tool is appropriate to use as a tool that can help trainer in carrying out the training process.					√
6.	The Defense Man Mannequin tool is right to use for technical training independently or in a team.				√	
7.	Handy Defense Man Mannequin tool design and portable.					√
8.	The material presented clearly has a purpose to provide effectiveness in practice.				√	
9.	The Defense Man Mannequin tool is safe for used in the training process.					√
10.	This Defense Man Mannequin tool can be used by male and female basketball players					√

1. Appropriate for field trials No Revision (V)

2. Appropriate to be used for field trials with targeted revisions.

Table 8. Category II Material Expert Assessment Results

No.	Aspects that rated	The score Obtained	Score Maximum	Percentage (%)	Category
1.	Media	46	50	92%	Very good
	Total Score	46	50	92%	Very good

The second phase of media expert data collection was carried out on March 5, 2021. The material expert gave an assessment with a percentage of 92% and was included in the "Very Good" criteria. The results of the validation of the material expert phase II "Development of the Basketball Sports Defense Man Mannequin Tool" were declared very feasible to be testedwithout revision.

Product Trial

The product trial in the research on the development of the Defense Man Mannequin for basketball was carried out on the Garuda Putih basketball athlete in Jambi City. Small group trials were conducted on 8 athletes. And a large group trial was conducted on 16 Garuda Putih basketball athletes in Jambi City. The Garuda Putih basketball athlete in Jambi City was appointed to be a respondent to assess the feasibility of the Defense Mannequin tool for basketball that had been developed. Then the athlete fills out the questionnaire that has been provided to find out the data on the results of the feasibility assessment of the Defense Man Mannequin tool for basketball

Table 9. Small Group Trial Questionnaire Results

No.	Aspects that rated	The score Obtained	Score Maximum	Percentage (%)	Category
1.	Media and Material	336	400	84%	Very good
Total Score		336	400	84%	Very good

The results of a small group trial questionnaire of 8 athletes regarding "Development of the Defense Man Mannequin Tool for basketball" showed that the overall assessment of aspects ranging from media to material obtained a percentage of 84% so that it could be categorized as "Very Good".

Table 10. Large Group Trial Questionnaire Results

No.	Aspects that rated	The score Obtained	Score Maximum	Percentage (%)	Category
1.	media and Theory	763	800	95.3%	Very good
	Total Score	763	800	95.3%	Very good

The results of a large group trial questionnaire of 16 athletes regarding "Development of the Defense Man Mannequin tool for basketball" showed that the overall assessment of aspects ranging from media to material obtained a percentage of 95.3% so that it could be categorized as "Very Good".

Discussion

This research produces a product in the form of the Defense Man Mannequin for basketball. starting with the analysis phase, namely conducting literature studies and field studiesregarding the basic techniques of basketball. then proceed with planning the development of the Defense Man Mannequin tool for technical training in basketball. After that, the researchers developed a product whose process began with the manufacture of iron for mannequin uprights that could be adjusted for high and low, then proceeded to the process of making flexible mannequin bodies and arms made of nets. The feasibility of the product "Development of the Basketball Sports Defense Man Mannequin" was determined through assessments carried out by material experts, media experts, small group trials, and large group trials.

The material expert validation process is carried out in two stages, namely stages I and II. The material validation data for phase I, the product "Development of the Defense Man Mannequin tool for basketball sports" obtained a percentage of "84%" which means the "Very Good" product is used without revision. After the revision of the first stage, the product was re- validated through the second stage and the percentage obtained was 92%. Thus, it can be stated that according to the material expert, in the second validation stage "Development of the Defense

Man Mannequin tool for basketball sports" "Very Good" is very suitable to be used for field trials. without needing to be revised.

Validation continued to media experts. In the process of media validation, researchers went through two stages, namely stages I and II. Phase I media validation data, the product "Development of the Defense Man Mannequin tool for basketball sports" obtained a percentage of "100%" which means the "Very Good" product is used without revision. After the first stage, the product was re-validated through the second stage and the percentage obtained was 100%. Thus, it can be stated that according to media experts, in the second validation stage, "Development of the Defense Man Mannequin for basketball" was categorized as "Very Good" which is very suitable to be used for testing. try the field without needing to be revised.

Validation for respondents, in the validation process the researcher went through two stages, namely small-stage trials and large-stage trials. Small-stage validation data, the product "Development of the Defense Man Mannequin tool for basketball" got a percentage of "84%", after a small-stage trial the researchers conducted a large-stage trial that got a percentage of "95.3%" thus it can be stated that according to respondents against “Development of the Basketball Sports Defense Man Mannequin” category received a very good category without revision. The quality of the product "Development of the Defense Man Mannequin tool for basketball sports" is categorized in the "Very Good" criteria, this statement is evidenced by the results of the analysis of assessments from both material experts and media experts, as well as in the trial assessment of athletes.

CONCLUSION

This research has produced a tool for basic technical training in basketball, namely the Defense Man Mannequin tool. The validation data from the research on the development of the Defense Man Mannequin tool for basketball showed a percentage of 92% from material experts and 100% from media experts and based on small group trials, the percentage was 84%, and large group trials were 95.3%. The conclusion of the overall assessment of the "Defense Man Mannequin" tool is "very good" as a technical training tool in basketball.

ACKNOWLEDGMENT

Thank you to the University of Jambi, Jambi City, which has permitted us to collect data so that this research could run well.

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