

Software Development of Sports Talent Identification Using Sport Search Analysis Method



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ABSTRACT: This research aims to (1) produce a software for sports talent analysis aimed for 11-year-old kids, (2) determine the feasibility of the software of sports talent potential analysis, and (3) determine the effectiveness of the software of sports talent potential analysis in measuring and analyzing data collected from a talent test of an 11-year-old kid. The research method used is research and development referenced to the borg and gall's research steps which is simplified by Pustlitjaknov team. The research subjects were coaches, Physical Education teachers, and sports academics. The trials conducted included two stages, small group trials conducted on 50 respondents and large group trials with 100 respondents. The results of this research are (1) a biomotor data analysis software product to identify, distinguish the sports potential and talents of the children aged 11 years old, (2) The feasibility level of this product is identified through material validation assessments to obtain the average results of material aspect assessment from five experts with categories. In a small and large group trial, this product received an assessment result is Very Appropriate/Very Feasible category. Hence, it can be concluded that this product is feasible/suitable to use, and (3) based on the effectiveness test, it shows that this product is effectively used in identifying and distinguishing potential and talents in sports for 11-year-old kids. As suggestions, this book and visualization video can be developed further through comprehensive research.

KEYWORDS: talent identification, sport search, software

I. INTRODUCTION

A peak achievement in the world of sports cannot be obtained instantly, but must go through a long and gradual path, even in developed countries. Mansur (2011: 2) says that lagging behind national sports achievements with other Asian countries is one of the big problems for the nation to improve its sports achievements. Until now, sports achievements have not been maximized, because each sport and the athletes themselves have not shown optimal results. This is because there are obstacles in finding and finding talented athletes. One of the efforts to get talented athletes is by way of talent scouting efforts from an early age. Kusnanik (2014: 147) also said that one of the reasons behind Indonesia's sporting achievements was due to the lack of attention to the search for talented athletes as an effort to regenerate athletes in the future.

Increasing sports achievement is a long process that involves all parties and scientific disciplines that are studied scientifically from the start until an athlete achieves an achievement. These stages start from nursery, the coaching process and the evaluation process up to the achievements of the athletes. And all of that is done by prioritizing knowledge in their fields and also the latest technology.

There are many ways to look for potential seeds for coaching achievement sports. Nurseries starting from an early age are expected to be the first step in the coaching process towards sporting achievements. The sports coaching process is a procedure that must be carried out to achieve an achievement. In these efforts and efforts, of course there are many things that must be considered, so that each stage in the coaching process goes well and correctly. There are various factors that influence the success of a sports coaching process. The results of sports coaching in the form of the best achievements are certainly not obtained easily. Every sports actor must be able to work together on an ongoing basis, so that problems that occur in the sports coaching process can be resolved wisely, starting from the management of sports management to the pattern of coaching athletes.

In Australia, in anticipation of the 2000 Sydney Olympics, a movement has been organized called The National Talent Identification and Development Program for the Sydney Olympic Games. This movement has two main programs, namely the Sport Search and Talent Search programs. This talent scouting program was developed by the Australian Sports Commission, carried out because Australia had previously experienced a decline in the acquisition of gold medals at several Olympics. Since

Software Development of Sports Talent Identification Using Sport Search Analysis Method

then, Australia has continued to take sports coaching seriously. Efforts made in fostering these achievements through the science and technology approach include identifying talented athlete seeds (Australian Sport Commission, 2005). The program has shown a positive impact on various world championships. The Australian contingent won 16 gold medals at the 2000 Olympics. Then at the 2004 Olympics in Athens managed to get 17 gold medals. At the 2012 London Olympics, Australia won 32 gold medals. Of course, Australia's success is believed to be part of the success of sports coaching that has been carried out in Australia, one of which is by carrying out a talent identification and talent development program or what is called Talent Identification and Talent Development. The success obtained after carrying out the talent scouting program shows several achievements in both national and international championships. According to Rutten and Ziemains (2004), the percentage of success in achieving athlete achievements in countries that carry out talent scouting programs is as follows: China 50%, USA 72%, Russia 40%, and Australia 65.8%. This is a pretty significant number.

Early childhood talent identification programs are needed before carrying out a training process that is oriented towards achieving high achievements. The talent identification process is carried out to determine a child's potential in one of the sports, according to the talent they have. In particular nursery is one of the processes that must be implemented to achieve an achievement. If you look at the early childhood development process, of course you cannot escape the topic of talent search. Talent tracking is an initial stage that must be carried out as early as possible according to the characteristics of a particular sport. According to Beswick (2010: 8) specifically, in a coaching process, talent identification is an early stage that needs to be implemented from an early age (grass root).

Talent scouting is an effort made to estimate the chances of a talented athlete, in order to be successful in undergoing a training program so as to be able to achieve peak performance. The earlier the child shows the suitability of the exercise with the ability to learn, the higher the level of success in completing the exercise program being carried out. Because, children will have plenty of time to practice before reaching the age of peak performance and will have a positive influence on training. Talent needs to be identified from an early age so that it can be properly nurtured to develop quality players/athletes (Pruna & Tribaldos, 2018). Identifying individuals who are talented in sports and directing them to relevant sports is very important for success in sports achievement (Kaynar, 2019). Muhammad Afif (2017: 292) says that peak achievements in a sport will only be achieved by those who are talented and who from a young age have been able to meet the requirements demanded by a sport, and are able to take part in systematic training in the long term. Jacob et al. (2018) suggested that detecting and identifying athletes is very important for the athlete development process, such as the initial selection of athlete guidance and the subsequent stages of the athlete development program. Factors that affect a person's talent according to Mansur (2012) are anthropometric aspects, biomotor aspects, physiological aspects, and psychological aspects. We use many words to describe the physical abilities of an athlete: size, speed, quickness, strength, power, agility, flexibility, coordination, and endurance (Brown, 2001: 9). It can be interpreted that to get good athletes, it is necessary to prepare physical components including: anthropometry, speed, strength, power, flexibility, coordination, and endurance. In conclusion, talent is an ability in a person, which has the potential to achieve optimal performance when given the appropriate coaching process.

Based on the existing facts, good biomotor is needed for an athlete to achieve the highest achievement. Data on the physical condition in the form of an athlete's biomotor component is very important for compiling training periodization. Information about the condition or physical abilities possessed by athletes is very necessary when coaching and developing the athlete's overall physical condition will be carried out. According to Mansur, et al (2020: 2) said that the physical condition of an athlete in the world of achievement sports is very important and fundamental, because to get good performance athletes must have excellent physical condition. Physical condition is a fundamental foundation that must be fulfilled first of all stages of an athlete to achieve perfect quality training in achieving maximum performance when competing. The physical condition itself consists of the basic biomotor components consisting of strength, endurance, flexibility, and speed. Knowledge of how the athlete's condition is one of the main factors that must be considered in the training process in order to achieve high performance. The main goal is to increase the athlete's functional potential and develop biomotor abilities to the highest degree (Bompa & Haff, 2009). One way or effort to identify talent is by applying a scientific approach, namely by using the sport search method, where the talent identification model consists of 10 test items and aims to help children (aged between 11-15 years) to be able to make informed decisions. regarding sports, not only interesting but in accordance with the characteristics and potential of the child (Istifani et al, 2013: 35)

The talent identification method that is considered suitable for the conditions of children in Indonesia refers to sport search by carrying out the talent identification process through anthropometric and biomotor tests in children aged 10-15 years. In fact, the development of sport search in Indonesia has not been carried out thoroughly due to the limited availability of information regarding the methods used by institutions that handle the identification of sports talent from various countries that have different treatments and methods, and the lack of development of talent identification by utilizing technology through tools.

Software Development of Sports Talent Identification Using Sport Search Analysis Method

soft makes prospective athletes only focus on hobbies and interests without considering the talents they have. The development of existing products regarding sport search in several fields only focuses on the development of sports in certain sports and at certain ages. In the process of identifying talent in Indonesia, there are several obstacles such as the vision and mission of sports clubs, the methods used are not on target and even missed, and the lack of information regarding methods for identifying sports talent according to the needs of sports.

Currently, technological developments are increasingly helping humans to achieve maximum results in all fields of sports. Wilson, (2010: 34) states that the development and use of technology in the field of sports is very important, it is intended to analyze the performance of athletes and make plans to improve the athlete's performance. However, the talent identification test that is carried out is still done manually in terms of its application, so that its use is still not optimal and requires a long process and time to find out the results. Based on this background, the author has an idea, namely to develop software for analyzing data and statistics for athletes' biomotor components. Due to the data on the athlete's biomotor components as a whole which can be the basis for coaches to identify talents, recommend sports according to their biomotor abilities and design training programs and improve the performance of each individual athlete so that they can achieve maximum performance.

II. RESEARCH METHODS

This research is research and development which aims to produce a potential sports talent analysis software product for 11-year-old children, determine the feasibility of sports talent potential analysis software, and determine the effectiveness of sports talent potential analysis software in measuring and analyzing test results data. 11-year-old giftedness. The product of this research has been validated by material experts and media experts, namely lecturers at the Faculty of Sports Science, Yogyakarta State University. The targets/subjects in this development research were football coaching students at the Faculty of Sports Science. The subject of this research was the tryout which was carried out in two stages, namely the small group tryout which was done on 50 respondents and the big group tryout with 100 respondents. Data analysis technique is a step to find out the results of research conducted. Data analysis includes all activities classifying, analyzing, using and drawing conclusions from all the data collected in action. After the data is collected, the data will be processed. Data collection was carried out in the study using two techniques, namely preliminary study instruments and model development instruments and field trials.

III. RESULTS

Design Results

Flowchart is one of the important stages in the process of developing a product, it aims to make it easier for developers to make the initial design of the product to be produced so that it requires a relatively fast time in the manufacturing process, and can minimize errors in the process of making the media.

Development Results

The next stage, once the Flowchart has been made, is to start the software-based TALENT ID product development process as a tool for making its product media.



Figure 1. Initial interface of TALENT ID

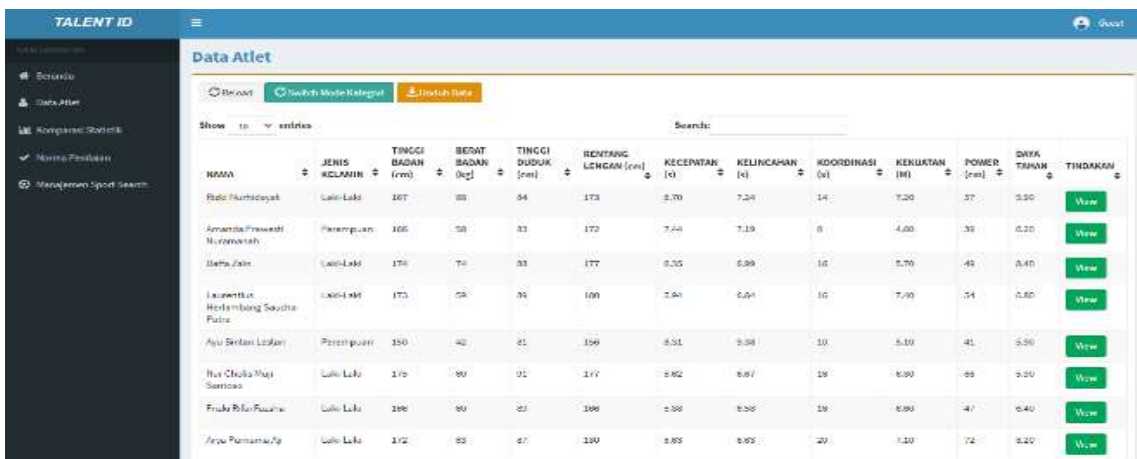


Figure 2. Athlete Data Display



Figure 3. Statistical Comparison Display

RESEARCH RESULTS

The first stage in research and development is the product manufacturing process. If the product that has been designed through the flowchart flow has been developed into a software-based product. The next step is to carry out the validation stage of the product that has been developed; the validation stage is carried out by experts / Expert Judgment. In this study, material experts are experts related to talent identification and scouting and media experts are experts related to information and digital media with product evaluations made based on software that has been developed.

Material expert validation is one of the procedures used in product research and development, by providing products that have been developed to experts in the field of talent identification and scouting, then material experts are given questionnaires that are available to provide assessments and suggestions for products that have been developed by researchers. The questionnaire was sent via email to five expert lecturers in the field of talent identification and scouting, namely Prof. Dr. Suharjana, M. Kes., Dr. Endang Rini Sukamti, M.S., Dr. Or. Mansur, M.S., Dr. Sigit Nugroho, M.Or., and Dr. Ahmad Nasrulloh, M.Or. There are 2 aspects assessed by material experts, namely Material Aspects and Media Aspects. The questionnaire given to the material experts was in the form of an assessment containing score data with a scale range of 1 – 4. On the assessment sheet there were also suggestions and criticisms which served to provide input to researchers to revise the products that had been developed, the following is a conversion table of Material Aspects and Media Aspects.

Table 1. Assessment Score Conversion

Guide	Score Intervals	Category
Aspect Material	$X \geq 39$	Very Eligible
	$39 > X \geq 32.5$	Eligible
	$32.5 > X \geq 26$	Not Eligible

Software Development of Sports Talent Identification Using Sport Search Analysis Method

Aspect Media	$X < 26$	Very Inappropriate
	$X \geq 36$	Very Eligible
	$36 > X \geq 30$	Eligible
	$30 > X \geq 24$	Not Eligible
	$X < 24$	Very Inappropriate

Table 2. Expert Judgment Results

No	Rated Aspect		Category
	Material	Media	
1	52	48	Very Eligible
2	49	47	Very Eligible
3	50	48	Very Eligible
4	45	47	Very Eligible
5	48	45	Very Eligible
Average	48.8	47	Very Eligible

From the results of the assessment, the average results are taken and grouped based on the Conversion Score Assessment. The average result of the Material Aspect assessment from five experts was 48.8 in the Very Suitable / Very Eligible category, and the results of the Media Aspect assessment from five experts were 47 which were grouped into the Very Suitable / Very Eligible category.

The product trial phase was used on a small scale, the number of research subjects in the small-scale trial was 50 respondents consisting of coaches, sports teachers, and sports academics. The aspects assessed are the Appropriateness of Material and Media Feasibility Aspects. The following is a small-scale product trial score conversion.

Table 3. Conversion of Research Assessment Score

Guide	Score Intervals	Category
Aspect Material	$X \geq 45$	Very Eligible
	$45 > X \geq 37.5$	Eligible
	$37.5 > X \geq 30$	Not Eligible
	$X < 30$	Very Inappropriate
Aspect Media	$X \geq 30$	Very Eligible
	$30 > X \geq 25$	Eligible
	$25 > X \geq 20$	Not Eligible
	$X < 20$	Very Inappropriate

Small-scale trial analysis was carried out by providing an assessment sheet for software-based TALENT ID media products. that has been developed. Assessment of Material Appropriateness Aspects and Media Feasibility Aspects. The following are the results and analysis of small-scale trials.

Table 4. Small-Scale Research Results

No	Rated Aspect	Score	Category
1	Aspect Material	52,08	Very Eligible
2	Aspect Media	34,66	Very Eligible

Table 4 is a table of the results of the assessment of 50 respondents consisting of coaches, sports teachers, and sports academics on software-based TALENT ID Development Media. Based on the above table it can be concluded that the assessment of the Appropriateness Aspect of the Material with a score of 52.08. Meanwhile the Assessment of the Media Feasibility Aspect with a score of 34.66. Based on the results of this assessment, the value is converted based on the conversion of trial scores so that it can be concluded that the results of the assessment of the Material Suitability Aspects are converted Very Feasible, the Material Feasibility Aspects are converted Very Feasible.

The large-scale trial was carried out by giving an assessment sheet to 100 respondents consisting of coaches, sports teachers and sports academics. Analysis of large-scale trials is carried out by providing an assessment sheet for software-based TALENT ID media products. that has been developed. Assessment of Material Appropriateness Aspects and Media Feasibility Aspects. The following are the results and analysis of large-scale trials.

Software Development of Sports Talent Identification Using Sport Search Analysis Method

Table 5. Large-Scale Research Results

No	Rated Aspect	Score	Category
1	Aspect Material	54,34	Very Eligible
2	Aspect Media	36,79	Very Eligible

Table 5 is a table of the results of the assessment of 100 respondents consisting of coaches, sports teachers, and sports academics on software-based TALENT ID Development Media. Based on the table above, it can be concluded that the assessment of the Appropriateness Aspect of the Material with a score of 54.34. While the Assessment of Media Feasibility Aspects with a score of 36.79. Based on the results of this assessment, the value is converted based on the conversion of trial scores so that it can be concluded that the results of the assessment of the Material Suitability Aspects are converted Very Feasible, the Material Feasibility Aspects are converted Very Feasible.

The effectiveness test was carried out with a descriptive test based on the results of the biomotor and anthropometric component tests conducted at several sports clubs in basketball, volleyball, badminton, football and martial arts. The effectiveness test is carried out to find out how effective the use of the software that has been made is by adding up the scores / points achieved by the child in 6 series of biomotor tests, then the difference in potential talent values will be known and the different recommendations for sports that are suitable for each child's biomotor component.

IV. DISCUSSION

The development of talent identification software is designed and produced as an analytical medium that makes it easier for coaches, sports teachers, as well as regional level athlete development centers to centers for the identification and scouting process of early childhood talent in line with current developments in the world of sports. This product was developed by referring to experts in the field of talent identification and scouting through literature studies as well as experts in the field of information media as the media used.

After the product has been made, the product is validated by material experts and media experts. Material validation with five experts obtained an average result of the Material Aspect assessment of five experts of 48.8 in the Very Suitable / Very Eligible category, as well as the results of the Media Aspect assessment of five experts of 47 which were grouped into the Very Suitable / Very Eligible category. Media validation with experts scores 42 categories Very Suitable / Very Eligible. There were several inputs and suggestions obtained in this process such as adding material on potential talent criteria and comparisons of sports, as well as adding and replacing the features presented in product development media.

The next stage is the trial phase which is carried out twice, namely the small group trial stage and the large group trial stage. Based on the results of this assessment, the value is converted based on the conversion of trial scores so that it can be concluded that the results of the assessment of the Material Suitability Aspects are converted Very Feasible, the Material Feasibility Aspects are converted Very Feasible. From the two stages of group trials, this media product received several inputs, namely making the media look more attractive, providing pictures in several parts to clarify the material, and ranking values in children's data.

The results of product trials found that this software is a tool that can help, not necessarily identify talent. In this case the TALENT ID product can provide information about the potential value of giftedness, biomotor and anthropometric abilities, and can provide recommendations for sports that can be used as a reference for choosing sports according to the abilities possessed by children. In addition, the data stored in this software can be used as a reference for trainers to design training programs according to the abilities of the children being trained in more detail.

It can be concluded that the TALENT ID talent potential analysis media is feasible and can help coaches, sports teachers, and athlete coaches to identify children's talents as early as possible, and carry out talent scouting to the next stage based on the data stored in this media. However, this TALENT ID talent potential analysis media certainly has weaknesses and limitations that deserve special attention, especially for users. The age range in this media is specifically for boys and girls 11 years old, and only five sports are recommended, namely basketball, volleyball, badminton, football and martial arts.

Regardless of its advantages and disadvantages, it is hoped that the TALENT ID media can assist coaches, sports teachers, and athlete coaches in the process of identifying and scouting early talent. With this media product, it is expected to realize the importance of the talent identification process and to build the competence of coaches or coaches of athletes so that they can select and guide the talents of athletes appropriately.

Software Development of Sports Talent Identification Using Sport Search Analysis Method

V. CONCLUSIONS

The product resulting from this research is a software analysis of the potential for sports talent based on the results of biomotor and anthropometric tests for children aged 11 years called TALENT ID which has been developed according to the current needs of the sports world. Based on the validation process and group trials conducted by material experts who have assessed TALENT's sports talent potential analysis software product, it is included in the "Highly Appropriate / Very Eligible" category. The analysis software for sports talent potential using the Sport Search method has the ability to identify, differentiate sports potential and talent for 11-year-old children, so that it is effectively used by coaches in the process of identifying sports talent.

Based on the conclusions and implications above, the researchers suggest that the TALENT ID sports talent potential analysis software can be used as a media guide for coaches, sports teachers, and athlete development centers in carrying out talent identification tests. In addition, this software can be used as a medium for analyzing the results of anthropometric and biomotor tests for children aged 11 years so that they can be developed for the long term. This research can be further developed by further researchers to make it more interesting. More comprehensive research is needed with more diverse sports and other age group categories.

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Software Development of Sports Talent Identification Using Sport Search Analysis Method

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