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## Application of model development of soccer physical tests

To cite this article: H Hartati *et al* 2018 *IOP Conf. Ser.: Mater. Sci. Eng.* **434** 012158

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# Application of model development of soccer physical tests

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**Abstract.** Application is a measuring tool of physical test to facilitate the trainer. This study aimed to produce a valid, physical, practical, and effective soccer test application product. The method used in this research was research and development in order of 1) analyzing the needs, 2) designing the initial draft product, 3) validating by media experts and physical trainers of soccer branch, 4) improving the draft design, 5) conducting trials on small groups of athletes of futsal national student sport week, 6) revising the product of physical test application, 7) conducting large group trials, athletes of Local Student Training Center (Sekayufootball), 8) revising on large group test results, and 9) analyzing the final product. The study result on the small group trial showed that 62.4% of the data covered aspects of soccer practice and physical test soccer application. The study result on the trials in large groups was 64.4% of the data. The findings of the study showed that the physical test applications were easy to use by a coach. The implication is that the product of physical test application can be used to find out the result of soccer training program for the Local Student Training Center and School of Football in South Sumatra.

## 1. Introduction

Tests and measurements are an integral part of human activities, as well as in activities of sports teaching and training. Therefore, implementing these two activities will provide information on the advantages and disadvantages of an athlete in order to have an accurate decision [1]. The development of science and technology in a soccer game has been progressing both in the science of coaching and in physical measurement tests. In the globalization era the results of a test should use a computer application or software that can record and calculate all tests taken by athletes and find out the physical fitness level of athletes or VO2Max of every athlete.

Visual Basic is a programming language that is very easy to learn. Using visual programming technique enables the users to create better in producing an application program. The basic of the making of visual basic is FORM, where user can arrange a display form and then run it in script very easily. The explosion of Visual Basic usage is characterized by the ability of Visual Basic to interact with other applications within the Windows operating system with ActiveX Control component. This component allows users to retrieve and use all the data models existing in the windows operating system. It is also supported by a programming technique in Visual Basic that adopts two kinds of programming, that is visual programming and object oriented programming [2]. Lutfiana and Nikmatuniayah (2015) conducted a study on the making of an application system using programming language of Microsoft Visual Basic 6.0, data storage using Microsoft Access database, and it's reporting using Crystal Report. The result of this study was visual basic software of computerized supply system that could input, process, store, and report the data related to the inventory briefly, quickly, and accurately with a general



control and an application control so that the correct inventory data was guaranteed [3]. The study conducted by Setiabudi and Gunawan (2003) using Visual Studio 6.0 enterprise edition was still too complex to use, though the complexity was paid for by the high capabilities in developing enterprise applications [4].

The visual basic was used in the calculation of physical test results of soccer athletes, while the physical exercise was conducted by focusing more on the process of coaching the physical condition of the athletes as a whole. The main factors to be considered were the elements needed in the training process in order to achieve the highest achievement. The ultimate goal was to improve the functional potential of athletes and develop their bio motor capabilities to the highest degree.

Physical is the foundation of sporting achievement since technique, tactics, and mental will be well developed if one has a good physical quality. An athlete will develop his skills from basic techniques to advanced techniques when having enough physicality. The cornerstone of the athlete selection is the initial physical condition that an athlete has. The physical plays a major role in the training process. With good physical, the technique, tactics, and mentality can improve during the training process. If the physical does not support an athlete's performance, the athlete cannot execute maximum technical, tactical, and mental skills. Therefore, the talent scouting, particularly physical, needs to be conducted because the beginning to start coaching is the availability of qualified athlete candidates. Without qualified athlete candidates, it will be difficult to get the optimal achievement [5].

The goal of the training in general is to help developers, coaches, sports teachers to apply and have conceptual ability and skills in helping to find out the potential of athletes to reach the pinnacle of achievement. While the goal of training in particular is to improve the skills and preparedness of athletes in reaching their peak of achievement [1]. The targets and aims of training in general, among others, are to improve a basic physical quality in general and as a whole, develop and improve specific physical potency, add and perfect the techniques, develop and improve the strategies, tactics, and pattern of the game, and improve the mental quality and ability of the athlete in a competition.

So far the problem lies on the athlete physical test. The coach still uses the data calculation of physical test results manually and rarely use Microsoft excel program, because it is still limited to the formulas. The problems require effective, efficient, and practical development in the calculation of the physical test results of soccer athletes. Based on the above, it needs a physical test application that can facilitate the trainer in calculating the data.

## 2. Research methods

This study used research and development method with system approach adapted from Dick & Care [6]. Their search design used research and development methods having uniqueness and there have to be 3 aspects that are effective, practical and valid [7].

The study design is divided into three stages as follows:

- Program design and development
- Program testing and repair, and
- Implementation of the program.

The product tryout aimed to analyze the constraints that might be faced and seek to reduce these constraints at the time of application of the next model. The collected data were quantitative and qualitative in the form of reasons in choosing answers and suggestions. The collected data were used to provide conclusions. It is important to anticipate errors that could occur during the actual implementation of the model.

- The collection of data types used various data collection techniques or measurements tailored to the characteristics of data to be collected and the research respondents. Data collection techniques used observation, interviews, and questionnaires.
- The data collection used the existing instruments. It needed clarity about the characteristics of the instrument, including validity and reliability used somewhere and measuring something.

- The instruments were developed independently by the researcher, therefore it needed clarity of the development procedure and the level of validity and reliability.

### 3. Findings and discussion

#### 3.1. Findings

*3.1.1. Small scale try-out test results.* The aim of small-scale try-out was to find out the extent to which the effectiveness of tools that had been developed. There were 12 people shown in Table 1.

**Table 1.** Small scale try-out test results.

No	Tester	$\Sigma$	Max Value	Percentage (%)
1	H	35	51	68,6
2	N	29	51	56,9
3	Z	27	51	52,9
4	A	31	51	60,7
5	S	30	51	58,8
6	M	27	51	52,9
7	J	29	51	56,9
8	R	34	51	66,7
9	F	35	51	68,6
10	H	35	51	68,6
11	R	39	51	68,6
12	D	38	51	68,6
Average				62,4

The results of small-scale tryout of "research development of physical test application for development and training center athletes of soccer sports of Musi Banyuasin District" showed that the test result was 62.4% categorized "Fairly Eligible", to be tried out in the next stage.

*3.1.2. Large scale try-out test results.* The results of small-scale tryout were further revised and validated by media experts and physical exercise experts, then a large-scale tryout was conducted with the total number of respondents of 18 people shown in Table 2 below:

**Table 2.** Large scale try-out test results.

No	Tester	$\Sigma$	Max Value	Percentage (%)
1	W	32	51	62,7
2	A	38	51	74,5
3	T	36	51	70,5
4	D	35	51	68,6
5	I	31	51	60,7
6	K	32	51	62,7
7	Q	31	51	60,7
8	D	35	51	68,6
9	N	36	51	70,5
10	R	30	51	58,8
11	V	32	51	62,7
12	D	31	51	60,7
13	S	29	51	56,8
14	J	28	51	54,9
15	S	37	51	72,5
16	N	35	51	68,6
17	A	32	51	62,7
18	T	32	51	62,7
Average				64,4

The result of large-scale tryout test of "research of the development of the physical test application of student development and training center athletes in Musi Banyuasin District soccer sport" showed that the test result was 64.4% categorized as "Fairly Eligible" to be tested to the next stage.

#### 4. Conclusion and suggestion

The result of the study on the development of physical of soccer sport center of student development and training center of Musi Banyuasin on small group trial obtained 62.4% data which includes aspects of soccer practice and physical test soccer application. The results of trials in large groups obtained 64.4% data are categorized as "fairly eligible".

In the study of the "Development of physical test application of soccer sport of development and training center Musi Banyuasin" it has several practical implications as follows.

- The study of "Development of physical test application of soccer sport of development and training center Musi Banyuasin" provides easefulness conducting a physical test.
- Computer application test is more effective and efficient as a test and measurement tool.
- The computer application test produces more objective and valid data.

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