Use of Android Applications on Physical Fitness Tests for Children with Mental Retardation Aged 10 to 12 Years

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Abstract. Physical fitness tests are carried out to obtain information about physical fitness levelby utilizing the android application. The purpose of this study is to describe the use of android applications in process of implementing physical fitness tests that can save time and effort. This study uses qualitative approach and descriptive design.This study was conducted on mental retardation children aged 10-12 years in specialschools, Central Sulawesi Province, Indonesia. Information collected through interviews. Interactive analysis models achieve the analysis of interview data. The results showed that use technology through an android application made it easier for officers to get information directly after the participants completed the test on each item without any calculation process and adjustments to the test norms by officers, the data obtained more accurate. Android applications is expected to simplify and save time and effort in process of implementing the test, with good and accurate test results.

Keywords: *physical fitness test, mental retardation children aged 10-12 years, application, android*

1. Introduction

The development of science has a massive influence on technological developments. Modern technology is defined as a science which is transformed into products, processes, services, and organizational structures [1]. Technology is always inseparable from the term science. Humans use science in their lives to facilitate their work by using or utilizing technology. As technology develops rapidly, research innovations are growing as well. Technology is the development and application of tools, machines, materials, and processes to help people solve problems, and their work [2].

Information and communication technology is supported by the ability of mobile devices that offer convenience in communicating and obtaining information. Smartphones are the development of mobile phones that can provide a variety of facilities for users. The operating system that is widely adopted by two smartphone devices circulating in Indonesia is the Android operating system. The survey conducted by the Start Counter stated that the Android operating system was ranked first adopted by smartphone devices in circulation in Indonesia with a market share of 73.81% during 2015 [3].

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Android application is one of the applications developed through smartphones. Android is an operating system for Linux-based mobile devices, including operating systems, middleware, and applications that provide a platform for creating apps for developers [4]. Android technology is adopted in smartphones to support various activities of daily life [5]. A smartphone is built on a mobile operating system with computing capabilities and connectivity that is more sophisticated than a standard telephone [6]. Smartphone technology provides great benefits for users because they can access and disseminate information quickly [7].

Technological developments affect human activities and can help in everyday life, including in the field of sports both during training and competition. Technology is needed in the field of sports because it can support getting information quickly, precisely, and more accurately. The application of advanced technology with sports science disciplines that serve as an analytical tool for a particular sport to enhance the sport's achievements in sports science[8], [9], [10].

Sports and health physical education is included in the education curriculum in schools, including in special school that teaches children with special needs, one of which is mental retardation children. Children with mental retardation are children who have an IQ level below the average (75 and below). One result expected and evaluated in sports physical education and health is physical fitness. Because to do activities well, physical conditions or good physical fitness are also needed. Good physical condition and physical fitness can be obtained through exercise training, sports physical education, and health at school and other physical activities.To find out physical fitness, a physical fitness test is needed.

Research on the use of android applications in the implementation of physical fitness tests for mental retardation children aged 10 to 12 years. The use of technology in tests and measurements can simplify and speed up the implementation of physical fitness tests for mental retardation children. This aroused the interest of researchers to research the use of android applications on physical fitness tests. This study aims to describe the use of android applications in carrying out physical fitness tests on mental retardation children. This research is expected to provide an overview of the use of android applications for sports and health physical education teachers in special school and sportspeople.

2. Method

This study uses a qualitative approach and descriptive design. This research was conducted atspecial elementary school in Central Sulawesi Province, Indonesia. The researcher collected data from the perceptions of the sports teacher and the energy of the sport during the execution of the test using the android application. Next, the researchers analyzed how the android application can support the implementation of physical fitness tests with better results. Data analysis techniques used interactive interview models from Miles and Huberman.

3. Results and Discussion

The use of android applications in the planning stage of physical fitness for mentalretardation children aged 10-12 years first carries out a physical fitness test to determine the level of physical fitness of students. In conducting the physical fitness test, use

the android application to obtain information about the test results. An application that has been developed on Android to facilitate daily work [11]. The implementation of the test uses an instrument that matches the characteristics that will be tested in this case, mentally retarded students. The use of inappropriate assessment instruments will affect the level of success in the assessment because they cannot measure precisely the object being assessed [12]. The implementation of tests and measurements using technology-based tools can produce data with a high level of validity rather than testing manually, after which the data is analyzed and concluded. The test results use more controlled sensor technology, and the movements performed are better and correct [13].

There are four terms related to the concept of assessment that is used to determine the success of learning, namely measurement, testing, assessment, and evaluation[14].The results of the evaluation test can be used to (1) Predicting future performance; (2) Showing weakness; (3) Size of improvement; (4) Enabling the trainer to assess the success of the training program; (5) Place the athlete in the appropriate training group; (6) Motivating athletes [15]. Components of physical fitness or physical conditions generally consist of cardiorespiratory endurance, muscle strength, endurance, flexibility, and body composition, which are essential parts of physical growth [16]. The results of physical fitness tests for mental retardation children aged 10-12 years as a tool for teachers to correct and improve learning programs in physical sports education, and health.

The application for physical fitness tests for mental retardation children aged 10-12 is based on previous physical fitness test norms that are done manually. Before carrying out a physical fitness test, the committee or the test administrator plans and discusses the process of carrying out the test using the application. The use of android applications in the process of implementing physical fitness tests for for mental retardation students aged 10-12 years as a tool to simplify and speed up the process of implementing tests with better results. Android is one of the operating systems that can be used on wireless media with the media used are mobile phones[17].Use the application to calculate the pulse as an alternative tool used by doctors by utilizing cameras and flashlights implanted on an Android smartphone [18].Speaking children do sound tests using applications that can recognize speech from speech disturbances and can translate into text form with sound input detected on a smartphone via recording [19].Using a smartphone application is very good at promoting physical activity as one of the healthy behaviors that are responded well by participants of various ages [20].

Testing using technology is a solution to facilitate human calculations [21]. The results of using technology as an analytical tool can produce data that has a better level of validity than the results of tests carried out manually [22].The results of the analysis can be used to evaluate the shortcomings of athletes so that athletes can find out deficiencies or errors that can later be corrected during the training process [23], [24]. The use of technology can be in physical fitness tests can help the test to obtain test results data quickly and accurately without going through the process of calculation and recapitulation manually.

4. Conclusion

Based on the results of data analysis using android applications in implementing physical fitness tests for mental retardationchildren is very effective both in terms of: use of time, use

of energy, after students test the test results data can be obtained directly without going through the calculation process, the validity of the data collected is better than manual results.

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