

Development Of Android-Based Mobile Learning As Teaching Material For The Sport Physiology Course To Improve Learning Outcomes The Educational Of Health And Recreation Physical Study Program Of Graduate School Of Students Universitas Negeri Medan

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Abstract. This research is development research which aims to improve learning outcomes through mobile learning which will help in the field of sports science, especially in sports physiology courses. The media developed is a learning application which will later help students study exercise physiology courses online and offline. It is hoped that in the future this application will become an alternative for online and offline learning during the Covid-19 pandemic, where researchers feel the need to carry out learning even though it is not face-to-face and practice directly during the ongoing corona virus pandemic, so it is necessary to develop application-based teaching materials in exercise physiology course. This application will be very helpful and make it easier for students to access all lecture material conducted online. The research method that will be used is a quantitative approach and uses the Research & Development (R&D) method.

Keywords: Development, Mobile Learning, Teaching Materials, Sports Physiology

1 Introduction

Physiology is a field of science that is often used to improve the performance of players or athletes to obtain optimal performance. Physiology is also closely related to health, a person's health condition can be determined by observing a person's physiology. To find out which exercise is suitable for improving a person's health condition, exercise measurement tests are usually used which are analyzed using physiology. Sport is a tool to stimulate the development of anatomical structures and physiological functions. Mastery of concepts in the field of exercise physiology is a provision in the future world of work as a student with a background

majoring in physical education, health and recreation, but it is hoped that students not only understand the subject, but are also able to relate it to explore evidence from real-life phenomena and are also able to develop learning processes through observation, measuring, experimenting and processing data. The sports activities carried out are strenuous activities which will stimulate increased function of the organs in the body, and if carried out in a programmed and measurable manner then in the long term the body's organs will become accustomed to performing strenuous performance so that the body adapts as a result of the sporting activities carried out. Physiological processes in the human body are a collection of several systems that are interconnected with each other. These physiological processes take place systematically between one system and another system or one organ and another organ. If the physiological processes in the body are disturbed for some reason, it can mean that the system in our body which is supposed to work systematically and in an organized manner is not working properly so that the body's ability to carry out activities is also disrupted. In general, sport is an activity that is useful for training a person's body, not only physically but also spiritually. There are several experts who also explain the meaning of sport. The sports activities carried out are movement activities that will stimulate increased function of the organs in the body, and if carried out in a programmed and measurable manner then in the long term the body's organs will become accustomed to carrying out heavy performance so that the body adapts as a result of the sports activities carried out. When carrying out ordinary activities that are not as heavy as exercise, the body's organs will work better (Giriwijoyo, 2012). The application of Sports Physiology to improve athlete performance is very important to determine training dosages, the success of athlete training during training periodization. Training dosage measurements are carried out in the Sports Physiology Laboratory and the results are given to the trainer to be applied during the training process (Purba, 2012).

The development of society in all areas of life cannot be separated from the existence of science and technology. In general, there is an opinion that the mastery and application of science and technology will guarantee the progress of society. Technological progress is currently experiencing very rapid progress, especially in the current millennial era, both in the field of science and in the field of technology which we often hear in everyday life as science and technology (Science and Technology). The development of Android-based mobile learning is used to assist learning and students in learning activities. Learning no longer requires presenting too much material face-to-face, so there is plenty of time to guide students. In the era of globalization, the learner's role changes to that of a facilitator, because information is ultimately obtained from various sources. With the development of Android-based mobile learning, it is assumed that students will be motivated to read and learn independently. Students will be more enthusiastic and more interested in reading and learning without relying too much on students. Finally, they succeeded in finding the capability they wanted or studied the science that studies how physiological changes occur as a result of exercise, called exercise physiology, as well as theoretical studies that discuss the working functions of the body's organs and the involvement of the human body's organs in movement activities. One of the main indicators set by the University, especially at the The Educational of Sports Science Study Program of Graduate School Universitas Negeri Medan, is that student graduates are able to contribute and play a role in certain institutions, companies or agencies. A student is said to be competent in a course when they are able to successfully complete their assignments by taking a competency test with a score that exceeds the

minimum passing limit. As students at Universitas Negeri Medan, one of the courses they must take and master is exercise physiology.

2 Methods

This research was conducted to develop a science and technology product that supports learning and the sports sector, to produce the development of Android-based mobile learning as teaching material for sports physiology courses which is expected to provide a valid interactive learning process. This research uses the research and development (R & D) method, namely 4D, Define, Design, Develop, and Dissemination. Validation by experts in this research was carried out by two experts, namely a material expert and a media expert. In this define stage, a preliminary research study was carried out, namely observation to be able to understand the learning of sports physiology courses for students at the Faculty of Sports Science, Universitas Negeri Medan and various information was collected from various sources to be analyzed.

3 Results and Discussion

Implementation based on the activities that had been planned by the author obtained various supports for the implementation of the problem solving ideas raised. The existence of various stages of activities carried out as an effort to implement the results and discussions achieved will not be realized optimally if it is not supported by all parties in carrying out research in the field. The implementation of the KKN standard Physical Education Health and Recreation curriculum makes it easier for the author to carry out Android-based mobile learning development activities as teaching material for this sports physiology course. A supporting curriculum is an excellent factor in implementing this actualization. The Health and Recreation Physical Education Curriculum is very supportive for the author in compiling the learning outcomes of the exercise physiology course which are related to the study program learning outcomes. This makes it easier for the author to develop Android-based mobile learning as teaching material for the exercise physiology course, which is one of the research activities. Supporting factors for carrying out research activities are not always identical to physical forms, but are also non-physical. This research activity will not be realized well if there is no acceptance in the form of moral support in the form of suggestions, advice, responses or friendly attitudes given by all fellow lecturers at the Faculty of Sports Science, Universitas Negeri Medan. The harmonization and togetherness that exists during the implementation of activities provides motivation, inspiration and comfort which will facilitate the realization of planned research activities.

The development of Android-based mobile learning as teaching material for sports physiology courses was designed on the theoretical basis of the development of Android-based mobile sports physiology learning tools and the results of relevant previous research. Curriculum analysis was carried out by looking at the Competency Standards (SK) and Basic Competencies (KD) for sports physiology courses. Based on the results of the SK and KD analysis, it shows that the object of study in the sports physiology course at the sports science faculty at Universitas Negeri Medan is very broad. The Android-based mobile learning design

as teaching material for sports physiology courses is made in the form of a multimedia application which contains a very broad study object for sports physiology courses to increase knowledge, by having a complete display and features that present subject matter in various content, assignments, quizzes and assessments intended for students of Physical Education, Health and Recreation, Faculty of Sports Science, Universitas Negeri Medan. Literature study is an activity to collect data in the form of supporting theories related to the development of Android-based mobile learning as teaching material for sports physiology courses to support interesting and interactive lecture media. Literature study activities include curriculum studies, RPS, textbooks related to material on the development system of a person or athlete in sports activities, textbooks regarding learning media for sports physiology courses, textbooks regarding research and development of a product and several references from the internet. In addition, a literature study was carried out to review the Core Competencies and Basic Competencies that will be used in compiling indicators. Collection of reference data or literature studies regarding material related to research and development of Android-based mobile learning as teaching material for sports physiology courses obtained from various sources such as books, journals, articles or internet media. The output achieved from this research is to produce an Android-based mobile learning development plan for the exercise physiology course, as a learning resource and alternative media, which can facilitate students' way of learning, designed according to student characteristics, with the hope of increasing reading interest and knowledge. Development in the media aspect also needs to be carried out so that the features contained in the teaching materials for the sports physiology course are more varied. Furthermore, the development of Android-based mobile learning as teaching material for sports physiology courses up to the Dissemination and Implementation stage or Dissemination and Implementation of the Final Product to test the effectiveness of the mobile learning application and determine its effect on improving the quality of learning.

4 Conclusion

Conclusions that can be drawn from the research that has been completed up to the research draft stage that has been carried out are as follows. Process of developing Android-based mobile learning as teaching material for sports physiology courses Universitas Negeri Medan. The product was assessed from the software aspect, learning media aspect and visual communication aspect as very suitable for improving learning in sports physiology courses. The teaching material media for the development of Android-based mobile learning in the sports physiology course contains applications that only offer covers, authors, table of contents and basic materials on sports physiology and have not yet entered the integration stage with other physiological sciences. The sheet pages in the application still have several shortcomings, including a less dynamic display and there is no system that sets a certain time to view materials as a guide in learning. Lecturers should be able to utilize the facilities and infrastructure at universities or faculties such as computer laboratories and WiFi networks, owned by each student by utilizing the development of Android-based mobile learning as teaching material for sports physiology courses as an alternative in delivering material for sports physiology courses

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