Development of Android-Based Anatomy Edutainment Instruction Materials

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Abstract

This study aims to produce teaching materials anatomy edutaiment-based android decent and effective in learning in Prodi Education Biology IKIP Budi Utomo Malang. Android-based teaching materials capable of supporting Anatomy learning with various features provided and will be more communicative and interesting to use in learning. This research is a development research using ADDIE model. Based on the validation results indicate that anatomy based edutainment and anatomy teaching materials in both categories with the validation score of material experts 89 and the validation of media experts 86.4, so it can be concluded that the teaching materials anatomy edutainment based android decent and valid for use in learning Anatomy Student Study Program Physical Education Health and Recreation IKIP Budi Utomo Malang.

How to Cite

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INTRODUCTION

In the current era of globalization, the development of information and communication technology can not be dammed anymore, in the side of human life in the 21st century. The speed of development of information and communication technology is clearly visible in the field of business, economy and governance with the emergence of concepts and applications in the form of e-Government, e-commerce, e-community and so forth. This phenomenon has become an easy-to-use trend and gradually shifts the methodology conventionally. In the world of education began to shift, along with the development of information and communication technology, emerging terms of E-learning, online learning, web-based training, online courses, web-based education and so forth, and also there are many educational institutions that utilize E-learning system to improve the effectiveness and flexibility of learning (Tasri , 2011).

Currently technology, information and communication has become part of the world of education that becomes a learning medium, which becomes an integral part in the learning process. This can be seen from the definition of the media is anything that can be used to channel the message from the sender to the receiver so as to stimulate the thoughts, feelings, and interests and concerns of students in such a way that the learning process occurs (Sadiman, 2007). Learning media is one component of the important learning resources of its existence also determine the success of a learning (Sadiman, 2005). Learning media is a means of communication used to convey the message, it is necessary teaching materials that are supported by a meaningful media learning and fun (edutaiment) to attract interest, increase motivation, and improve students' understanding of learning materials, of course, will be more optimal use by following the technology trends information and communication, has now penetrated up to the students that the popularity of Android is embedded in smartphones (Aziz, 2015).

One way to boost interest and motivation of students in the learning process is to maximize teaching materials and learning media that are used. Media that can be used smartphone device that is produced with the aim as a communication tool, with the facilities embedded in it can be used for learning media. By utilizing the smartphone as a medium of learning to support teaching materials, of course it creates a more communicative and interesting learning atmosphere.

This is supported by research conducted by Nuraidah which shows there is an increase in student interest in learning Mathematics by developing Edutainment based learning media in the form of android mobile games, and research conducted by Arina and Agung (2017) on the development of Interactive Materials Based on Android On Journal Material Adjustment And Journal Correction For Class XII Accounting At SMKN1 Surabaya.

Based on the results of observations on IKIP BUDI UTOMO Malang, Physical Education and Health Recreation program that the student interest in taking lessons Anatomy less than the maximum, due to several things, such as the limited accesses and support of IT-based reference resources among students IKIP Budi Utomo, where a reference source should be easily and quickly accessible to students. In addition, some of the subject matter of anatomy is difficult to understand because many use of foreign terms and media used less mengung interest student in general. The above issues illustrate the empirical and academic anxieties of this study. Therefore, this study will design easy-to-understand and IT-based teaching materials to provide substantial support for the problems faced by IKIP Budi Utomo students. It will primarily discuss a subject-matter of instruction by anatomy-based edutainment.

Based on the above background, this research is aimed to 1) to arrange Prototype of anatomy based edutainment teaching materials for students of Physical Education Study Program of Health and Recreation of IKIP Budi Utomo Malang, and 2) to know the feasibility and validity of anatomical edutainment based teaching materials for students of Education Studies Program Physical Health and Recreation IKIP Budi Utomo Malang.

METHODS

Development of subject matter of course Anatomy Edutainment based on android refers to the model of ADDIE development (Branch, 2009). The model consists of five steps: (1) analyze (analysis), (2) design, (3) development, (4) implementation, and (5) evaluation (evaluation). Stages of development carried out in this research is the stage 1) analyze (analysis), 2) design (design), and 3) development (development).

Subjects in this study were 10 students Prodi PJKR IKIP Budi Utomo Malang who had taken the course of Anatomy. This study was conducted to determine the feasibility and validity of

instructional edutainment based on android for use in learning.

Validation data of validators (material and media validation) as well as data from user (student) of teaching materials will be analyzed which is used as a reference to improve and revise teaching materials as well as to analyze scores for mnegetahui level of eligibility and validity of developed materials.

RESULTS AND DISCUSSION

Android-based edutaiment teaching materials for anatomy courses are done through several stages: 1) Analyze Stage (Analysis), this stage performed basic competence analysis in accordance with the curriculum in PJKR, and translated into several indicators of learning as in **table 1.**

2) Stage Design (Design), this stage is done by determining the objectives, objectives, material framework, materials, and various references to be used. Development of edutainment based teaching materials android compiled using flash media macro software version 8.

Table 1. Basic Competencies and Indicators

Basic competencies	Indicator
1. Understand the scope of osteology	1. Explain the notion of osteology and skeleton 2. Explain the function of skeleton 3. Name the bones of the body.
2. Understand the structure and composition of the network	1. Explain the structure of the constituents of bone tissue. 2. Analyze the composition of bone tissue
3. Understanding the classification of skeletal bone framework in humans.	1. Describe the organization of the skeletal system. 2. Explain the kind, shape of bone. 3. Analyze open and closed fracture improvements.

Components of developed learning materials consist of home, profile, material and reference list. The type, color, and font size are set proportionally to be interesting for users to read. The initial display section is given the logo of IKIP Budi Utomo Malang. Examples of the initial display are presented in **picture 1**.

Picture 1. Initial Display of Instructional Materials.
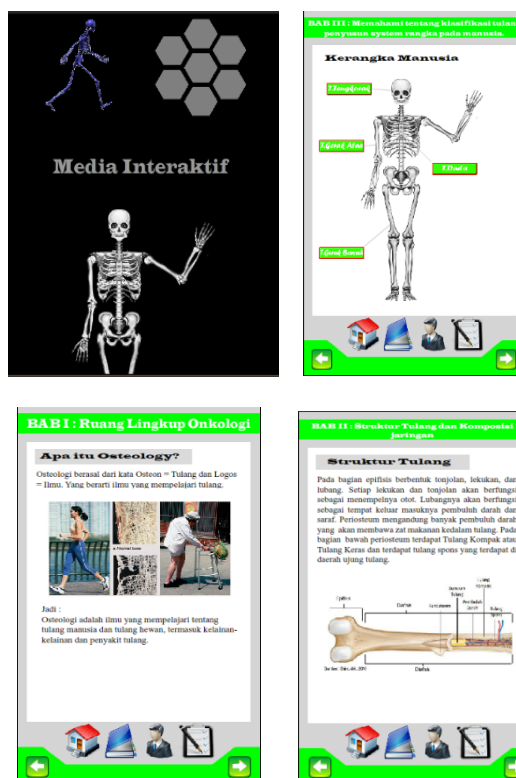
Picture 2. Display Media Edutainment

The content consists of three competencies: understanding the scope of osteology, understanding the composition and structure of the network and understanding the classification of human skeletal bone. The teaching materials contain animations allowing students to understand the anatomical material and examples in motion on the bone.

3) Development Stage (Development), this stage is done by revising the teaching materials based on the input of expert media validator and practitioner validator. Based on the results of the assessment of media expert Faris Mushlihul A., M.Komari from the State University of Surabaya, scored 89 with very interesting criteria and can be

used used without revision, and penilaiaan based on the input of expert material and practitioner Gema Fitriyadi, M.Pd, who is a lecturer of PJKR in Malang State University get value of 86,4%, with criterion have been feasible to be used. The teaching materials after being validated will be revised in accordance with the input of the validator review, then tested on 10 students of PJKR who have taken the subject of anatomy, based on the test result get the value of 91,25 with the criterion of qualification is very interesting and can be used without revision.

Development of teaching materials based on android can bridge the indicator of competence that must be achieved by students. Teaching materials are tools used to achieve competence in the form of knowledge, instructional materials (materialsal materials), and skills. In detail, the types of learning materials consist of knowledge covering facts, concepts, principles, procedures, skills, and attitudes or values (Depdiknas, 2006).

Useful teaching materials to facilitate fluency in the learning process, especially in anatomical subjects. Kusdiyanti (2011) revealed that, teaching materials that are arranged in relation to the curriculum should pay attention to certain goals to be achieved through education conducted by using textbooks concerned.

The result of the development of instructional materials based on the android on the subject of anatomy, there are revisions made in accordance with the development research procedure by considering the suggestions and input from the material content experts, media experts and instructional materials design. The result of data analysis that has been done on the development of instructional materials based on the android on the anatomy course shows the validation result of teaching materials deserves to be used as a reference to the anatomy course, with this android-based teaching material is expected to help the students in obtaining the material flexibly and effectively.

Ardhana (2002) states that development research is conducted to bridge research and educational practices. The development of research-enhanced curriculum and research-based learning (RETL), in various models, has grown very well and is believed to be the right choice for today's pattern of teaching and learning activities.

CONCLUSION

The validation results for edited android based edutainement materials according to media experts and experts are in decent category with good predicate (86.4% for media aspect and 89% for material aspect), so it can be said that teaching materials are feasible and valid for use in learning.

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