Developing art geometric app based on flash player for student in elementary school

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Abstract. The purpose of research is developed learning mathematics to the matter wake up Three dimensions-based e-learning use macromedia flash. A method of this research is research and development (RnD). The phase that carried out is to identify matter by means of a analyse needs that is in research locations. Next design products which adjusted with needs of material geometric three dimensions. Math teacher and the design do validation to judge feasibility products have been made, repair based on input from validator and to pilot a small scale/ limited products. The research was done at student in Elementary School. The results of the study of applications that can help teachers in conducting the process of learning and the teaching material to receive help student’s geometric about three dimensions. Next undergone a try to use the widely, revision of the material further and mass production math as the basis for elementary school.

1. Introduction
Technological advancement and the current state of education gave rise to electronic learning, or e-learning, which is now successfully used in many countries for training future professionals in higher education and for corporate training [1]. E-learning theorists employs cognitive models of learning, and CC applications use machine learning techniques to understand student behaviour [2]. The difficulty for the majority of elementary school student in understanding up three dimensional causes teacher have to be creative in presenting learning in class. Still the difficulty of media right moment in explain build dimensions three for degree children elementary school make requiring teachers to be more creative in developing media learning proper that students more interest and not feel saturated with math. In this allows that combine between the mathematics. There should have been learning mathematics media that can make students became feel more comfortable and pleased with what taught by teachers especially in math. E-learning self-help for students (identical agenda options, such as for teachers, loading study materials, introduce test questions, discussion threads) [3]. as not yet been many as the number of the media of learning which he based the art of in the subjects of mathematics hence researchers conducted develop media don of mathematics who based the art of on any material wake up flatter to elementary school student. It is expected that this would put the develop media teaching students gaining enthusiasm in studying material a remarkable do look that a student most of elementary school are learning mathematics things contextually assisted with media learning mathematics develop in three dimensions.
2. Methods
The research is Research and Development (RnD). Research and Developments the method used to produce certain products an examination of effectiveness of the products. Research and Developments research methods that were used to develop or validating products that used in education and the learning process [4]. The research is of research development where group of researchers from make teaching materials mathematics to students with special needs disabled athletes at elementary school level. Stage the research uses approach ADDIE was. The ADDIE stands for the five steps that represent a dynamic, flexible guideline for building effective training and performance support tools. 1) Analyse - analyses environment, learner characteristics, tasks to be learned, etc.; 2) Design - develop learning objectives, choose an instructional approach; 3) Develop - create instructional or training materials; 4) Implement - deliver or distribute the instructional materials; 5) Evaluate - make sure the materials achieved the desired goals [5]. Based on exposure to about ADDIE was entrusted researcher want to development learning media art geometry for elementary school. The study is done at existing schools in of Jakarta in particular elementary school student a class of 5. This research until development stage where research team media and develop learning mathematics art geometric on build space. 

Art Geometric App is a web-based application and developed by using Waterfall model with the stages of ADDIE (Analyse, Design, Develop, Implement, and Evaluate). Art Geometric App designed by using PHP programming language and evaluated by Data Flow Diagram (DFD).

3. Results and Discussion
Researchers conducted stage ADDIE was in this research, at this stage researchers with the team do steps in research development.

3.1. Analyse
In this phase researchers conducted analysis needs that needs to be developed a mathematics especially in elementary school to their students class five is in SDN 06 Rambutan are still not the availability of media learning interactive as the teacher use in poses learning mathematics. To their needs that is then the researcher do the design of media that are suitable for fifth grade SDN 06 Rambutan. There were the curriculum taught at the level elementary school seen standard competence and competence the base that must be achieved by students fifth grade namely to distinguish geometric space of three dimensions and can count volume and surface area. In this case geometric as many dimensions of three discussed during the meeting were of a cube, consider the beam of timber, of the cone, the ball, a tube, a prism also.

3.2. Design
To the process design has been conducted in the form of design screen, the contents of material and training about used in the process learning later on. Next design it uses flowchart in making design display and stuffing in accordance with competence elementary and star indicators that was found in implementation plan learning already made before.

3.3. Development
The development of which needs to be undertaken in the research was conducted using with micro flash media program. Because with micro media flash it is easy to applied in making media e-learning based learning. The software is simple and easy to be implemented using simple tools to support e-learning systems for digital logic design [6]. In addition to including on the instrument types the human bone while designing also need to be the content of the material that is consistent with the needs and implementation plan learning to not only designing promote disorder to. Developing an e-learning platform requires functional learning activities, but also providing suitable learning materials [7]. The development of internet technologies has led to important changes in educational terms as well as in terms of different fields [8].
From figure 1 actually appear to be the appearance of the clock when he the media their experiences in the appearance of there have been instances of menu-menu that is in right side i e wake up space contained can be the development of material saying the regulation has as many dimensions of three this PT PGN promised to supply a prism, consider the beam of timber, of a cube, a tube, also, of the cone and the ball. In the long term the when had been selected based on one of material which is to be chosen then and also present Carlos Santana the explanation given by a and moving pictures that can be facilitate students of in digest of the material of the rise flat in accordance with figure 2.

Figure 1. Home.

Figure 2. Teaching matter.

Figure 3 explained the materials that are found on a remarkable geometry in the form of net moving pictures who there is what is the formula looking for the surface area and also the volume of the cube. While in figure 4 explain the appearance of the materials and a picture moves at the sort of a remarkable geometry the side of the arch of in the form of the ball. While in figure 5 to be woken up with the geometric cone.

Figure 3. Cube.
The appearance of figure 6 sample problem which has been there was this equation and answer. Next figure 7 visible display exercise about which has been calculate automatic just stay inserting figures which are known only. The use of e-learning in the educational process improves the quality of practical training and provides a better understanding of the course[1].

4. Conclusions

Based on exposure up so it can be concluded that development media learning mathematics art geometric to wake up the matter or dimensions three at the elementary school, the next thing is test validation the better than experts design, experts the matter, and can be done trial next limited to repair of experts and the small tests will be carried out by the research team.

5. References

[1] Yanuschik O V, Pakhomova E G and Batbold K. 2015 E-learning as a Way to Improve the Quality of Educational for International Students Procedia - Soc. Behav. Sci. 215 147–155

[2] Arafat S, Aljohani N, Abbasi R, Hussain A and Lytras M 2018 Connections between e-learning, web science, cognitive computation and social sensing, and their relevance to learning analytics: A preliminary study Comput. Human Behav. 34 1–18

[3] Hošková-Mayerová Š and Rosická Z 2015 E-Learning Pros and Cons: Active Learning Culture? Procedia - Soc. Behav. Sci. 191 958–962
[4] Hartati S, Dewi N A K, Puastuti D, Muslihudin M and Budi N S 2017 Sistem Aplikasi Educhat Stmik Pringsewu Berbasis Android Sebagai Media Teknologi Edutasic \textit{31} 143–152

[5] Mohd C K N C K and Shahbodin F 2015 Personalized Learning Environment: Alpha Testing, Beta Testing & User Acceptance Test \textit{Procedia - Soc. Behav. Sci. 195} 837–843

[6] Hassan R, Yusof N H and Salleh S M 2012 Easy Electronic Software for Digital Logic Design \textit{Procedia - Soc. Behav. Sci. 59} 498–507

[7] Chu H C, Liao M J, Chen T Y, Lin C J and Chen Y M 2011 Learning case adaptation for problem-oriented e-learning on mathematics teaching for students with mild disabilities \textit{Expert Syst. Appl. 38} 3 1269–1281

[8] Ozyurt O and Ozyurt H 2011 Investigating the effect of asynchronous discussions on students’ learning and understanding of mathematics subjects \textit{Turkish Online J. Distance Educ. 12} 4 17–33