Implementation of Android-Based Learning Media with Ethnomathematical Approach Batik Nusantara

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Abstract

This study aims to determine the feasibility of Android-based mathematics learning media with an ethnomathematical approach to eighth grade junior high school students. introduce the nation's culture to students who are integrated in learning mathematics. This research is research on the R&D development model of ADDIE. Research and Development Methods are oriented towards product development where research processes and procedures are carefully described and then evaluated to determine the level of effectiveness. The stages of developing this model are Analysis, Design, Development, Implementation, and Evaluation. however, in this study, it was only used until the development stage. In the analysis stage, a needs analysis was carried out to see the situation in the field related to the teaching and learning process carried out by interviewing educators and students. The design stage designs the initial product to be raised. Starting from ensuring the design of educational media, which will be raised to meet the feasibility of consumption in accordance with the modules presented, and collecting data from various reference sources from existing research or media. At the development stage, the features developed are tested so that they can be used as much as possible.

I. Introduction

The government in builds education in Indonesia follows one of goals nation Indonesia which contains in Preamble UU Basis 1945 namely educate life of the nation In article another also stated that government directs and carry one system nationaleducation outis Education is effort thinking to role in various aspects environment in future the itself,(Marina 2017) Education in Indonesia carried in levels different out lines of education in formal Indonesia -There are three namely, non education, formal 2012 informal (Amir)

In stage this problems are very serious in fields learning are low quality learning in various types and level learning of So many are commenting that low quality learning is one of aspect that limits provision sources energy human who have abilities and in expertise variousfields ofthat low quality education related to scenarios learning made by an educator of The As an educator, obliged have model education that fits in and process learning mathematics Where model education is mandatory fits with use and goals education. Education is a very important human need because education has a duty to prepare Human Resources (HR) for the development of the nation and state (Pradana et al, 2020). According to Astuti et al (2019) Education is an obligation of every human being that must be pursued to hold responsibilities and try to produce progress in knowledge and experience for the lives of every individual. Education

25177

is one of the efforts to improve the ability of human intelligence, thus he is able to improve the quality of his life (Saleh and Mujahiddin, 2020). Education is expected to be able to answer all the challenges of the times and be able to foster national generations, so that people become reliable and of high quality, with strong characteristics, clear identities and able to deal with current and future problems (Azhar, 2018). Education and skills are the main keys in gaining social status in community life (Lubis et al, 2019).

Simultaneously with advances technology has globalizing been carried over in all aspects of life both in economics, politics culture arts and moreover, world, learning, progress technology is something avoid in life, because progress technology wants run compatible with progress science to this (Marryono Jamun, 1996).

Abdillah, 2101 said, in the era globalization teachers of as agents' education need understand and practice technology data and communication in education Regarding which very recent is development of what is cyber called teaching or teaching virtual namely process learning which tried by using, internet term Another that getting popular at this time is learning. One model learning with media technology and information communication especially internet.

Technology learning is a mixture of and education, learning, development, management, and technology other which applied for dismantle case learning, to Anglin 1995. Usage ICT in process education has not subject universal again in era globalization of this. With the availability internet very allows us for learn anywhere , anytime, anytime with scope which very is wide, example with, availability of facilities email, chat , e-books, e-library and other so on. We can get data without to meet directly with sources data that we need having Because in period this get data only by accessing internet (Hadayani et al., 2020)

The condition education in Indonesia now, several educators not yet there are who use technology to teach in class although in era, this should educators can use internet easily be in do the learning even Educators must have abilities capable especially and in fields each for mathematics related similar to their mathematics (Fuadi et al, 2016). There many facilities on provided the are internet already educators can choose want use platform what to use in learning. Because random average students students in Indonesia have smartphone or laptop which can used in learning in class.

Many of students students now lazy to read material lesson on book or do questions on book practice, because they now more use all platforms that exist on the internet for support learning their.

Lesle J. Briggs in Rusman (2008) explains if media learning as the physically means of conveying instructional content, book, films, videotapes, etc. Furthermore ,that Briggs explained media is equipment as stimulus to students students so that is intertwined process .learning regarding is consistent with comments Syaiful Bahri Djamarah in quote Batubara says if is wrong one aspect which very means in influences process learning studentis ,is arrival media education. The arrival media education really helps students in middle phase of operational concrete in lmastering module character abstract in or less able explained to language verbalbe. complexity material that want to inform to children students anyway can simplified with encouragement media education so students students can more fast mastering modules that be lesson.(Ethnomathematics & Android, 2021)

Subject subject is generally terrible considered by student student is mathematics so para student student should given, media be education that is

interesting and fun so that can increase attention students to mathematics the. With there are media education which is interesting for students students so that bit by bit paradigm about mathematics is lesson be scary can eroded by presence of media education interesting and innovative this (Ethnomathematics & Android, 2021)

Educators are required to develop media learner that are interesting and innovative for students students so that students students can interested to be learn mathematics, so that later process learning will run well. One of alternatives to overcome things is by linking mathematics with culture because delivered often seen or found students, everyday in life.

EB Tylor defines culture as all activities human including knowledge, faith, art morality law customs and customs, duties other, (Ratner, 2005). At time is the same, according to science anthropology, culture is whole system action thought, and human in lifework learning society human (Koentjaraningrat 1985). Thing is means almost all activities what is human is culture or culture? because humans do lvery little in the context life do society, ln't need learn get used to although historian culture explain culture as heritage or tradition registered (Rachmawati et al., nd)

Society and culture constitute one unit that not can separated. This is lbecause culture was created and completed by human in group society was Culture is something that close to life society. This is line with definition EB Taylor of culture as a whole complex, which includes knowledge and that habits of acquire humans as members in Public. Onesciences of the contained culture is in mathematics (2020 Septi, et al.)

One them is research which can be bridge between culture and learning, especially mathematics this is ethnomathematics Alangui, 2016 shows that ethnomathematics is similar with lens observe and understand mathematics as product or product culture culture. Ethnomathematics in language Indonesian as which known ethnomathematics. Ethnomathematics is science which studies about ideas or ideas mathematics from past past (Mathematics et al., 2020). Corpus National as person researcher mathematics or learning mathematics and ties with areas social and background culture, is research showing tricks mathematics, made, transferred, apply and commit to various systems culture. (Ayuningtyas & Setiana, 2019)

One of culture that exists in Indonesia is batik. Batik has become proof self time symbol a citizen either locally of or national same the. Batik is one of forms wisdom local residents can identified through pattern and motif be. We lcan identify batik made in area where through pattern and motif batik is Nationally batik thought represent evidence self culture nation Indonesia Batik Indonesia itself has been declared by United Nations Educational, Scientific and Cultural Organization (UNESCO) as heritage cultural world on 2 October 2009, regarding This impact positive on a development and development economy national of Increasing attention of citizens to batik to be one economization of aspects of batik, to makes batik as one of forms industry creative excellence Indonesia. This phenomenon urges to various regions in Indonesia Afreeandhanie improve batik with style distinctive, and bring personality regional .(2018)

Media education is good should designed by observing mindset participants students so later materials teaching that used will help teachers and participants ,students make be study. Media education is made by observing curriculum that used in schools step starts initially is by analyze curriculum basic land lmarker lsource second analyze, learning which used and the third selection and determination media

education. After is all composed good is then plans how will education that place well and is conducive takes be.

So from that, important very for educators to develop media interesting learning and that is innovativel so that grow interest learning for students.

II. Research Method

In research, model that I want to use is model development R&D (Research and Development) ADDIE (Analysis Design Develop Implement Evaluate). Model ADDIE is model design instructional commonly used. Method research development (Research and Development) oriented to product where process and procedure research described as carefully possible for then evaluated in order know level effectiveness (Fitri et al., nd). Model ADDIE can assist in designing design teaching for effective every product instructional (Budoya et al., 2019). Steps research and development with approach ADDIE stage Analysis, Design, Development, Implementation, and Evaluation (Wahid et 2020al) directed at Figure 3.1 following (Nadiyah & Faaizah, 2015), but in research this only will be used to stage development
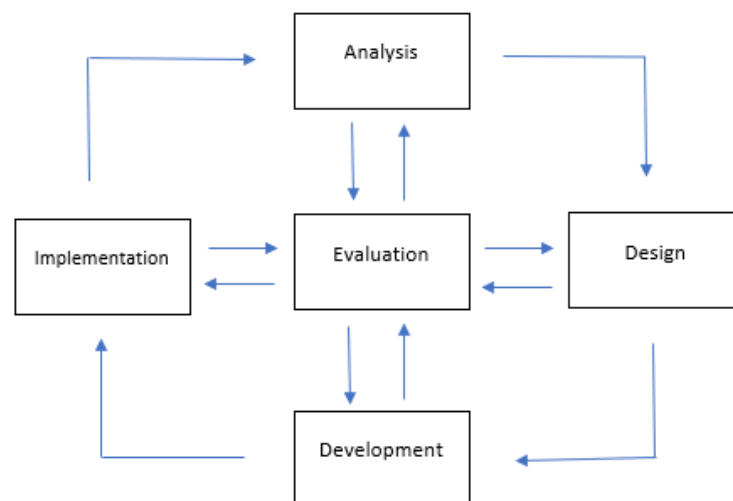
Figure 1. Model Development ADDIE

2.1 Analysis (Phase Analysis)

When before carry development on media education mathematics this is needs try with doing need sanalysis out) Analysis needs tried in order to look reflections situation in field that relates to process learning teaching mathematics, analyze needs tried with interviews with teachers and students and distributed questionnaires to students.

2.2 Design (Phase Design)

In session, that will try is designing product early that want grow. From start ensure design media education that will raised fulfill eligibility to in consumption fit with module, presented and collect data fromvarious ,be sources references from research or media that already have.
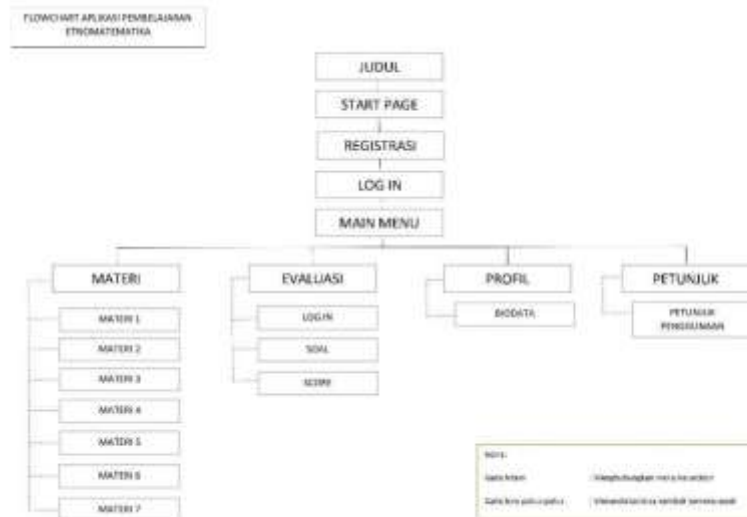
Figure 2 *Flow Cart*

2.3 Development (Development of Products)

This stage   is process where all of an that needed or that want support lentirely must .prepared In session this tried namely examplesthere were and previous research about media education based on mobile learning, after media learning .grew up At stage this application that has made, tested its feasibility to ensure all features be exist can used as possible .by muchusers.

III. Result and Discussion

1. In menu , students students do registration by   creating username, , making password, and writing class
2. After do registering students _ can into login application using . username and password that has created at   time registration data Their stored in account database application so teacher can monitor anyone anyone in logged into application Website that used to track or see who anyone who logged in is *Firebase.*
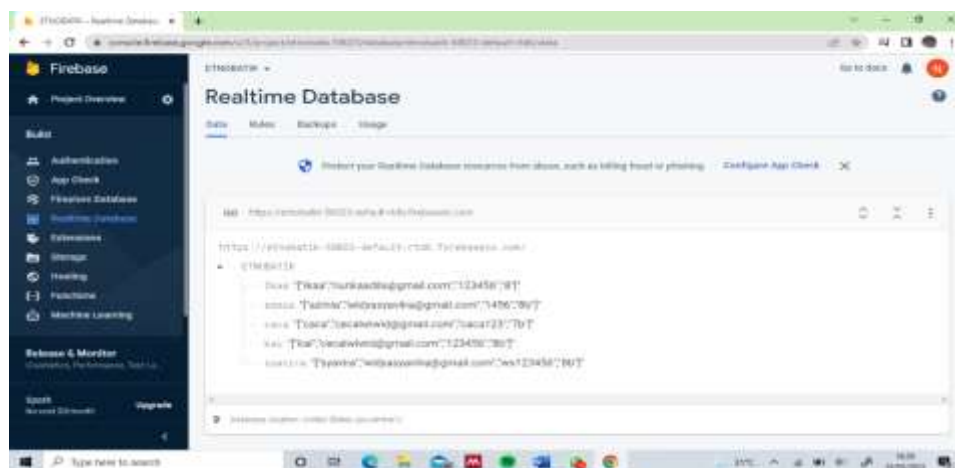

Figure 3. *Data Registration Participant Student*

25181

3. Page menu main consists of menu material, evaluation, profile, and instructions If wrong one menu is from clicked then user will enter into page is
4. Page material, on page this user can choose material that will study There seven sub materials that can select by users.
5. Page evaluation on page this user can do exercises questions provided , In Exercise questions there twenty are questions At execution user can see value that they get.
6. Pages evaluation can be tracked or viewed answers users on database which is same as page registration via *website Firebase.*
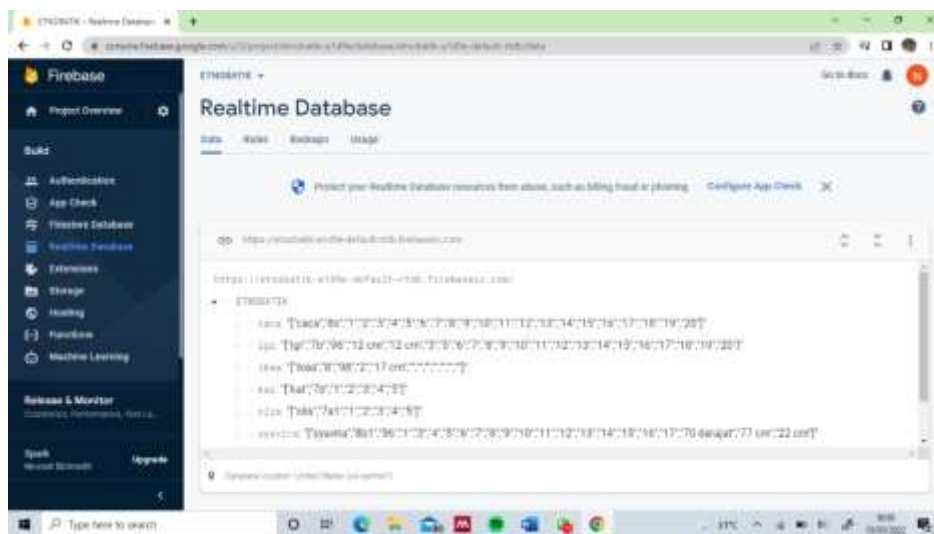

Figure 4. *Answer evaluation user.*

IV. Conclusion

After doing stage analysis, design and development. It can be concluded:
1. Application is more practical is used in learning because, and n't to carry books lessons again,
2. It easier educators in recap grades students students,
3. Application this makes it easier educators to track or see attendance students students through data login on account database *firebase* educator.
   Based on conclusions above, research this still far from word is perfect, then is needed input and suggestions so that application is future can better be more future front, among other things:
1. Because in making application this uses software which not too complete makes appearance application can is vary
2. Menu login on application this n't can _ use if user n't do registration first ca Then from that every will log in always directed
3. to do registration first first then then can login into
4. The limitation symbol in software that used makes answers in practice questions become simpler is
5. For research further hoped that use is better so that display in menus in applications can more be again
   .

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