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Development of Android-Based Mobile Learning: Answering the Challenges of the Industrial Revolution 4.0

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Abstract
Economic Learning in the Social Sciences Department at Al-Kautsar High School in Bandar Lampung is more teacher-oriented. The use of media is only limited to the use of powerpoint. In addition, the low percentage of KKM achievement (minimum completeness criteria) of students in several daily tests. Learning that uses mobile learning media is an alternative learning to increase student academic achievement in formative and summative tests as well. This development research aims to produce products that is mobile learning android-based in economic learning in order to answer the challenges of the industrial revolution 4.0. This study uses the Research and Development method with the ADDIE model (analysis, design, development, implementation and evaluation). The results of the study show that mobile learning has a significant influence on student academic achievement.
Keywords: mobile learning, academic achievement, android, economic learning.
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1. Introduction

The development of information and communication technology (ICT) continues to grow rapidly, this phenomenon will have an impact in various fields of life including the education. Therefore, educational institutions as a place to educate and create human resources must be able to improve the quality of education. The increasing is expected to follow the information and communication technology developments. As a result, schools are able to compete improving the quality of learning in the future.

According to the Directorate General of Primary and Secondary Education, "The quality of learning is the intensity of systematic and synergic linkages among teachers, students, materials, the learning climate, and the media in producing optimal learning processes and outcomes according to curricular demands". In other words, learning with good quality when the learning objectives can be achieved properly. It indicates that student learning outcomes are appropriate with what is expected by curricular.

Economic learning is a compulsory lesson that is part of the integration of Social Sciences. Economic learning can be interpreted as activities to organize the environment (economic phenomena) that exist around students. The aim is the students are encouraged to learn about the economic phenomenon, so that the competence (life skills) of economics can be obtained.

Mastery the economic material by educators, interesting media, and quality textbooks have a very important role to support achieving economic learning goals. This is expected to be able to help educators to organize learning material in full, systematic, and logical, then at the end will be able to help students to learn.

The mastery of material teaching, attractive media, and qualified textbooks as learning resource have a big role to support the achievement of the economic learning goals that teachers have set. They help teachers organize the teaching material systematically, logically, and comprehensively.

Based on the results of the interviews conducted on the students of grade XII (Social Study Class) of Al-Kautsar Senior High School. It is found out that teachers prefer using speech method rather than using technology based media. The students only use power point as the technology based media. It indicated that teachers are less creative to make improvement in teaching. According to Wahyono (2001: 13) ; one the weakness of economics education in schools is the teaching material does not have correlation to students' daily lives.

The mistake in choosing methods, media and learning resources is considered as the cause of the low passing grade. It is found that there are still many students of grade XII (Social Study Class) who do not reach passing grade of each subject. For example, teachers have set 75 (seventy-five) and then the students who pass the passing grade is less than 50 (fifty) percent. Based on the information gained from subject teachers, the using of time during teaching hour is also the cause of the low achievement of the passing grade. Teachers do not have appropriate teaching load, so they cannot spare their time to help students who still need more assistance.

Ally (2009: 1) explains that mobile learning is the process of learning through mobile wireless technology that allows everyone to access information and teaching material with no limit of space and time. Students can

set the time and the resource by themselves. This also meets their right to improve their quality of life.

Mobile learning nowadays is called as the ability of someone to use mobile network technology to access any relevant information or store new information, regardless of its physical location. Technically, it can be said that personal learning connects students with cloud computing using mobile devices. Mobile learning is the opposite of learning that takes place in traditional classes where students just sit, move, pay attention to the teacher standing in front of the class (Woodill, 2010: 31).

The progress in the technology used in cellular phones now qualifies to be an instructional tool in learning and communication tools. In addition to the main purpose of this time it is used to send and receive messages through text, voice or even images (Kim, et. Al., 2013). Furthermore, cellular phones in mobile learning facilitate access to various educational resource on the Internet and help develop and create attractive teaching content that can be used inside or outside the classroom, (UNISCO, 2013). Mobile Learning can provide the right information to the right people at the right time better than other learning / teaching technologies that have not been designed, (Little, 2012). In addition, students' interest in using all available resources Cellular Learning through their cell phones and Personal Digital Assistants (PDAs) to access information anytime and anywhere has also played an important role in the success of the prevalence of mobile learning, (López, et. Al 2009). Cellular learning not only encourages the way we access information, but also helps students become innovative and good problem solvers, (West, 2013).

The use of mobile learning more effectively improve student learning outcomes, as in previous studies conducted by Abdellah Ibrahim Mohammed Elfeky and Thouqan Saleem YakoubMasadeh in 2016. The results of his research showed that cellular-based learning was more effective than that traditional learning in helping to increase student's academic value. Mobile device makes students experience the easier and faster way of learning, interacting and discussing any topic with other students or teachers. In the other, teacher may use the mobile devise (internet) as a room for uploading teaching material or assessment to be done by the students. The results obtained are quite positive for students and teachers.

The advantage of mobile learning as an interactive multimedia system is that it can be used to overcome the limitations of computer devices in various educational institutions. According to Woodill (2010: 24) the advantages of mobile devices are it is easy to carry, it can be connected to the network anytime and anywhere, it is more flexible in accessing learning resources, proximity of communication, and students can be involved actively.Teacher can maximize the use of Android-based cell phone for the learning process. It will help teachers create 'student's mobile' where students as learning centers (students are the active part of learning).

The research conducted by Nana Yaw Asabere in 2013, using case-study showed the application of cell-based learning was very important for a country because there were many benefits obtained. Some of the benefits were the ease of accessing subject matter and the increasing of interaction between students and teachers. The conclusions from his research showed that cellular-based learning was a learning strategy in Ghana and other developing countries.

The potential for the use of e-learning or m-learning is very likely to be applied in the era of industrial revolution 4.0 as it is today, where students as the Z generation have the majority of using smart phones in daily activities. They need to improve the role of their smart phones form social media device to mobile learning tool.

2. Research Methods

This research uses the Research and Development (R & D) method. According to Sugiyono (2012: 407) that the method of research and development is used to produce certain products and test these products. Development procedures refer to the ADDIE development model, namely the development model which consists of five stages, among others: Analysis, Design, Development, Implementation and Evaluation. The ADDIE development model was developed by Dick and Carey (Mulyatiningsih: 2012) as follows:

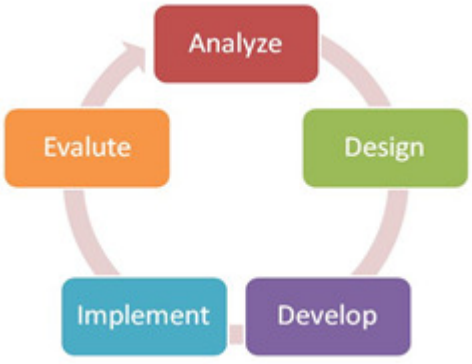

Figure 1. Mobile Learning Development Model

The design used in the implementation phase of this research was pre-experimental design, one-group pre-test post-test. This design is a development of a one-shoot case study design in which the design of this study contained pre-tests before being treated. The following shows a design in the study.

Table 1. Pretest and Posttest Experiment Design

group	*Pre test*	*Treatment*	*Post test*
Experiment	O_1	X	O_2

Source: Mulyatiningsih, 2012**.**

Table 1 explains that O1 as the result of the pre-test is student learning achievement before being given treatment. X is the treatment given by using mobile learning as a learning medium. Whereas, O2 as a post-test is student's learning achievement after being given treatment. This study uses the one sample t-test. This test aims to determine whether a particular value (given as a comparison) differs significantly from the sample mean.

2.1 Time and Place of Study

The research was conducted at Al-Kautsar Bandar Lampung High School, located at Jl. Sukarno Hatta in front of the Raja Basa Bandar Lampung Islamic Center. It started from March 2018 until September 2018. There were several considerations why Al Kautsar High School was the place to be conducted for this research. The school is easy to be accessed (efficiency in time and expenses). Moreover, most of students there have smart phone and the school allows students to use their smart phones at school.

2.2 Research Subject

The number of subjects in the study and development of the class XI IPS 3 of Al-Kautsar High School Bandar Lampung of academic year 2018/2019 were 28 students. The samples are taken using the Cluster Random Sampling technique. The sampling technique is carried out by groups not by individuals, so that the groups have the same opportunity to be used as samples.

2.3 Data, Instruments, and Data Collection Techniques

The instruments of data collection used in the research development of Mobile learning are sets, tests and interview guides. In this study the questionnaire is an instrument used to collect data from material experts, media experts and students. The questionnaire instrument was prepared to determine the quality and feasibility of the media developed. Expert validation questionnaires are shared with material experts and media experts using a Likert scale. According to Sugiyono (2012: 135) the instrument for the feasibility of learning media generally uses a Likert scale with 5 alternative answers, namely very good, good, sufficient, and lacking.

Questionnaire of opinion or response is shared with students as respondents. This questionnaire is a combination of open and closed questions. It is made to know the opinions or responses of students about the products that have been made. The questionnaire uses the Ghuttman scale which is a measurement using two answers namely yes no.

The interview conducted is to obtain an overview of the needs used to define the application that should be created. The test is used to see the ability of students before and after treatment in the experimental class.

2.4 Data Analysis

Data that has been obtained in the study continues to be analyzed in order to find out the assessment and opinion of the products to be carried out, those are: a). Product feasibility analysis from the assessment of material experts and media experts, b). Analysis of teacher and student opinion data, c). Analysis of student learning outcomes data.

3. Research Result And Discussion

3.1 Needs and Potential Analysis

Economic learning is a compulsory lesson that is part of the integration of Social Sciences. Economic learning can be interpreted as activities to organize the environment (economic phenomena) that exist around students. The aim is the students are encouraged to learn about the economic phenomenon, so that the competence (life skills) of economics can be obtained.

The economic phenomena that have studied, certainly require a specific strategy due to materials characteristics which consist of memorizing formulas and concepts. Therefore, a practical learning resource is needed and can be learned anytime and anywhere as well. In addition, it can also be adjusted to students' need and can be organized by the teacher. Wahyono (2001: 13) states one of the weakness of economic learning in schools is the exiguous teaching materials discuss about economic life that is commonly experienced by the students in their daily lives. In addition, the media and students' learning resources are still limited to the use of LKS, PowerPoint, and textbooks which according to some students are not practical, especially thethick textbooks.

Other problems that arise are not only practical and economical media needs for students, but also consultation time. Consultation between student and teacher is sometimes not fulfilled because it is difficult to find the right time for consultation due to intense hours of teaching schedule. Based on the results of interviews with the subject teacher, revealed that some students had difficulties in developing their knowledge. It is because students only mastery the materials during the learning process in class. In addition, the teacher complained when conducting the evaluation test with the many papers test. It is because teacher feel burden when correcting the results of each student.

The all conditions mentioned above were analyzed to be the cause of students' low level of completeness, where it was found that there were still many students of class XI IPS who did not master the KKM, that is 75. Students who do not pass KKM reach more than 50% in each study group. The following is an illustration of the root of the problem:

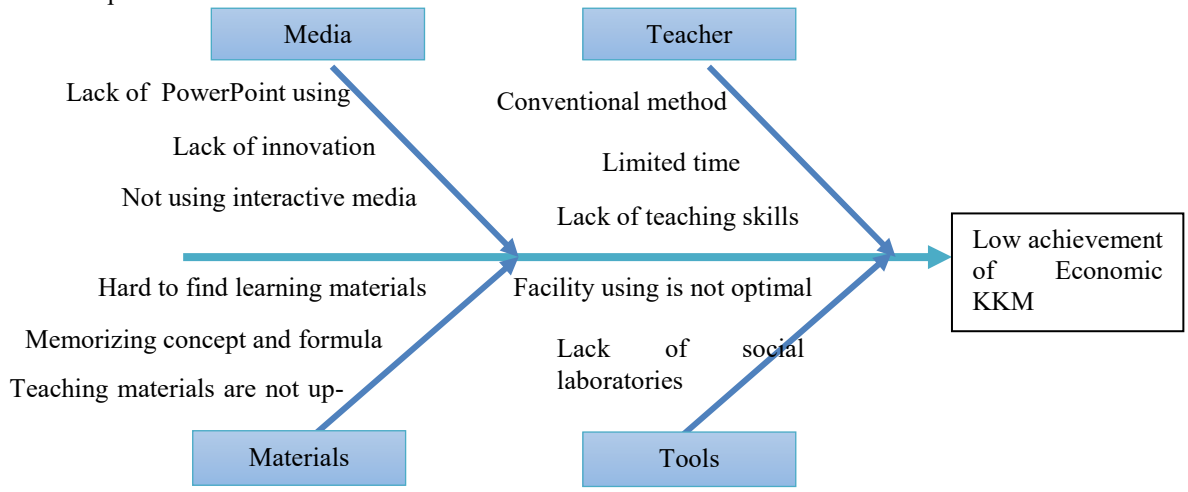

Figure 2. Problems Analysis Model

In Figure 2. shows the root of the problem that can be drawn from the four important components, they are media, teachers, materials, and tools that influence KKM achievements. Based on those problems, the solution that can be done is to make the practical media, easy, and can be adapted to the necessity by utilizing technological developments.

Rapid technological development cannot be dammed, what we can do is manage and utilize this potential. For example, the development of smartphones in Indonesia is so massive, especially among the students. The ownership of Smartphones by students and teachers in schools is not something strange, where each student has it. Based on the results of the questionnaire on students of IPS 3 Al Kautsar High School which shows all students have a smartphone.

This potential should be utilized properly considering students have a tendency to use smartphones for up to 4 hours a day. Based on the results of initial research that 61% of students use smart phones for 2 to 3 hours a day even 7% of students use them more than 4 hours a day. Of course this is very unfortunate if its use is not for positive things like learning.

In terms of the opportunity to develop the basic learning application system. The application is based on android and the web considering the majority of students have a Smartphone with an android operating system. The data showed on Figure.4 that 64.3% students' smartphone use android operating system and 35.7% use the IOS Apple operating system. Thus, the development of android-based applications becomes the main potential. However other system users can not be ignored. Therefore the use of web applications can be a solution.

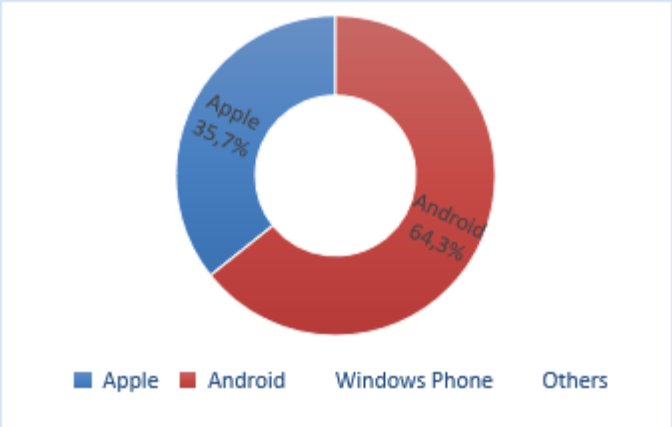

Figure 3. Diagram of Smartphone Operating System Users

The availability of smartphone with an Android-based is very preferred in learning using this application. However, other operating system users can still use the application via web version through an existing browser. In addition, the web version help the school when school regulations or resources impossible to use mobile phone instead using computer.

3.2 Desain

The design stage is the stage of media design which includes the making of overall media design (storyboard), preparation of material, questions and answers, making background, images, and buttons that will be included in the application

Media design making with Storyboard describes the overall picture of the application to be loaded. Storyboard has a function as a guide to facilitate the process of making media, followed by collecting background, fonts, images, and buttons. The images presented in the media are partly designed by the researcher. Images are combined with downloaded images from various sources. Collection of images, fonts and buttons are mostly downloaded from the web at dafont.com and the finder icon that is open or free of copyright. Making and combining images are done by using the PhotoShop CS 4. Most images are made in a portable network graphics (.png) format because images with the .png format can be made with a transparent background so that the media will make the media look more attractive.

After the design is complete then the material and questions are arranged based on the syllabus in the 2013 curriculum. It adjusts the curriculum implemented in schools based on KI and KD in class XI IPS semester 1. These considerations are based on research time which coincides with teaching and learning activities in semester 1 with the material is as follows: Economic Development and Economic Growth, Employment, National Income, State Budget and Regional Budget and Taxation. Preparation of material and questions is open, it's mean the teacher can easily make adjustments to the material and questions that suitable with the learning in the school can be edited, and also can even make their own material.

The questions contained in this media are based on the material above, which is included the problem solutions. Questions and answers are arranged in two types of learning goals, evaluation and examination. The questions for evaluation test arranged based the same headline and include the problem solutions. Meanwhile, the exam questions are arranged to know students' comprehension ability in general for all materials, before the final exam at school. The arrangement of the questions in this media as same as the preparation of material, so that the teacher can create their own questions, the answers, and the solutions on the form provided in the application.

3.3 Development

At this stage of development, the making of mobile learning is carried out which will be used as a learning media. The production of mobile learning includes coding and error testing in the code. At this stage the reference used as development is the model made in the previous stage. Construction consists of 3 activities, namely: Preparation, Programming, and validation.

Preparations needed include the basic concepts of design, choosing a programming language, choosing a programming environment and testing units. The language used is the java programming language. The programming environment (IDE) used is Eclipse. While the testing unit uses the android develoment software kit with the Android virtual device and uses a smartphone device.

Programming is done by applying algorithms, selecting data structures, making variable names, writing code and making code to facilitate understanding. Then the finished program is tested by the researcher by installing the application on a particular device with the aim of ensuring there is no error when the validation

process is carried out by media experts and material experts.

Material validation is used to validate the feasibility of media in terms of material that has been developed based on the assessment of material experts on aspects of material relevance, material organization, evaluation / practice of questions and languages. The results of the first validation indicate a weakness in the aspect of material relevance where the indicator of clarity of learning objectives has the lowest point, which is 2 points due to absence Learning objectives are displayed in the application while other indicators get a score of 4 and 5. Besides aspects of material relevance, the organizing aspects of the material, evaluation and language for each indicator also have scores of 4 and 5 with suggestions for improvement. The results of the second validation after improvement based on material experts showed positive results for each aspect. From the validation assessment, the average score of each indicator is calculated. The following are the results of the final media assessment based on the material expert validator.

Table 2. Results of Assessment by the Expert

Assessment Aspect	Total Score	Average	category
Relevanse Of Material	25	5,0	very decent
Organizing Material	28	4,7	very decent
Question Evaluation / Training	33	4,7	very decent
Language	9	4,5	very decent
TOTAL	**95**	**4,7**	very decent

Source: data processed in 2018.

Table 4 shows the results of the validator assessment scores that have been recapitulated. The aspect of material relevance gets a total score of 25 out of 5 statements so that the average score is 5 so the material relevance aspects of the media are very feasible. In addition, the organizing aspects of the evaluation and evaluation have the same average score of 4.7 so that the two aspects are stated to be very feasible while the assessment of the discussion aspect has a total value of 9 out of 2 statements so that the average score of the aspects is 4.5 which is very worthy. Based on these results it can be concluded that all aspects of assessment have an average score of more than 4.2, which means that this media is "very feasible" based on the assessment of material experts. The first stage of validation shows a lack of material on the following indicators: with learning objectives. b). Clarity of formulation of learning objectives. For the two indicators above, the material expert binds the improvement notes, namely "add learning objectives and improve learning objectives" in addition to the aspects of expert learning objectives also provide a reading of "adding references / sources of material and videos and adding essays" with conclusions worthy of testing with improvements. participate in improving the media.

This media validation is the same as material validation, media expert validation is used to validate from the media side that has been developed in aspects of the effect aspects of learning strategies, aspects of software engineering, and aspects of visual communication. Based on the media expert's assessment of the effect aspects of the learning strategy on the indicators of the ability to encourage curiosity and the ability of the media to increase understanding get a score of 4 as well as aspects of software engineering for each indicator get a score of 4. Thus each aspect of the material expert's score has the same score on each indicator which is 4 points. The following table recapitulates the results of media expert evaluations.

Table 3. Results of Assessment by Media Experts

Assessment Aspect	Total score	Average	Category
Effects on Learning Strategies	20	4,0	Very decent
Software engineering	24	4,0	Very decent
Visual Communication	28	4,0	Very decent
TOTAL	**72**	**4,0**	Very decent

Source : data processed in 2018

Based on Table 4.8 it is known that the assessment of media experts on the effect aspects of the learning strategy has a total score of 20 out of 5 statements so that the average score on that aspect is 4 so that based on the assessment criteria it is declared feasible. Whereas for the aspect of software engineering has a score of 24 out of 6 statements which means having an average of 4 or very feasible. In the aspect of visual communication, the average value based on the assessment is 4.0 which means the same as the two previous aspects which is feasible. From these results, all aspects assessed by media experts are feasible with a note of improvement.

The following final product development consists of two versions, namely the android version which can be downloaded through playstore with the name "ruang belajar" and the web version with the inkuri kelasbelajar.org

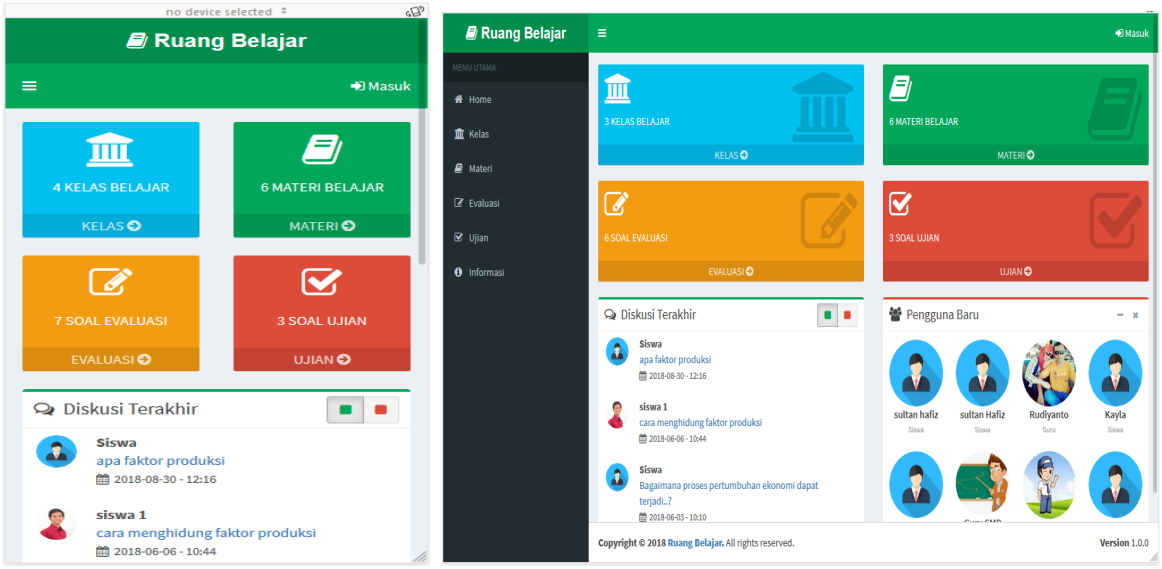

Figure 4. Display of Media and Products

3.4 Implementation

Field Test is the implementation stage. At this stage the trial was conducted by distributing learning media to 30 students and 1 teacher in grade 11 at Al-Kautsar High School, having his address at sukarno hatta street No.37 Rajabasa Bandar Lampung. The sample of this study was taken using the Cluster Random Sampling technique. The sampling technique was carried out in groups in grade 11, Social Class consisting of 4 classes so that all groups had the same opportunity to be used as samples.

The initial stage before using the application students are asked to install the media on a Smartphone device. The spread of media is done via Bluetooth by researchers by sending .apk files to each student or by downloading the play store and ensuring the internet network is running well.

At this stage the teacher conducts economic learning on the material of economic growth and development with the Discovery Learning Model and the method used Question and answer, interviews and discussions. Learning is done 3 times with 4 x 45 minute per-time allocation by utilizing mobile learning as a learning medium. Furthermore, at the end of the study students were asked to express their opinions and suggestions through the student response questionnaire provided in the application.

The results of the trial using SPSS version 16 for Windows obtained from data processing that. significance value (sig. 2-tailed) with t-test is 0,000. Because the probability value is smaller than 0.05, Ha is accepted or the ability of student learning outcomes in the initial test (pre-test) before treatment and the final test (post-test) after treatment is significantly different. This is in accordance with the results of the average student testing which shows an increase in the average value of students before and after learning using mobile learning media. The average value of students at pretest was 57.32 out of 30 students who took part in learning while the average value for posttest was 81.43. these results indicate that the mobile learning application is effective for improving student learning outcomes in schools.

Class management using the mobile learning application makes it easy for teachers to manage learning both in the classroom and outside the classroom so learning can be more effective. The essence of learning management based on cybernetics learning theory is the teacher's effort to help students achieve their learning goals effectively by functioning the elements of student cognition, especially the mind elements to understand the stimulus from the outside through the information processing process. Information processing is a learning approach that prioritizes the functioning of memory. The information processing model views human memory as a computer that retrieves or obtains information, manages and changes it in form and content, then stores it and displays information when needed by students.

Students are users who become the dominant object in this application, students can learn properly in learning in real class, the difference is that it can be done anytime and anywhere. Students can choose the desired class, learn and work on evaluation and test questions easily. See the results of the exam along with the discussion directly when it has finished working on the questions.

Another convenience obtained is that students can hold discussions and ask questions that are not understood in the application. The discussion can be responded to by all users so that it is possible to get an explanation that matches the wishes of both the teacher and other students who join the application.

This application allows each student to learn easily and practically making it easier to recall the lessons that

have been obtained. This memory is an active system that receives, stores, and repeats what someone has received. Memory is very selective, which consists of three stages, namely sensory memory, short-term memory, and relatively permanent long-term memory. Long-term information storage is carried out in various forms, namely through special events (episodic), images (images), or verbal forms that are abstract. Memory can determine the learning outcomes obtained by students. Therefore, the use of mobile learning applications can be a solution.

Mobile learning application is a learning effort through mobile wireless technology that allows everyone to access information and learning material from anywhere and anytime. Educators and students can set themselves when and where learning is done. So that teachers and students have the flexibility to access subject matter and information to improve learning outcomes. Information processing and learning management is an important thing in improving learning outcomes, this is in accordance with cybernetics learning theory.

The assumption of cybernetics is that no learning process is ideal for all situations, and that is suitable for all students. Because the way of learning is determined by the information system. An information might be learned by a student with one type of learning process, and the same information might be learned by other students through different learning processes.

Information processing learning theory is included in the scope of cognitive theory which suggests that learning is an internal process that cannot be observed directly and is a change in ability that is bound to certain situations. But human working memory has a limited capacity, therefore to reduce the burden of working memory, it is necessary to pay attention to learning capabilities, learning events, and organizing or learning sequences. Learning is not something that is natural, but occurs with certain conditions, namely internal conditions and external conditions.

Therefore, the learning management in cybernetics learning theory, requires learning to be well organized. It notices the internal conditions and external conditions. For example, the ability of teachers and students in the use of technology, especially smartphones and computers or the availability of internet network access for devices in schools..

Meanwhile, the way how teachers manage learning using mobile learning in schools are various. It depends on the expected learning conditions at school. Gagne in Budiningsih (2008: 89) classified five types of learning outcomes, as follow:

1. Intellectual skills (procedural knowledge – knowing know), including learning discrimination, concrete concepts, principles, and problem solving. It obtained through the material presented in classroom learning and can be done by presenting material in the application when learning in class.
2. Cognitive strategy, the ability to solve new problems by managing the internal processes of each individual by paying attention to learning, remembering, and thinking. Can be done by presenting material in the application to be studied independently both in class and outside the classroom.
3. Verbal information, the ability to describe something with words by arranging relevant information. Can be done by presenting material in the application and a more detailed explanation verbally in learning in class.
4. Motor movement skill, the ability to do and coordinate movements related to muscle by ordering the students to do the evaluation question presented in the application.
5. Attitude, an internal ability which is influenced by someone's behavior and it is based on emotion, belief, and intellectual factor. It can be done by watching over the students as the application user not to open the other sites beside learning.

The effectiveness of mobile mobile learning in line with several previous researchers who have conducted tests such as the result of the study that is done by Abdellah Ibrahim Mohammed Elfeky and Thouqan Saleem Yakoub Masadeh in the International Journal of Higher Education, Vol. 5, No. 3, entitled "The Effect of Mobile learning on Students' Achievement and Conversational Skills" in 2016. The research concluded that mobile based learning is more effective than the traditional learning in helping the students improve the academic grade and the English-speaking skill. One of the factors that causes this case is because by using mobile device makes its use easier and faster without being affected by time and place. Besides that, the other thing that makes them easier to interact and discuss about the topic of the problem with either other friends or instructor anytime and anywhere.

Research concluded that mobile learning can be used for a variety of subjects which are not limited to memorization material and formula such as economic subjects and English-speaking skills such as the research which is done by Abdellah Ibrahim.

Mobile learning can be priority media in the future that is very helpful the educators specially in the developing country like Indonesia. As the case conducted by Nana Yaw Asabere, in the International Journal of Computer Application entitled "Benefits and Challenges of Mobile learning Implementation: Story of Developing Nations". The conclusion from this research shows the mobile learning. The summary of this research shows the learning mobile based becomes the strategy of learning in Ghana in the future, even in Africa and dan other developing countries. However, there are obstacles in the application, such as adequate network

availability, adjustment from traditional learning to mobile based learning, content of the material, skill to organize and evaluate the results of the assessment. Therefore, policies and guidance are needed from the government to telecommunication companies to be able to play an active role in the education by committing to the success of mobile based learning strategies in rural areas as the main target.

Finally, it can be concluded that mobile learning media is very effective to be used either in class or outdoor, so it can be recommended for the educators and students to:

1. Use mobile learning when learning with material as needed.
2. Use mobile learning at school which provides or has good internet access
3. Use mobile learning at school which gives the students to bring and use smartphone
4. Use application web version for learning by using computer at school
5. Use mobile learning as traditional learning substitution
6. Use mobile learning as additional learning outside learning hour

3.5 Evaluasi

The limitation of these developments can be seen as follows:

1. Media which is produced still included in the development of beginner level (beta) which needs further development.
2. The determination of media eligibility standard is limited on the aspect of relevant material, organization material, evaluation / exercises, language, effect for learning strategy, software engineering and visual display.
3. Feasibility media which is done by either one media expert or material expert.
4. Media implementation test which is done just only in one school that is SMA Al-Kautsar grade XI IPS 3 for 28 students.
5. This research depends on the ability of the teacher in managing the class.
6. Dependence on local internet/network connection at schools so that if the internet connection is bad then the learning process is also obstructed.
7. The lack of supervision and class management to make the use of gadget in class allows the students to open the other site.

4. Conclusion

This application allows the students to learn in easy and practical way to make it easy to memorize the learning material that they have got. This memory is an active system that accepts, saves and issues again what has been got. Mobile learning is more effective compared to traditional learning in helping the students to increase their academic score. One of the factors that cause it is by using the mobile device makes the user is easier and faster without being infected by time and place. Besides that, it also makes them are easier to interact and discuss about topic of a problem with either other friends or instructor anywhere and anytime.

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