INTERACTIVE LEARNING APPLICATION ON ICT SUBJECT CLASS X AT MEKAR ARUM HIGH SCHOOL

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ABSTRACT

Teaching and learnig activities in Mekar Arum High School using speech and practice methode. Condition in the classroom, students were saturated when given materials TIK. Other than that there are materials that is difficult to explain by the teacher because it requaires tools to practice that materials. Be based on that problem requaires learning tools to extend the study. Until built an interactive learning application TIK class X in Mekar Arum High School.

Interactive learning application on ICT subject class X at Mekar Arum High School constracted with Luther Sutopo Methode. This application using methods computer assisted instruction (CAI). At phase collecting data, used interviews, literature study, observation and questionnaires methodes. Applications built by methode Object Oriented Program (OOP). Programming language used to built this application is Action Script 3. Trial the application with two phase alpha and betha. In alpha testing the application was testing by programmer while betha testing made directly to users who use this application.

Based on research result, with the application was 99 % simplify students in understanding matter on ICT subjects class x and also help students in learning which has a shortage of tools.

Keywoards : Learning, Interactive, TIK, OOP, Action Script

1. INTRODUCTION

Mekar arum high scholl is one senior high school located on the Jl cinunuk no 82 km .15.20 cileunyi Bandung .School it stands in 1991 .Same as high school in general , the education in mekar arum high scholl this taken in three years time , starting from class x to grade xii .This school using the curriculum 2013 .Information communication and is one of subjects that is in mekar arum high scholl.

The results of interviews with subject teachers typewriter class x in mekar arum high school Mr. Kukuh Pramudia Akmal , S.Pd that learning done with the methods talk and practice .Matter was sourced from the school electronics (BSE) with a headline "information technology and communication" as the tools learning .The condition in class students were often seen saturated when given material. This materials it is hard to see by teachers as requiring the tools to company practices items they as batch of computers and making network .For reference students in learning students are not required to have textbooks , so that students who have no handbook difficult to learn home , so that students need other media to support learning

Based on the results of questionnaire with 35 students as a measure of lessons typewriter .From 35 students 76 percent of students like lessons typewriter .To handbook 64 percent of students have no handbook and to the method learning typewriter with lectures 76 percent of students feel saturated with the methods learning typewriter .94 percent of students like it when lessons typewriter use application in order to increase motifasi in learning typewriter .

Computer assisted instruction (cai is the methods that can interest and the motivation to study students because they give different shades through a media consisting of text , a picture , audio and animation in integration which makes it interesting .A kind to learning cai of them tutorials , drill and practice , simulation and game.metode computer assisted instruction (cai) supported with facilities multimedia is expected to become subjects typewriter more attractive and interest and this amount of .The base applications were used is based desktop client

server because its use be done in offline and yet each users can connect each other in in the tissues intranets , and was conducted in the lab at the .

1.1 Problem Identification

.Based on the explanation in the background problems , so formulation the problem is how to build application learning as media help learning teachers in mekar arum high school.

1.2 Goals and Intentions

Mean from the study is to build application learning interactive on the subjects of typewriter .As for the purpose of writing duty the end is :

1. *Improve understanding student learning in studying subjects typewriter given by teachers by giving alternative learning interactive media*
2. *Ease students in studying items difficult to be explained by giving application learning interactiv*

1.3 Research Methodology

Research methodology is a process that used to solve a problem logical, where need data to support of a research.Data collection method used is the method descriptive analysis which is a method aimed at to get a clear on things necessary based on the results of direct observation in the field

1. *Data collection Method*

a. *Literature Study*

Where data collection by means of gather literature, and bacaan-bacaan pertaining to multimedia learning interactive.

b. *Observation*

This stage writer conducting observations in a case study the high school bloom arum to know characteristic users and supporters in the design learning interactive .And how learning activities in mekar arum high school

c. *Interview*

Interviews were conducted to the Kukuh Pramudia Akmal ,S.Pd typewriter class teacher x , inquire about the curriculum , handbook used and also a method of teaching

d. *Questionnaire*

Technique data collection by giving questionnaire to students x in high school bloom arum to answer some questions asked about subjects typewriter.

2. *Method of Development Software*

Method of development software used is the method luther explained sutopo .The following are stages of a method of luther explained sutopo

1. *Concept*

This stage is stage determine anyone who will use the this application, determining the of application and the purpose of this application.

2. *Design*

This stage is the stage of creating an architecture of applications and interfaces that will support the creation of this application

3. *Material Collecting*

This stage is the phase collection materials in accordance with the need application .Example the necessary materials is a picture , audio , animation

4. *Assembly*

This stage is the stage of application testing whether an error occurred or not.

5. *Testing*

This stage is done after the stages of assembly have been carried out. At this stage the maker will test whether there is an error or not. After being tested by the author of this application will be tested by the user whether this application makes it easy and beneficial.

6. *Distribution*

This stage is the stage of determining the manner of distributing the application. The application will be duplicated for use different devices. Distribution of applications can use the flash disk storage media, CD-ROMs, memory cards and other media.

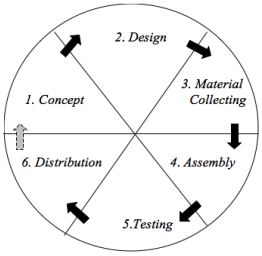


Figure 1 The method of Luther-Sutopo

3. CONTENT OF RESEARCH

3.1 Analysis of Problems

Analysis of the problem is the stage of elaboration of the problems that existed before the application is built and aims to help the development of multimedia applications. Analysis of the existing problems include such things as follows:

1. *With the talks students often seen saturated when learning typewriter so students not necessarily can well understand*
2. *Students had difficulty on certain items as requiring the tools to company practices the materials as matter batch of computers and making network.*

3.2 Analysis of the Running System

Mekar Arum high school is one of the private high school that is located in the highway of Cinunuk km. 15.20 Cileunyi Bandung . Based on the results of observation conducted Mekar Arum high school is already has the facilities and infrastructure adequate enough and already has a computer lab. Teaching and learning activities carried out directly in the classroom or lab.

Learning activities carried out from Monday to Saturday. Teachers given time a maximum of two hours of lessons, for a one hour lesson that is 40 minutes. On ICT subjects, the learning is done in the classroom to the material as well as in the computer lab for practical implementation. When learning in classroom teachers provide the material with the media the Board then students take copious notes. For learning in the computer lab of learning is not always held because material and adapted to the situation of the computer lab.

3.1.2 The analysis of Ongoing Learning Activities

ICT learning activities at a time when there were two sessions namely session material that is done in the classroom and practical sessions are done in the computer lab. As for the analysis of ICT learning activities that take place in classes are described in Figure 2 as follows:

1. *The teacher is delivering*
2. *Students noted the material presented the teacher*
3. *The teacher give practice problem*
4. *Students working on the given question exercise teacher*
5. *The teacher absent students*

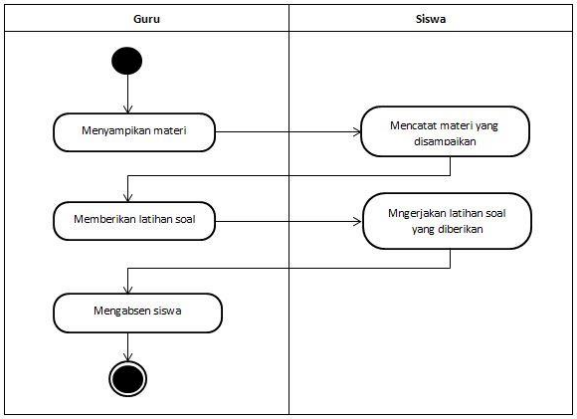


Figure 2 Activity Diagram - Learning activities in the classroom

While the analysis of the activities of the ICT learning in practical computer lab sessions will be explained in Figure 3

1. The teacher is delivering while teaching
2. Students do practical work,
3. The teacher give practice problem
4. Students working on the given question exercise teacher
5. The teacher absent students

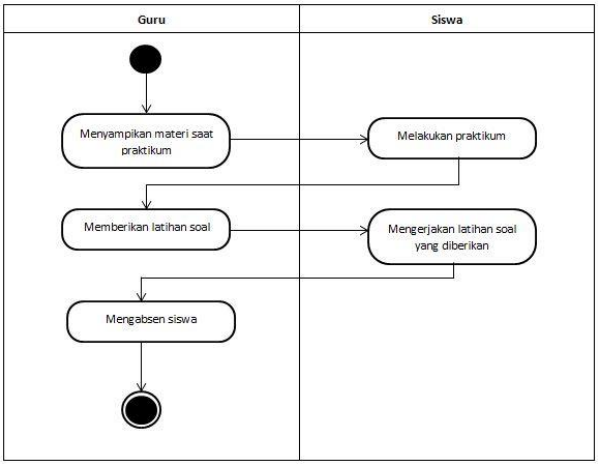


Figure 3 Activity Diagram - Learning activities in the computer Lab

3.3 Non-Functional Requirements Analysis

Non functional needs analysis required as information in order to find out what software is used in application development, hardware used as well as analyze the users who will use the application

3.3.1 Software Requirement Analysis

The software used in the development of this interactive multimedia learning applications are described in table 1 as follows:

Table Software Requirement analysis

No	*Software*	*Spesification*
1	*Operating system*	*Microsoft Windows 7*
2	*Main tools*	*Adobe Flash CS6*
3	*Support tools*	*Adobe Photoshop*
4	*Support tools*	*Adobe audition*
5	*Support tools*	*Macromedia Dreamweaver*

3.2.2 *Hardware Requirements Analysis*

The hardware used in the development of interactive multimedia learning applications can be seen in table 2:

Tabel 2 Hardware Requirements Analysis

No	*Hardware*	*Spesification*
1	*Monitor*	*LCD 14 INCH*
2	*CPU*	*Processor Intel® Celeron® CPU B800 @ 1.50GHz*
3	*RAM*	*1 GB*
4	*Hardisk*	*300 GB*
5	*VGA*	*VGA 1 GB*

3.3.2 User Requirement Analilysis

User needs analysis has a purpose to identify the users who will use the application, as described in table 3 below:

Tabel 3 User requirement analilysis

Users	*Access Rights*	*Skills*	*The Experience Of Using A Computer*
Teacher	*1. Do the processing on the data as well as data problem* *2. Access to obtain material* *3. Access to fill a matter of practice.* *4. Access to the simulation* *5. Access to the students*	*Can operate the computer and run the application*	*Ever operte computer*
Students	*1. Access to obtain material* *2. Access to fill a matter of practice.* *3. Access to the simulation*	*Understand how to run application*	*Never operate the computer*

3.3.3 Network Architecture Analysis

Network architecture in computer lab Mekar Arum high school is a client-server model. This architecture puts a computer that resides on the server with the number of teachers as 1 piece of the computer, while the computer-computer students as clientnya with 14 computers. The total number of computers in the computer lab HIGH SCHOOL Bloom Arum amounted to 15 computers. Information network architecture client-server on a computer laboratory in high school Bloom Arum can be seen in Figure 4.

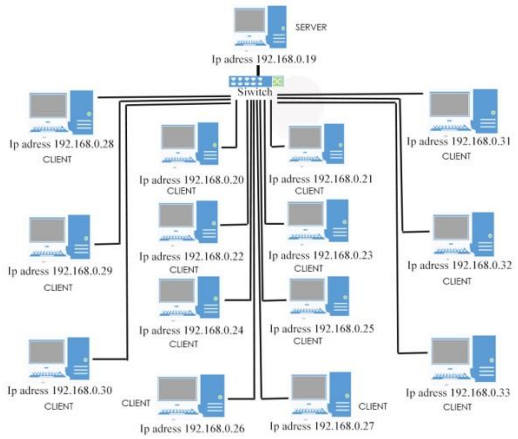


Figure 4 Architecture Analysis

3.3.4 Functional Requirement Analysis

Analysis of functional requirements explain what services are provided by the system, how the system responds to input from the user

3.3.4.1 Usecase Diagram

Usecase diagram is a diagram that shows the functionality of the system, provide a picture of how something that is outside of the system like for example users, interact with the system. Usecase Diagram application interactive learning on ICT subjects X-grade can be seen in Figure 5.

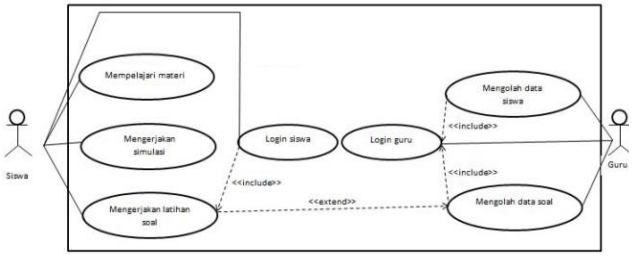


Figure 5 Usecase Diagrams On The Application Of Learning ICT

3.3.4.2 Class Diagram

The class diagram is used as the description of the attributes of the system and offers the services of a condition. In Figure 6, this is the class diagram of the application to be built:

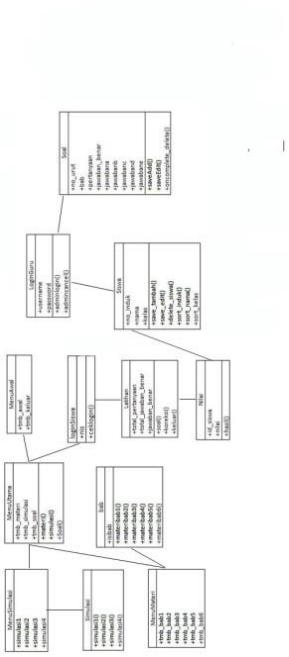


Figure 6 Class Diagram Of The Application That Is Built

3.4 Design of The System

On the design of this system consists of the design data, design, designing the look of the menu structure and semantic networks

3.4.1 Menu Structure Design

On the design of an application required menu structure that contains the menu and submenus that serves to facilitate users in use. The design of the menu structure of the students on the application that is built can be seen in Figure 7.

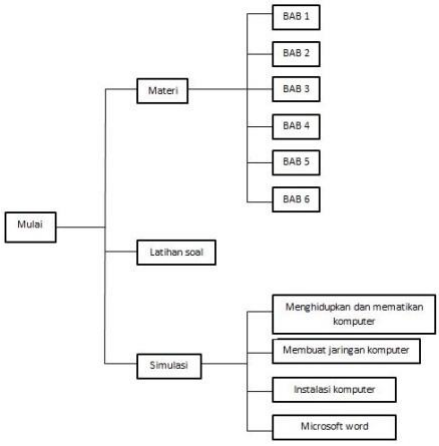


Figure 7 Menu Structure Students On Applications Built

As for the menu structure of the teachers on the application that is built can be seen on Figure 8

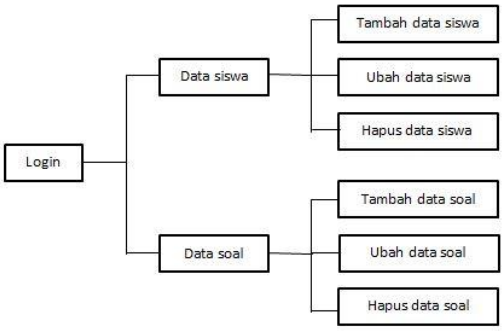


Figure 8 Teacher Menu Struktu On Applications Built

3.5 Testing

Software testing phases is to find errors and deficiencies in the software to be built, so that it can be known whether the software meets the criteria in accordance with purpose or not. As for the testing methods used in the software that was built was the black box method. This black box method consists of two stages of testing, namely alpha and beta.

3.5.1 Alpha Testing

Alpha testing is testing that is held by a group of development development surroundings by a group of users who will be using the software. Construction of the party stood and noted mistakes or problems perceived by the user. Alpha testing is done on the application of interactive learning the ICT test scenarios, test cases and test results and conclusions.

3.5.1.1 Scenario Testing

Scenario testing is a sequence and it testing was done on the "interactive learning" applications On ICT Subjects class X mekar arum senior high school". as for the scenario that is done can be seen in table 4

Table 4 Testing plan

No	Test item	Input data	Types Of Tests
1	the start menu	Start button	Black Box
		Exit button	Black Box
2	the main menu	Select the material button	Black Box
		Select the simulation button	Black Box
		Select button drills and practice	Black Box
3	Chapter menu	Choose the button Chapter 1	Black Box
		Choose the button Chapter 2	Black Box
		Choose the button Chapter 3	Black Box
		Choose the button Chapter 4	Black Box
		Choose the button Chapter 5	Black Box
		Choose the button Chapter 6	Black Box
4	Material menu	Choose the desired material	Black Box
5	urn the computer simulation	Select simulation	Black Box
		Putting computer components in accordance with area	Black Box
6	Make a simple network simulation	Connect the cable to the RJ45	Black Box
		Connect the RJ45 cable already attached to the switch	Black Box
		Check whether your computer is the one with the other computer can connect	Black Box
7	Installation of computer simulation	Select the stages stages on the installation computer	Black Box
8	Microsoft word-simulation	Select the function simulation function on microsoft word	Black Box
9	Drill and practice	Fill reserveds	Black Box
10	Student login	Enter no induk	Black Box
11	Teacher login	Enter your username and password	Black Box
12	Add student data	Fill out student data	Black Box
13	Update student data	Change your students	Black Box
14	Delete students	Change your students	Black Box
15	Add a reserved data	Fill reserved data	Black Box
16	Update reserved data	Change the reserved data	Black Box
17	Delete reserved data	Change the reserved data	Black Box
18	Client Server	Unplug the cable UTP	Black Box
		Process data reserved on the server	Black Box

3.5.2 Black Box Testing Conclusion

That portion of the existing functionality in the application of interactive learning application on ict subject class x at mekar arum high school can executed

3.5.3 Beta Testing

Beta testing that is testing where interactive learning application on ict subject class x at mekar arum high school was tested based on the response of the correspondent beta testing is ICT teacher class X and the high school students of class Mekar Arum high school. beta testing is carried out by means of direct interviews of teachers who teach the subjects ICT class X as well as direct observation against the students who use the application.

3.5.4 Beta test Conclusion

Based on beta testing done by disseminating a questionnaire, interviews as well as a comparison of

the value evaluation and posttest students pretesr, conclusions to be drawn as follows:

1. *the material contained on the application can increase the understanding of the students to learn subjects ICT.*
2. *the Simulation application can increase the understanding of the students to learn subjects ICt.*
3. *Evaluation of the application can increase the understanding of the students to learn subjects ICT.*
4. *With the application of this learning students greatly helped to improve their understanding of ICT subjects.*
5. *With the application of this learning process can facilitate students in learning material-deficient ICT tools.*
6. *According to the interviews with Mr. Kukuh pramudia akmal, s.pd as teachers typewriter class in Mekar Arum high school, the conclusion is learning application was very helpful for students in learning.The application can make in learning typewriter, the material was presented in accordance with syllabus and curriculum in Mekar Arum high school.And advice provided from Mr. Kukuh pramudia akmal, s.pd namely the application to be developed in the materialistic, in order to be used by class xi and class xii and applications can be developed with 3d view to be more real and more interesting.*
7. *Based on the results of a pretest and posttest has been an increase in the understanding of the students after learning media are either additional interactive learning applications on ICT subjects class X mekar arum high school.*

8. Concluding

a. Conclusion

Berdasarkan hasil implementasi dan pengujian yang telah dilakukan, maka kesimpulan dari tugas akhir yang berjudul "Aplikasi Pembelajaran Interaktif Pada Mata Pelajaran TIK Kelas X di SMA Mekar Arum" sebagai berikut :

1. *Aplikasi pembelajaran iinteraktif pada mata pelajaran TIK ini dapat membantu dan memudahkan siswa dalam memahami materi pada mata pelajaran TIK kelas X.*
2. *Aplikasi pembelajaran interaktif ini dapat membantu siswa dalam mempelejari materi yang memiliki kekurangan alat bantu seperti materi instalasi komputer dan pembuatan jaringan.*

b. Suggestion

Based on the results that have been achieved at this time, that the application interactive learning application on ict subject class x at mekar arum high school is still far from perfect and have a few words to do further development and refinement. As for the suggestions – advice to the development of this learning applications for the future are as follows:

1. *The application was developed with the 3D view to make it more real and more interesting content and simulations.*
2. *Expected to future ICT material presented not only for class X course but rather to Class XI and class XII*

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