DEVELOPMENT OF MULTIMEDIA ENGLISH LEARNING APLICATION FOR DEAF CHILDREN USING PQRST APPROACH METHOD (CASE STUDY AT SLB BINA ASIH)

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ABSTRACT

SLB Bina Asih is an educational foundation that is engaged in the service of the education of deaf and children in need special. Deaf child is a child who is misbehaving at his hearing organs resulting in inability to hear classified into deaf (deaf) and less heard (hard of hearing).

Based on problems that have been described, one of the ways in helping students with learning media as tools to build supporting learning. These learning media also help teachers in delivering lessons. Learning media using the PQRST method (preview, question, read, summarized, test) into interactive media. Preview with video sign language ASL, stacking game with question words, read applied materials, summarized using the mindmap, and test evaluation in the form of multiple choice.

Research results in the form of language learning in the United Kingdom Application SLB Bina Asih Cianjur. Based on the results of the interview against the master class X stated that applications are built can help the teacher in the learning process, then from the results of a pretest and posttest class experiment increases the percentage of the average value of language learning United Kingdom amounted to 19.7%, stating the application helps improve understanding of students.

Keywords: Learning Multimedia, English, Deaf, PQRST Method, Computer Assisted Instruction.

1. INTRODUCTION

Based on the results of a questionnaire with 20 students SMALB about 18 United Kingdom language learning students often have difficulty learning English and 13 people are not familiar with the learning material, because often find a vocabulary that does not understand as in Word or greeting greetings and a verb or verb, according to Mother Pipit as guru SMALB, the son of the difficulty to understand the readings in English, this causes students difficult to understand the material taught. Observation of the results, the study conducted on the SLB Bina Compassion is still limited to just books package. The delivery of the material performed by one teacher for six to seven students where teachers explain the material and students pay attention to the sign language and lip motion from teachers. It can be concluded that the learning material presented less interactive. In addition it takes media to help convey the material in order to be easily understood.

For children in need receive their special learning by means of delivery is different, based on the results of the research thesis entitled ' use of methods preview, question, read, summarized, test (PQRST) in improving reading skills reading text on deaf students ' by the PQRST method Qurrotullain that can enhance the ability of each child in the reading of a text [3]. Generally this method is one of the methods in the reading of the text of the readings especially for the sake of learning.

The school has a computer lab with one network Local Area Network (LAN) as well as the use of applications devoted to school environment SLB Bina Compassion, then a solution to solve this problem is to use a desktop-based interactive learning media, using the PQRST method of learning into interactive media. Preview, read the form of visual video sign language ASL and English material explanations, the question in the form of the game arrange the English verbs, summarized in the form of a summary compiled a binder material mind learning, and test the form of learning evaluation. Deaf students expected to get learning more interesting and easy to understand learning as well as get an overview of using sign language berkominukasi English, as well as facilitate the teachers to give you an idea of the correct English to students

1.1 Deaf Child Criteria

Characteristics of deaf children in terms of physical characteristics that do not have typical, because physically deaf children do not experience disruption in sight. As the impact of deaf children, ketunarunguannya has the typical characteristics of a different facet. Permanarian Somad and Tati Hernawati describes the characteristics of the ketuna-runguan facet: seen from the intelligentsia, language and speech, emotions, and social [4].

a. Characteristics of the intelligentsia

Deaf child intelligentsia not unlike the normal child that is high, average and low. Deaf children in general have entelegensi normal and average.

b. The characteristics in terms of language and speech

The ability of deaf children in speaking and talk different from normal children in general because the ability is closely associated with the ability to hear.

c. The characteristics in terms of emotion and social

Ketunarunguan can cause keterasing's with the environment. The alienation will cause some negative effects such as: exaggerated egocentrism that exceeds the normal child, has the feeling of fear of wider environment.

1.2 Classification Of Deaf Children

The classification is absolutely necessary for special education services. It is very decisive in the selection of hearing aids that fit with the rest of her hearing and support its effective learning.

According to Boothroyd in Pure Winarsih, the classification of ketunarunguan are as follows.

a. Group I: 15-30 dB loss, mild hearing losses or ketunarunguan light; capture the power of human normal cakapan votes against.
b. Group II: the lost 31-60, moderate hearing losses or ketunarunguan or ketunarunguan are; capture the power of the human voice cakapan against only a part.
c. Group III: lost 61-90 dB, for severe hearing losses or heavy ketunarunguan; capture the power of the human cakapan vote against no.
d. Group IV: lost 91-120 dB, profound hearing losses or ketunarunguan very heavy; capture power against human conversation there is no sound at all.
e. Group V: lost over 120 dB, total hearing losses or ketunarunguan total; capture power against human cakapan there is no sound at all.

1.3 PQRST Method

One of the most famous techniques to help students understand and remember the material they read is the PQRST method (Preview, Question, Read, Summarize, tests) [3]. PQRST method introduced by Thomas f. Staton, memory is used to improve the performance of memory in understanding the substance or content of the text can encourage readers do processing the material in greater depth and breadth, PQRST method is a method of learning that ask students to do a Preview (skimming), Question (asked), Read (reading), Summarize (summarize), and Test (test).

2. RESEARCH CONTENTS

2.1 System Description

Learning application system that will be built is client-server desktop, learning using PQRST method is a method to improve comprehension by reading text reading, there are instructional materials in the form of text, video cues, and evaluation in the form of multiple choice, and game stacking about tools or objects in Around students. The system will have two interfaces ie FrontEnd and BackEnd.

2.2 System Architecture

System architecture is the description of the whole system to be built, the FrontEnd is part of the application that will be used by students to the learning activities. The backend is a part of the application that is entirely done by the teacher as the admin of the system to process data of students, data value and reserved. As for the system architecture to be built can be seen in the following image.

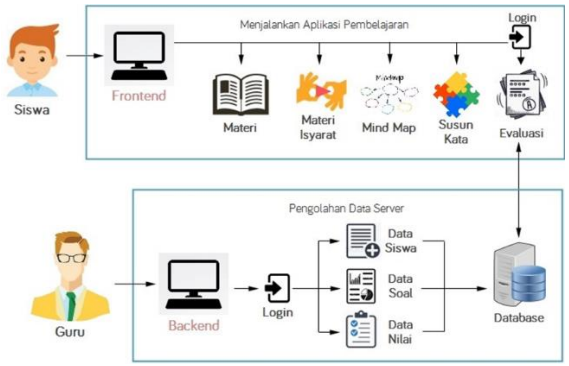


Figure 1. System Architecture

2.3 Character Analysis

Characters used in this application is the character of the child who was reading a book with a smile in the form of 2D image and character of a teacher using

a suit and shirt men long form video, philosophy of children's character that is depicts a child learn by his imagination, with the character expected students can think further ahead. Analysis of the characters used are described in the following table.

Table 1. Character Analysis

No	Character	Description
1		Name: Ujang Physical characteristics: short brown hair, wearing a red shirt, Character description: a 14-year-old boy from cianjur is easy to get along with and his hobbies are reading books
2		Name: Mr. Jhon Physical Characteristics: High-bodied wearing long suits and shirts Character Description: a 31-year-old teacher of American and Sundanese descent, smart in English and friendly to all students

2.5 Analysis of the Application of Learning Methods

Application of the learning method used can influence the success of the learning process. Learning method used is PQRST method (preview, question, read, summarized, test) that is reading method to improve comprehension, the method can be applied in an application. The following table 3 is a mapping of the conventional PQRST method with multimedia learning applications.

Table 2. Mapping of the PQRST Method to the Application

No	PQRST Method	In-App Mapping
1	**Preview** Preview method is done by viewing or doing initial observation to the learning material in the form of view title, picture, or main topic of matter.	One way to get students to observe quickly is to use video media, the application of video in applications using Sign Language to help in conveying materials, the cues used are ASL (America Sing Language).
2	**Question** The questioning method is done by the students by answering questions from preliminary reading such as title, main topic, or previously read material.	The implementation stage of the question with a question in the form of games compiled a syllable, with the purpose of the child understand how the pronunciation of words with solving word into syllables.
3	**Read** The read method is done by the students by reading the whole material.	On stage read applied on all material pembelajran in the application, in the form of text and commands of English material in the form of text explanation in Indonesian Language.
4	**Summarized** The summarized method is done by the students by summarizing the material or making important notes on the material that has been read before.	Summarizing the taught material can make it easier to understand the material, using the method of mid-maping students can compile a snippet of material summaries of each learning material and train students to construct materials that are easy for them to understand on their own.
5	**Test** The test method is done by the teacher by giving the problem to the students to test the student's ability	The test stage is done by evaluation in the form of multiple choice, made 4 choices for each question done by the student

2.5.1 *Preview* and *Read*

Application of the method of preview and read on the application using the method of CAI in the form of model learning model tutorial, toturial builds to preview using the video format, to present information in the form of British sign language in ASL. The concept of the video sign language are as follows

The motion of the cue "Good Morning" consists of two movements of a cue which is "Good" and "Morning" can be seen in Figure 2

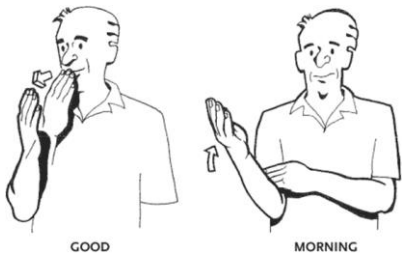


Figure 2. Gesture Good Morning

Video used to help teachers explain the material submitted and to make students more interested in and focus, as well as students can repeat the video to be more familiar with the material in the pass.

And for method read that is read as a whole applied to each learning material. The form of English-language text for each of the major material on each chapter of English language material presented in the application is a part of every theme material. So expect students can more quickly and easily understand the gist of the material convey the.

2.5.2 Question

Application of the method of the question on the application using the method of CAI be model games. A game model built was the game compiled a syllable objects, the collection of material for the game is as follows

1. Game Material Analysis

The material used for the construction of learning games that will be applied is Chapter 4 of the "enquire and stated objects", i.e. the objects contained in the space school skills in English. The material used can be seen in the table 3.

Table 3. Game Material Analysis

No	Material	Objects
1	Komputer	Computer Printer Keyboard Laptop Monitor Flash Disk
2	Tata Busana	Sewing Machine Scissors Zipper Button Needle Stickpin
3	Tata Boga	Blender Frying Pan Grater Knife Gastove Spatula
4	Otomotif	Motor cycle Drill Bolt Whell Lubricant Wrench

2. Gameplay Design

The main task of the user in playing the game is to compose or determine the correct word of the syllable fragment that is provided, the syllable is divided into several letters as follows.

Material: Komputer

Computer	→	com-pu-ter
Printer	→	pri-nt-er
Keyboard	→	key-bo-ard
Laptop	→	la-pt-op
Monitor	→	mo-ni-tor
Flash Disk	→	fla-sh-di-sk

In the game display provided images objects and pieces of words that have not been prepared, so that students mangetahui what objects from random words that are given, aims to attract students interested to do lessons and facilitate teachers to increase student concentration.

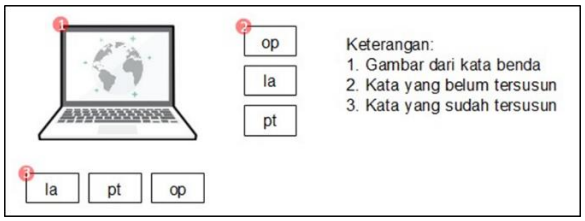


Figure 3. The concept of the Word-Arrange Game

2.5.3 Summarized

Implementation of summarized method in application using CAI method in the form of drill and practice model. Drill and practice model that is built in the form of exercise with mind map model, making mind map material will be discussed as follows

1. Determine the central topic of matter

It is the subject or focus of thought to be developed, and placed as the basic "tree". The central topic taken from each chapter has 6 central topics

Bab 1: Expression and Responses
Bab 2: Introducting
Bab 3: Care
Bab 4: Object
Bab 5: Announcment
Bab 6: I have a pet

2. Define the main topic of the material

It is the second layer of mind level as part of the Central Topic and placed as a circling "branch". Determine the main topic of each chapter by sorting the main topic of discussion material in the chapter and entering it as a branch on the mind map.

3. Define sub topic of discussion

It is the third level of the mind level as part of the branch and placed as a "twig" of the next level of thinking. Define the sub topic in the capture by summarizing the topic on the material that he samapaikan. As in chapter 2 determine the base and branch first to arrange sub-topic discussion as follows:

Bab 2: Introducting

A. Materi.

1. Perkenalan

2. Personal Identity:

a. Nama

b. Alamat

c. Tempat Tanggal Lahir

B. Pemperkenalkan

1. Diri sendiri

2. Orang lain

C. My name is…

1. Mega

2. Budi

3. Andy

The mind map sub-topic aims to assist students in summarizing overall material information, improving students' ability to view and remember detailed information.

4. Apply each point to the mind map

Based on the core points that have been determined then made into the mind map in accordance with the rules as in Figure 4.

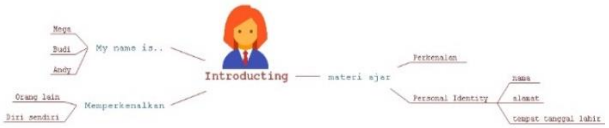


Figure 4. Mind Maping Introducting

2.5.4 Test

Application of test method on application using CAI method with drill and practice model that was built in the form of evaluation of objective test. An objective test is a type of test in which an alternate or possible answer may be chosen by the student. Problem evaluation is given in the form of multiple choice with 4 choices of answers provided many questions 20 questions. Examples of writing questions can be viewed in the table 4.

Table 4. Table Writing The Evaluation Question

Pertanyaan	Jawaban
Reza: Hello, … what's your name? Putri: I'm Putri, hi. A. This is Reza B. I'm sorry C. My name is Reza D. This is Putri	C. My name is Reza

Writing problem can be specified by the teacher by doing the processing of reserved on the backend application, after students complete all questions then the system will display results from langusng answers that have already worked on by students. For the calculation of the value of evaluation results using the formula:

$$\frac{Jumlah\ Nilai}{Banyak\ Data} x\ 100$$

2.6 Context Diagram

The diagram context on language learning Media United Kingdom Applications can be seen in Figure 6.



Figure 5. Context Diagram of English Learning Application

2.8 Data Flow Diagram

Data Flow Diagram (DFD) is a context diagram in a more detailed form. DFD describes the processes that occur in the system until a more detailed process.

2.8.1 DFD Level 1

DFD level 1 in English learning application can be seen in Figure 6.

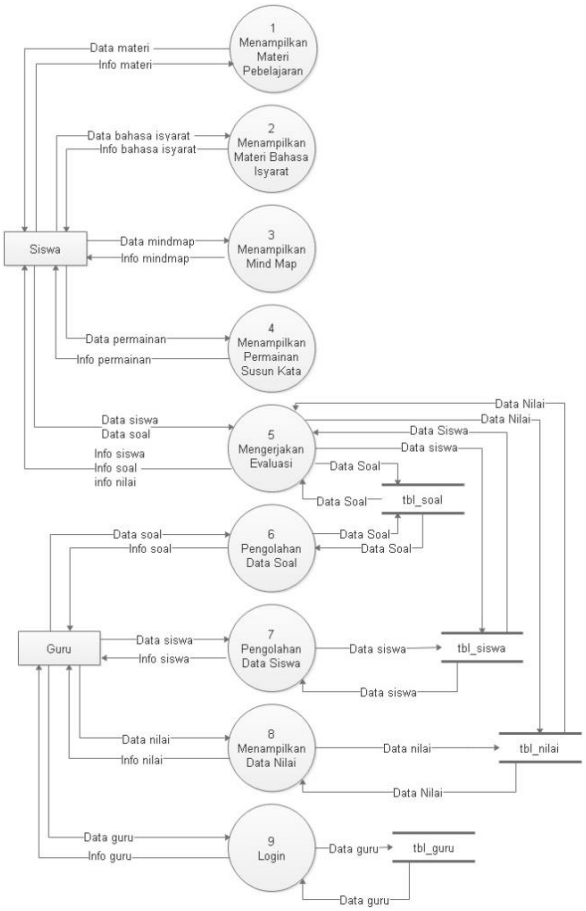


Figure 6. DFD Level 1

2.8.2 DFD Level 2 Proses 5

DFD level 2 Process 5 on English learning applications can be seen in Figure 8.

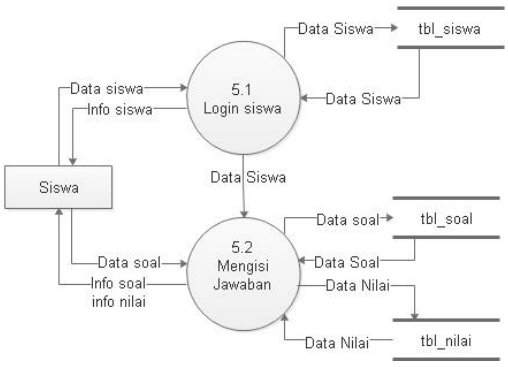


Figure 7. DFD Level 2 Proses 5

2.8.3 DFD Level 2 Proses 6

DFD level 2 Process 6 on English learning applications can be seen in Figure 9.

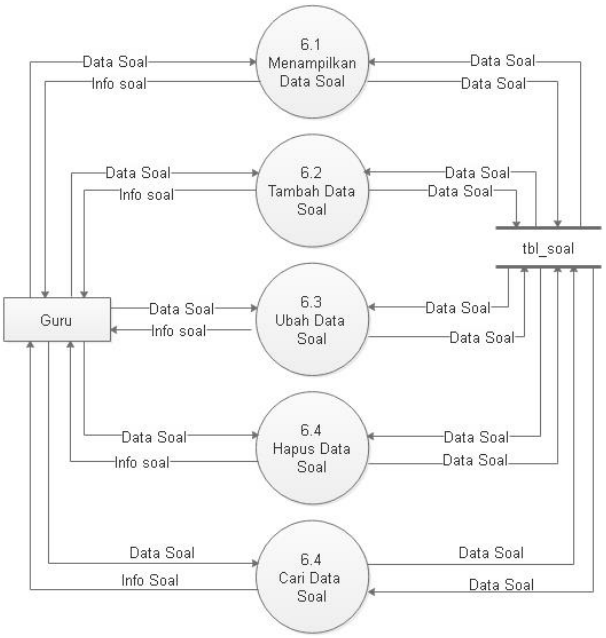


Figure 8. DFD Level 2 Proses 6

2.8.4 DFD Level 2 Proses 8

DFD level 2 Process 8 in English learning application can be seen in Figure 9.

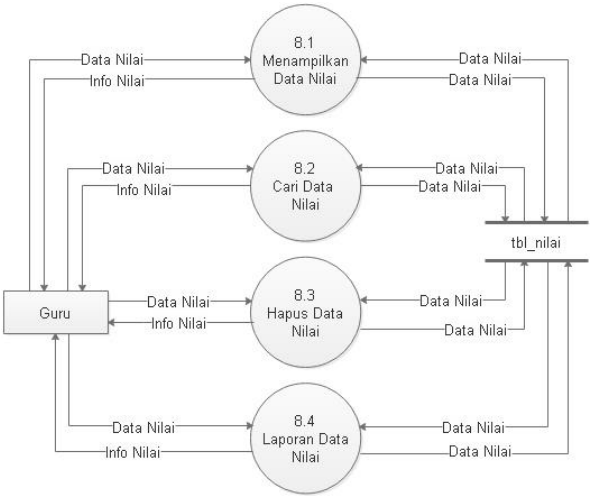


Figure 9. DFD Level 2 Proses 8

2.8.5 DFD Level 2 Proses 9

DFD level 2 Process 9 in English learning application can be seen in Figure 10.

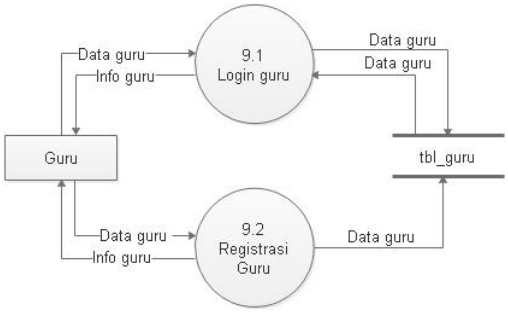


Figure 10. DFD Level 2 Proses 9

2.9 Menu Structure Design

The design of the menu structure is a description of the path of application usage so that the built application is easy to understand and easy to use.

2.9.1 Teacher's Menu Structure (Back End)

Teacher menu structure consists of a login, student data, data, data value. Teacher menu structure can be seen in Figure 11.

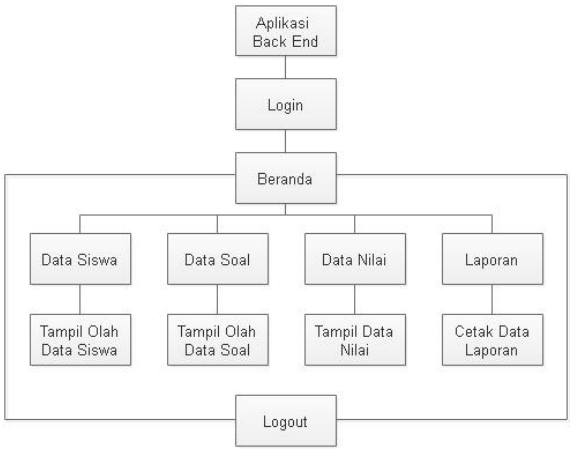


Figure 11. Teacher menu structure

2.9.2 Student Menu Structure (Front End)

Student menu structure consists of material, matter, mind map, stacking, and evaluation. Menu structure students can be seen in Figure 12.

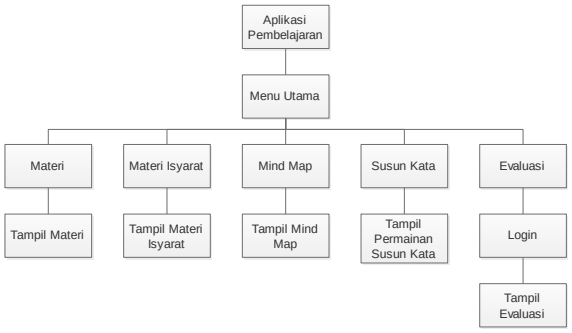


Figure 12. Student Menu Structure

2.10 System Implementation

At this stage of the analysis, design and implementation have been made will be applied to United Kingdom language learning Applications. Learning Applications implementation is implementation of hardware, software implementation, implementation and implementation application interface.

2.10.1 The Hardware Implementation

The hardware used in the implementation of English learning applications at SLB Bina Asih Cianjur can be seen in table 6.

Table 6. The Hardware Implementation

No	Hardware	Spesifikasi
1	Prosesor	Intel Core 2 Duo E7300, 2.66 GHz
2	Monitor	*LCD* 1368 x 768 *pixels*
3	VGA	Intel 1 GB
4	Harddisk	250 GB
5	Memory	2 GB
6	Mouse	Standard
7	Keyboard	Standard

2.10.2 Software Implementation

In addition to the hardware, on the research needed to support the software also in implementation. As for the specifications of the software used is as shown in Table 7.

Table 7. Software Implementation

No	Software	Spesifikasi
1	System Operasi	Windows 7, 32bit
2	*Tool Compiler*	Adobe Flash Player 11
3	XAMPP	Versi 1.8.1

2.11 Interface Implementation

Implementation of the interface is done with every page of the program created and coding in the form of program files. The following is the implementation of the interface for students.

a. Implementation of the interface home page



Figure 13. Interface Home Page

b. Implementation of the interface Material Page



Figure 14. Interface Material Page

c. Implementation of Interface Material Gestures Page



Figure 15. Interface Material Gestures Page

d. Implementasi implementation of the interface of Mind Map



Figure 16. Interface Page Mind Map

e. Implementasi implementation of Interface Word-Arrange Page



Figure 17. Interface Page Word-Arrange

f. Implementation of the interface of the Login page



Figure 18. Antarmuka Halaman Login

g. Implementation of the interface Evaluation Page

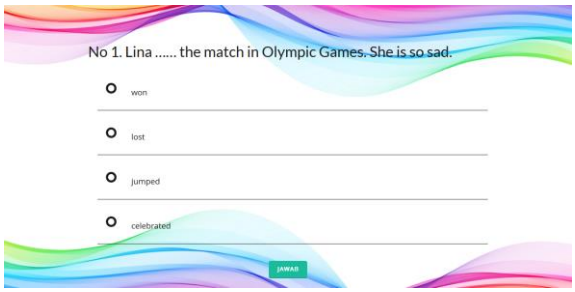


Figure 19. Interface Evaluation Page

2.11 Testing The System

Software testing phases is to find kesalahankesalahan and flaws in the software that is built so that it can be known whether the software meets the criteria in accordance with purpose or not. As for the testing method used in this software is a method of testing and Blackbox Testing Pretest-Posttest.

2.11.1 Blackbox Testing

Functional testing is used to test the new system is a method of testing the alpha. Blackbox testing focuses on the functional requirements for software.

2.11.2 Pretest-Posttest Testing

Pretest and posttest were given to 20 students for class experiments Respondents and 20 respondents to grade control at SLB Bina Asih Cianjur. Results from pretest and posttest this will prove the hypothesis of the existence of differences between the control class does not use the application deep analytical study with classroom experiments using applications in analytical study.

2.11.3 The Test Conclusions

The conclusion PengujianBerdasarkan the Blackbox Testing already done with cases that have already been tested, then it can be inferred that in English learning applications can be run well and there is no mistake on functional processes that run in accordance with the desired

The conclusion of the beta testing is done by the method of interview already can assist teachers in learning and in the calculation of pretest and posttest on classroom experiment improves average students amounted to 19.7%. It can be concluded that the application of learning the language of the United Kingdom as a tool of learning media SLB Bina Compassion this is in compliance with the objectives to be achieved.

3. PENUTUP

3.1 Conclusion

Based on the results of the implementation and the testing that has been done, then the conclusions drawn based on the results of the interview with Mr. Basuni s. pd as the teacher of the class X and pretest and posttest test results in students of class X SMALB Bina Compassion with a thesis entitled "language learning Multimedia Application Development United Kingdom For Deaf Children With PQRST Method (case studies In community development SLB Asih)" that is as follows :

1. Applications that are built can become AIDS students in understanding the language material pembelajran raise United Kingdom
2. Applications that are built can give ease to the teachers in delivering learning material

3.2 Suggestion

In this learning application development is still far from perfect and there are still many shortcomings. Therefore, the need for further development and refinement in order to meet the needs of users who are increasingly growing. As for the suggestions towards the development of multimedia learning this for the future are as follows:

1. Add 3D features into the application and include more sign language ASL more
2. An increase in the learning material presented could be about IPA, mathematics or any other.
3. Change into the form of a mobile android so that students can access the material anywhere not only processed when learning

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