DEVELOPMENT OF MULTIMEDIA APPLICATION LEARNING KOREAN BASIC BASED ANDROID (CASE STUDY IN MIRAI COLLEGE INDONESIA LANGUAGE TRAINING)

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ABSTRACT

Korean language is one of topic studied by the participant. Observation and Interviewing has been done, the lecturer give the course using words and module. However not successful enough to help the participant who new to learn Korean because of some of the words have similar pronoun session therefore they get it wrong when pronounce it also because of how the word is written. The other things is participant only get lesson once a week which is not enough, and the lecturer is hardly to monitor their progress.

Multimedia Basic Learning of Korean Language Application is built by referring to software development method written by Luther-Sutopo and Interactive Learn Computer Assisted Instruction (CAI) using tutorial, simulation, drill and practice model. This application is built with one purpose to let the participant easy to learn basic Korean language even when they are at first.

Testing that being held using blackbox method is alpha and beta test, can conclude around 80.62% of the participant is interested in using the apps to learn Korean language, 80% agree the apps is giving them much easier in understanding the language and 81.87% of them agree this application can be additional media to learn the language while they are not on the course. The lecturer can monitor the participant more easier.

***Keyword** : Korean Language, CAI, Learning, Multimedia, Android.*

1. *INTRODUCTION*

Mirai College Indonesia is one of language course in Bandung that give language lesson to the person who wants to study foreign language and train to get job abroad. One of the foreign language is their list are Korean language. Level that participant can take in Korean language are beginner and it's about Korean alphabet (Hangeul), numbers and grammars in form of basic sentence.

Observation and Interviewing has been done, the lecturer give the course using words and module. However not successful enough to help the participant who new to learn Korean because of some of the words have similar pronoun session therefore they get it wrong when pronounce it also because of how the word is written. This is because they are so many words the participant need to memorize and often make them confuse. Participant is having difficulties in understanding their lesson more over is because of time the participant only get lesson once a week which is not enough, and the lecturer is hardly to monitor their progress.

Therefore needs additional media while they can still learn even when they are not on the course. Smartphone can be used to help them more and nowadays everyone has a phone. Author is interested to develop multimedia learning which hopefully can increase interest the participant and help them to learn Korean language using the application android base. The solution is "Development Of Multimedia Application Learning Korean Basic Based Android".

1.1 *Instructional Media*

Media comes from latin which is plural form of medium which means interface or introduction. Computer use in education field is to help teacher or lecturer to increase education quality that can be apply to computer base (computer assisted instruction-CAI) and Computer Based Instruction-CBI) [1].
Software for Computer Assisted Instruction is use for helping teacher or lecturer as a tools to help them present and demonstrate in term of educational process. Meanwhile computer based instruction is use for individual learning that can be used by the participant to directly connect with the media [1].
Education media should be qualified to motivate the participant to learn more. Media should help to remember what have been learn and give some

stimulus to the participant. Good media also create an interactive learning between the participant and the media and can make the participant give feedback from what they learn [2].

1.2 *Multimedia*

Multimedia can be said as a new form in making computer programs with combine 1 or more media. The least combination of it are input and output data, audio, animation, video, text, graphics and picture [3]. *Multimedia is a tools that can present more dynamic and interactive combine with text, graphics, animation, audio and video* [4].

There are 4 essential component of multimedia [5]:

1. *If one of multimedia component did not exist, therefore it's not multimedia. There should be a computer that coordinate what see and hear to interact with the user*
2. *There should be connection between the user and the information*
3. *There should be navigation tools*
4. *Multimedia is a place to collect, process and communicate information and user idea in a general ways.*

Multimedia contains of several element, text, audio, video, image and Animation. Here's the explanation:

a. *Text*
Text is a combination of letter that produce a word or a sentence that describe a purpose which can be understand to the person who read it. Text is a basic processing of word and information in multimedia. Text is a word form that can be easily stored and control. Text can perform a word or narration in multimedia that present language. Text needed is depends on how the application of multimedia is used [5].



Figure 1. *Text*

b. *Image*
Image is used for presentation because it's more interesting and can reduce bored compare with text. Image is some line drawing, circle, box, shadow, color and other that can be develop with software so it can be presented more attractive and effective [5].



Figure 2. *Image*

c. *Animation*
Animation is a display that combine text, image and audio as an activity. Animation can be describe as a technology that can make an image which is silent become moved as a living image, interact and even say a word [5].



Figure 3. *Animation*

d. *Audio*
Audio is a kind of sound, music, narration and other that can be heard for back sound purposes, grief message, sad and spirit for different kind of situation and condition [5].



Figure 4. *Audio*

e. *Video*
Video basically is a tools that can show simulation of a real object. Video as a digital media shows sequence of moving image and can give illustration and fantasy [5].



Figure 5. *Video*

1.3 *Interactive Multimedia*

Interactive multimedia is a computer used for creating and combining text, graphics, audio, video

animation with link and tool that possible the user to navigate, interact, recreate and communicate [5].

Models of multimedia [6]:

1. *Drills Model*
   One of study model in the way of training the student of the subject which already studied before. This model is using practical Principe until became habit.
2. *Tutorial Model*
   Tutorial model is a guidance to help and motivate so that student can do study activity independently, efficient and effective.
3. *Simulation Model*
   Simulation model basically is one of learning strategy that can give an experience of learn more concrete through imitation form experience that follow the real life and take place in a situation with no risk.
4. *Instructional Games Model*
   This model is having a purpose to supply learning experience that give study facility to the student through educational gaming.

2. *THE CONTENT OF RESEARCH*

2.1 *System Processes That Are Running*

Before doing the design of the system, hence the need for an analysis of the running processes, aiming to evaluate the shortcomings the process to improved, where the procedure will be a reference to made into a multimedia application for android-based learning. The results of this analysis describes an overview of the sequence of the activities of the process of delivery of the material and the evaluation of learning provided by the teacher to the participants of the course in the Language training institutions Mirai College Indonesia in Bandung. As for the material delivery process flow is as follows :

1. *Teachers make a discussion of material from existing learning modules.*
2. *The teacher explains and conveys the material that had been made to participants of the courses.*
3. *After the teacher has finished explaining and delivering material, read and study the course participants return material.*

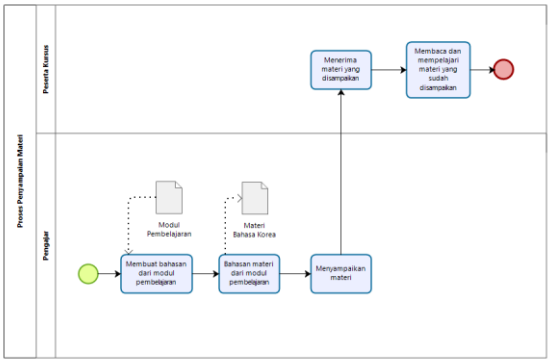


Figure 6. *Material Submission Process Flow*

Learning evaluation process flow is as follows:

1. *Teachers evaluation by making sheet reserved for training course participants and share pieces of the problem to the participants of the course.*
2. *Participants receive sheets of matter and working on the problem.*
3. *Participants submit answer sheets from the participants of the course then correct answer sheet.*
4. *The teacher gives the value of the result of the reserved level course participants and submit answer sheets that have been assessed to participants of the courses.*

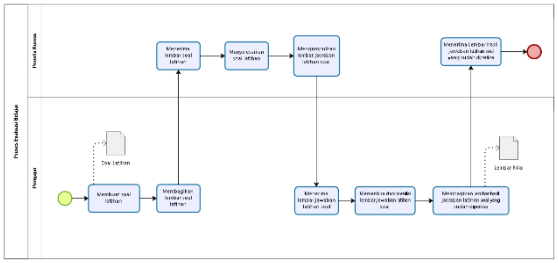


Figure 7. *Learning Evaluation Process Flow*

2.2 *The Proposed Business Rules*

The proposed business rules for language training Institutions Mirai College Indonesia including business rules in progress with additional business rules is proposed. The following is a business rules that will be proposed on a language training Institution Mirai College:

1. *Application developers distributing applications already made to teachers.*
2. *Teachers receive applications from developers.*
3. *Teacher distributes the application to the participants of the course and doling out the login data in the form of NIPK and password to use the application.*

4. *Each course participant receives the application and login data distributed by the teacher.*
5. *Participants install applications Multimedia Language course participants Korea, then login on the application with enter NIPK and password.*
6. *After login the course participants can log on to the application then read the instructions of use of the application is available in the menu instructions.*
7. *Participants can read and study the material already available in the material menu.*
8. *Participants can do a simulation of writing letters.*
9. *When participants already feel quite understand the material that has been given, then the next step of the course participants can access the evaluation menu.*
10. *After the material, the course participants can do the evaluation in the form of multiple choice question or exercise esay provided.*
11. *If participants have done an evaluation, then the course participants are able to see the menu in the evaluation results evaluation results.*
12. *The results of the evaluation are also entered into the database, which was later the evaluation results will be checked by the teacher, so that the result can be a material evaluation of the extent of the knowledge of the participants of the course understand against Korea language basic level material.*

To find out the flow of the proposed system for Language training institutions Mirai College Indonesia, it will be described in the form of business process in Figure 8.

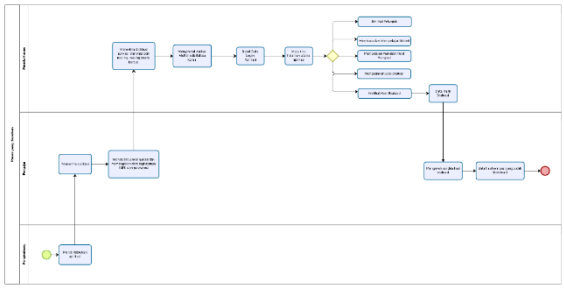


Figure 8. *The Proposed Business Rules*

2.3 *Analysis Of Interactive Multimedia Applications Are Built*

Application of multimedia language learning android-based Korea Basic level has a purpose of which is as follows:

1. *Create additional media learning interesting and effective with a given audio visualization and animation.*
2. *Provides convenience to participants of the courses the new Korea learn the language basics.*
3. *Make this application as an additional media learning language related Korea basic level because of the limited time learning in training.*
4. *Helping teachers to monitor the understanding of participants to what extent over matter.*

2.3.1 *Description Of The System*

In the design of the system will be built a multimedia application which contains learning Korean language material base level. This application is developed with CAI with the concept of granting material (tutorials), drill and practice along with the simulation of the Korean language in the primary grades. This application combines some elements of multimedia such as text, images, animations and audio packaged in a scene. The features contained in the application to be built include a basic level of Korean language material, simulation of conversation, writing and evaluation of simulation in the form of multiple choice and essay question. The system was built has two users namely teacher as the Organizer user data i.e., participants, and attendees of the course as the system user is using the application of learning. Each have different access rights. For it then needed a security mechanism by providing different Login facility. The facility is used as verification of access rights of the participants of the course and the teacher in the system. Applications that are created have the two systems namely frontend and backend.

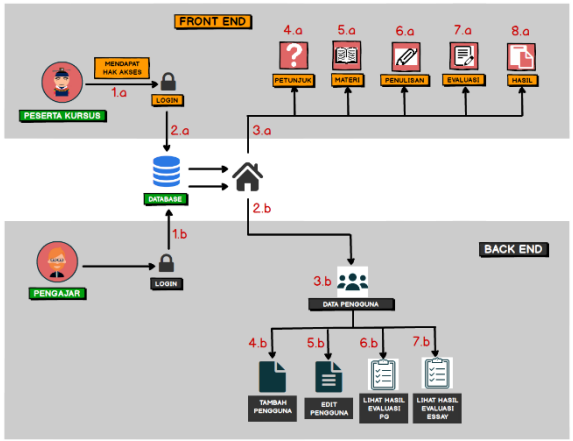


Figure 9. *Description Of The System*

The following is an explanation of the flow of application usage on Figure 9:

1. a *Course participants i.e. users who have registered and got the permissions to log on to the system with login form enter NIPK (Parent Course Participant Number) as the username*

and password that have been provided by the teacher

2.a *Data already inputed by the user then checks into the database by the system if the user is already registered or not*

3.a *After the check to a database registered user, then the system point to the main page of the application*

4.a *The user can read the usage instructions application*

5.a *Users read and learn the material that has been provided*

6.a *The user doing the writing simulation*

7.a *After enough study materials, course participants perform evaluation and working on the given evaluation that is either a matter of PG and Essay, after working on the question of evaluation, course participants are able to see the details of the study results in the form of the value that is displayed directly after working on the question of evaluation*

8.a *The results of the evaluation study that was done all entered into the database.*

1.b *Users of the backend i.e. the teacher who got the permissions to manage data in the backend, the teacher of menginputkan data username and password*

2.b *To check the system's database to verify your account login and once that is done then the system direct to home backend*

3.b *See the data user or participants of the course*

4.b *Add user data*

5.b *Edit user data*

6.b *See the results of the evaluation of the PG course participants*

7.b *See the results of an evaluation essay course participants.*

2.3.2 *Network Architecture*

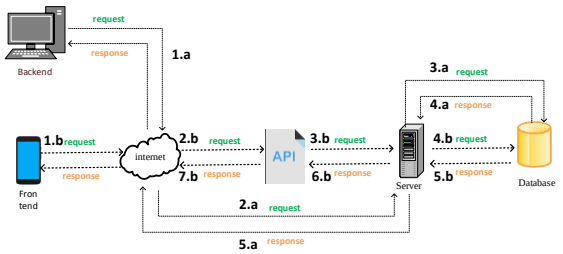


Figure 10. *Network Architecture Applications*

The following is an explanation of the flow of the application network architecture in Figure 10:

1. a *Connected computer device internet connection*

2.a *Requesting data files to the server*

3.a *The server sends a request that it take a computer to the database*

4.a *The server receives the response information is available in the database*

5.a *The data is already available in the send to computer devices*

1.b *Android mobile devices are connected to the internet, then android applications ask for user data and evaluation results*

2.b *Through the internet as well as ask for data files in the API that is used to establish a connection with the database*

3.b *Data files in the direquest API to connect to the server*

4.b *Then ask for user data, query evaluation results on the database*

5.b *All the direquest from the database in the form of user data and evaluation results responded passing server*

6.b *A query from a database server through an API in the form modified by the JSON format that is easy to understand android applications*

7.b *Android application receives the requested data*.

2.3.3 *The Description Of The Concept Of Applications Built*

Application of multimedia language learning Korea basic level is an application that can be used as an additional media to provide ease of learning and knowledge to the new course participants learn the basic language of Korea

.

Table 1. *The Description Of The Concept Of Applications Built*

Item Build	*Description*
Title	*Application Of Multimedia Language Learning Android-Based Korea Basic Level*
Users	*Participants in language training Institutions Mirai College Indonesia Bandung and teachers*
Figure	*The existing image in the application that is being built is a real picture and picture illustrations are tailored to the fact*
Material	*The materials applied into applications is the material that was provided to teachers in the environment of language training institutions Mirai College Indonesia in Bandung.*
Audio	*Audio in-built application adapts to the conditions within the application.*

Animation	*Animation in the application that is being built is a 2D animation, such as the movement of text, image illustrations.*
Interactivity	*Interactivity in the application button is the shift from one frame with another frame, button, button instructions continue, exit buttons, button started the simulation, the button plays the audio on or off.*

2.4 *Analysis Of Interactive Learning Method*

The use of the method in the application of CAI multimedia language learning this model made in Korea tutorial, drill and practice model and model simulation.

2.4.1 *Tutorial Model*

The concept of the tutorial is to be used in multimedia language learning Korea basic level to deliver existing material in the language of Korea to users. Delivery flow material in a multimedia language learning application Korea basic level is as follows:

1. *Delivery Of Material Flow*

Delivery flow material on the application of these participants had been built into the application and choose material that is available, then the system will display a description of the selected material of the participants of the course in the form of text and audio.

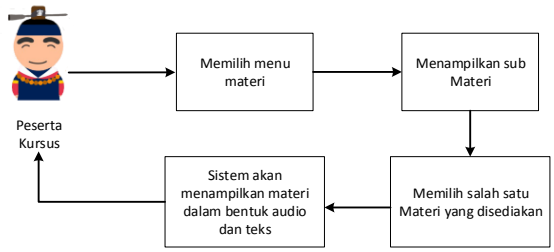


Figure 11. *Delivery Of Material Flow*

2.4.2 *Drill And Practice Model*

This model is practice and practice that should be combined or tailored to the students ' ability levels and learning needs. Korea language learning media at a basic level this model of drill and practice implemented in the section on evaluation with the Groove as follows:

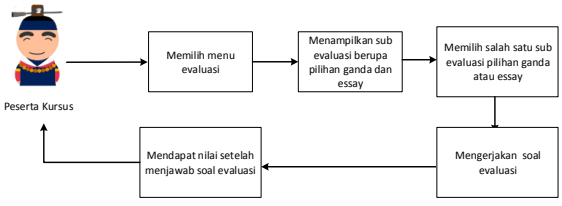


Figure 12*. The model of Drill and Practice on the part of the evaluation*

2.4.3 *Simulation Model*

The concept of simulation used to give more understanding to the materials is studied through an overview of the situation in accordance with what is going on actually. The following is a concept of simulation language learning multimedia applications in Korea this basic level are implemented as part of the writing.

1. *Flow Simulation Of Writing*

At this writing a simulation showing the writing simulation option 4 vowels, consonants and vowels are double, double consonants. In this simulation, the user selects one of the letters that will be simulated. The animated simulation displayed on this animation in the form of writing each letter how to write it down and then the participants followed the way of writing.

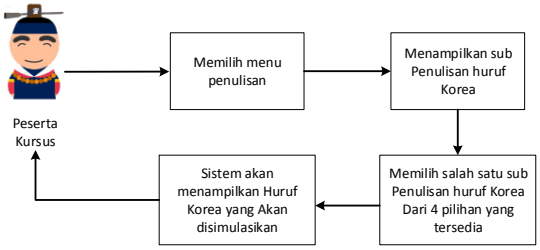


Figure 13. *Flow Simulation Of Writing*

2.5 *Testing*

Software testing is the stage to find the mistakes 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 software this is the black box method. Black box testing focuses on the functional requirements of the software. This black box testing method consists of two stages of testing that is the stage of alpha testing and beta testing stages.

2.5.1 *Alpha Testing*

Alpha testing is testing the functional development environment, held in by a set of users who will be using the software. Construction of the party stood for and noted those errors or problems perceived by the user. Alpha testing is done on the development of Multimedia language learning Application Korea basic level-based Android. As for the scenario is done, among other things, the case of testing scenarios and test results and test conclusions.

2.5.1.1 *Testing Scenario*

Scenario testing exposed the sequence and it tested at the testing that is done for the "Multimedia application development language learning Android-based Korea Basic level (case studies In Language training institutions Mirai College Indonesia). Scenarios that can be done can be seen in table 2.

Table 2. *Scenario Testing*

No	*Tested Components*	*Scenario Testing*	*Types Of Tests*
1.		*Input NIPK*	*Black Box*

	Login Participants Of The Course	*Input Password*	*Black Box*
		Choose The "Login" Button	*Black Box*

2.5.1.2 ***Cases And Testing Results***

The following is a test case for the software already built using the method based on the blackbox table 2 test scenarios that have been created previously.

Table 3. *The Case Of The Test Results And Course Participants Login*

Cases and Test Result (Normal Data)			
The Test Scenario	***The Expected Results***	***The Observations***	***The Test Results***
Input NIPK	*Listed on the box stuffing "nipk"*	*Can be filled in on the column NIPK NIPK as expected*	*(√) Accepted ( ) Rejected*
Input Password	*Listed on the box stuffing "Password""*	*Can enter a Password in the Password as expected*	*(√) Accepted ( ) Rejected*
Click On The Button "Login"	*Data NIPK and Password are accepted by the system and go to the main menu for the process of "Login"*	*The button "Login" may not function as expected*	*(√) Accepted ( ) Rejected*
Cases and Test Result (False Data)			
The Test Scenario	***The Expected Results***	***The Observations***	***The Test Results***
NIPK or Password wrong	*Can not log in and display a message*	*Displays the message "sorry, NIPK/ password you are wrong!"*	*(√) Accepted ( ) Rejected*

2.5.1.3 ***In Conclusion Alpha Testing***

Based on the results of the alpha testing with test cases using the method of Black Box then can be drawn the conclusion that in the development of Multimedia language learning Application Korea basic level this Android-based there is no error processes and functionally running as expected. But it does not cover the possibility of errors can occur at the time the application is used in the real environment.

2.5.2 ***Beta Testing***

Beta testing is the testing that was done objectively where testing is done directly to the respondent by way of providing a questionnaire or interview on the prospective users of the built.

2.5.2.1 ***Interview***

The interview was conducted on users who type their teachers. As for the results of the interviews have been done with the Ira's mother, as Agustina prospective users with this type of user teachers. Below is a table of questions and answers submitted by teachers can be seen in table 4.

Table 4. *Interview With Teacher*

No	*Questions and answers*
1.	***Question:*** *Whether the application is able to facilitate teachers in monitoring the material understanding of participants of the course?*
	Answers: *Yes, from PG as well as learning evaluation feature Essay, so can in check, each participant of the course there is increased or the contrary.*
2.	***Question:*** *This application is a new course helps participants learn the basic language of Korea ?*
	Answers: *Yes, because the material aiding yg submitted in this application is already suitable for the new Korea learn the language basics. But the rest remains to be mentored learning training institutions surroundings.*
3.	***Question:*** *Whether the application for the participants of this course could be an additional tool for learning activities ?*
	Answers: *Could be, because of the material's reply is contained in the application already includes what is conveyed in the book due to the limited training time to make participants less learn the material well. But the existence of this application makes it easy for attendees of the course because it comes a sound and pictures.*

2.5.2.2 ***Questionnaire***

A questionnaire given to potential users of the software to be built. As for some of the points examined on this application are as follows:

1. *The ease of use of the application.*
2. *Additional media learning interesting and effective.*

3. *Provides convenience to participants of the courses the new Korea learn the language basics.*
4. *Make this application as an additional study because the limited time learning in training.*

The Scale Of Answers:

SS	:	Sangat Setuju
S	:	Setuju
N	:	Netral
TS	:	Tidak Setuju
STS	:	Sangat Tidak Setuju

The following are some of the questions posed to the participants of the course. The following is a table of question Number 1.

Table 5. *Question Number 1*

No	*Question*	*Answers*				
		SS	S	N	TS	STS
1.	Apakah aplikasi ini mudah digunakan ?					

2.5.2.2 ***Results Of Questionnaire Data***

Based on the results of questionnaires given to participants in language training Institutions Mirai College Indonesia, searchable percentage each answer using the formula:

$$Y = \frac{P}{Q}\ x\ 100\%$$

Description : Y : *Percentage Values*

P : *Total Score*

Q : *Highest Score*

To gauge the attitude of the users of the applications that have been built using Likert scale can. Likert scale is a scale used to measure perceptions, attitudes or opinions of a person or group about an event or social phenomena, based on the definition of the operations that have been set by the researchers. The following is the score given for answers and interpretations to score the questionnaire which had been given to study the authors:

Table 6. *Score Score Calculation and interpretation of the answers to the questionnaire*

The Scale Of Answers	*Description*	*The value of the*	*Score*
SS	Sangat Setuju	81% - 100%	5
S	Setuju	61% - 80%	4
N	Netral	41% - 60%	3
TS	Tidak Setuju	21% - 40%	2
STS	Sangat Tidak Setuju	0% - 20%	1

Following are the results of the respective percentage of answers already calculated value using the formula already described. This questionnaire be tested to 32 participants courses Language training institutions Mirai College Indonesia with question 4 and 5 are given a choice answers related Multimedia language learning Korea basic level.

Table 7. *The Results Of The Questionnaire The Participants Of The Course*

No	*Question*	*Answers*				
		SS	S	N	TS	STS
1.	Apakah aplikasi ini mudah digunakan ?	2	23	7		
2.	Apakah aplikasi yang dibuat menarik untuk digunakan belajar ?	6	21	5		
3.	Apakah aplikasi ini membantu memudahkan Anda yang baru mempelajari Bahasa Korea dasar?	5	22	5		
4.	Apakah aplikasi ini dapat dijadikan media tambahan pembelajaran ?	7	21	4		

The following percentage of the results of the questionnaire questions Participants:

1. *Question Number 1*
   Is this application is easy to use ?

Table 8. *The percentage of the participant's Kuesinoner Course the question Number 1*

Question	*No*	*Description*	*Answers Of The Respondents*	*Score*	*Percentage (%)*
1	1	Sangat Setuju	2	10	**123/160 x 100% = 76,87 %**
	2	Setuju	23	92	
	3	Netral	7	21	
	4	Tidak Setuju	0	0	
	5	Sangat Tidak Setuju	0	0	
The total number of			**32**	**123**	

Results percentage of question No. 1 is as much as 76.87% respondents with 32 participants from 100% expected. Thus the value of the calculation of mean participants agree that this application is easy to use.

The following scale of assessment results question No. 1 shown in Figure 14.

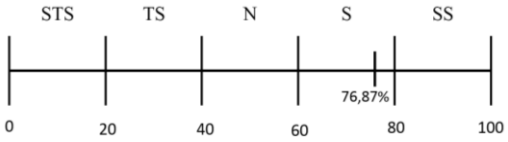


Figure 14. *The scale of the results of the assessment of Question Number 1*

2.5.2.3 *The Conclusion Of The Beta Testing*

Based on the results of the beta test can be taken in conclusion, i.e.:

1. *From the results of interviews with teachers, it can be concluded that the application is easy to use, especially to monitor development of the participants of the course learning evaluation results seen from the participants of the course, whether it will increase or otherwise learning and multimedia application that used this course participants can become an additional learning tool because it already covers the material available so as to make it easier for the new base in Korea learn the language to understand the material.*
2. *From the results of the awarding of a questionnaire to participants of the course can be inferred that the participants agree that the application is easy to use, attractive and new course helps participants learn the basic language of Korea. As well as the participants strongly agree that this application can be used as an additional learning media.*

3. *CONCLUSION*

Finish with steps of analysis, design, implementation and testing, we can conclude:

1. *Multimedia Application Learning Korean Basic is catchy to use because it contains animation of audio and visualize.*
2. *Multimedia Application Learning Korean Basic is make the participant easier to learn Basic Korean Language.*
3. *Multimedia Application Learning Korean Basic can additional tools for learning because of lack of time in course.*
4. *Teacher can monitor comprehension of the participant from evaluation results that has been done.*

Multimedia Application Learning Korean Basic is not yet perfect and need more development to fulfill the user growth. As for suggestion to its development are:

1. *Simulation and image are needed more.*
2. *Can be updated manually for the test and material.*

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