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Media Design for Learning Indonesian in Junior High School Level

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Abstract

Learning process based on the curriculum need to be supported by learning media, one of them is electronic media such as disc/tape, video, interactive animation, etc. Aplication of electronic media in learning process can be said as electronic learning (e-learning). Learn something without interested in the topics or the object studied will not provide the best result. To evoke and increase students learning interest can be implemented by giving a different touch in the learning process, such as by using animation to learn Indonesian in Junior High School.It is the language that is used nationally in Indonesia and it is included in education curricula from basic (primary) education to intermediate (secondary) education. In Nusa Tenggara Barat (NTB/West Nusa Tenggara), Indonesian is ranked the lowest in average on National Exams of the school year 2009/2010. In this study, design and implementation of Indonesain interaktive e-learning media should be as simple as possible. Subject that is included as learning content in this media are short story, drama, poetry, and news. The contents are "Materi" (material) and "Latihan" (exercise) that is designed in the form of a simple animation with *Problem Based Learning* (PBL) approach. Research location is Mataram, NTB. This application media tested in one of Junior High School in Mataram, namely SMP Negeri 11 Mataram. It tested in functionality and through a survey. Data collection carried out by using questionnaires, observation and interviews with principal/vice principal, teachers, and students.The result of this research show that animation media can be used by teachers as learning tools to give material in the class, in this case is Indonesian subjects, interactively in Junior High School. Student interest in the application of this e-learning media in school is high, so, it can attact students to learn because it really potential to create a pleasant learning atmosphere and to make learning easier for student to understand the topics presented. This is indicated by the ability of students to retell the topics/stories and to answer the questions very good. This media can help teachers to present learning materials/topics. Through this media, learning activities in Junior High School can be run more effectively.

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1. Introduction

Advancement of information and communication technology today has influenced many fields, including education field. One form of reality is the use of the internet to support learning in schools. The use of technology in education can contribute to assist teachers in implementing the learning process in schools, especially to overcome the shortage of teaching aids in schools. In this case, example of learning tool that is designed is media for learning Indonesian. Indonesian is the language that is used nationally in all corners of Indonesia. It has been incorporated into the educational curriculum from basic (primary) education to intermediate (secondary) education. In Nusa Tenggara Barat (NTB/West Nusa Tenggara), Indonesian as science, language of written communication, and culture seems to have not understood in an optimal. Among some of the subjects tested in National Exams, Indonesian language was ranked as the lowest average. Junior High School (SMP/MTs) students achievement in NTB based on results of examination per subject on average in a National Exams school year 2009/2010 shown in the following table.

Table 1. National Exams Result for Junior High School (SMP/MTs) level for NTB and National in school year 2009/2010

Subjects	The Average Value	
	NTB	National
Indonesian	6,85	7,39
English	7,02	6,98
Mathematics	7,30	7,31
Natural Science	7,40	7,16

With regard to the process of learning, e-learning can be utilized to change the pattern of conventional learning into the digital learning patterns, one through the learning application. Learning Indonesian require a means of support that can help teaching and learning process more interactive and fun, to improve students' ability to absorb the subject matter and facilitate the teacher in presenting material in class.

In the making of e-learning media is needed to consider various issues related to the purpose of having the e-learning media, the target of user, the user interface, and teaching materials. In this case, the purpose of having it is to facilitate teachers in delivering the materials, creating fun and an interactive learning atmosphere, so that can be an effective learning. The targets are students and teachers, so the interface are presented should support the interests of both in order to attract interest and provide motivation to utilize this media. Submission of material can be carried out in a class that has computers that can be accessed by students accompanied by teachers. Thus, it is expected to be effective and beneficial for learning in schools, especially for the schools that have classes with the number of students is very much in one class and the schools that have teachers in limited quantities.

This paper discusses the design and implementation of interactive e-learning to learning Indonesian. The main contents of this application are some of the subject matter and practice solving problems that delivered through text, images, and animations.

2. Research objectives

The objectives of this research are the first is to design learning media for Indonesian in SMP (in prototype form) to give a delivery of content and practice (evaluation) in a simple interactive learning media, and the second is to introduce the use of information technology to teachers and students in junior high school (SMP).

3. Learning Concept

The learning process will become effective when each individual, who involved in it, participated actively doing their respective duties. If students have direct experience with something to see, hold, feel, and perform physical activity, then students will have certain experiences that build their knowledge. Teachers also need to give students the chance to exploit themselves in learning so they have a good learning experience. Teachers can provide a medium of learning that stimulates the curiosity of students, so students have a strong curiosity for the material presented to them and become active in learning.

The main concept of learning is to give motivation, guidance and good example. In the learning does not just take notice to curriculum and the final result, but also should pay attention to teaching and learning process that is very important influence to produce the maximum student achievement. Adi W Gunawan said the important components that will be there in learning are :

1.   Curriculum, material to be taught
2.   Process, how the material is taught
3.   Product, result of the learning process

4. Technology

The term technology used in this case is e-learning and animation.

E-Learning

Electonic learning (e-learning) contains a very broad sense, so that the various opinions put forward to be able to define e-learning appropriately. Here are some definitions of e-learning.

1.   E-learning in general refers to the use of information technology networks in the learning process. Definition of e-learning is not just online learning, virtual learning, distributed learning, network or web base learning but it consist of letter "e" in the word of elearning that means "electronic". E-learning can combine individual learning aktivities or group learning activities by online or offline, synchronously (at the same time) or asynchronously (at different times) through network or stand-alone computer and other electronic devices [2].
2.   E-learning is delivery of materials through all electronic media, included internet, intranet, extranet, satellite broadcast, audio/video, interactive TV, CD-ROM[7].

Animation

Animation is a graphic form that consist of images or text that is structured in such a way that seems to change or move visually. An animation consist of many frame. Every frame contains image or text or both. Animation can attract people's attention and makes it easier to understand a message or intention contained therein. Animation can be included a sound (audio) to make it more alive.

5. Media Analysis, Design, and Implementation

Interactive e-learning that is designed here is a simple aplication to assist the learning process in classroom. In the system development process using an approach that consists of some common troubleshooting steps. Whitten said that there are several steps to solve general problems, there are :
a.   identify the problems (the early stages of system),
b.   analyze and understand the problem (system analysis stage),
c.   identify the requirements and expectations of the solution (stage of systems analysis),
d.   identify alternative solutions and choose the action that the "best" (system design stage),
e.   design the selected solution (system design stage),
f.   implement the chosen solution (system implementation stage),
g.   evaluate the result (system implementation stage).

That steps that appropriate the stage can be described in a block diagram that shown below.
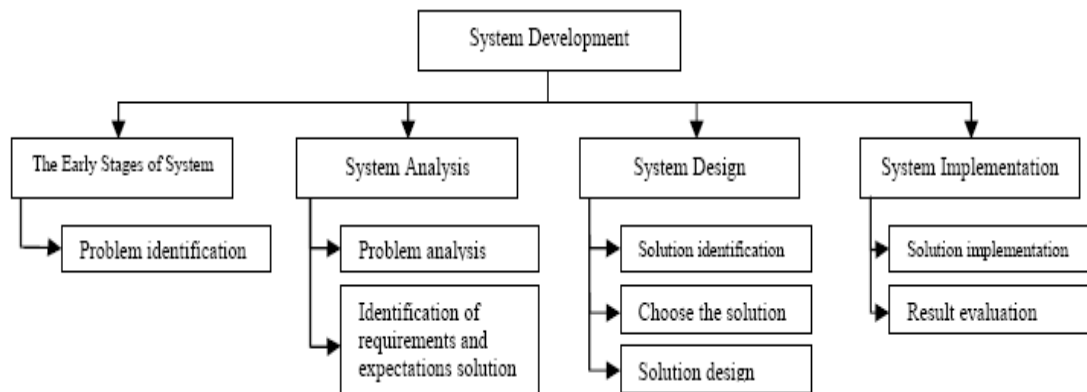

Fig. 1. diagram of system development stages

The early stages of system
The application is designed as a medium that helps in the learning process at school. In this case there are some problems which are formulated as follows.
1.   What tools are needed to implement the system?
2.   Where the device was placed?
3.   How the media can help the learning process at school?
4.   How is an e-learning application (prototype) design that will be applied?

System Analysis
From the description of the problem, the solution plan can be outlined as follows.
1.   The hardware that is required are computer / laptop and speakers, or can be added a LCD projector. the software is required are the operating system, the applications of e-learning, and the flash player.
2.   The device was placed in the classroom or computer lab at school.
3.   Teachers can use computers / laptops in the classroom. The teacher explains and shows the material using the LCD projector and for the exercise can be performed by the students in turn or

guided by teachers to work together. Voice in the application can be heard through the speakers (amplified with external speakers to a laptop with inadequate audio device).

4.   Teachers can use a computer / laptop in the computer lab. The teacher explains and shows the material using the LCD projector. Voice in the application can be heard through the speakers (amplified with external speakers to a laptop with inadequate audio device). Students can practice solving Indonesian problems using computers in the laboratory.

5.   Design of application is simple, can be used by teachers to explain the material and used for students to do independent study and practice problems are provided. A prototype application with the material content is static (not be changed by the user).

System Design

Target of the prototype e-learning applications design to be implemented are as follows:

1.   interface of interactive e-learning that is simple and attractive

2.   bridging the students to understand the material such as short stories, poetry, drama, and the news is presented.

3.   questions available for students to practice

   In Figure 2 below, shows that the system involves human resources that accesses the e-learning application. The application contains the "Materi" (learning materials) and "Latihan" (exercises).
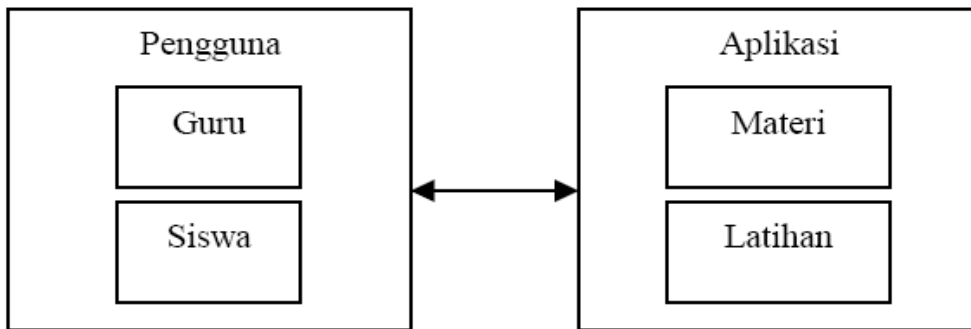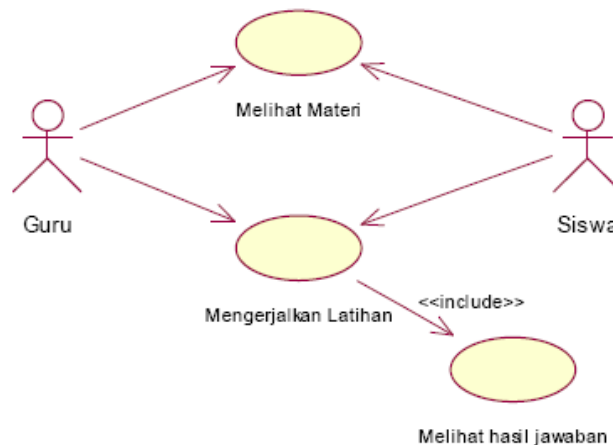

Fig. 2. overview of the system environment

Fig. 3. use case the system user

Use case diagram can be used to understand the interactions and activities between users (actors) and the system. Use case diagram involving all users in the system of interactive e-learning applications that is shown in Figure 3 above. the diagram shows that users with the status of teachers or students can see the material and do the exercises. When doing exercises, after the users answering questions, both teachers and students, can see if the answer is right or wrong.

Use case diagrams that involve teachers in this interactive e-learning system can be shown in Figure 4a and 4b below. In Figure 4a, the teacher can see the material and listen to explanations. The material is presented in the form of animation, for the contents of short story, drama, poetry, or news. Teachers use these materials to explain the subject as an illustration for students or to give an idea whenexplaine them in the class. Teachers can do the exercises too then see the truth of the answer, which is used to give an example or to be a discussion matter for students in the class.
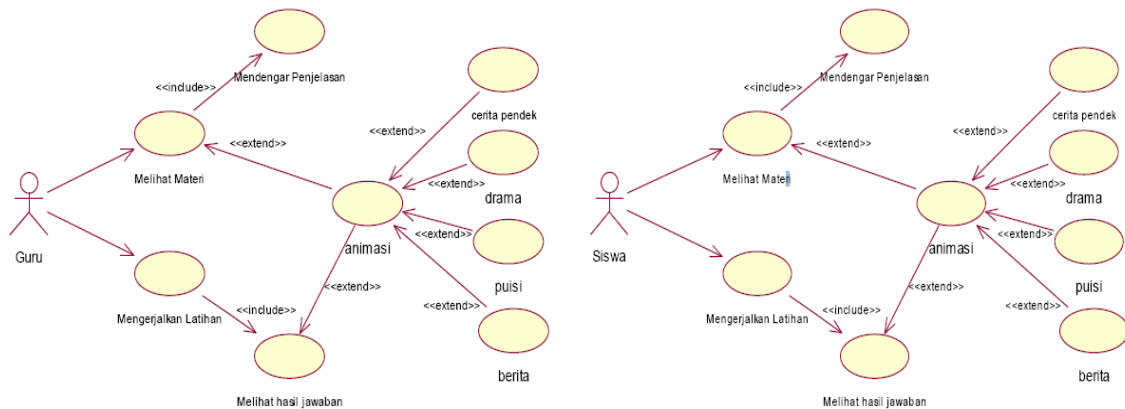

Fig. 4. (a) use case with teachers as actors; (b) use cases with student as actors

Use case diagrams that involve students in interactive e-learning system can be shown in Figure 4b. it show that the students can see the material and listen to the explanations. The material is presented in the form of animation, for the contents of short story, drama, poetry, or news. Students use this material for independent study or strengthen its understanding of the teacher's explanations on the subject. Students can also do the exercises then see the truth of the answer as an evaluation of their ability to learn.

Interface Design and System Implementation

The interface of the interactive e-learning applications aimed at a simple display for easy use by teachers to teach and easier to understand by students. According to the system target, which is to attract students' interest in learning, the interfaces should be designed to provide access that avoid the impression of complicated, so they are keep to continue learning.
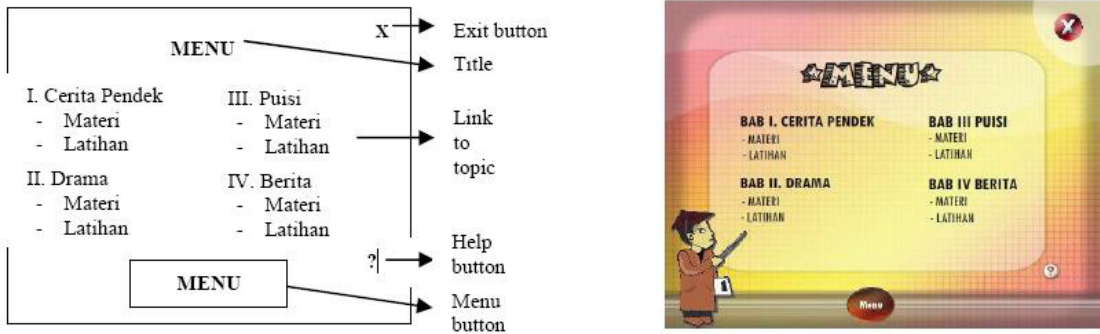
Fig. 5. (a) interface design of main page; (b) implementation of the main page

The main page display four subjects are presented, they are the Cerita Pendek (Short Story), Drama, Puisi (Poetry), and Berita (News) as shown in Figure 5a and 5b. Each menu contains options subject matter to gain any material and exercises to practice the menus work on the problems. Special on Short Story and Drama, before heading to the explanation, it given an illustrative example of a story in the form of text and animation.
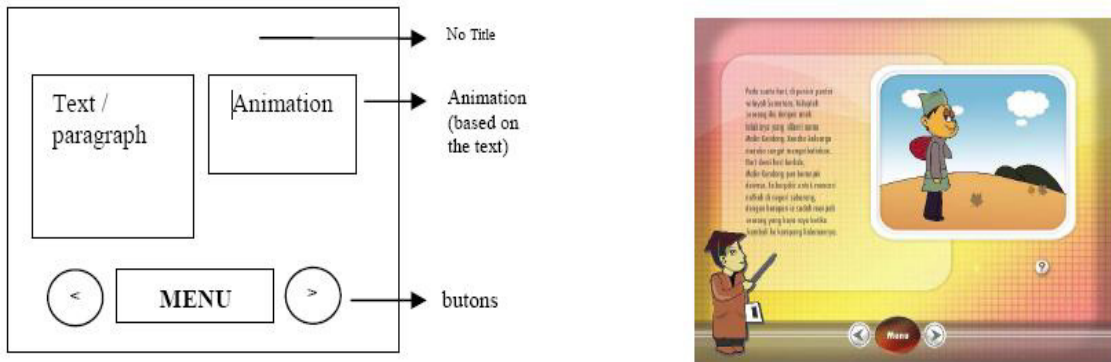

Fig. 6. (a) interface design Short Story/Drama's page (illustration); (b) implementation of short Story/Drama's page (illustration)

On the page of "Materi" (material), specially Cerita Pendek (Short Story) and Drama, display text of the short stories/drama with animation and sound that according to that text (paragraph), like in Figure 6a as the design. Then, implementation of the design show in Figure 6b that using illustration in Cerita Pendek. After a short story / drama is finished, it shall be given an explanation for each paragraph / dialogue as the design in Figure 7a. In each page of "Materi" on every topic, there is a Menu button that is used to go tomain page. There are provided the additional buttons in the left and the right side of Menu button to go to back or to go next page. Design for an explanation of the overall material (short stories, drama, news and poetry) looks like Figure 7a. The title is written according to the selected subject, such as "Cerita Pendek" or "Drama" or "Puisi" or "Berita". Implementation results is shown in Figure 7b.
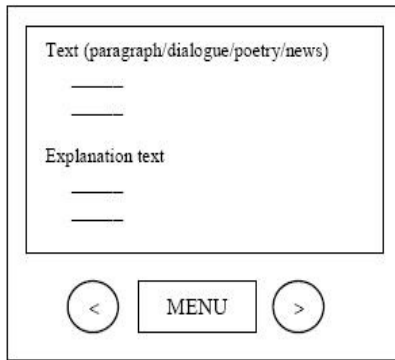
Fig. 7. (a) interface design of explanation material in Cerita Pendek/Drama/Puisi/Berita; (b) implementation of explanation in Cerita Pendek

Exercise page is designed simply to facilitate the participants to practice answering questions. In the design (Figure 8a) below, show that the paragraph is placed at the top, followed by questions/problems (multiple choice questions). If the user selects one of the answers, correction marks will be given at the top right corner, a check mark (√) if the answer is correct or a cross (x) if the answer is wrong. The Menu button is used to return to the main page, while the instruction (help) button is used to look at the instructions or application usage assistance. The results of the implementation of the design is shown in Figure 8b.
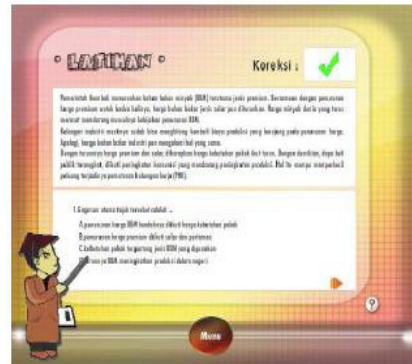

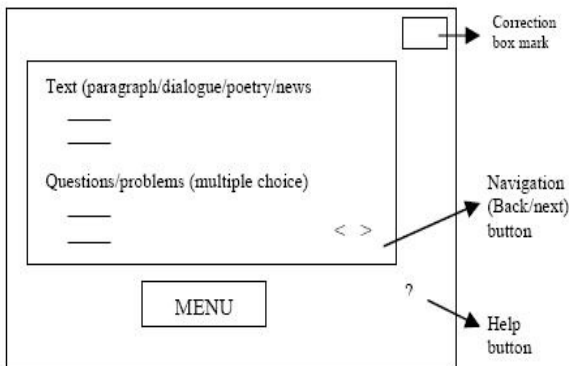Fig. 8. (a) interface design of exercise page in Cerita Pendek/Drama/Puisi/Berita; (b) implementation of exercise in Cerita Pendek with the right answer

6. Testing

Fuctionality test

E-learning application is tested in functionality. Beside that, it is tested to teachers and students of SMP Negeri 11 Mataram (class : IX). The respondents are a vice-principal, 3 teachers who teach Indonesian, and 28 students.

Table 2 . Result of application fungsionality testing

No	Process	Scenario	Expected Condition	Result
1	Look at the "Materi"	Choose "Materi" on one of the subject are available then click the next button to see next material	Displays pages in accordance with the chosen subject matter	Good
2	Doing exercise	Choose "Latihan" on one of the subject are available then select one of the answer provided.	Displays exercise pages that appropriate with the selected subject. If user choose the right answer, come check mark ($\sqrt{}$) in the correction box, or appears a cross mark (X) there if it's the wrong answer.	Good

Based on the table above, it can be seen that the application can run properly, so the e-learning media can be used for further testing, ie testing the Indonesian teachers and students of SMP Negeri 11 Mataram to determine the suitability of the design concept to the reality implementation of learning in school. The survey result through interviews and questionnaires to four people of respondent (1 viceprincipal and 3 teachers of Indonesian) in the framework of trial showed the following below.

1.   School has computer laboratory that is connected to the network.
2.   Vise principal and a small portion of teachers are used to operate the computers and know about e-learning.
3.   Small amount of teachers in school use interactive electronic learning media like CD/DVD, internet, and other electronic media such as television. Those are used in Indonesian subject and Natural Science subject. Only 33% Indonesian Language teachers do it.
4.   School stil less in learning tools for a variety of subjects taught, including Indonesian (in the subject of Reading, Stories, and Variety of Non-Literary Text).
5.   Vice principle and teachers strongly agreed the use of interactive e-learning media in school because it can help the learning process in schools and agreed to develop it later.
6.   Not all of teachers and students can operate the computer yet.

The results of questionnaires given to 28 students in class IX shows that :
1.   89,3% of students said they had taught by teachers who use computers.
2.   60,7% of students said they had invited to learn in computer labs by their Indonesian language teacher, but all students (100%) claimed that they never involved to use the machine.
3.   All students strongly agree, if there is an e-learning media like this Indonesian learning media.
4.   All students were interested in use the media and really helpful to learn Indonesian, and they think that their teachers need to use this kind of electronic media while teaching in class.
5.   Media that is used by Indonesian teachers just like chalks/markers, white board/blackboard, erasers, textbooks, newspapers and LKS (exercise book). All students said that no one of the teachers is using the interactive e-learning media like this tested.
6.   67,8% of students had no difficulty in operating the media. 32,2% of students feel that it difficult to use, because they cannot operate a computer yet and the text in the media not clear enough (small in font size).
7.   Students were interested in using the Indonesian learning media that was tested because they feel more easily to understand the material (85,7%), the media is easy to use and enjoyable/fun (7,1%), they understand the material more quickly than before (3,6%),and they feel that they don't need to record on their note book (3,6%).

Beside that interviews and questionnaires above, based on researcher observation, it appears that :
1.   students spontaneously answer questions and retell what they learned with enthusiasm, this suggests the students are interested to learn and they can easily absorb the material presented.

2.   Indonesian language teachers use the media without much difficulty, even that explanation of the topics have been considered to understand by students, so teachers can utilize the remaining time of learning to provide additional exercises or other questions.

7. Conclusion

Based on the results of Indonesian media applications testing, it can be concluded matters as follows. Design of material and exercise for Indonesian subjects in SMP level, especially the subject of short stories, poetry, drama and news, in a simple learning application prototype that is presented interactively which can assist the interactive learning process in the classroom. However, it should consider the size of letters for the students who sat behind in order to make they can read clearly. This kind of media need to be used as aids in the classroom learning process for teachers and students. In this case, the teachers can get the student interest through the medium that they used and create a pleasant learning atmosphere to make the students able to understand and absorb the materials presented easily. So it can be said that the use of e-learning media as teaching aids or tools of learning in the class is really needed to overcome the lack of visual aids in learning at school. Teachers and students, particularly at SMP Negeri 11 Mataram, began to recognize the interactive e-learning media in addition to other media that is used in the process of learning in the class during this time.

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