Development of Teaching Materials for Negotiating Texts Based on Interactive Multimedia According to Design Experts for Students in 10th Grade Class Level of Tritech Informatika Vocational School Medan

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Abstract *: One product of technology that can be used to develop teaching materials for the learning process is interactive multimedia which is a combination of various media in the form of text, graphics, audio, and interactions that are used to convey information messages from sender to receiver equipped with a controller which can be operated by the user. Efforts can be made to make learning effective one of which is the use of multimedia in interactive learning. Tritech Vocational School which will be the target of research is Information Technology Vocational High School. This school has implemented a learning system that utilizes technology as a medium and aids in learning activities, but not all subject teachers apply the same thing. Indonesian language learning in particular still uses teaching books as a guide and the only source of learning. This is one of the causes of learning activities in Indonesian language subjects tend to be monotonous and boring, because learning activities are still teacher-centered, so there is no interaction with students. This method of research is development research (Research and Development) which is a study used to produce certain products and test the effectiveness of these products. This research develops Indonesian language teaching materials in interactive multimedia-based negotiating text material for grade 10th in Tritech Informatika vocational Highschool, Medan, North Sumatera, Indoneisa.*
Keywords*: Material learning; multimedia; interactive learning*

I. Introduction

Efforts to improve learning outcomes continue to be carried out including improving aspects related to learning activities including developing teaching materials carried out to respond to students to be more interested in learning that will be associated with current technological developments. One product of technology that can be used to develop teaching materials for the learning process is interactive multimedia which is a combination of various media in the form of text, graphics, audio, and interactions that are used to convey information messages from sender to receiver equipped with a controller which can be operated by the user. Efforts can be made to make learning effective one of which is the use of multimedia in interactive learning. Learning by using multimedia will be more interesting, more effective, efficient learning time, improve the quality of learning so that the objectives of a learning activity can be achieved. Munadi (2013: 152) states that the advantages possessed by interactive multimedia as learning media include: (1) students are involved auditively, visually, and kinetically; (2) provide an individual climate of affection; (3) Increase learning motivation; (4) Provide feedback; and (5) the use control is entirely with the user.

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Tritech Vocational School which will be the target of research is Information Technology Vocational High School. This school has implemented a learning system that utilizes technology as a medium and aids in learning activities, but not all subject teachers apply the same thing. Indonesian language learning in particular still uses teaching books as a guide and the only source of learning. This is one of the causes of learning activities in Indonesian language subjects tend to be monotonous and boring, because learning activities are still teacher-centered, so there is no interaction with students. The teaching materials that have been available so far are considered not to vary, relying solely on textbooks, newspapers or magazines so as to trigger communication that tends to be in the same direction that makes students inactive and not even critical.

The development of science and technology that has been utilized is considered to provide the possibility to develop teaching materials. This teaching material will be a tool or learning aid that is more effective in delivering material and efficient in the use of time and energy. Some of the reasons for the use of interactive multimedia-based teaching materials can improve the effectiveness of the learning process, namely: 1) allowing direct interaction between students and subject matter, (2) the learning process can take place individually according to students' learning abilities, (3) able audio visual to increase interest in learning, (4) able to create a continuous learning process.

II. Literature review

2.1 Types of teaching materials

Majid (2011:174), teaching materials are grouped into four categories, namely printed teaching materials, listening teaching materials, listening material, and interactive teaching materials.

1) Print Learning Materials

a. Handout

Handouts are usually taken from several libraries that have relevance to the material to be delivered. Handouts can be obtained in various ways, including downloading from the internet or inspired by several books and sources.

b. Textbooks

A book is a written material that presents the knowledge / ideas of the author. By the author of the contents of the book obtained from various ways, for example: research results, observations, experience actualization, autobiography, or the work of fiction. A good book is a book written in a language that is good and easy to understand, presented in an interesting way, complete with pictures and captions, the contents of the book also describe something that fits the writing idea. Teacher's books and student books are one of the teaching materials used in thematic learning in Elementary Schools.

c. Module

Module is a book written with the aim that students can learn independently without or with the guidance of the teacher. One module is usually used at the time of completion of learning between 1-3 weeks. Generally one module presents a topic of discussion material which is a unit of a particular learning program.

d. Photos / Pictures

Pictures as story illustrations greatly support students 'understanding in appreciating stories and developing students' imagination in understanding the contents of the stories being read. In addition, the presence of images in learning to appreciate stories can be used as illustrations of students in understanding the story. Images that can be used as illustrations can be in the form of pictures of students who are communicating about the material being presented in the teaching material.

e. Student activity sheet

Student activity sheets are sheets containing assignments that must be done by students. Activity sheets are usually in the form of instructions, steps to complete a task.

f. Brochure

Brochures are written information material about a problem that is arranged systematically or printed which consists of only a few pages and is folded without binding or printed leaflets containing brief but complete information about a company or organization.

g. Leaflets

Leaflets are written printed material in the form of sheets that are folded but not turned off / sewn. In order to look attractive, leaflets are usually carefully designed which are equipped with illustrations and use simple, short and easy to understand languages. Leaflets as teaching materials must also contain material that can lead students to master one or more basic competencies.

h. Wallchart

Wallchart is a printed material, usually in the form of a cycle / process or graph that means to show a certain position that is designed to use good governance and settings to make it more attractive.

2) Listen Listen Materials (Audio)

Learning materials (audio) according to Majid (2011: 179), namely:

a. Cassette / LP / compact disk

Media tapes can store sounds that can be played repeatedly to students that are used as teaching materials, for language learning or music learning. Cassette teaching materials cannot stand alone, in their use require the help of other tools and materials such as tape recorders and teacher scenario sheets.

b. Radio

Radio is a listening media that can be used as teaching material, with radio students can learn something, for example finding information conveyed through oral, or understanding the persuasive language used in an ad that is played through radio broadcasts.

3) Listen Viewing Materials (Audio Visual)

Learning material (Audio Visual) according to Majid (2011: 180), namely:

a. Videos / films

Videos / films are usually referred to as hearing aids (audio visual aids / audio visual media). Generally videos have been made in a complete design so that at the end of each video presentation students can master one or more basic competencies. Whether

or not a video program is depend on a scheme that shows sequences (known as scenarios) from a video / film program, scripts, shooting and editing process.

b. People / resource persons
People as learning resources can also be said to be teaching materials that can be seen and heard. A person can learn for example because the person has certain skills.

4) Interactive Teaching Materials

Interactive teaching materials according to the Guidelines for Bibliographic Description of Interacrive Multimedia (Abdul Majid: 181) Interactive multimedia is a combination of two or more media (audio, text, graphics, images, animations, and videos) that users manipulate to control commands and / or behavior experience from a presentation. Usually a complete multimedia teaching material is designed ranging from instructions for use to assessment.

Interactive teaching materials in preparing them require adequate supporting knowledge and skills, especially in operating equipment such as computers, video cameras, and photo cameras. Interactive teaching materials are usually presented in compact disk (CD) form.

2.2 Characteristics of Media

Gerlach and Ely (1971) in Azhar Arsyad (2015) propose three characteristics of the media which are indicative of why media is used and what can be done by the media.

1. Fixative Characteristics (Property Fixative)
This feature describes the ability of the media to discuss, store, preserve, and reconstruct an event or object. An event or object can be sorted and reconstituted with media such as photography, video recording, audio recordings, diskette computers, and films. An object that has been captured (taken) with a camera or video camera can easily be reproduced easily whenever needed. With this fixative feature, the media can make recordings of events or objects that occur at any given time transported without knowing time.

2. Manipulative Characteristics (Manipulative Properties)
Transformation of event or object is caused by the media having manipulative characteristics. Events that spend days and days can be presented to students within a few minutes using the time-lapse recording technique. For example, how the process of larvae becomes a cocoon then becomes a butterfly that can be accelerated by the photographic recording technique. An event can also be slowed when re-displaying video recordings, for example ptosis pole jump or chemical reactions that can be moved through the help of manipulative abilities from the media. So that the media can help overcome the problems that occur really gelatin does not need to be done when facing or cutting certain parts so as not to cause errors in interpretations or students.

3. Distributive Feature (Distribution Property)
Distribute characteristics of the media allow an object or event to be transported through space, and thus the event is given to most students with the same relative stimulus experience about the event. Media distribution is not only limited to one class or several classes in schools in a particular area, but also media that can be spread throughout the desired place. Once information is successful in any media format, it can be easily reproduced and ready to be used in full in various places or

used repeatedly. The consistency of agreed information will be guaranteed to be the same or almost the same as the one agreed.

2.3 Definition of Interactive Multimedia

Simply put, multimedia means "Many media or media combinations. Media can be in the form of images and photos, sounds, moving videos, animations, and / or text items that are combined in a product whose purpose is to communicate information in various ways. "(Roblyer & Doering 2010: 170) in Ariesto Hadi (2003)

Multimedia is a combination of text, graphics, sound, animation and video. When the user gets freedom in control it is called interactive multimedia. Interactive multimedia is a means or means of learning that contains material, methods, boundaries, and methods of approval that are designed and interesting for competency / sub-competence of subjects that are in accordance with the level of complexity. "Interactive Multimedia according to the Guidelines for Bibliography Description of Interactive Multimedia, in Majid (2012: 181), is a combination of two or more media (audio, text, graphics, images, animation and video) made by users who are manipulated for data transfer or natural help from a presentation.

Another opinion said, interactive multimedia is a very complex media with a combination of several media such as text, graphics, images, photos, videos, and animation as a whole so that it becomes an interesting collection and can be facilitated by the community to be invited (Anjani, 2013): 12). Hofstetter in Rusman, et al (2012: 296), discusses interactive multimedia that uses computers for text, graphics, audio, moving images (video and animation) into a single unit with the right links and tools to make it easier for multimedia users to navigate, be invited , create, and communicate.

According to Reddi and Mishra in Munir (2012: 110), interactive multimedia is a unity of media elements (audio, video, graphics, text, animation, etc.) into a synergistic and symbolic whole that produces more benefits for the user. Based on the above opinion, conclusions can be drawn from interactive multimedia used by the person to get information or feedback according to the chosen action or navigation, the information uses a combination of various forms of data formats such as text, graphics, images, photos, videos, and animations so interesting.

III. Research Methods

This type of research is development research (Research and Development) which is a study used to produce certain products and test the effectiveness of these products. This research develops Indonesian language teaching materials in interactive multimedia-based negotiating text material for 10th grade level of Tritech Informatika Vocational High School, Medan. This research and development refers to the theory of teaching material development proposed by Borg and Gall (in Sugiyono, 2015: 35) in the book Research Methods and Development (Research and Development).

Agreeing with Sugiyono, Sukmadinata (2012: 164), reveals that R & D is a strategy or research method that is powerful enough to improve practice and a process or steps to develop a new product or perfect an existing product that can be accounted for. The steps of the research and development process indicate a cycle, which begins with the need, problems that require solving using a particular product. Development research is also widely used to develop teaching materials, learning media and learning management.

IV. Discussion

Instructional design assessment on interactive multimedia teaching materials products is carried out by design experts, Prof. Dr. Efendi Napitupulu, M.Pd. The expert is a lecturer at the Medan State University in Education Technology majors who have expertise in Learning Media Design. This assessment is expected to improve the quality of the display of instructional design based on interactive multimedia materials on negotiating text learning. The acquisition of validation results by learning media experts amounted to 84.70% with a very good category. Assessment of the design aspects of teaching materials to be developed consists of indicators of assessment, namely: feasibility of content and graphics. Below is a presentation of the percentage of the results of the assessment on each indicator:

Table 1 Obtaining Assessment Results by Design Validators

Aspect	Indicator	Score of Percentage	Category
Attractiveness	Accuracy material with Standard Competency and Indicator	80%	very well
	The material is presented systematically, logically, and sequentially.	80%	very well
	The material is presented in a simple and clear manner	100%	very well
	The contents of teaching materials as a whole can attract students	80%	very well
	The presentation of teaching materials is easy to understand	80%	very well
	Clarity of examples given	80%	very well
	There are instructions on how to use teaching materials	80%	very well
Display	There are student activities in accordance with the competencies learned	80%	very well
	Teaching materials used not only present material but are interactive	100%	very well
	There are exercises that can require students to do something	100%	very well
	Learning material can be repeated	100%	very well
	Practice questions in accordance with learning objectives	80%	very well
Picture	Color composition	80%	very well
	Selection of type and size of letters	80%	very well
	Suitability of menu layout	80%	very well
	Picture quality	80%	very well
	The Easiness of use	80%	very well

Score of Total	72
Score of percentage	84.70%
Criteria	very well

Assessment of the instructional design aspects of interactive multimedia-based teaching materials that will be developed consists of assessment indicators, namely: attractiveness, appearance and image. The following is a presentation of the percentage of the assessment results on each indicator:

Table 2. Percentage of Assessment Results by Design Validators

No.	Assessment Indicator	Average total of Percentage	Category
1	Attractiveness	82.85 %	very well
2	Display	92 %	very well
3	Picture	80%	very well
	Total	84.95 %	very well

Based on the table above, it can be seen that the average percentage score for each assessment indicator is 100% for attractiveness of 82.85%, for display that is 92% and for images that is 80%.

The instructional design expert gives a score assessment and gives advice to the researcher. Suggestions given in the form of suggestions submitted directly or delivered in writing, are expected with the advice given can be used as a reference for improvement of interactive multimedia-based negotiating text teaching materials developed. The following is a suggestion from the design expert validator which will be presented in the following table.

Table 3 Suggestions from Designers

No	Suggestion
1	Adding references
2	Adding animation to the final score
3	Presenting material in the form of a chart
4	Arranging material systematically

This individual trial was conducted 3 students of 10th class in Tritech Infromatika Medan Vocational School, Medan. This trial aims are to identify the deficiency product and student responses to the products developed. The results of the trial data can be seen in the following table;

Table 4. Results of Individual Trial Response Analysis

No	Assessment Indicator	Respondent			Total Score	Average	Criteria
		1	2	3			
Quality of Material Learning							
1	Appropriateness Material	4	5	4	13	86 %	very well
2	Clarity of instructions in learning	4	4	4	12	80 %	very well
3	The ease of understanding sentences in the text	4	3	4	11	73 %	well
4	Ease of understanding learning	4	4	4	12	80 %	very well
5	Order accuracy	4	4	4	12	80 %	very well
6	Exercise Sufficiency	4	4	4	12	80 %	very well
7	Feedback clarity	4	4	4	12	80 %	very well
8	Help learning with the program	4	4	4	12	80 %	very well
Technical/ Display Quality							
9	The beauty of the screen	4	4	3	11	73 %	well
10	Text readability	4	3	4	11	73 %	well
11	Picture quality	4	4	4	12	80 %	very well
12	Color composition	4	4	4	12	80 %	very well
13	Navigation	4	4	4	12	80 %	very well
14	Interaction	4	4	4	12	80 %	very well
Average					166	78.9 %	Well

The conclusion from the results of individual test assessments, namely interactive multimedia developed including the criteria for "Good" with an average percentage of 78.9%. Results The average percentage obtained based on the assessment aspects in the form of learning material quality averaged 77.6% and the technical quality / display of interactive multimedia-based teaching materials gained an average of 78.9% with good criteria.

This phase III trial was tested on an individual scale involving 9 students, namely 3 high achievers, 3 moderate achievers, 3 low achievers. The data from the results of this small group trial are intended to find out the weaknesses and barriers experienced when these interactive multimedia-based teaching materials products are used. The test results can be seen in the following table.

Table 5. Results of Small Group Trial Response Analysis

No	Assessment Indicator	Respondent									Total Score	Average	Criteria
		1	2	3	4	5	6	7	8	9			
Quality of Material Learning													
1	Appropriateness Material	5	4	4	4	5	5	4	4	5	40	89 %	very well
2	Clarity of instructions in learning	5	5	5	4	5	4	5	5	5	43	96 %	very well
3	The ease of understanding sentences in the text	5	5	4	5	4	5	4	5	4	42	93 %	very well
4	Ease of understanding learning	5	5	5	4	4	4	5	4	4	40	89 %	very well
5	Order accuracy	5	5	4	5	5	4	5	5	5	43	96 %	very well
6	Exercise Sufficiency	5	5	4	5	4	5	4	5	4	41	91 %	very well
7	Feedback clarity	4	5	4	4	4	4	5	4	5	39	87 %	very well
8	Help learning with the program	3	4	4	5	4	5	4	5	4	38	84 %	very well
Technical/ Display Quality													
9	The beauty of the screen	4	5	4	5	5	4	4	5	3	39	87 %	very well
10	Text readability	5	5	4	5	4	3	5	4	5	40	89 %	very well
11	Picture quality	4	5	4	5	4	5	5	4	4	40	89 %	very well
12	Color composition	5	4	4	4	5	4	4	5	5	40	89 %	very well
13	Navigation	5	4	5	4	4	5	3	4	4	38	84 %	very well
14	Interaction	5	5	4	4	3	3	4	4	5	42	93 %	very well
	Average										565	89 %	Very well

The results of the small group trials in the table above, namely the students' perceptions of teaching materials that have been developed showed an average percentage of 89% with the criteria of "Very Good". The results of this trial were obtained after an improvement or revision of individual trials.

This phase IV trial was tested on a limited scale involving 34 respondents of 10th class Tritech Informatika Vocational High School Medan students. The data from the small group trial are intended to find out some of the weaknesses and obstacles experienced when this interactive multimedia-based learning product is used.

Table 6. Results of Field Trial Response Analysis

No	Assessment Indicator	Respondent					Total Score	Average	Criteria
		1	2	3	4	5			
	Quality of Material Learning								
1	Appropriateness Material					34	170	89 %	very well
2	Clarity of instructions in learning					34	170	96 %	very well
3	The ease of understanding sentences in the text					34	170	93 %	very well
4	Ease of understanding learning					34	170	89 %	very well
5	Order accuracy					34	170	96 %	very well
6	Exercise Sufficiency				4	30	166	91 %	very well
7	Feedback clarity				2	32	164	87 %	very well
8	Help learning with the program				3	31	167	84 %	very well
	Technical / Display Quality								
9	The beauty of the screen				4	30	166	87 %	very well
10	Text readability					34	170	89 %	very well
11	Picture quality					34	170	89 %	very well
12	Color composition					34	170	89 %	very well
13	Navigation					34	170	84 %	very well
14	Interaction					34	170	93 %	very well
	Average						2363	99,28 %	**Very well**

The results of the field trials in the table above, namely students' perceptions of interactive multimedia-based teaching materials developed showed an average percentage of 99.28% with the criteria of "very good". The results of this trial were obtained after an improvement or revision of the small group trial.

V. Conclusion

The results of the development of interactive multimedia-based teaching materials in the negotiating text in this study are interactive CDs. The Materials learning developed have carried out feasibility tests by design experts. The results of the validation by the design were stated to be "very good" with all aspects of the assessment and the response of the language teacher to get a very good predicate. The results of individual trial results are declared "good". The acquisition of the results of a small group trial was declared "very good". The

results of the field trials were declared "very good". The results obtained from expert validation and the results of the trial state that interactive multimedia-based negotiating text teaching materials should be developed in 10th class students at Tritech Informatics Vocational School Medan.

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