

The Development of Learning Media Based on Multiple Intelgense for Learning Strategies Class

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Abstract-This study aims to develop learning media based on multiple intelgense for learning strategies class. This learning media development uses a theoretical approach from Gardner about multiple intelgense. The method used in this study is Research and development. The subjects in this study were students of the Reg B 2016 class in history education. The results of this study indicated that Learning media which developed with multiple intelgense approach can build, trigger, strengthen, and transfer student intelgense. In addition, the developed media can also improve learning effectiveness. The assessment is given in each statement that the media that has been developed is stated to be very valid with a rating of 89.20% for the assessment results from media experts and 91.23% of material experts. This shows that this media is worthy of being used for the learning process.

Keywords-multiple intelgense, media, research and development

I. INTRODUCTION

A lecturer in the learning process is a motivator, facilitator, and supervisor. Of course in the learning process, educators are required to be able to manage so that the learning process is successful. In the process of classroom management requires the creativity and ability of lecturers to communicate interactively by using various types of learning tools or media. Both conventional and technologically.

Learning process in the college is and activity carried out by the lecturer towards students, and the learning environment. Good learning requires proper planning and interesting learning media so that a static learning environment can be created, and it is easier for students to understand the material. There are various aspects of education "in the world of teaching planning education contains four components including: (1) Teaching Objectives, (2) Learning Media, (3) Teaching Methods (4) Evaluation"[1].

In order to support the learning process, a tool or learning media is needed. To complement the components of learning and learning media can be used that can stimulate learning effectively and efficiently. Good learning media will be able to enhance the interaction process between lecturers and students and between students and what is being learned. There are various learning media that can be used in learning tailored to the characteristics of students and the goals to be achieved.

Students in one class different in intelgense levels and both want to be recognized for their intelgense. One

great hope is that lecturers must be able to provide learning media personally based on their respective intelgense and should not force them with the same media. Individual factors that must get special attention, one of which is the intelgense factor of students. Every student has different intelgense and abilities in understanding a lesson. Gardner identifies "intelgense into several types of intelgense, namely: linguistic intelgense, logical intelgense, spatial visual intelgense, musical intelgense, kinesthetic intelgense, interpersonal intelgense, intrapersonal intelgense, natural intelgense"[2], of the eight intelgences, of course not all students have it, but what needs to be known is that every student must have one or more intelgences.

This results in different ways of accepting and understanding lessons. Student who have logical-mathematical intelgense may more quickly understand learning skills than students who have linguistic intelgense. Likewise for those who have musical intelgense will be more quickly recognize and memorize a tone than those who have logical-mathematical intelgense.

The purpose of the learning strategy class is to prepare students to become professional teachers in high school and junior high school and to have knowledge, skills and attitudes that are acceptable in the community. Therefore students must be equipped with competencies regarding a variety of multiple intelgences and media that are compatible with multiple types of intelgense. Therefore, researchers are interested in conducting research by developing learning media based on multiple intelgences to improve the quality of learning in classroom learning strategies.

II. LITERATURE REVIEW

a. Learning media

The word media in the learning process tends to be interpreted as graphic, photographic, or electronic tools to capture, process and reconstruct visual and verbal information. The National Education Association (NEA) limits "the media as forms of communication both printed, audio visual, and equipment, as Gagne said that media are various types of components in the student environment for learning"[3]. Includes books, tape recorders, cassettes, video cameras, video recorders, slide

films, photos, graphic frames, television and computers and various other tools that can be used in learning.

In general, the characteristics of the media can be touched, seen, heard and observed with the five senses. Each media has characteristics that need to be understood by the user. The introduction of media types and their characteristics is one factor in determining or selecting media. In choosing the media, people need to pay attention to three things, namely 1) Clarity of the purpose and objectives of the media selection, 2) The nature and characteristics of the selected media, and 3) Able to be compared with other media to be an alternative solution to the problems demanded by the goal.

Learning media consists of three types of various types, namely "graphic media (pictures, sketches, charts, diagrams, graphs, posters, etc.), audio media (radio, recording devices, language laboratory) and stationary projection media (frame films, coupling films, OHP, *opaque projector*, television, and video)"[4]. From these various discussions, it can be formulated that the media is everything that can be used to channel messages and can stimulate the mind, can arouse students' enthusiasm, attention and willingness so that it can encourage the learning process in students.

b. Multiple intelligences

Before discussing multiple intelligences, this research will first discuss the definition of intelligence or what is often also defined as intelligence. Some experts say that "*intelligence is a mental adaptation to new circumstances*". Where intelligence is more hereditary instincts and habits or adaptations obtained to repeat the situation; which starts with *trial and error* empirically"[5].

"The Multiple Intelligences (MI) Theory was developed by Howard Gardner, a developmental psychologist and professor of education at the Graduate School of Education, Harvard University, United States. His theory of MI was published in 1993. Gardner defines intelligence as the ability to solve problems and produce products in a variety of settings and in real situations. Gardner discovered — at least — the nine intelligences that students have"[6], namely Language Logic Intelligence, Mathematical Logic Intelligence, Spatial Intelligence, Music Intelligence, Kinesthetic Intelligence, Interpersonal Intelligence, Intrapersonal Intelligence, Naturalistic Intelligence.

c. Type of intelligence

To be clearer, in this study will be discussed one by one about nine intelligences which are basically owned by each student.

- Linguistic intelligence (language logic)

Linguistic intelligence is the ability to use words effectively, both orally and in writing. This intelligence includes sensitivity to the meaning of words, word order, voice, rhythm and intonation of the words spoken. Including the ability to understand

the power of words in changing mind conditions and conveying information.

- Mathematical logic intelligence

Mathematical logic intelligence is a person's ability to solve problems. This intelligence is able to think and arrange solutions or solutions in a logical or reasonable order. Number, sequence, logic.

- Spatial intelligence

Spatial intelligence is the ability to accurately recognize space patterns, interpret graphic and spatial ideas and translate space patterns precisely.

- Music intelligence

Music or rhythmic like the ability to play guitar, violin, piano, and composer, composing music, singing, and appreciating. Music intelligence has characteristics such as listening to and experiencing sounds and rhythms, looking for opportunities to listen to music, and being able to respond to music with bodily kinesthetic.

- Kinesthetic intelligence (bodily-kinesthetic)

Kinesthetic intelligence that involves cleverness of body movements such as using the body skillfully, overcoming problems, and producing achievements. This intelligence can be seen through those who work as dancers, actors.

- Interpersonal intelligence

Interpersonal intelligence consists of the ability to work effectively with others, having sympathy and understanding, living one's motivation and goals. This intelligence can be observed through the role played by lecturers, politicians and religious leaders.

- Intrapersonal intelligence

Intrapersonal intelligence that functions to manage oneself personally such as self-analysis, reflection, assessing the success of others by understanding themselves. Those who belong to the area of intrapersonal intelligence are philosophers, and counselors.

- Naturalist intelligence

Naturalist intelligence is defined as the ability to recognize and categorize species, both flora and fauna, in the surrounding environment, and their ability to process and utilize nature, and preserve it. They know and categorize flora and fauna species, love being in a natural environment, and easy to learn things related to nature.

III. MATERIALS AND METHOD

The method used in this study is research and research methods (Research and Development or R & D) which aims to produce a product and test the effectiveness of the product with a cycle including the discovery of research

on the product to be produced, reviewing the settings in which the results are used and revised until the study is considered adequate.

In learning technology, descriptions of procedures and steps of development research have been developed. "Research and development is an industry-based development model in which the finding of research are used to design new products and procedures, which then are systematically field-tested, evaluated, and refined until they meet specified criteria of effectiveness, quality, or similar standards"[7]. Its show that "research and development is a research method used to produce certain products, and test the effectiveness of these product"[8]. In this case the product developed is a learning product. In this case, this type of research can also produce a model. Procedure in this development follows these stages:

- Preliminary research
- Reseach planning
- Validation, Evaluation, dan Media Revision.
- Model Implementation
- Evaluation

Data analysis is done to find out the meaning of each data or information obtained, the relation between the related factors and provide interpretations that can be accepted in common sense in the context of the overall problem. Data or information obtained are then collected, identified and grouped according to the classification of the assessment and answers to the questionnaire. Furthermore, the data is processed with the expected number so that the percentage can be obtained or can be written in the following formula :

$$\text{Feasibility Percentage (\%)} = \frac{\text{Score of Observation}}{\text{Expected Score}} \times 1$$

The collected data were analyzed by quantitative descriptive analysis techniques which were revealed in the distribution of scores and the percentage of the predetermined rating scale categories.

IV. FINDINGS AND DISCUSSION

a. Preliminary research

First, Preparation, namely researchers preparing everything needed to conduct preliminary studies such as field permits, and various instruments needed in research activities. *Secondly*, a deepening survey, namely the researcher observing and recording the condition of the object of research in the history education study program, identifying the problem, conducting a survey of learning needs and confirming the results of the survey. *Third*, needs analysis, namely researchers trying to find the needs of research objectives that are appropriate and practical and applicable.

b. Research planning

After the data and information are available, then the researcher prepares a product preparation plan by developing a product scheme. Products developed in the form of multiple intelligence-based learning media. Based

on the theoretical study presented in the second chapter, the data taken were intelligence data possessed by educational students. History of Unimed 2016 Reg B class. Products developed in the form of multiple intelligence-based on learning media have specifications with the following details:

TABLE I. LEARNING MEDIA DEVELOPED

Methodology	Competence category	Dimension of knowledge	Means / media learning
Linguistics <ul style="list-style-type: none"> • Storytelling • Brainstorming • Lecture • Sugestion and answer • games 	<ul style="list-style-type: none"> • Communicate verbally • Verbal expression • Auditive potential • Think inside • original word • Productive productive memory 	<ul style="list-style-type: none"> • Knowledge of facts (what) • Conceptual knowledge (what) • Meta cognitive 	<ul style="list-style-type: none"> • Hand out • Story
Math logic <ul style="list-style-type: none"> • Mental calculation and problem solving • Clarification and categories • Ask socratis • Heuristik 	<ul style="list-style-type: none"> • Ability to think logically mathematical • Critical thinking • Analytical ability • Creative thinking 	<ul style="list-style-type: none"> • Knowledge of facts • Conceptual knowledge • Principles and Generalization • Theory, model and structure • Relationship between metacognitive things 	<ul style="list-style-type: none"> • Diagram • Power point • LCD
Spatial <ul style="list-style-type: none"> • Visual presentation • Visualization • Sketching ideas • Symbol image 	<ul style="list-style-type: none"> • Think and Visual expression • Visual imagination 	<ul style="list-style-type: none"> • Conceptual Knowledge (what) • Procedural knowledge 	<ul style="list-style-type: none"> • Model mind mapping • Time Line
Natural Visual presentation	Think and natural expression	<ul style="list-style-type: none"> • Meta cognitive • Conceptual 	Film Documenter
Body Kinesthetic <ul style="list-style-type: none"> • Simulation • Dramatization • Game 	<ul style="list-style-type: none"> • inesthetic memory • Kinesthetic expression • Body skill 	<ul style="list-style-type: none"> • Procedural knowledge • Subjectand • Specific skills (how) • Techniques and method 	<ul style="list-style-type: none"> • Play script • Rubic game
Music <ul style="list-style-type: none"> • Presentation of tones and rhythm • Supermemo music 	<ul style="list-style-type: none"> • Tone sensitivity and rhythm • Musical memory 	<ul style="list-style-type: none"> • Conceptual and procedural knowledge 	<ul style="list-style-type: none"> • tape recorder • Cassette
Interpersonal <ul style="list-style-type: none"> • Peer sharing • Group discussion • Sharing in Group 	<ul style="list-style-type: none"> • Socio maturity • Emotional 	<ul style="list-style-type: none"> • Meta cognitive awareness • Socio emotional awareness 	Problem
Intrapersonal Self reflection	Personal maturity	<ul style="list-style-type: none"> • Meta cognitive Awareness • Self awareness 	Self reflection questions

c. Validation, evaluation, and media revision

The theory and media validation activities are carried out to experts, and limited trials and predictive and systemic analysis of the results of limited trials. Thus, it can be tested the feasibility of the media system to be applied.

1. expert review

In the initial product revision stage, researchers conducted product improvements based on a review from media experts, namely Samsidar Tanjung and a material expert Lukitaningsih. The design of setting learning media is improved in accordance with input by experts, namely creating and enlarging navigation buttons, adding media identities, and replacing them with more interesting icons.

2. small group trial

After conducting an expert trial, the next step is to conduct a limited trial, regarding the application of representative media devices to be implemented. The implementation of trials in small groups aims to obtain information about the effectiveness of the learning media used, as well as to support the implementation of multiple intelligence learning research and to further revise it for improvement. The small group trial phase was carried out in the reguler B 2016. Based on the reflections of the researchers, it strengthened the writing of the title.

3. Large group trial

Large group trials are a continuation of small group trials. This trial was conducted in class B 2016 with a total of 31 students. The learning process in the field trials is carried out in accordance with the syllabus and (RPS). The results of this trial are said to be effective as the end to revise the products developed so that they can be used as perfect products.

d. Media implementation

The implementation of media development was carried out in the 2017/2018 force class B regular learning course in the star semester. The purpose of this user design is to test the effectiveness and validation of conceptual media that has been produced empirically. Testing the effectiveness of the model and using three stages, namely:

1. Planning and preparation. This stage is a continuation of the preliminary study, or is carried out after conducting the initial study.
2. Implementation and Observation. Pre-test activity, as for the pre-test in this study is a multiple intelligence test, not a test in the form of learning material.
3. Evaluation. The results obtained from the results of observation and monitoring are the basic materials used to evaluate the results of the implementation of the experiment

Feasibility of learning media to achieve assessment scores by respondents involving material experts, and

media experts. Following are the results of the recapitulation obtained from the expert trial.

TABLE II. EXPERT RECAPITULATION RESULTS

Aspect	Average Score
Learning materials	91.23%
Media	89.20%
Overall Average Value	90.22

The scale used is as follows:

TABLE III. RATING AND VALIDATION SCALE.

Percentage of achievement	Value scale	Interpretation
76 - 100 %	4	Very decent
56 - 75 %	3	Worthy
40 - 55 %	2	Decent enough
0 - 39 %	1	Not feasible

The results of the study above show that research into multiple intelligence-based learning media in learning strategy courses is very feasible. Based on the table above it can be concluded that the implementation of learning activities supported by the developed media is very positive for students in participating in learning. This will have implications for the development of multiple intelligences owned by students and optimizing the quality of learning management and improving learning outcomes. The positive response of students to the developed learning media was caused by the media researchers oriented towards the intelligence awards that each student had.

V. CONCLUSION

The use of instructional media using multiple intelligences, by giving student assignments with technical instructions must be very clear, because all this time the work done by students is only related to the material that leads to cognitive aspects.

However, the results of this study still have various limitations. Limitations in this study include the percentage of intelligence of students who are the subject of this research are very diverse, so that even though there is a small percentage should not be ignored, for it is necessary foresighted by lecturers not to focus on one dominant intelligence in the classroom. Furthermore, the limitations that occur in this study are regarding the timing that must be concerned with the use of diverse media.

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