Learning media Animations for Subjects Evaluation and Chemistry Learning Outcomes

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Abstract. Availability of learning media Subjects Evaluation and Chemistry Learning Outcomes is still very limited. In this research, the development of macromedia flash-based animation media will be carried out, the purpose of this study is to: (1) developing macromedia flash-based animation media in the Course of evaluation. (2) validating and revising animation media based on macromedia flash in the Evaluation course, which in the next research will be tested on the developed media in the field.This research is a research and development (research and development). Where the product developed in this research is animation media based on macromedia flash in the Subject ofEvaluation and Chemistry Learning Outcomes. The population and sample of this study, namely teaching materials for making animation media, lecturers and students as validators. To obtain research data, a validation rubric is used in the form of responses and suggestions for improvement from the validator.The data analysis technique was calculate using percent feasibility and suggestions for improvement from lecturers and validators. The results showed that the developed animation media was feasible with a feasibility value of 80%, and the results of student response were obtained at 82% with excellent criteria.This research produces macromedia flash-based animation media that can be used in the Chemistry Evaluation and Evaluation learning outcomes which are then expected to improve student learning outcomes

1. Introduction

Evaluation and Chemistry Learning Outcomes is a subject majoring in chemistry education that is laden with concepts, from simple concepts to more complex concepts. For this reason, it is necessary to have a correct understanding of the basic concepts that build these concepts. Students often interpret complex concepts into confusing concepts and give rise to a feeling of disinterest in the Evaluation and Assessment courses in chemistry learning outcomes.This course requires memorization and understanding of concepts that are quite high because students will begin to learn by making, analyzing and testing how to make good and correct instruments. Students are not only required to just memorize but demand students understand the material in depth. such as understanding of test instruments, non-validity tests, reliability, distracters, index discrimination and so on that tend to be abstract.

To help students understand abstract concepts, lecturers should use learning aids or media that can provide a concrete picture to students so that learning coursesEvaluation andChemistry Learning Outcomesis not merely memorizing but more than understanding the concept as a whole. Based on

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observations of several years teaching evaluation subjects the availability of instructional media is still very limited. Not all lecturers use learning media other than those in books.

The availability of learning tools is a factor that can support the learning process going well. One of the learning tools is learning media. Kurniawati (2013) writes that the media can open insight into student thinking so that they can learn various concepts and ways to relate them in real life.

The application of computer-assisted instructions on conceptual understanding of abstract concepts by competent educators cannot be avoided (Gudyanga & Tawanda, 2014). The use of Macromedia Flash as a learning medium is useful for educators as a tool in preparing teaching materials and organizing learning. This media can also provoke student stimulus to manipulate concepts and be able to know the real form of abstract concepts (Masykur, et al., 2017), while Ultay (2015) examines media use and concludes that the animation media used can successfully integrate the cognitive domain and the psychomotor domain because it has the power of integrating visual, auditory and kinesthetic learning abilities. In connection with that Retnani, et al (2014) said that the use of Macromedia Flash combines two human senses, namely audio (sense of hearing) and Visual (sense of sight). The use of some of these senses will cause students to be fixated on the media that contains the material being studied, so students are motivated and focused on studying the material.

Thus, the problems in this study can be formulated as: (1) How to develop macromedia flash-based animation media in the Subject of Chemistry study Evaluation and Evaluation ?, and (2) Is the animation media developed already appropriate to be used in the subject of Chemistry Evaluation and Learning outcomes?

2. Preliminary Study

Research in the subject of Evaluation and Chemistry Learning Outcomes was conducted in the previous year using interactive lecture designs. The results of the study (Gulmah, 2010) showed an increase in overall learning outcomes from 66.7 to 76.90. Not all of the performance indicators have been achieved, especially in the material related to calculations. This is because the many concepts that have not been mastered in the calculation. (Dalimunthe, 2018) examined the use of the KKNI-based in course of Evaluation and Assessment Chemistry learning outcomes and found that there was an increase in student learning outcomes in the experimental class using KKNI-based Evaluation tools by 37.98% while the control class had increased only by 36 , 49%.

3. Research and Development method

Research and Development (R&D) methods are used to produce certain products, and test the effectiveness of these products. To be able to produce certain products used research that needs analysis is used survey or qualitative methods, and to test the effectiveness of these products in order to function in the wider community, research is needed to test the effectiveness of these products. Furthermore Borg and Gall (1991) stated that for research needs analysis so that it can produce hypothetical products that are often used basic research methods (basic research). Furthermore, to test the hypothetical product, experiment or action research is used. After the product has been tested, it can be applied. The product testing process with the experiment is called applied research. Research and Development aims to find, develop and validate a product.

4. Macromedia flash based animation media

Macromedia flash is a program used to create interactive multimedia animations and dynamic websites. With Macromedia Flash can help learning with simulation methods. The simulation method is one of the learning strategies that aims to provide a more concrete learning experience through the creation of imitation forms of experience that approach the real atmosphere

Macromedia flash is a vector-based animation environment that enables the creation of very dynamic and interactive multimedia experiences. With animation will provide students with a real

understanding of the concept of the material that will be given Information and communication technology in this case macromedia flash animation provides a significant opportunity for learning. In addition, the use of methods using information and communication technology is more profitable and effective (Mawarni et al, 2015).

The advantage of Macromedia Flash is being able to produce more dynamic animations, videos and images. The graphics generated through this software have a vector base, so that the animation produced will look smoother and faster when accessed via the internet. Macromedia Flash can be used to create games, presentations, and cartoon animations. With creativity and high imagination, this software will be able to produce an interactive and fantastic learning media (Sanubari, et al, 2014).

5. Course of Evaluation and Chemistry Learning Outcomes

Based on a brief description of the Evaluation and Chemistry Learning Outcome course, the discussion of this course covers the concepts of planning and implementing learning processes and learning outcomes in the field of chemistry studies, concepts and implementation of measurement, assessment and evaluation, types of measuring instruments in the teaching learning process and outcomes , test and non-test, determine the validity and reliability of the instrument, test item analysis, process the measurement data to determine the evaluation results, and make a report. From this brief description, it can be seen that the Learning Process Evaluation and Learning course contains basic concepts of evaluation and measurement that can be used to solve problems related to daily life and their applications in learning.

6. Types, Research Approaches and Research Stage

This research and development research uses a 4-D model with 4 (four) stages, namely Define, Design and Disseminate which are adapted into a 4-D Model. As for the approach used in this research is a qualitative approach, which is the approach used to examine the natural conditions of objects (Arikunto, 2011). The variety of research used is descriptive to systematically describe the facts and characteristics of the subject precisely and as is.

Data collection techniques in this study were conducted with a media feasibility sheet and student responses questionnaire.

7. Data Analyses
7.1. Media Feasibility Sheet

Media feasibility analysis is carried out in order to find out whether macromedia flash-based animation media is appropriate as a learning medium for the Chemistry Evaluation and Evaluation learning outcomes course. Media feasibility analysis is calculated using the formula as in the following (Sugiyono, 2015) is .

$$percentage = \frac{number\ of\ acquisition\ score}{number\ of\ maximum\ score} \times 100$$

The criteria of percentage result can be seen in Table 1

Table1. Media Feasibility Sheet

No	Score %	Assessment Category
1	0-20	Very unworthy
2	21-40	Unworthy
3	41-60	Enough
4	61-80	Worthy
5	81-100	Worthy

(Source: Arikunto, 2011)

7.2. Analysis of Student Response Questionnairey

Table 2. Questionnaire Rating Score

No	Score %	Assessment Category
1	80-100	Very good
2	66-79	Good
3	56-65	Enough
4	46-65	Less
5	0-45	Fail

(Source: Sudijono, 2011)

8. Result

The results showed the animation media in the Chemistry Evaluation and PHB subjects obtained 80% Feasibility value with **very good** criteria used, while the results of student responses obtained a number 82 with **Very good** criteria.

9. Conclusion

This study concludes that macromedia flash based animation media can already be used in the Chemistry Evaluation and Evaluation learning outcomes course which is then expected to improve student learning outcomes.

Acknowledgments

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