

The Development of Flash Program as a Media of Chemistry Learning on Chemical Equilibrium

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Abstract- One of the important factors to the success of learning is the use of instructional media. Media of learning used should be interesting so students will be more active in following the learning process. One effort to do is by developing the Flash program as a media of learning. This study aims to the development of Flash program as a media of chemistry learning on chemical equilibrium. Research method using Development Research by stages Analysis, Design, Development, Implementation and Evaluation (ADDIE). The research instruments are questionnaire and objective test. The feasibility of using chemical learning media is analyzed based on the standard data of content, appearance, materials and programming. Data were obtained by using validation sheets that have been validated by a team of experts. The first step in development is the analysis of instructional media available today. The result of learning media X analysis as a whole is feasible and the learning media Y is quite feasible but still needs to be revised and developed.

Keywords: *development, adobe flash CS5, media, chemical equilibrium*

I. INTRODUCTION

The development and advancement of communication technology, media and informatics today has had a huge impact for human civilization. One of the most perceived impacts is on education. The development in the field of education can be seen with renewal efforts in the utilization of technological results. In the learning process, in addition to teachers and students, two very important elements are methods / learning models and learning media.

Learning model is a conceptual framework that describes the systematic procedures in organizing learning experiences to achieve learning objectives [1]. Serves as a guide for teachers in planning and implementing learning activities. The position of instructional media is in the teaching component as one of the efforts to enhance the interaction process of teachers, students and learning environment.

Currently, there is a little interest in creating a creative media. Media makers who have done work in this field are generally interested in the youth experience that generates media on one thing [2]. Educational media can accelerate the learning curve of learners and help the learners to create a better view than just hear [3].

Learning media are created so that students can understand the material in a shorter and more enjoyable time [4]. Chemistry is often regarded as a difficult subject. An observation that sometimes inhibits learners to continue chemical studies [5]. Chemistry teachers should strive to create an ideal environment for teaching and learning. Including technological tools in the classroom will require teachers to apply different teaching techniques [6].

The learning process based on the curriculum needs to be supported by the media of learning. One of them is electronic media such as disc / tape, video, interactive, animation, and others. Developing and improving students learning interests can be implemented by giving different touches in the learning process, such as by using animation to learn [7].

Animations could clearly present events that change over time, such as motion, process and procedure. This provides an external support for learners [8].

Through the technological advancement, teachers can use various media in accordance with the needs and learning objectives. One of the technologies that can help the manufacture of media with Adobe Flash CS5 program. Adobe Flash CS5 is one computer software that can be used as a medium of learning. However, there are still many teachers who have not utilized Adobe Flash CS5 as a medium of learning. Adobe Flash CS5 program's function is to create animations, both interactive and non-interactive animations.

Flash was originally developed for non-programming, easy to learn even for those who have no prior knowledge in programming languages. The most intriguing Flash feature is its powerful graphics capabilities and is not available in other standard programming languages [9]. The purpose of research is to develop Adobe Flash CS5 program as a medium of chemistry learning on chemistry equilibrium materials for class XI SMA first semester. A study mentions that the impact of Flash animation technology on student performance that can be seen on the percentage of student achievement better than before [10].

II. METHOD

This research is a development of instructional media by Adobe Flash CS5 program on chemical equilibrium material. The Research use Development Research method. Media development by Adobe Flash CS5 using ADDIE (Analysis, Design, Development, Implementation and Evaluation) steps. These steps include: (1) Analysis (analyzing the need for new development, analyzing the feasibility and requirements of developing new media), (2) Design (designing and preparing initial product or product design), (3) Development (realizing product design), (4) Implementation (use of new learning media that has been developed in real situations in the classroom), (5) Evaluation (measuring the final competence of instructional media). The research instruments used to collect data are questionnaires and objective tests. Stages of development of learning media chemistry by using Adobe Flash CS5 is illustrated in Figure 1.

III. RESULT AND DISCUSSION

Implementation of ADDIE model in designing and developing a learning media to create an effective and efficient classroom learning activity. The Steps in applying this development model need to be done gradually and carefully in order to achieve the desired goals. Before doing the development of instructional media, firstly done analysis to media of learning of chemistry using program of Adobe Flash CS5 which is available today either on internet or that have been used in school. Assessment standards for the analysis of available learning media (X and Y learning media) use modified assessment standards from relevant journals that have been validated by expert teams. This analysis aims to get a learning media quality and feasible to use. The standard component of assessment in analyzing the available

instructional media is currently summarized in Table 1 and the eligibility criteria of instructional media in Table 2.

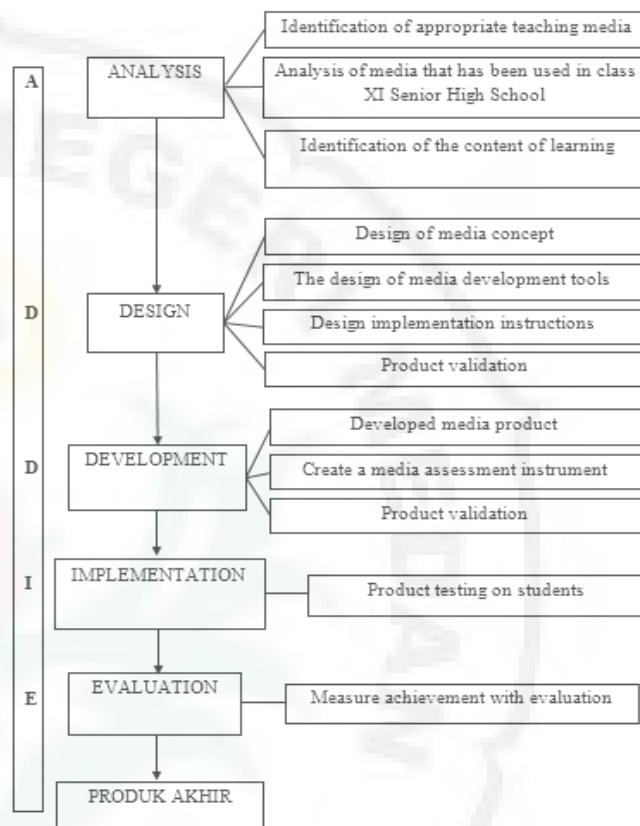


Figure 1. Stages of development of chemistry learning media using Adobe Flash CS5 program

Table 1. Standard Components of Assessment of Learning Media Analysis

Aspect	Indicator
View	(1) Background of each media page, (2) Fonts and font size used in each media page, (3) Use and suitability of color proportions on each media page, (4) Display of images on each media page, (5) Display (6) The overall design of the media and its design conformity with the learning materials, (7) the cover design and the main menu, (8) the appearance of the media animation, (9) the supporting / supporting view of the media
Relevance to the matter	(1) Conformity of material content to media with KI, KD, indicators and learning objectives, (2) Conformity of the content of the concept / theory to the media with the content of the concept / theory proposed by chemists / chemists, (3) Conformity of questions on the evaluation menu with learning materials, (4) Coverage of material content, (5) examples in the presentation of the material, (6) The ability of the media to improve the character of learners, (7) The ability of media for tools to understand and remember information, (8) Benefits of the delivery of material content using the media in the practice of teaching and learning, (9) Quality presentation of the material

Programming	(1) Ease of programming aspect, (2) Quality of navigation key, (3) Quality of navigation structure, (4) Use in running animation on media (simulation) to operate, (5) Access of operating system, (6) Capacity of program files
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Table 2. Eligibility Criteria of Learning Media

No	Persentase	Criteria
1	80,00 – 100	Feasible
2	60,00 - 79,99	Quite Feasible
3	50,00 – 59,99	Less Worthy
4	0 – 49,99	not feasible

3.1. Analysis of Learning Media X

The result of analysis of learning media X by using assessment standard can be seen in Figure 2.

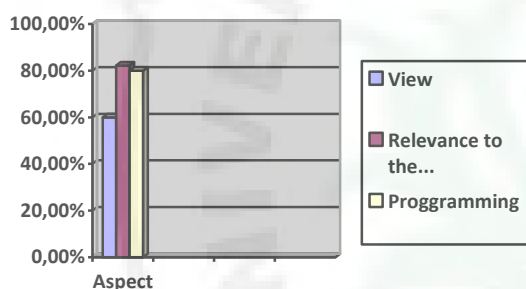


Figure 2. Percentage of Media Learning Eligibility X

The result of X learning media analysis on chemical equilibrium material as a whole has percentage covering (1) aspect of view of 60,00% (quite feasible) meaning that some of instructional media display need to be revised and need to be developed, (2) aspect relevance to the matter to 82,22 % (feasible), but still needs to be developed, (3) programming aspect of 80,00% (feasible), but still needs to be developed.

Based on the results of the analysis can be identified deficiencies contained in the learning media X chemical equilibrium material. For the feasibility of the display on learning media X is quite feasible but needs further revision and development. For example in the cover design view and main menu, display media usage manual, display media support. For the feasibility of the material on learning media X is feasible but still needs to be developed. For example on the scope of the content, the ability of the media in improving the character of learners. In the feasibility analysis programming on learning media X is feasible, but need to be developed. For example on the quality of the navigation key, the quality of the navigation structure.

3.2. Analysis of Learning Media Y

In the learning media Y is also done the same as in learning media X that is using the standard contents of the media assessment instrument. The results of the analysis can be seen in Figure 3.

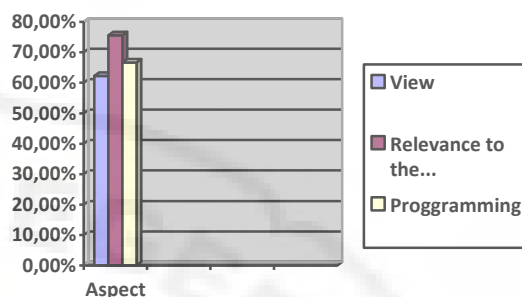


Figure 3. Percentage of Media Learning Eligibility Y

The result of Y learning media analysis on chemical equilibrium material as a whole has percentage covering (1) aspect of view of 62,22% (quite feasible) meaning some of instructional media display need to be revised and need to be developed, (2) aspect of relevance to the matter to 75,56 % (quite feasible), but still needs to be developed, (3) programming aspect of 66,67% (quite feasible), but still needs to be developed.

From the analysis results can be known deficiencies contained in the learning media Y chemical equilibrium material. For the feasibility of display on the learning media Y is quite feasible but needs further revision and development. Needs development in view of media usage, cover design and main menu, animated display on media, media support display. For the feasibility of the material on the learning media Y is quite feasible but still needs to be developed. For example on giving examples and adding exercise questions to the evaluation. In the learning media Y there are no questions of evolution. And for feasibility analysis of programming on learning media Y is quite feasible, but need to be developed. For example on the quality of the navigation buttons, the quality of the navigation structure and use in running animation on the media to operate.

IV. CONCLUSION

The result of learning media X analysis as a whole is feasible and the learning media Y is quite feasible but needs to be revised and developed by paying attention to the deficiencies that have been analyzed in order to be applied to the developed learning media. So with the development of new learning media produced and more quality.

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