HYPERTEXT BASED INTERACTIVE MULTIMEDIA DEVELOPMENT

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Abstract

This research is based on the need to design learning media that can make students can interact with learning media, can be used easily, and can be used at any time in biology learning. The purpose of this research is to create biology learning media in the form of interactive multimedia based on hypertext that is feasible for use in learning. The research method used in this research is Lee & Owens development model which consists of 4 steps namely analysis, design, implemnetation and development, and evaluation. The resulting development product is interactive multimedia. Based on the description of the results and discussions, it can be concluded that hypertext-based interactive multimedia is categorized as very feasible with an average validity percentage of media experts of 83.3%, material experts of 88.19%, and students of 95.83%. These results show that hypertext-based interactive multimedia developed is very feasible to be used in biology learning, believed to facilitate the achievement of learning objectives, increase interest, motivation, mastery of concepts, and student learning outcomes.

Keywords: Biology, Hypertext, Interactive Multimedia

INTRODUCTION

Biology is the study of living things and their structures and functions. (Listiana, 2013) explains that biology in reality emphasizes the mastery of concepts, facts, and principles / theories. Biological material is not only related to scientific facts about concrete natural phenomena, but also to things or abstract objects such as chemical metabolic processes in the body, the hormonal system, and the coordination system (Sudarisman, 2015). This shows that biology requires good visualization to facilitate students' mastery of concepts.

The facts in SMA Negeri 09 Bombana show that the media used is still conventional in the form of textbooks as a guide in learning, students focus on the lecture method used by the teacher, students do not interact with the media, so students have less interest and motivation in learning, student learning outcomes still low below the minimum completeness score set by the school. This shows it is necessary to design instructional media that can allow students to interact with learning media, can be used easily, and can be used at any time.

In order to make it easier for students to achieve the above, appropriate learning media are needed in accordance with technological developments. One suitable medium is hypertext-based interactive multimedia. Multimedia is a learning medium that combines several media elements represented on computers to convey information so that information becomes interesting and easy to understand (Wahyudiani, Rasyid, & Saputra, 2020). (Nopriyanti & Sudira, 2015; Aina, 2013) explained that multimedia is a collection of several media such as text, images, audio, video, and

animation that are interactive which are used to convey information. (Armansyah, Sulton, & Sulthoni, 2019) explained that interactive multimedia is a solution in making it easier for students to learn material compared to monotonous text books / ebooks. (Praheto, Andayani, Rohmadi, & Wardani, 2017) explained that multimedia is a multimedia application used in learning to transmit messages, in the form of knowledge, skills and attitudes and can stimulate student choices, feelings, attention, and willingness so that the learning process deliberately occurs. purposeful and restrained.

(Susilawati, 2016) explained that hypertext is a computer-based multimedia concept. Four potential learning media that can be conveyed through hypertext-based interactive multimedia are: (1) visualization to support explanation, (2) learning using simulations to facilitate mastery of the material, (3) problem solving learning equipped with automatic feedback, and (4) integration between collaborative and independent learning.

Interactive multimedia can be a good solution in learning biology. This statement is supported by research results (Prayitno & Hidayati, 2017) which concluded that interactive multimedia containing Edmodo Android-based microbiology material developed was declared valid in terms of media and microbiological material so that it is suitable for use in microbiology teaching and learning activities. Research (Syahdiani, Kardi, & Sanjaya, 2015) concluded that interactive multimedia is appropriate to use to improve learning outcomes and train students' critical thinking skills. (Anggraini, Lestari, & Handayani, 2019) in their research concluded that interactive multimedia is valid, practical, and effective in learning biology.

Starting from the description above, alternative solutions are needed to facilitate students' mastery of concepts, visualization of biology learning, and increase student interest, motivation, and learning outcomes. Interactive multimedia is the right topic to be studied and applied in the biology learning process. Based on this, it is necessary to develop biology learning media in the form of interactive multimedia based on hypertext.

METHOD

This study uses a development model (Lee & Owens, 2004) which consists of 4 steps, namely analysis, design, implementation and development, and evaluation which in detail can be seen in Figure 1 below:
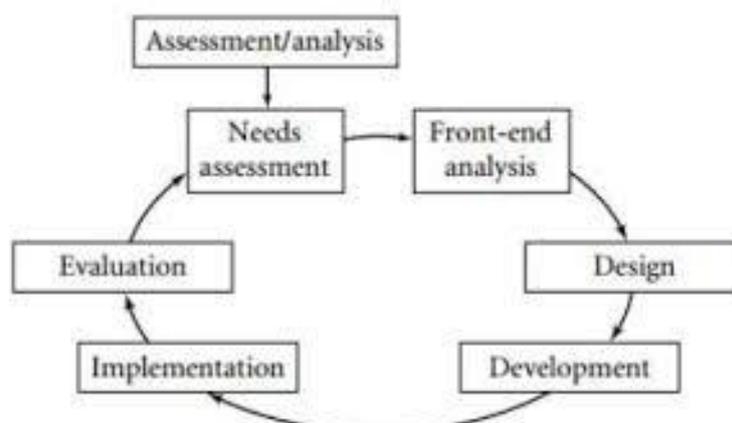

Figure 1. Lee & Owens Development Model

The subjects of this study were 31 students of Class X SMA Negeri 09 Bombana. Data collection was carried out through documentation and questionnaires. Documentation is used to collect data using written sources such as syllabus, lesson plans, teaching materials that can be used as a reference in class X biology learning, as well as pictures or photos from the results of limited trial documentation, wider trials and application trials and validation of feasibility by experts media and material. Questionnaires are used to obtain data from research subjects, both

limited trial subjects, extensive trials, validation of media experts and material experts as well as data from application tests. The instrument used is an evaluation instrument used to assess the feasibility of the media. The data analysis technique used is descriptive quantitative analysis technique, namely describing the results of product observations in the form of Hypertext-based learning media, testing the level of validation and product feasibility to be implemented in Biology class X at SMA Negeri 09 Bombana.

RESULTS AND DISCUSSION

The results obtained in this development are the existence of hypertext-based interactive multimedia in biology class X SMA Negeri 09 Bombana. In general, this interactive multimedia display can be seen in Figure 2, Figure 3, and Figure 4 below .

Figure 2. Initial Media Preview

Figure 3. Display of the Material Menu

Figure 4. Display of Hypertext Shaped Material

The results of the assessment of a hypertext-based interactive multimedia feasibility questionnaire based on the assessment of media experts, material experts, and students obtained an average validity level of media experts of 83.3%, material experts of 88.19%, and

students of 95.83%. Referring to the percentage scale of the feasibility level interpretation, the results of the validator's assessment show that the categorized hypertext-based interactive multimedia is very feasible to be used in the learning process. The results of the validator's assessment can be seen in Figure 5 below:
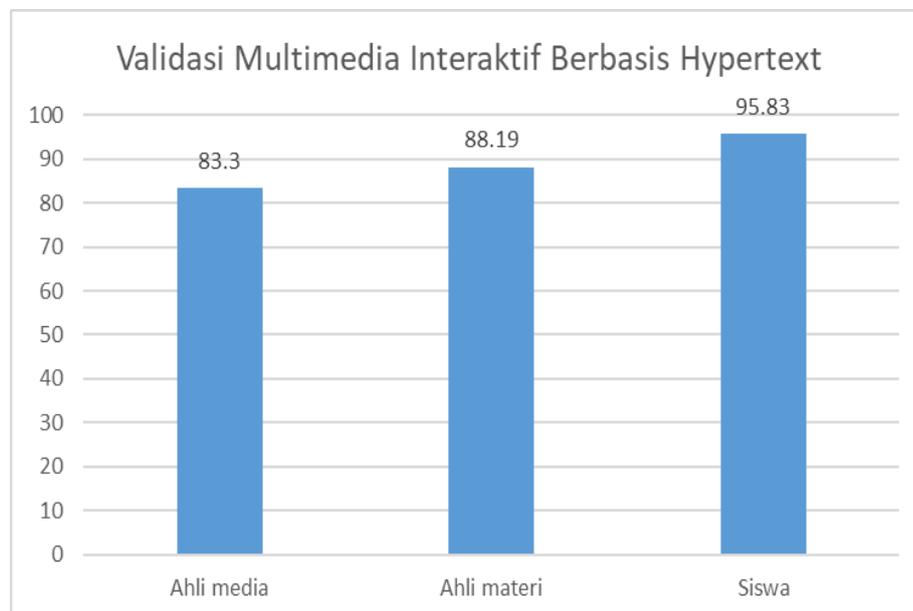

Figure 5. Results of the Hypertext-Based Interactive Multimedia Validation

DISCUSSION

Multimedia is a combination or combination of different media types such as text, graphics, video, audio, animation which are integrated into a single intermediary system under computer control (Rahmat, 2015). The selection of hypertext-based interactive multimedia in this development is based on an opinion (Zulhelmi, Adlim, & Mahidin, 2017) which explains that interactive multimedia is designed to clarify the presentation of messages, information, and can overcome the limitations of senses, space, time, and objects.

Based on the data described in the results above, it was found that the results of the validator's assessment were categorized as very feasible, which means that the interactive multimedia developed is very suitable for use in learning biology. The results of this study are in accordance with the research (Khotimah & Santosa, 2016). In their research, they concluded that interactive multimedia learning media was suitable for use in learning. (Novana, Sukaesih, & Prasetyo, 2012) develop interactive multimedia in English on vertebrate material that is categorized as suitable as a learning supplement. Another study was conducted by Wilsa (2019) who concluded that the average acquisition value of biology learning outcomes of students who used interactive multimedia obtained better results than students who studied using textbooks.

Interactive multimedia has a dynamic display so that it has a special attraction for students to continue learning (Wahyudiani, Rasyid, & Saputra, 2020). (Rizal, Rahmat, & Rizal, 2016) explained that learning using interactive multimedia can increase student interest and motivation. The use of interactive multimedia results in a tendency to increase the average value of student learning motivation and student cognitive learning outcomes (Parata & Zawawi, 2018).

Hypertext-based interactive multimedia is useful as a medium that teachers and students can use in the learning process to make it easier to achieve predetermined learning goals. Learning using interactive multimedia will make learning more effective, interesting, and

interactive because of the interaction between media and students. Interactive multimedia will also facilitate teacher performance because the teacher only acts as a facilitator in learning so that student-centered learning is formed.

CONCLUSION

Based on the description of the results and discussion, it can be concluded that interactive multimedia based on hypertext is very feasible with the percentage of the average validity level of media experts of 83.3%, material experts of 88.19%, and students of 95.83%. These results indicate that the developed interactive multimedia based on hypertext is very suitable for use in learning biology, is believed to facilitate the achievement of learning goals, increase interest, motivation, mastery of concepts, and student learning outcomes.

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