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Students' learning motivation response to the animal tissue e-module class XI SMA

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ABSTRACT

Animal tissue is material studied in class XI with coverage of epithelial tissue, connective tissue, muscle tissue and nerve tissue. Animal tissue material has characteristics that focus on visualizing animal tissue because tissue is an abstract material and to make it more real, it requires media in the form of e-modules to visualize animal tissue material clearly. The purpose of this study was to determine the motivational response of students to the use of animal tissue e-modules. This type of research is descriptive research with a quantitative approach. The instrument used is a questionnaire with aspects assessed, namely the feasibility of content, language, benefits and graphics. Based on the results of the study, it was found that the response of students' learning motivation to the e-module was very good, namely with an average score of 77.14%, which means that students' learning motivation increased after using the animal tissue e-module.

Introduction

The 21st century is an era of global digitalization where technological developments are maximized in various fields. In the world of education, technology has an important role to play in facing the challenges of the 21st century. Information and communication technology in the world of education has in fact been able to eliminate the boundaries of space and time which have been the determinants of the speed and success of mastering science and knowledge. Humans can connect with each other anytime, anywhere, and in any condition through technology in various digital media. In the world of education, the 21st century demands learning that integrates technology in learning media in order to develop students' learning skills[1]. The use of information technology and internet utilization is a big challenge for teachers considering that teachers must be able to equip students with 21st century skills. One of the 21st century skills that students must have is critical thinking skills which include the ability to solve problems and think innovatively and be able to be skilled in communication and cooperation.

Gadgets or smartphones are one of the products of 21st century technology. The use of gadgets is not only used by adults, children and even toddlers are now able to operate gadgets because the content contained in them is easily accessible to anyone. Considering that the use of gadgets today does not look at age, then of course gadgets are very influential on the development of toddlers to school-age children. Coupled with the impact of the covid-19 pandemic which suddenly changed the learning patterns of students who tend to be attached to the world of technology and the internet. The use of devices in learning can make students' learning motivation need to be considered, decreased student motivation can result in the achievement of learning objectives being less than optimal[2]. Information technology in education is important to be developed to add the latest innovations, so that the use of technology such as gadgets can have a positive impact on learning.

In the 21st century, both educators and students are required to adapt to digital technology to help run the process of teaching and learning activities both online and offline effectively and efficiently. Based on interviews that have been conducted with biology teachers at SMA N 3 Bantul, it is known that biology learning that is currently carried out tends to use power points, package books, and LKPD and other printed media which tend to cause student boredom because the learning media used are less varied and innovative. The lack of understanding of students can be influenced by the boredom of students towards learning media and the unfocusedness of students in observing the explanation of the teacher.

To help students understand biology material and foster the motivation of students' enthusiasm in learning, it is important for an educator to develop learning media that is varied and based on digital technology considering that many students are more interested in digital learning media. One alternative that can be developed as digital learning media is a flipbook type e-book. Flipbook is a learning media based on the development of digital books with a combination of text, images, audio, video and interactive animation.[3]. Research conducted by Hayati, et al which produced Physics flipbook media showed the results that the flipbook had a very feasible feasibility interpretation of 95.87% and proved to be able to improve student learning outcomes in optical instrument material. The development of flipbooks based on science literacy can be developed in class XI high school animal tissue material. This also details the demands of KD 3.4 Biology class XI, namely analyzing the relationship between cell structure in animal tissues and organ function in animals. Animal tissue material is quite complex material which includes epithelial tissue, connective tissue, muscle tissue and nerve tissue. From this material, there are many illustrations that are important to describe in order to make learning more meaningful and increase learning motivation and curiosity of students about the material to be presented.

Based on this, further research was carried out with the aim of producing flipbooks on animal tissue material that was feasible both in content and empirically and describing the level of feasibility when tested on students and was able to increase student motivation and interest in learning biology subjects. One application that can be used to develop flipbooks is the corporate PDF flipbook. Flipbook PDF corporate is one of the software used to create digital books like printed books that can be opened pages but in the form of books that are accessed online[4]. The appearance of digital books developed by flipbook PDF corporate is attractive with various features that include audio, images, videos and online quizzes. Based on research conducted[5]. Which concluded that the results of the learning attractiveness test using the PDF Professional flip-based digital module were effective and interesting when applied to the learning of seventh grade junior high school students.

Method

The type of research used is descriptive research with a quantitative approach that aims to determine the response of student learning motivation to the e-module of animal tissue class

XI SMA. The population used in this study were students of class XI MIPA SMA Negeri 3 Bantul as many as 144 students, while the sample used was 49 students, namely 24 students of class XI MIPA 1 and 25 students of class XI MIPA 2. The sample selection used simple random sampling technique. This research approach uses a quantitative approach because the categorization uses numerical scores, starting from data collection, data interpretation, and data can be displayed in diagrams to make it easier to understand.

The data collection technique uses non-tests with the instrument used in this study in the form of a questionnaire containing student responses regarding the PDF flipbook of animal tissue material on student learning motivation. The questionnaire used is in the form of 20 questions with aspects assessed including content feasibility, language, benefits, and graphics. The questionnaire score uses a Likert scale with reference to score 4 is strongly agree, score 3 is agree, score 2 is disagree, and score 1 is strongly disagree. Before being used in the field, the questionnaire sheet was validated first. Data analysis was carried out by calculating the average percentage of questionnaire answers per indicator[6]. The data that has been obtained from the questionnaire is then analyzed and converted into four assessment categories, the assessment score categorization is as follows 76-100 (very good), 51-75 (good), 26-50 (quite good), and less than 26 (less good)[7].

Results and Discussion

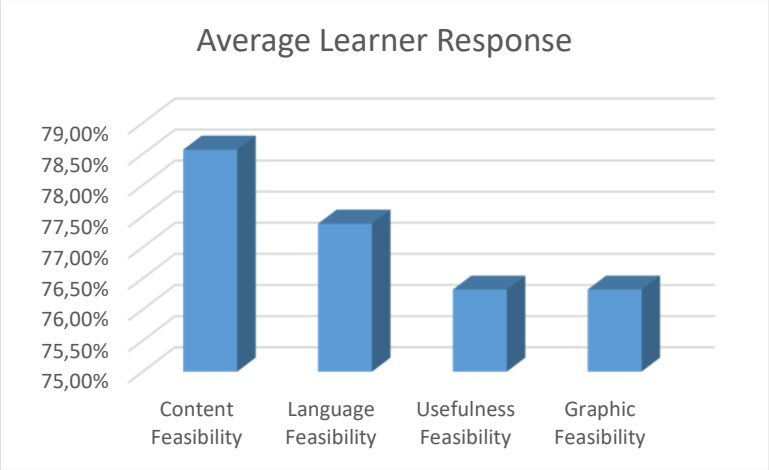

Figure 1. Graph of Average Overall Student Response

One of the 21st century technology-based learning media development innovations is flipbook, flipbook itself is one type of digital book that is currently being developed in the world of education. Digital book is an electronic book that comes from ordinary reading books developed with digital features that can help readers to understand and attract students' interest in learning[8]. Flipbook is a book published in digital form in which there are audio-visual features such as writing images, audio, and video that can be accessed using devices or computer devices. One application that can be used to develop flipbooks is the corporate PDF flipbook. In this study, the PDF corporate flipbook application was used to develop a digital book on animal tissue material for class XI SMA. The corporate PDF flipbook application has a variety of features including the feature of adding images, audio, backsound, video and online quizzes. By developing a flipbook, students' learning activities will become more practical and efficient both in terms of reading interest and ease in conducting online evaluations.

In the aspect of content feasibility, there are 7 statement points related to the content of the animal tissue e-module, showing an average score of 78.57%, which means that the feasibility of the content of the animal tissue e-module is very good. In the aspect of content

feasibility there is a statement that in the flipbook the learning objectives for each activity are very clear because based on the results of student responses that show the feasibility aspect of the content of point one shows a score of 78.57%. The second point of the content feasibility aspect is that the material presented is in accordance with the learning objectives, based on the results of student responses to this second point scored 81.22%. This can show that the material presented in the animal tissue e-module is very much in accordance with the learning objectives. The third point is about the order of the material presented in the e-module is very good because the score obtained is 79.59%. The fourth point is the statement that the flipbook is very interactive, based on the results of student responses, a score of 77.04% was obtained. So it can be said that this flipbook is very interactive when used in the learning process. This is in accordance with what Aprilia stated that the use of flipbook-based learning media is considered effective to support the learning process.[8].

In the aspect of content feasibility, the fifth point gets a score of 77.04%, namely the existence of learning steps in the animal tissue e-module is very easy for students to follow. The sixth point is the availability of quizzes in accordance with animal tissue material, based on the score of 79.08%, it shows that the quizzes contained in the animal tissue e-module are very suitable for animal tissue material. Then the last one is the question work in the animal tissue e-module can be accessed easily get a score of 78.06% which indicates that the question can be accessed very easily. According to Armani et al. the features available in flipbook-based e-modules include text, images, illustrations, animations, videos, which are interactive and based on a scientific approach[9]. With the complete features or components of e-modules in the content aspect, it will certainly support the utilization and effectiveness of biology learning both offline and online. With the learning steps in the animal tissue e-module can help students in independent learning activities with monitoring from the teacher. With the quiz in the animal tissue e-module, the evaluation of teaching and learning activities becomes more practical and neat, this is because students can take quizzes directly using their gadgets, the scores obtained can also be seen directly by students, and the ease of use of animal tissue e-modules that can be accessed anytime and anywhere. However, despite this, several problems arise from the use of animal tissue e-modules such as not all students have devices in their hands, not all students have adequate internet quota, and the ability of students' devices which are sometimes slow when operated. For this reason, the content aspect is very important to be assessed because it includes all the components that should be contained in the learning module.

The second aspect is the feasibility aspect of the language used in the animal tissue e-module which is assessed based on three linguistic points. First, the writing on the animal tissue e-module can be read clearly, getting a score of 78.08%, this shows that the writing contained in the animal tissue e-module can be read very clearly because the score shows that the first point of the language aspect is in the very good category. Second, the material presented using sentences that are easy to understand gets a score of 78.57%, this shows that the second point is in the very good category and can be interpreted that the material presented uses sentences that are very easy for students to understand. This easy-to-understand sentence can make it easier for students to understand the content of material related to animal tissue. The third point, namely the sentences used do not interpret double meanings, received a score of 74.48%, which can be categorized that the score on the third point of the linguistic aspect is good. This can be caused by the name of scientific terms related to animal tissue material, so students feel that sentences can have double meanings because there are scientific words equipped with their meanings. But overall, the linguistic aspects get an average score of 77.38%, which can be said that the linguistic aspects of the animal tissue e-modules used are very good. In writing learning media, effective sentences are needed to avoid errors in the interpretation of students. the characteristics of effective sentences include logicality, economy, accuracy, equivalence, and parallelism. Logicality means that the sentence is acceptable to common sense and in accordance with applicable spelling, economy means avoiding the use of unnecessary words,

accuracy means the ability to make sentences that do not cause double meaning and are precise in word selection, equivalence means the balance of language structure with the main idea, cohesiveness means that the information conveyed is not wordy, and parallelism means the alignment of words in a sentence[10]. Sentences that are clear, easy to understand and do not cause double meanings are very important to have in learning media, ineffective sentences in learning media can make mistakes in the interpretation of knowledge gained by students.

The third aspect is the feasibility of usefulness which consists of 5 statement points, which in this aspect is closely related to student learning motivation. First, the animal tissue e-module is easy to operate or easy to use, getting a score of 78.06%, this shows that the animal tissue e-module is very easy to operate and easy to use which can make it easier for students to learn anywhere, anytime, and under any circumstances students can access and study the animal tissue e-module. Second, students are interested in using animal tissue e-modules to learn to get a score of 76.53%, this shows that animal tissue e-modules increase learning motivation because they make students interested in learning. This is in accordance with what was conveyed by Izza who stated that Flipbook is one of the media that can attract students during the learning process, this is because the flipbook is considered to have a significant influence to support the learning process[11]. Third, the availability of videos and images on the animal tissue e-module makes it easier to understand the content of learning materials to get a score of 79.08% which can be categorized as very good. Fourth, students can learn independently with the developed animal tissue e-module getting a score of 76.02% from the results showing that the fourth point of the feasibility aspect is very good, this is very related to student learning motivation because students have the desire to learn independently. Fifth, namely student learning motivation increases when using animal tissue e-modules get a score of 71.93%, indicating that the fifth point of the feasibility aspect of usefulness can be categorized as good. However, from the average score on the feasibility aspect of usefulness, namely 76.32%, which overall in the feasibility aspect of usefulness is very good. From the five statement points on the benefits aspect, it is known that the use of animal tissue e-modules is very beneficial for students, this is supported by research conducted by Sugianto et al. which states that flipbook-based e-modules are very beneficial for students, starting from the ease of students in understanding learning material, and the ease with which students operate them, as well as music and animation elements can help increase students' interest, motivation in learning activities in class. In addition, e-modules can be operated anywhere, making it practical to carry anywhere. The use of e-modules in teaching and learning activities is very positive to increase the motivation and interest of students, besides that its practical and easily accessible appearance makes this e-module learning media suitable for use in the digital and global 21st century era[12].

The fourth aspect is the feasibility of graphics which consists of 5 statement points. First, the available images are clear (not blurry) get a score of 77.55% which indicates that the available images are very clear and not blurry, this can be caused by the pop up image feature contained in the PDF corporate flipbook so that the original small image can be opened to be large. Second, the available videos are easy and smooth to operate, getting a score of 77.04% which indicates that the available videos are very easy and very smooth to operate. Third, the use of image and video illustrations in accordance with the material scored 79.59% which indicates very good. Fourth, the placement of the layout and components of the animal tissue e-module is appropriate, getting a score of 77.55%, which means very good. Fifth, the backsound makes students calm when learning gets a score of 71.93% which means good, this can be because the backsound used is not in accordance with the content of the animal tissue e-module material or does not match the classroom atmosphere during the learning process. But overall in the aspect of feasibility of graphics, the average score is 76.32%, which indicates that the feasibility aspect of graphics is very good. The aspects of graphics that attract the attention of students are included in the advantages of developing flipbook-based learning media, the

advantages of flipbook-based e-modules are that e-modules can be used as online and offline learning resources, and the design of illustrative forms both visual and audiovisual can be useful for clarifying the learning picture so that students are not easily bored and bored in teaching and learning activities[13]. The pop up illustration feature makes readers clearly understand the images presented, the learning videos listed can be used as another learning resource for students to repeat their lessons, audio can be used as a mind calmer while doing teaching and learning activities, and quizzes that can be easily accessed and done by students and help teachers in recording student learning outcomes more practically and easily[11]. According to Pradani and Aziza, good learning media is media in the form of interactive digital books complete with attractive displays and easy use and can support online learning[14]. Rahayu, *et al*. stated that interactive flipbook media can increase students' learning motivation both together with the teacher and independently both offline and online[12]. The implementation of online learning requires a new innovation related to the material in an interesting way in order to build students' learning motivation.

Conclusion

The results showed that the students' learning motivation response to the animal tissue e-module for class XI SMA in biology subjects was very good. Of the four aspects studied, namely aspects of content feasibility, language, usefulness, and kegrafikan get a very good response to student learning motivation. This can be seen from the average score of students' responses to the e-module which is 77.14%, thus the response to students' learning motivation to the e-module of animal tissue class XI SMA is very good.

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