

Implementation Of Technology-Based Sports Anatomy Learning In The
Physical Education, Health, And Recreation Study Program At Medan
State University

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Abstract
<p>Objectives. The lack of utilization of the implementation module for anatomy teaching materials in sports using interactive digital as a tool in teaching and learning activities in sports anatomy courses. The need for the development of an implementation module for anatomy teaching materials in sports that can use interactive digital is expected to be able to help students understand the learning in anatomy courses more deeply as well as interactive digital learning that is more enjoyable and the implementation module for anatomy teaching materials developed by researchers is more practical.</p> <p>Materials and Methods. This research uses a development method (Research & Development). Development research is research that produces a specific product and tests the effectiveness of the product. This research uses the 4-D development. To meet the 4-D design requirements, the purpose of this research is to produce technology-based interactive sports anatomy teaching materials and validate them with experts in the fields of materials, language, and multimedia to provide input and suggestions and demonstrate the effectiveness of the developed teaching materials.</p> <p>Results. Interest in using and reading the interactive digital module of sports anatomy. The average score for the media aspect is 4.77 with a percentage value of 34%, so it is included in the "Very Valid" category. The indicator of questions on the ease of learning the material of the interactive digital module of sports anatomy received an average score of 4.75 with a percentage value of 34%, so it is included in the "Very Valid" category. Meanwhile, the indicator of increasing interest in learning questions falls into the "Valid" category. The average score for the Aspect of the teaching and learning aspect in the sports anatomy course is 4.43 with a percentage value of 32%, and falls into the "Very Valid" category.</p> <p>Conclusions. The use of these teaching materials has the advantage of being accessible anytime and anywhere. Through technological advancements, lecturers can provide guidance on how to pay attention to the well-presented interactive digital materials on sports anatomy, ensuring they adhere to the learning plan developed by the lecturers.</p>
Keywords: Implementation, Technology, Based, Sports Anatomy, Learning

Introduction

Science and technology are currently developing rapidly, and their use is becoming increasingly accessible to the wider community. The current era of education is entering a learning era that requires media in the teaching and learning process. This is because the

learning process demands a greater focus on media use and requires the use of electronic equipment that can increase the appeal and understanding of learning (Hilaliyah, 2018). Learning resources are all equipment and aids used by teachers/lecturers/tutors or students to enhance the learning process; or in other words, to enable learning to occur. Educators' perceptions and technical readiness to use media are ways to support appropriate methods and strategies to support learning (Hanif, Asrowi, Sunardi, 2018). Lectures using technology-based teaching materials can improve student skills. Not only that, students are also enthusiastic about participating in lecture activities. The analysis of teaching material development can make students understand and comprehend the material better and be more active in learning (Magdalena et al., 2020). However, lecturers struggle to create interactive teaching materials based on information technology or digital technology for lectures. Furthermore, students who do not understand how to access learning resources in courses or technology-based teaching materials. Student satisfaction is also a key concern for universities (Briyantoro, Surya Nugraha, Trenggalek Institute of Technology and Business, & Trenggalek, 2023). Student satisfaction is a positive attitude of students towards university educational services due to the comparison between student expectations and lecturer competencies supported by infrastructure and leadership and acceptance of reality (Ridhwan, Ghani, & Andini, 2018). The learning resources used must be in accordance with the learning objectives to be achieved. Effective learning resources are those that can stimulate a number of senses in students, such as: sight, hearing, and taste. Information technology will certainly be very helpful because various elements from around the world can be interconnected and a lot of information is easily accessible. In addition, the use of information technology can also broaden educators' global perspectives on the world of education so that educators can transmit and develop awareness of global knowledge to their students (Sprague 2012: 221-253). It cannot be denied that technological developments have contributed to the world of education today, therefore, information media is considered capable of fixing existing problems, at the university level students are required to think effectively and efficiently in using advances in Information Technology in the learning process so that it will be more meaningful in keeping up with the changing times. The existence of technology today is considered very important in human life as a support in carrying out various activities both in doing work and in terms of education. In accordance with the objectives of national education, it not only equips students with the ability of knowledge, understanding, and application, but also develops skills from the cognitive, affective and psychomotor domains. (Yuliyanti et al., 2020).

In the learning process, media plays a crucial role. Media can create a varied and engaging learning environment. Educators use the learning process as a communication tool to convey information to students (Herlambang, 2018). Learning media significantly impacts learning. This is because the interaction between students and the learning materials is a tangible manifestation of all teaching and learning activities (Pratiwi and Latifah, 2019). The successful implementation of lectures using technology-based learning materials requires skills. Digital literacy is essential for every university, including lecturers, students, and policymakers. In learning, a teacher must be able to provide a comprehensive understanding of the material to students, not just through verbal and direct instruction, as verbal and direct instruction is often abstract and difficult to understand (Rasyid, 2019). Science is developing rapidly. Advances in information technology have a significant impact on all fields, including education. Formal education in Indonesia is being actively promoted, unfortunately, the implementation of information technology is still hampered due to various existing technical obstacles. The National Education System, which has been regulated in Law No. 20 of 2003, is then elaborated in Government Regulation No. 19 of 2015 concerning National Education

Standards, Article 19 paragraph 1, which states that the learning process in schools can be carried out in an interactive manner, inspiring learning, learning that is enjoyable, and learning that provides challenges, in order to foster activeness, foster creativity, foster a sense of independence, in accordance with the talents, interests, and physical and spiritual development of each student. Therefore, when teachers design teaching and learning activities, at least they do it using media and learning resources to make it easier for educators and students to convey and understand the desired learning objectives. (Sari & Yustiana, 2021). The influence of information and communication technology in the world of education is increasingly felt in line with the shift in learning patterns from conventional face-to-face learning towards more open and media-based education. One way to improve the quality of education is by utilizing sophisticated technology, especially in the learning process and material delivery. Technological advancements have transformed the role of teachers from instructors responsible for delivering subject matter to facilitators facilitating learning (Lidiawati et al., 2022).

The basic principles of technology-based learning processes are the essence of today's educational technology. Learning by utilizing technology is a fairly broad learning. The use of media can increase students' learning motivation so that students' attention to the subject matter will increase. (Wina Sanjaya, 2014). Global demands require the world of education to always adapt to technological developments in efforts to improve the quality of education, especially the adjustment of the use of information and communication technology for the world of education, especially in the learning process. The use of Information Technology in learning becomes an independent learning system or is also combined with direct learning processes (face-to-face in class) that rely on the presence of teachers. (Made Wena, 2010). The application of technology in learning activities not only facilitates access to information, but also revolutionizes the learning method itself. Various innovations such as online learning, e-books, educational videos, and learning applications have opened up opportunities to create a more interactive and engaging learning process. The learning process activity is the most fundamental activity in the entire educational process. This means that the achievement of educational goals depends largely on how the learning process is designed and implemented professionally. (Rusman, Deni Kurniawan, 2015). In addition, the use of technological elements will allow students to control the process in the atmosphere of the lecture with the speed of students' reasoning power to repeat difficult content before moving on to the next material indicator.

Materials and Methods

Study Participants.

This research uses a development method (Research & Development). Development research is research that produces a specific product and tests the effectiveness of the product (Sugiyono, 2019). This research uses the 4-D development model by Thiagarajan (1974) which consists of 4 stages: defining, designing, developing, and disseminating (Sani, et al., 2019). To meet the 4-D design requirements, the purpose of this research is to produce technology-based interactive sports anatomy teaching materials and validate them with experts in the fields of materials, language, and multimedia to provide input and suggestions and demonstrate the effectiveness of the developed teaching materials.

Results

The results of the needs analysis from the survey and data collection in the field conducted, researchers feel the lack of utilization of the implementation module of anatomy teaching materials in sports using interactive digital as a tool in teaching and learning activities in sports anatomy courses. The need for the development of an implementation module of anatomy teaching materials in sports that can use interactive digital is expected to be able to help students understand the learning in the anatomy course more deeply as well as

more enjoyable interactive digital learning and the implementation module of anatomy teaching materials developed by researchers is more practical. This interactive digital module teaching material is also equipped with attractive images, and there are video displays related to the sports anatomy material presented. The design of the development of anatomy teaching materials in sports is designed according to the format (1) The opening consists of a cover page with the title "Sports Anatomy Teaching Materials" (2) The contents consist of an introduction containing a description of the module, basic competencies of the anatomy teaching material implementation module and supporting information, learning activities in the course consisting of a description of sports anatomy material and a questionnaire on the learning outcomes of the sports anatomy course, evaluation consisting of evaluation of questions from the questionnaire and a glossary (3) The closing consists of the final page of the cover and a bibliography. After the implementation module of anatomy teaching materials in sports was successfully developed through interactive digital learning, the next step is, researchers conduct a feasibility test by validating the product resulting from the development of the sports anatomy teaching material module.

The validation test that will be carried out, namely design validation against media experts, validation from lecturers in charge of sports anatomy courses and validation of material content against material experts. Based on the development of the implementation of anatomy teaching materials in sports, the results of responses from lecturers in charge of sports anatomy courses provide suggestions that, teaching materials from interactive digital sports anatomy materials developed presentation of video and image materials should be more adapted to the study learning design from references that are in accordance with the knowledge of students who are taking sports anatomy courses and in making more effective questionnaires increased essay questions in the form of images so that students can understand the flow of the sports anatomy process being studied. At the validation stage, media experts provide assessments and suggestions for the product of the teaching material module from interactive digital sports anatomy materials developed by researchers, namely for the volume to be less loud, and the duration of the video should not be too long so that readers of the interactive digital sports anatomy teaching module do not get bored easily. At the validation stage, media experts provide assessments and suggestions regarding the development of teaching material modules from interactive digital sports anatomy materials, namely, for the design of the cover design product of the interactive digital sports anatomy module only takes from the program start display, This causes the module cover not to appear in its entirety, this design is less attractive, and looks stiff. The cover design should be supplemented with information and explanations about the media and menus in the interactive digital sports anatomy module developed by researchers. and the application of the teaching material module from this sports anatomy material, motivational videos should be added for students. During the field trial, students were asked to use the interactive digital sports anatomy module developed by researchers independently. This trial used computers, laptops and mobile phones to view the material in the interactive digital sports anatomy module.

Discussion

During the field trial, students also seemed enthusiastic about using and reading the interactive digital sports anatomy module. The media feasibility assessment was carried out by asking students who were taking the sports anatomy course to fill out a user feasibility test questionnaire consisting of three aspects, namely in terms of media aspects, material aspects,

and aspects of teaching and learning activities in the sports anatomy course. The main field trial results were on the media aspect of the interactive digital sports anatomy module. The lecturer in charge of the course provided directions to pay attention to the interactive digital sports anatomy module material which was presented very well so that it did not deviate from the learning plan that had been prepared by the lecturer in charge of the sports anatomy course. Question items in question indicators number 1 to 4 were included in the valid category, while question items in indicator 4 were included in the Very Valid category. The question items that received the "Very Valid" category were the interestingness in using and reading the interactive digital sports anatomy module. The average score for the media aspect was 4.77 with a percentage value of 34%, so it was included in the "Very Valid" category. The aspect of the interactive digital module material of sports anatomy, got an average score in the "Valid" category for the indicator item of the question of ease in learning the interactive digital module material of sports anatomy got an average score of 4.75 with a percentage value of 34%, so it is included in the "Very Valid" category. The aspect of teaching and learning in the sports anatomy course using interactive digital modules, there is one indicator item included in the "Very Valid" category, while one indicator item is increasing interest in learning questions that fall into the "Valid" category. The average score for the aspect of the aspect of teaching and learning in the sports anatomy course is 4.43 with a percentage value of 32%, and is included in the "Very Valid" category.

Conclusions

The use of these teaching materials has the advantage of being accessible anytime and anywhere. Through technological advancements, lecturers can provide guidance on how to pay attention to the well-presented interactive digital materials on sports anatomy, ensuring they adhere to the learning plan developed by the lecturers. Successfully implementing technology-based teaching materials requires skills. Digital literacy is essential for every university, including lecturers, students, and policymakers. Implementing digital technology-based teaching does not always have a negative image. Technology-based teaching materials can enhance student skills and creativity during lectures.

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