# Implementation of Anatomy Teaching Materials in Sports using Interactive Digital Modules

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**Abstract.** The use of information technology for material in courses for students is considered very helpful in providing abstract sports anatomy material, because multimedia-based teaching tools are interactive digital modules which can support the learning activity system in anatomy courses in sports which so far tends to use the lecture method. (conventional). To facilitate understanding of the material in the sports anatomy course, an application was designed that utilizes technology that will enable students to carry out direct dimensional interactions, so that they are better able to give their own impression of potential insight for students regarding the science of sports anatomy in depth and comprehensively. Conclusion of the research, researchers want to develop learning media for sports anatomy courses through valid interactive modules, in an effort to overcome the limited allocation of learning time in the classroom, increase student activity and student learning outcomes..

**Keywords:** Implementation, Teaching, Sports Anatomy, Interactive Digital, Modules

## 1 Introduction

Learning resources are anything that can be used for learning that makes it easier for someone to do their learning activities. Learning resources are very urgent in the teaching and learning process, because without learning resources, the learning process will not happen. An important thing that must be mastered by an educator is being able to provide learning materials that can be studied independently by students. This means that the material must be able to provide opportunities for students to be able to measure their learning behavior without having to involve educators and friends. This places the teacher's function not only as a teacher but also as a designer and developer of learning materials. As a designer and developer of learning materials, educators must be able to select existing materials, and must even be able to develop their own if the material that suits the chosen strategy does not yet exist. In addition to learning resources, teaching materials are no less important, teaching materials are something in the form of objects, data, facts, ideas, people, and so on that can cause a learning process, teaching materials also influence how the learning process will be successful and on target. Teachers who

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only use books as the main learning resource tend to have learning management that does not necessarily have practical benefits for students' daily lives, or if the learning material is considered important for daily life, then students find it difficult to grasp the material clearly because the material presented is only in writing and only to be memorized.

The development of technology today is very rapid and must be in line with the improvement of the quality of human resources so that the direction of development. The right target for development is also like science and technology. The use of technology, especially the world that is engaged in the field of multimedia such as computers, is extraordinary, where the whole community considers that multimedia can already cover a part of a person's life. There are so many fields where multimedia is utilized and used in various circles of the world of education. The interactive digital module in the sports anatomy course will cover all basic materials about science related to body structure. The main subjects or main materials in it are Histology, Osteology, Myology, Arthrology, Neurology, and others. One branch of anatomy is human anatomy which studies the shape, location, size, and relationship of various structures of a healthy human body which is then called descriptive or topographical anatomy. So far, the list of references for learning human anatomy has only been in textbooks, original papers and clinical textbooks. This is considered lacking because it does not provide visual demonstrations of anatomical topics. Learning body anatomy requires repeated visual experiences. Through interactive digital modules, students are expected to be able to maximize their understanding of the material in the sports anatomy course according to the stages of the learning design prepared by the lecturer in charge of the sports anatomy course. Digital interactive modules can be used by students easily, namely via gadgets or laptops. In addition, digital interactive modules present materials with a combination of media, such as text, images, and videos (Anandari et al., 2019). Ideally, interactive digital modules are designed according to the diversity of learning style characteristics of students in sports anatomy courses. The use of interactive media can enrich students' experiences about sports anatomy, which is material given to sports practitioners and students who are involved in the world of sports as a basis for understanding sports in more depth. This module is designed with technology that can be accessed by students or lecturers for use, thus, the digital interactive module is a new reference equipped with materials, images, videos, and evaluations (Bekti et al., 2021). In addition, the use of interactive media elements also allows students to control the process in the atmosphere of the lecture with the speed of students' reasoning to repeat difficult content before moving on to the next material indicator.

## 2 Method

This study uses the Research and Development (R&D) research method. This method was chosen because to produce certain products and test the results of a product of technology development that supports learning and in the field of sports. The development research model that will be used by this researcher uses the research and development (R & D) method, namely the ADDIE model. This define stage is carried out by a preliminary research study, namely observation to be able to find out the learning of sports physiology courses for students of the Faculty of Sports Science, State University of Medan and various information is collected from various sources to be analyzed. The data collection technique used uses observation, interview, and documentation techniques. Data analysis is in the form of validity, practicality, and effectiveness analysis.

## 3 Results and Discussion

### 3.1. Result

Research on the development of an implementation module for teaching materials on anatomy in sports using interactive digital for students is to produce a product in the form of a module for the subject of teaching materials on anatomy in sports to determine learning outcomes in the subject of sports anatomy related to learning outcomes in the study program curriculum. The results of the needs analysis from the survey and data collection in the field conducted, the researcher felt the lack of utilization of the implementation module for teaching materials on anatomy in sports using interactive digital as a tool in teaching and learning activities in the subject of sports anatomy. The need for the development of an implementation module for teaching materials on anatomy in sports that can use interactive digital is expected to be able to help students understand learning in the subject of anatomy in more depth as well as more enjoyable interactive digital learning and the implementation module for teaching materials on anatomy 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 material on sports anatomy presented. The design of the development of teaching materials for anatomy in sports is designed according to the format (1) The introduction 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 the sports anatomy material and a questionnaire on the results of learning the sports anatomy course, the evaluation consists of an evaluation of questions from the questionnaire and a glossary (3) The closing consists of the last page of the cover and a bibliography. After the implementation module for the anatomy teaching material in sports has been successfully developed through interactive digital learning, the next step is for the researcher to conduct a feasibility test by validating the product resulting from the development of the sports anatomy teaching material module. The validation tests that will be carried out are design validation against media experts, validation from lecturers teaching the sports anatomy course and validation of the content of the material against material experts.

### 3.2 Discussion

Based on the development of the implementation of teaching materials on anatomy in sports, the results of the responses from the lecturers in charge of the sports anatomy course suggest that teaching materials from interactive digital sports anatomy materials that are developed, the presentation of video and image materials should be more adjusted 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 questionnaires more effective, more 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 the interactive digital sports anatomy material 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 material module do not easily get bored or bored. At the validation stage, media experts provide assessments and suggestions related to the development of teaching material modules from interactive digital sports anatomy materials, namely, for the design of the interactive digital sports anatomy module cover product, it only takes the start program display. This causes the module cover not

to appear as a whole, 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 the researcher. and the application of the teaching material module of this anatomy material in sports, motivational videos for students should be added. During the field trial, students were asked to use the interactive digital sports anatomy module developed by the researcher independently. This trial used a computer, laptop and mobile phone to view the material in the interactive digital sports anatomy module. The results of the needs analysis from the survey and data collection in the field, the researcher felt the lack of utilization of the implementation module of sports anatomy teaching materials using interactive digital as a tool in teaching and learning activities in the sports anatomy course. The need for the development of an implementation module for sports anatomy teaching materials that can use interactive digital is expected to be able to help students understand the learning in the anatomy course in more depth as well as more enjoyable interactive digital learning and the implementation module for the anatomy teaching materials developed by the researcher is more practical. The interactive digital module teaching materials are also equipped with attractive images, and there are video displays related to the sports anatomy material presented. The researcher formulated the objectives of developing a sports anatomy teaching material module which will be achieved by collecting initial references to determine the curriculum analysis of the physical education, health and recreation study program. This stage aims to determine the material used in the sports anatomy module. The implementation is based on the activities that have been planned by the author to obtain various supports for the implementation of the problem-solving ideas raised.

## 4 Conclusion

The conclusion that can be drawn from the research, the form of development of sports anatomy teaching materials with other forms, namely in the form of non-printed books with e-module format which can then be accessed via mobile phones, computers, tablets and laptops. The module developed is a digital module using the flipbook application, the components in the module contain several images, texts and videos then published using heyzein pdf to flipbook so that it can be accessed more easily and can be understood by students, as teaching materials for sports anatomy courses in the Physical Education Health and Recreation Study Program (PJKR) State University of Medan. The digital module developed in this study in this sports anatomy course, with the main objective being as teaching materials that can be used in the ongoing lecture process in class or outside the classroom so that students are more independent in understanding the material in the sports anatomy course.

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