BPEJ: BORNEO PHYSICAL EDUCATION JOURNAL
https://jurnal.fkip.unmul.ac.id/index.php/bpej
Volume 4 Number 1, June 2023

THE EFFECTIVENESS OF 3D HUMAN ANATOMY APPLICATION ON PHYSICAL EDUCATION STUDENTS OF MULAWARMAN UNIVERSITY

Gyta Krisdiana Cahyaningrum, Jupri, Didik Cahyono
Physical Education Study Program, Mulawarman University
gytakrisdiana861@gmail.com, didikcahyono86@gmail.com

Abstract

The unavailability of learning media that supports the human anatomy course in the form of teaching aids, as well as the absence of the application of digital-based learning methods, so that students can only listen, waiting their turn to be able to observe the teaching aids more closely so they can be seen more clearly. Data collection consists of questionnaires distributed via Google Form and the data is processed using quantitative descriptive analysis techniques. The subjects in this study were 68 physical education students in semester 1 of 2022 who participated in an analysis of the use of digital-based learning media using 3D human anatomy application during the teaching and learning process in the Unmul physical education classroom. The results of data analysis from the use of digital-based learning media using 3D human anatomy application can foster students' democratic attitudes, encourage more active and independent learning, increase motivation to learn during lectures and understand learning effectively and efficiently, and enable learning according to the place and time students are interested in. The obstacles often experienced in digital-based learning are using 3D human anatomy applications and an unstable internet network.

Keywords: *3D Human Anatomy Application, Learning Media, Human Anatomy*

Introduction

The rapid development of information and communication technology affects all aspects of human needs, including the field of education. Communication information technology is widely used to support and facilitate teaching and learning activities in exploring the required information. The field of education that is increasingly developing, it requires educators to be able to use application-based learning media. However, in its application, not all educators can carry out learning activities with applications.

The problems experienced by educators in using instructional media include how to make media suitable for learning, skills to use media (Putri & Citra, 2019), and educators have not fully taken advantage of the opportunities offered online or integrating these media (Jeffrey et al., 2014). Based on this, of course, knowledge is needed about the use of application-based learning media, especially for physical education students who will later apply their fields at school related to understanding motion in physical activity and body physiology mechanisms as aspects of physical fitness related to the basic science of human anatomy.

One of the efforts of the Physical Education Study Program, Faculty of Teacher Training and Education, Mulawarman University is to have a course on the basic sciences of human anatomy that applies application-based learning media. Learning is the interaction of individuals (students) with educators or their environment, in which the interaction is carried out intentionally, and directed towards a predetermined goal. Learning is also carried out systematically in order to achieve goals (Ramadhani F., Paryadi & Nurjamal, 2022). Anatomy or anatomy studies the structure of the body and the relationship of its parts to one another. The anatomy of the human body is the cornerstone of health education (Sihite & Rosnelly, 2021). In the field of sports, this course is related to body movement activities and their relationship to health and fitness. So that the anatomy course in each sport and health education department usually has the same subject in the first semester. This is a requirement for each department to provide supporting infrastructure for human anatomy courses. As for the unavailability of learning media that support learning in human anatomy courses in the form of teaching aids, as well as the absence of the application of digital-based learning methods, students can only listen, waiting for their turn to be able to observe the teaching aids more closely so they can be seen more clearly.

The availability of teaching aids used in learning human anatomy courses is very limited, namely, there is only one mannequin for parts of the human body and they still use hard mannequins. So that the limitations in the application of the learning process with visual aids and the lack of learning media used have challenges in providing an overview that affects the level of student understanding and a learning atmosphere that is less interactive and independent.

Human anatomy course with application-based digital learning media is a method that requires students to be able to learn and develop an analysis of the structure of the human body starting from systemic anatomy and regional anatomy by utilizing 3D human anatomy application. Media is one of the important tools in carrying out learning, this is because using the right media is expected to increase the results of learning in stages that are adjusted to the needs and technological developments(Suardi D., Supriadi I, & Asyura I., 2021). Based on the results of observations made on Physical Education students in semester 1 of 2022, student's abilities and interests in participating in the teaching and learning process for human anatomy courses before utilizing digital media in the form of applications are still limited and not optimal due to students' lack of knowledge and ability to use 3D human anatomy application. This can also be seen in the enthusiasm of students when participating in learning.

Utilization of application-based digital media on 3D human anatomy application. This can be done through directions given by the lecturer in charge of the human anatomy course by providing assistance and guidance on steps to use the application to students which are applied to the teaching and learning process. The role of learning media in the teaching and learning process is currently very important because it allows messages to be channeled from the sender to the recipient, and learning media can be used to assist students in gaining new knowledge (Tafonao, 2018). Therefore, the use of digital media in the learning process can facilitate interaction between educators and students, making learning activities more effective and efficient to improve the quality of education. Optimally or sub-optimally using anatomy applications in courses can be used as reference material and evaluation of student learning as well as developing digital-based learning media applications that utilize mobile applications.

For researchers, this research aims to analyze the utilization of the 3D human anatomy application for Physical Education students at Mulawarman University.

Research methods

The research method used is descriptive research with a quantitative approach. The quantitative approach as a data collection instrument uses a survey through a questionnaire or questionnaire (Siyoto, 2015). Data collection consisted of questionnaires or lists of questions distributed via Google Forms and data were processed using quantitative descriptive analysis techniques. Subjects in this study totaled 68 physical education students in semester 1 of 2022 who participated in an analysis of the use of digital-based learning media by using a 3D human anatomy application during the teaching and learning process in physical education classrooms at Mulawarman University. This study uses quantitative data obtained from the results of filling out the questionnaire.

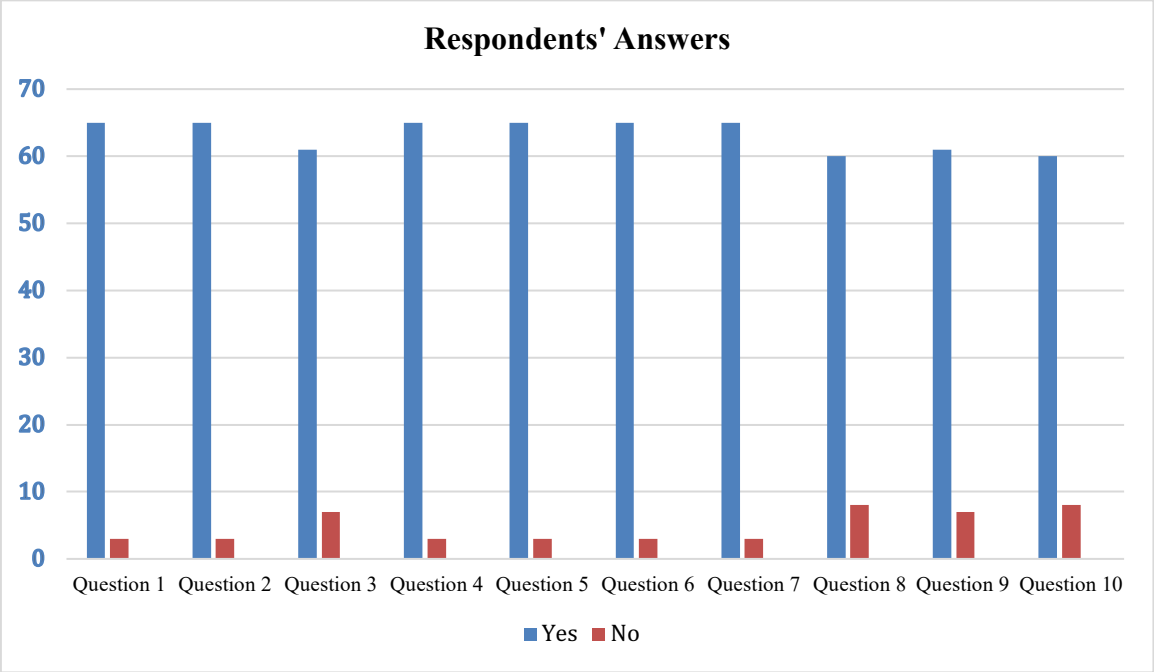
Results and Discussion

The results of distributing the questionnaire that had been distributed and filled out by 68 students regarding the use of digital-based learning media using 3D human anatomy application can be seen in the table below.

Table 1. Results of the Questionnaire Utilization Analysis of learning media using 3D human anatomy application

No	Question	Answer	
		Yes	No
1	Does this application help you in learning human anatomy?	65	3
2	Does the learning media using the 3D human anatomy application already have learning content that supports anatomy courses?	65	3
3	Does the learning media use the 3D human anatomy application to provide learning resources that can be used to access information on a wide range of anatomy subjects?	61	7
4	Does the learning media use of the 3D human anatomy application can encourage you to be active and independent in learning?	65	3
5	Can the learning media use of the 3D human anatomy application increase your motivation to study anatomy during lectures?	65	3
6	Are you able to understand and understand the material effectively by utilizing learning media using 3D human anatomy application?	65	3
7	Does the learning media use the 3D human anatomy application that allows you to study according to time and place so that the learning process is not boring?	65	3
8	Do you not experience problems when using learning media using 3D human anatomy applications?	60	8
9	Is learning by using learning media through the 3D human anatomy application fun and easy to give an overview of human anatomy?	61	7
10	Can these learning media increase your interest in utilizing anatomy applications in the learning process?	60	8

Source: (Processed from researcher data, 2022)



Picture 1. Respondent's Answers

Based on Table 1, by using the 10 questions above, it was found that 65 students answered after using digital-based learning media through 3D human anatomy application in learning activities said that the application was very helpful, had learning content that supports anatomy courses, can increase motivation in studying anatomy during lectures, helps understand and understand material effectively, and allows for appropriate time and place for learning so as to reduce boredom, and as many as 3 people say no because there are several students who experiencing limitations related to the use of applications on smartphones. Furthermore, there were 61 students gave answers after using digital-based learning media through a 3D human anatomy application said that the application provides learning resources that can be used to access information on various anatomical subjects, as well as making it easier to provide an overview of human anatomy, and as many as 7 students answered no because they assessed that this application did not provide learning resources to access information on various anatomical subjects and did not make it easy to provide an overview of human anatomy. And relation to obstacles in the use of digital-based learning media through 3D human anatomy application as many as 60 students answered that they did not experience any problems when using the 3D human anatomy application and can increase interest in learning to utilize anatomy applications in the learning process and as many as 8 students disagree, this is because there are several factors such as internet network constraints and signals in several places which are still limited, causing boredom while waiting for the application process to run.

Learning by using digital-based learning media using 3D human anatomy application can also foster a democratic attitude of students, encourage more active and independent learning, increase motivation to learn during lectures and understand learning effectively and efficiently, and enable learning according to the place and time are chosen by students. The addition of online learning resources makes it easier for students to understand the material, because during online learning students not only listen to lecturers' explanations about the material but also actively observe and present it (Rumahorbo, 2020). Besides that, the purpose of learning is to help students

to gain experience so that there is a change in behavior (Putra & Mayangsari, 2015).

The use of digital-based learning media can improve student learning outcomes. This is in accordance with the results of research by Hasan & Ambarita (2017), the group that used e-learning achieved more effective learning outcomes compared to the group that did not use e-learning. In addition, the survey results show that some students are not actively using online learning. One effort to avoid this is to use a combination mode (Ismini, 2022).

Limitations in learning to use digital media are unstable internet networks that affect students' understanding of the material. This is in accordance with the results of research by Ardiansyah (2021) showing that there is a positive relationship between online learning opportunities and learning outcomes. This comes from the results of a survey distributed to students, some students stated that they were dissatisfied with the implementation of online learning which was hampered by an unstable online network. This situation turned out to affect the learning outcomes obtained by students. Lack of interest and learning interaction causes less optimal learning outcomes (Dewi & Cahyaningrum, 2022). Accordance with the results of the analysis in research conducted by Martin & Rosario (2021) state that students can utilize and manipulate 3D applications during learning by using the application not only to see slides on features but can also to show advantages by discussing when discussing aspects that are being studied.

Conclusion

Based on the results obtained in the qualitative descriptive research that the authors conducted, it was concluded that the analysis of the use of digital-based learning media using 3D human anatomy application for physical education study program students at Mulawarman University can foster student confidence in communication, foster a democratic attitude, encourage students to be active, independent, motivate students in learning, can help understand material effectively and efficiently, and not cause boredom in learning. The obstacle that is often experienced by students in digital-based learning by using 3D human anatomy applications is an unstable internet network.

As for the suggestions that the writer can give to further researchers, they can develop digital-based learning media applications as one of the learning media, because digital-based learning media applications are effectively used in learning.

Reference

[1] Ardiansyah, A. (2021). Pengaruh Adaptasi Pembelajaran Secara Online terhadap Hasil Belajar Mahasiswa. *Jurnal Komunikasi Pendidikan, 5*(2), 164. https://doi.org/10.32585/jkp.v5i2.1091.

[2] Dewi, R. & Cahyaningrum, G. (2022). Pemanfaatan Media Learning Manajemen Sistem (LMS) Google Workspace Di Masa Pandemi Di SMA Negeri 3 Balikpapan. *Journal pendidikan dan pengajaran, 1*(1).

[3] Hasan, S., & Ambarita, A. (2017). Penggunaan Model E-Learning dalam Meningkatkan Hasil Belajar Mahasiswa pada Materi Microprocessor. *Indonesian Journal on Information System*, 2, 35-47.

[4] Laili Ismini. (2022). Upaya Meningkatkan Keaktifan Siswa Dalam Pembelajaran Jarak Jauh (Distance Learning) Berbantuan Moda Kombinasi Pada Materi Interaksi Sosial Di Kelas Vii D Smpn 1 Labuhan Haji Semester Ganjil Tahun Pelajaran 2020/2021. *Journal*

Ilmiah Rinjani: Media Informasi Ilmiah Universitas Gunung Rinjani, 10(1), 119-129.
[5] Jeffrey, L., Milne, J., Suddaby, G., & Higgins, A. (2014). Blended Learning: How Teachers Balance the Blend of Online and Classroom Components. *Journal of Information Technology Education: Research, 13*, 121-140. https://doi.org/10.28945/1968.
[6] Martin G. & Rosario. (2021). Gross Anatomy during COVID-19: The Effectiveness of Utilizing a 3-D Anatomy Application among Occupational Therapy Students in a Pandemic-induced Online Course. Gross Anatomy during COVID-19: The Effectiveness of Utilizing a 3-D Anatomy Application among Occupational Therapy Students in a Pandemic-induced Online Course, 6(2), 90-96.
[7] Primahardani, I., Futra, D., & Putra, R. A. (2021). Analisis Pelaksanaan Pembelajaran Jarak Jauh Berbasis E- Learning Pada Masa Pandemi Covid-19 Mahasiswa di Jurusan Pendidikan IPS FKIP Universitas Riau. *TunjukAjar: Jurnal Penelitian Ilmu Pendidikan, 4*(1), 26. https://doi.org/10.31258/jta.v4i1.26-42.
[8] Putri, S. D., & Citra, D. E. (2019). Problematika Guru Dalam Menggunakan Media Pembelajaran Pada Mata Pelajaran IPA. *IJSSE: Indonesian Journal of Social Science Education, 1*(1), 49-54.
[9] Ramadhani F., Paryadi & Nurjamal. (2022). Motivasi Peserta Didik Mengikuti Pembelajaran PJOK di SMP Negeri 9 Samarinda. *BPEJ: Borneo Physical Education Journal, 3*(1).
[10] Rumahorbo, N. (2020). Media E-Learning Berbasis WEB Sebagai Pembelajaran Bahasa Indonesia yang InovatifRevolusi Industri 4 . 0. *Seminar Nasional PBSI-III*, 51-54.
[11] Sihite E., & Rosnelly, R. (2021). Perancangan Aplikasi Media Pembelajaran Interaktif Pengenalan Anatomi Tubuh Manusia Berbasis Android. *InfoSys Journal, 5*(2), 123-132.
[12] Siyoto, S. dan S. (2015). Dasar Metodologi Penelitian. Literasi Media Publishing.
[13] Suardi D., Supriadi I., & Asyura I. (2021). Analisis Perkuliahan Anatomi Menggunakan Media Berbasis Aplikasi Anatomy Illustration Pada Mahasiswa Pendidikan Jasmani, Kesehatan Dan Rekreasi Stkip Syekh Manshur Saat Covid-19. *UPT Publikasi Dan Pengelolaan Jurnal, Universitas Islam Kalimantan Muhammad Arsyad Al-Banjari Banjarmasin.*
[14] Talizaro Tafonao. 2018. Peranan Media Pembelajaran Dalam Meningkatkan Minat Belajar Mahasiswa. *Jurnal Komunikasi Pendidikan, 2*(2), 103-114.