

Improving The Quality Of Learning Through The Development Of Online-Based E-Modules In The Indonesian Regional Geography Course

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ABSTRACT

This research aims to improve the quality of learning in the Indonesian Regional Geography course through the development of online-based e-modules. In the digital era, the use of technology in education is very important to increase the effectiveness and efficiency of the teaching and learning process. The e-module developed is designed to provide material that is comprehensive, interactive, and easily accessible to students, so that it can support independent learning. The research method used is research and development (R&D) with the ADDIE model (analysis, design, development, implementation, and evaluation). At the analysis stage, students and lecturers' needs for Indonesian regional geography material were identified. The design stage involves designing the e-module structure and content that are appropriate to the curriculum. In the development stage, e-modules are created by integrating various multimedia elements such as text, images, videos, and interactive quizzes. The implementation stage is carried out by testing the e-module on students, then continuing with the evaluation stage to assess the impact of the e-module on the quality of learning. The research results show that the use of online-based e-modules significantly improves the quality of learning in the Indonesian Regional Geography course. Students experience an increase in understanding of the material, motivation to learn, and active involvement during the learning process. Apart from that, this e-module also helps lecturers in delivering material more effectively and interestingly.

ABSTRAK

Penelitian ini bertujuan untuk meningkatkan kualitas pembelajaran pada mata kuliah Geografi Regional Indonesia melalui pengembangan e-modul berbasis online. Dalam era digital, pemanfaatan teknologi dalam pendidikan menjadi sangat penting untuk meningkatkan efektivitas dan efisiensi proses belajar mengajar. E-modul yang dikembangkan dirancang untuk menyediakan materi yang komprehensif, interaktif, dan mudah diakses oleh mahasiswa, sehingga dapat mendukung pembelajaran mandiri. Metode penelitian yang digunakan adalah *Research and Development* (R&D) dengan model ADDIE (*Analysis, Design, Development, Implementation, Evaluation*). Pada tahap analisis, dilakukan identifikasi kebutuhan mahasiswa dan dosen terhadap materi Geografi Regional Indonesia. Tahap desain melibatkan perancangan struktur e-modul serta konten yang sesuai dengan kurikulum. Pada tahap pengembangan, e-modul dibuat dengan mengintegrasikan berbagai elemen multimedia seperti teks, gambar, video, dan kuis interaktif. Tahap implementasi dilakukan dengan mengujicobakan e-modul kepada mahasiswa, kemudian dilanjutkan dengan tahap evaluasi untuk menilai dampak e-modul terhadap kualitas pembelajaran. Hasil penelitian menunjukkan bahwa penggunaan e-modul berbasis online secara signifikan meningkatkan kualitas pembelajaran pada mata kuliah Geografi Regional Indonesia. Mahasiswa mengalami peningkatan dalam pemahaman materi, motivasi belajar, dan keterlibatan aktif selama proses pembelajaran. Selain itu, e-modul ini juga membantu dosen dalam menyampaikan materi dengan lebih efektif dan menarik.

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KEYWORDS

E-Modul, Development,
Geography

INTRODUCTION

In the increasingly developing digital era, the use of technology in the world of education has become an urgent need to improve the quality and effectiveness of learning (Switri, 2019, Ahmadi, 2017, Rahayu et al., 2020). Changes in teaching and learning patterns that increasingly rely on digital technology require innovation in the delivery of materials to be more interactive and easily accessible to students (Syafriadi, 2020). Learning problems in lectures are often related to limited face-to-face time, accessibility of materials, and low levels of interactivity. (Sumiarsi, 2015) defines pedagogic competence as the ability to improve one's knowledge when engaged in the lecturer

profession. Even though it should be, lecturers must have the ability to manage learning. Furthermore (Nur, 2014, Anugrahana, 2021) defines pedagogic competence as a competency that distinguishes the lecturer profession from other professions. In many cases, lecturers face difficulties in delivering the entire material in depth in a limited amount of time, while students often find it difficult to understand complex concepts from just face-to-face lectures. In addition, the variety of student learning styles makes one single teaching method less effective to meet the needs of all students.

Utilizing learning resources, students learn because they interact with various learning resources in a maximum and varied manner (Japar, 2019). One form is online learning, online learning can be an effective solution to overcome this problem (Ministry of Education and Culture, 2020). With online learning, students can access the material anytime and anywhere, allowing them to learn at their own pace and needs. In addition, the use of interactive elements such as videos, quizzes, and discussion forums in online learning can increase student engagement and understanding, resulting in a richer and more immersive learning experience (Gunawan, 2016). Online learning also allows lecturers to provide additional material and deepen complex topics without being limited by short lecture times. Thus, online learning not only helps to overcome classical problems in lectures, but also opens up opportunities for improving the overall quality of education. Online learning through Learning Management System (LMS) (Jarot, 2021) and e-modules has brought about a positive transformation in the world of education, offering unprecedented flexibility and access. With an LMS, students can access additional course materials, assignments, and resources anytime and anywhere, allowing them to study at their own schedule and pace. Interactive e-modules enrich the learning experience by presenting dynamic content, including videos, quizzes, and simulations, designed to improve student understanding and engagement (Putra et al., 2020). Lecturers also benefit greatly, as LMS makes it easier for them to manage classes, track student progress, and provide real-time feedback. In addition, the ability to integrate various media formats in e-modules makes learning more engaging and enjoyable, bridging different learning styles of students. Overall, online learning through LMS and e-modules not only increases the effectiveness of education, but also prepares students to face the challenges of the ever-evolving digital world. One of the applications of online learning is in the Indonesia Regional Geography course, This is very relevant to the Indonesia Regional Geography course, which requires the delivery of comprehensive and structured material to ensure a deep understanding of the dynamics of Indonesia's region. Indonesia's Regional Geography as a core course in the Social Science Education study program, plays an important role in equipping students with knowledge about the diversity and characteristics of Indonesia's region. However, the challenges faced in the learning process of this course include the limitations of easily accessible materials and the lack of interactivity in the delivery of material. The material delivered conventionally is often not enough to meet the learning needs of students who are increasingly oriented towards digital technology.

To overcome the challenges faced in the conventional learning process, the development of online-based e-modules has emerged as an innovative solution that promises to improve the quality of education. This e-module is designed with a comprehensive approach, not only presenting the material in detail but also equipped with various interactive elements that support a more dynamic learning process. These elements include learning videos, illustrative images, and interactive quizzes that students can access anytime and anywhere. With this feature, students can access learning materials flexibly, allowing them to learn independently in a more efficient and effective way. Online-based e-modules are expected to provide a significant boost to student motivation and involvement in the learning process. The interactivity provided by the e-module can make the learning process more interesting and relevant, as well as help students to be more active in understanding and applying the concepts taught. In addition, the development of e-modules also provides convenience for lecturers in delivering material in a more interesting and efficient way. By using various media and digital tools, lecturers can communicate information more clearly and enjoyably, improving the quality of material delivery that may have been limited by traditional learning methods. This research aims to develop and evaluate an online-based e-module specifically for the Indonesia Regional Geography course. The focus of this study is to assess the effectiveness of e-modules in improving the quality of learning and to understand their impact on student engagement and motivation. With an in-depth evaluation of the implementation of this e-module, it is hoped that useful insights can be obtained for further improvement and the application of e-modules in other courses. This effort is a strategic step in improving the quality of education in the digital era, where technology plays an important role in supporting a more modern and adaptive learning process.

METHODS

This research is included in Research and Development (R&D) research using the ADDIE model, Mcgriff (2000:2) states that ADDIE development design consists of Analysis, *Design, Development or Production, Implementation or Delivery and Evaluations* stages. Pribadi (2014) is of the opinion that the design model of ADDIE's development is simple and can be done gradually or systematically to realize a comprehensive program. The same definition is expressed by Dank (2011) who states that the ADDIE model is an effective, systematic model that can be adapted for use by instructional trainers to design, implement and evaluate the effectiveness of a development program

RESULTS AND DISCUSSIONS

With the advancement of information and communication technology, many educational institutions have switched to using digital platforms to increase the effectiveness of learning, e-Module as one of the online learning platforms, has been adopted in the PIPS Study Program to support the learning and evaluation process. on the learning outcomes of students in this study program, especially in the context of quizzes, Mid-Semester Exams (UTS), and student presentation activities, the plans, stages, and outputs/results of activities in this study program can be seen in the following table:

Table 1. Activity Plan, Stages, and Outputs

It	Activities	Activity Stages	Output/Results
1	Carry out coordination with department leaders and teaching teams related to the plan to develop online-based e-Module books e-Module	1. Collecting and studying literature 2. Reference and study literature e-Module 3. Carry out coordination with department leaders and teaching teams related to the development plan of online e-Module books	Reference and <i>study literature</i> e-Module 1. Actualization design 2. Presentation Materials 3. Meeting notes 4. Attendance list 5. Photo documentation 1. Questionnaire 2. Data from <i>the results of the need assessment</i>.
2	Carry out development Online-based e-Module	1. Prepare infrastructure, scheduling, and presentation materials 2. Carry out coordination related to the online-based e-Module development plan 3. Receiving input from online-based e-Module activists.	1. Infrastructure 2. Presentation materials Meeting schedule 1. Presentation Materials 2. Meeting notes 3. Attendance list 4. Photo documentation Input notes
3	Carry out development Online-based e-Module	1. Prepare online-based reference / <i>study literature</i> e-Module 2. Carry out the development of <i>online-based e-Module</i> outline 3. Carry out the development of an online-based draft e-Module guidebook	Reference / <i>study literature</i> e-Modules based on additional online (national and international) <i>Outline</i> of the online-based e-Module Draft file of the e-Module guidebook based online
4	Carry out the preparation of online-based e-Module assessment instruments	1. Collect study literature ratings Online-based e-Module 2. Carry out the preparation of online-based e-Module assessment instruments	List of REFERENSI and <i>draft</i> assessment instruments File Product rating instrument
5	Conducting discussions with experts / validators related to online-based e-Modules	1. Preparing online-based e-Module book assessment materials 2. Carry out product assessments by online-based e-Module experts.	Online-based e-Module assessment materials (assessment instruments, validation sheets) 1. Proof of Validation 2. Repair notes 3. Photo documentation

6	Carrying out a Practicality Test	3. Correct according to the results of the online-based e-Module	Test-ready online-based e-Module
		1. Implement learning planning (<i>Plan</i>)	1. Attendance List 2. <i>Lesson Design</i> 3. Photo Documentation
		2. Carry out learning activities (<i>Do</i>)	1. Attendance List 2. Photo Documentation 3. Observation sheet
7	Implementing the improvement of online-based e-Module development	3. Implement feedback from observers to Model Lecturers (<i>See</i>)	1. Attendance List 2. Photo Documentation 3. Record of Reflection Results
		1. Carry out feedback analysis from Observer to Lecturer	Feedback analysis notes from observers
		2. Carrying out online-based e-Module Repairs	Online-based e-Module as a result of improvement after the practical test
8	Conducting socialization Online-based e-Module	1. Preparing presentation materials, zoom meetings.	1. Presentation materials 2. Zoom meeting
		2. Socializing books with lecturers of the PIPS UNJ education study program	1. Presentation Materials 2. Photo Documentation 3. Response list
9	Carry out monitoring and evaluation	1. Monitoring the development of <i>online-based e-Modules</i>	Monitoring List
		2. Carry out an evaluation of the development of online-based <i>e-Modules</i>	Evaluation List

The implementation of learning media development activities through the steps begins with coordinating with department leaders and teaching teams related to the plan to develop e-Module online-based e-Module books by collecting and studying literature, reference and study literature e-Module and carrying out coordination with department leaders and teaching teams related to the online e-Module book development plan.

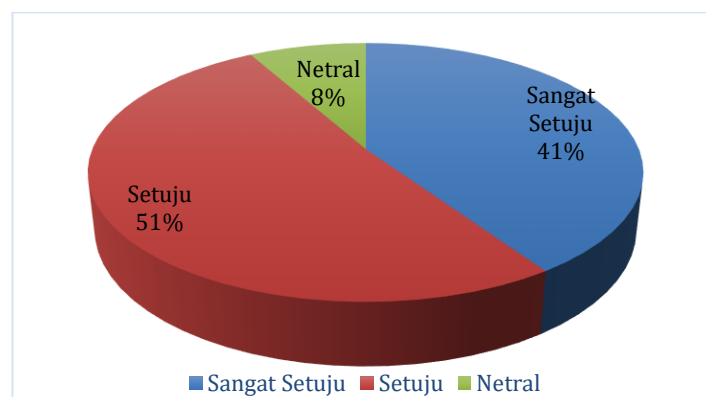


Figure 1. Graph of student needs in the development of e-modules.

From the graph displayed, it can be seen that 41% of students strongly agree, 51% agree, and 8% choose neutral in stating the importance of e-modules in Indonesia's Regional Geography learning activities. These results show that the majority of students support the use of e-modules as tools in the learning process, which indicates that there is a significant need for the development of e-modules. Based on this data, concrete steps are then taken to start developing online-based e-modules. The initial stage involves the preparation of the necessary facilities and infrastructure, including technological equipment, software, and learning platforms to be used. Scheduling is also carried out to ensure that the development of the e-module runs according to the set timeline, as well as to prepare a structured work plan so that all stages of development can be carried out effectively.

In addition, the presentation materials that will be used in the e-module are also carefully prepared. This material is prepared based on the existing curriculum, and is designed to be in accordance with the Semester Learning Plan

(RPS) that has been set. To ensure that the e-modules developed are truly effective and in accordance with the needs of students, coordination is carried out with various related parties, including lecturers, e-module developers, and educational technology experts. This coordination is important to get valuable input in planning the development of online-based e-modules, so that the resulting e-modules not only meet academic standards, but are also able to provide an optimal learning experience for students.

The process of developing this e-module begins with the search for literature that will be used as learning materials or resources. The selected literature includes scientific journals, online books, and educational modules relevant to the Indonesia Regional Geography course. Not only that, but searches are also carried out for video sources from platforms such as YouTube that can be used as additional materials in e-modules. These videos will be processed and included as a supplement in lecture activities to provide a clearer and more in-depth visualization of the concepts learned.

With these steps, it is hoped that the e-modules developed can meet student expectations, improve the quality of learning, and provide better support for the independent learning process. In the end, this e-module is expected to be an effective tool in supporting students' success in understanding and applying Indonesia's Regional Geography material in a more comprehensive and interactive manner.

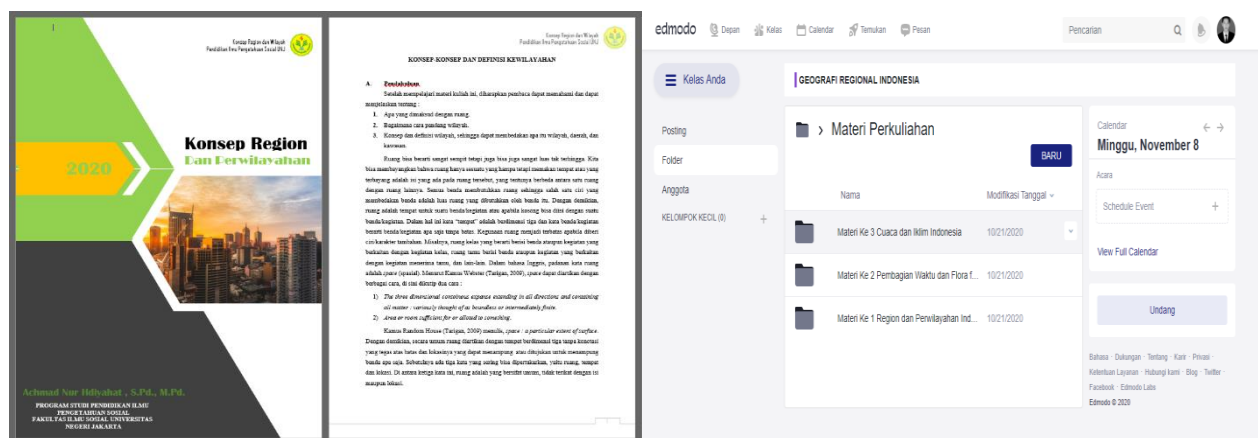


Figure 2. Example Modules and Applications in Edmodo LMS

The third stage in the development of online-based e-modules is the implementation of planning that involves searching for literature and creating an e-module framework in accordance with the Semester Learning Plan (RPS). At this stage, the first step is to find and collect relevant literature as the main material or learning resource for the Indonesia Regional Geography course. The literature used includes scientific journals, online books, and other educational modules that can be accessed digitally. In addition, learning resources are not limited to written texts; searches are also carried out to find videos available on platforms such as YouTube, which are then processed and included as complementary materials in the learning process. The use of this video is expected to increase students' attraction and understanding of the material presented, by presenting visualizations that support geographical concepts that may be difficult to understand only through text. At this stage, the drafting of e-modules begins using the Edmodo application, an online learning platform that facilitates the systematic preparation and organization of lecture materials. In Edmodo, various folders containing assignments, lecture materials, and additional resources are prepared to support lecture activities. Each material that will be delivered is integrated in this e-module, so students can access it easily at any time. These folders are also designed to help students manage their assignments in a structured manner and follow the flow of lectures more efficiently. This stage not only focuses on gathering resources and preparing materials, but also ensures that the e-modules created are in accordance with the needs of students and in line with the learning objectives that have been set in the RPS. Through this planned and organized approach, it is hoped that the e-modules developed can provide a better and more interactive learning experience, as well as help students in understanding and applying Indonesia's Regional Geography material more effectively.

The 4th stage of this process involves the preparation of evaluation instruments that will be used to measure student learning outcomes. This instrument includes two main types, namely quiz questions and Midterm Exam (UTS) questions. This quiz and UTS are designed to evaluate the extent to which students achieve learning outcomes or learning outcomes that have been determined in lectures carried out using the Edmodo platform. The process of preparing this evaluation instrument is very important because it will ensure that the evaluation carried

out is relevant to the material that has been taught and is effective in measuring the achievement of student competence. The design of this evaluation is adjusted to the lecture material that has been prepared beforehand, so that every question or question made will reflect the learning objectives that have been set. In addition to quizzes and UTS, the evaluation also includes a form of presentation in the classroom. In this presentation, students are expected to be able to present the results of their group discussions on certain topics. The results of the discussion, including questions and answers that arise during the presentation session, will be uploaded to the Edmodo platform for easy monitoring and assessment by teachers. In this way, the evaluation is not only carried out through a written test, but also through the assessment of discussion and presentation activities that show students' deep understanding of the material. The use of Edmodo in this evaluation process aims to provide easy and organized access for students and teachers to interact and monitor learning progress effectively.

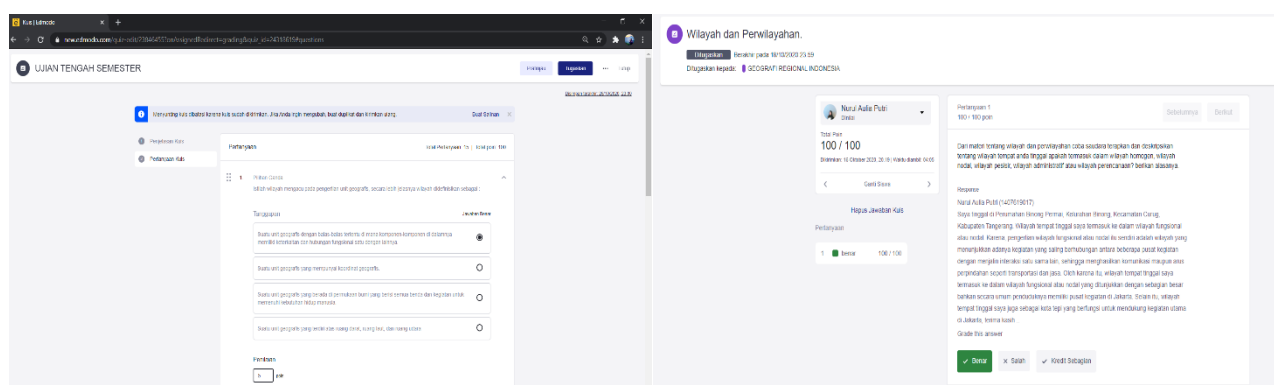


Figure 3. Examples of Quizzes and Worksheets in Indonesia Regional Geography lectures

The next stage is validation, validation of e-modules and LMS media that will be used in learning activities, using a questionnaire to find out if the media is materially feasible if used in lecture activities, this validation is carried out by other lecturers who have experience in learning about Indonesian regional geography lecture material, the results of the validation by material experts are considered valid with an average score of 3.7 (out of 4.0), The next of these results is that the media will be implemented in the Practicality test stage, the activity at the 6th stage is the implementation of practicization, the initial activity is coordination with the class PJ asking other friends to register an account by registering as a student, after joining the class, then the next activity is to divide the class into groups which then make presentations, collaborative learning activities alternately fill in between students and lecturers.

The total number of students in the lecture is 40 students, who are members of the Indonesia Regional Geography class. The following is a display of the student mobile in accessing the LMS e-module in Edmodo, both from the number of members, lecture material folders, student discussion presentation results folders and quizzes as well as Mid-Semester Exams (UTS). After the academic activity, both material and student evaluation, the next activity is to give feedback to students and continue with the improvement of the module by providing a questionnaire to students regarding the responses in using the Edmodo platform in the Indonesia Regional Geography academic activity, the results of the questionnaire will be used as a reference in the evaluation.

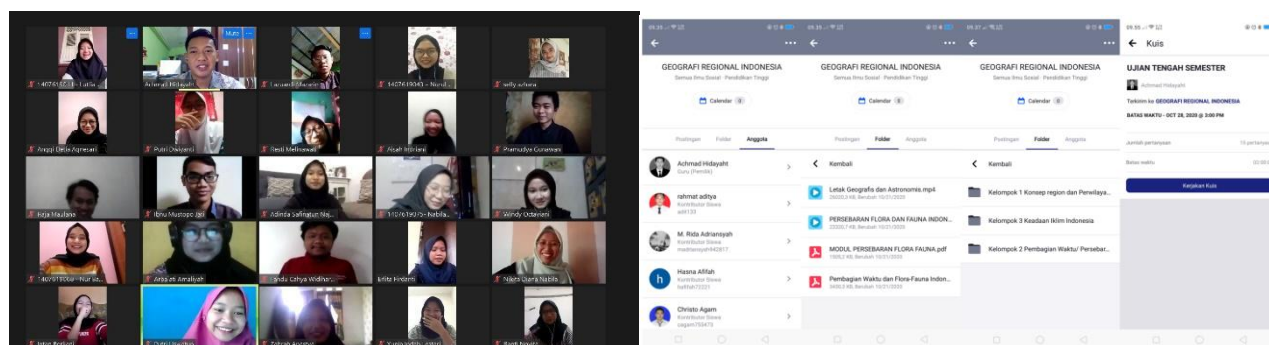


Figure 4. The use of LMS in lecture activities. And the display of Edmodo via Mobile Phone

The next stage is to carry out the improvement of the preparation of online-based e-modules, analyze feedback, and carry out improvements to online-based e-module products, in the development process, it is also not spared in addition to asking for input from mentors and asking for input and coaches, As for before the improvement of the development of video sample files and emodules are sent to coaches to ask for pednapat. in the Edmodo Usage indicator, it contains lecture materials that are integrated with video, music, and e-modules that can provide better learning outcomes. From some of the questionnaire results, it can be seen that there is a positive trend in the application of Edmodo in lecture activities. Students can more easily understand, access and provide better learning outcomes in learning activities on GRI materials. There are several other indoctrinators about the assessment questionnaire.

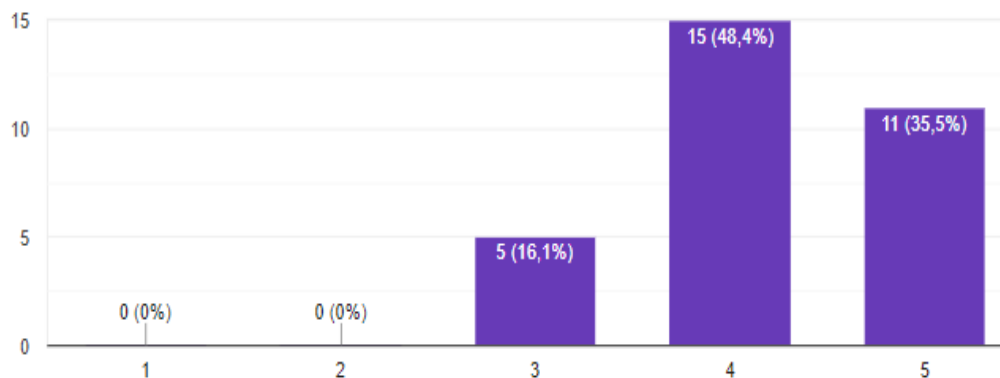


Figure 5. Percentage of Satisfaction in the Use of Learning Media

The graph shown shows the distribution of the percentage of respondents who gave a rating on a particular item or statement on the Likert scale, which may range from 1 (strongly disagree) to 5 (strongly agree). Here is a description of the results seen: None of the respondents gave a rating of 1 (0%) or 2 (0%). A total of 5 respondents (16.1%) gave an assessment of 3. The most assessments were given on a scale of 4, namely by 15 respondents (48.4%). A total of 11 respondents (35.5%) gave an assessment of 5. From these results, the majority of respondents gave positive ratings, with most being on a scale of 4 and 5, which indicates that the item or statement that was assessed received a good response from the respondents. The results of this study show that the development and use of online-based e-modules have succeeded in significantly improving the quality of learning in the Indonesia Regional Geography course. Through the implementation of e-modules that are designed according to the needs of students and lecturers, and are compiled based on relevant curriculums, students experience an increased understanding of the material taught. In addition, this e-module has also succeeded in increasing students' learning motivation and active involvement during the learning process. In terms of teaching, this e-module helps lecturers in delivering material more effectively and interestingly, thanks to the integration of multimedia elements such as text, images, videos, and interactive quizzes that support the teaching and learning process in a more interactive and comprehensive manner. These results show that the use of digital technology, especially online-based e-modules, has an important role in increasing the effectiveness and efficiency of learning in the digital era.

CONCLUSIONS

The development of online-based e-modules has succeeded in improving the quality of learning in the Indonesia Regional Geography course. The use of this e-module has a positive impact on students' understanding of the material, increases learning motivation, and encourages their active involvement in the learning process. In addition, this e-module has also proven to be effective in helping lecturers deliver material in a more interactive and interesting way, thereby increasing the effectiveness and efficiency of the teaching and learning process. The development of online-based e-modules has proven to be a significant step in improving the quality of learning in Indonesia's Regional Geography course. The implementation of this e-module has a substantial positive impact on the understanding of the material by students. With a variety of interactive elements integrated in the e-modules, such as learning videos, visual graphics, and interactive quizzes, students can access and understand the material in a more engaging and in-depth way. These elements allow students to explore topics at their own pace, facilitating more personalized and adaptive learning. In addition, this e-module has succeeded in increasing student learning

motivation. Dynamic and interactive material delivery not only makes the learning process more interesting, but also helps students feel more engaged and motivated. Interactive features such as quizzes and video-based activities provide direct feedback that encourages students to be more active in learning, reinforcing their understanding of the concepts being taught.

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to the Social Science Education Study Program, Faculty of Social Sciences, State University of Jakarta, for the support and facilities that have been provided during this research process. I would like to express my special appreciation to the lecturers who have provided valuable guidance and direction in the development and completion of this research.

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