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Development Of Project-Based E-Modules For Sociology Curriculum Study

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Abstract: A This study aims to develop and find out the effectiveness of project-based E-modules for students of the FKIP Sociology Education Study Program. This development research uses a 4D model, namely define, design, develop, and disseminate. The results showed that e-modules are one of the teaching materials that can support student learning independence both in online and offline learning. The results of the validity test show that the e-module developed shows a valid category because it is in internal 2.5<SR≤3.5. The e-module has also met the practicality test because the average score obtained is internal 2.5<SR≤3.5. The output score obtained at the N-Gain Score of 0.52 in the internal range of 0.3≤g≤0.7 refers to the medium category which shows that the e-module developed is effective in improving student learning outcomes.

Keywords: E-module, Development, Project.

Abstrak: Penelitian ini bertujuan untuk mengembangkan dan mengetahui keefektifan E-modul berbasis proyek bagi mahasiswa Program Studi Pendidikan Sosiologi FKIP. Penelitian pengembangan ini menggunakan model 4D yaitu define (pendefinisian), design (perancangan), develop (pengembangan), dan disseminate (penyebarluasan). Hasil penelitian menunjukkan bahwa e-modul merupakan salah satu bahan ajar yang dapat menunjang kemandirian belajar mahasiswa baik pada pembelajaran daring maupun luring. Hasil uji validitas menunjukkan bahwa e-modul yang dikembangkan menunjukkan kategori valid karena internal 2,5<SR□3,5. E-modul juga telah memenuhi uji praktikalitas karena skor rata-rata yang diperoleh internal 2,5<SR□3,5. Skor output yang diperoleh pada N-Gain Score sebesar 0,52 berada pada rentang internal 0.3≤g≤0.7 mengacu pada kategori sedang yang menunjukkan bahwa e-modul yang dikembangkan efektif dalam meningkatkan hasil belajar mahasiswa.

Kata Kunci: E-modul, Pengembangan, Proyek.

Introduction

State the Lecturers as educators are required to have a complex professional requirement to have expertise in their fields (Idi, 2010). As educators, we strive to provide the best service for students, including in the teaching and learning process. One of them is through the development of teaching materials used in lectures.

Teaching materials are all materials (both information, tools, and texts) that are arranged systematically (Adhin, 2013), which display the complete figure of the competencies that will be mastered by students and used in the learning process with the aim of planning and reviewing learning implementation (Prastowo, 2015). One form of this teaching material is modules. Modules are teaching materials that are arranged systematically with language that is easily understood by students,

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according to their age and level of knowledge so that they can learn independently with minimal guidance from educators (Prastowo, 2012).

Through the development of science and technology, educators are required to be able to compile modules that can make the learning process interesting and fun (Asyhar, 2011), which can be done through the use of technology and information. Thus was born e-module, e-module (electronic module) is an electronic version of a printed module that can be read on a computer and designed with the necessary software. E-module is a learning tool or tool that contains material, methods, limitations, and ways of evaluating that are designed systematically and interestingly to achieve the expected competencies according to the level of complexity electronically (Arcidiacono et al., 2016; Handayani et al., 2015; Kristanti et al., 2016). An electronic module or e-module is a display of information in book format that is presented electronically using a hard disk, floppy disk, CD, or Flash drive and can be read using a computer or electronic book reader (Priyanthi et al., 2017).

The rapid development of technology allows the availability of other ways to deliver teaching materials other than direct *instruction*, in the *new normal* era where each individual must implement strict health protocols and maintain social distancing to make the learning process from previously offline to online or combine the two (blended). The lecture process carried out online so far has only been carried out by *web meetings*, and the provision of learning resources in the form of document files in the form of pdf, doc, and other files. Therefore, to enrich the variety of teaching materials by lecturers to prospective teacher students, lecturers must develop their teaching materials in the form of books or modules in electronic form that can be disseminated easily and can be accessed anytime and anywhere.

The development of E-Modules as one of the teaching materials must meet the eligibility criteria for use in the learning process or lecture process (Gunawan, 2022). A teaching material can be said to be feasible if it meets the criteria of valid, practical, and effective. Valid means measuring or conveying what must be conveyed, practical means easy to use, and effective means that the use of development results does have a positive impact or has a good influence on learning objectives.

Departing from this, researchers are interested in developing project-based E-Modules that are valid, practical, and effective and can be used in Sociology Curriculum Study lectures.

Method

This research uses Research and Development (R&D). The research and development design used in research is a 4D model consisting of define, design, develop, and disseminate stages. This research was carried out in the Sociology Education Study Program, Faculty of Teacher Training and Education, Mataram University, West Nusa Tenggara. The research subjects were 29 students of the Sociology Education Study Program. The data analysis used is the result of material expert validation questionnaires and media expert validation for the feasibility of the modules developed and student learning outcomes data using project-based e-modules. Project-based e-module products developed have gone through validity tests, practicality tests, and effectiveness tests.
Research design and method should be clearly defined**.**

Result and Discussion

Researchers have used 2 criteria to determine the level of validity of the e-module developed. Test validity through material expert validation and media expert validation. The following are the average scores of material experts and media experts in e-module development.

Table 1.

Assessment Aspect	Indicator	Score
Content Eligibility	Suitability of the material to the Sub-CPMK with the Indicator	3
	The correctness of the substance of the learning material in the e-module	3
	The material in the e-module is easy to understand	3
	Compatibility of image illustrations (sample images) in the e-module with the learning material	3
Language	The entire information in the e-module is legible	4
	The language used is easy to understand	3
	Clarity of information delivery on the e-module	3
	The compatibility of the sentence with the correct Indonesia Language rules	4
	The use of language that does not give rise to multiple interpretations	3
	Communicative use of language	4
Presentation	The demands of the description of the material in the overall content of the e-module	4
	Motivating the right students	3
	Interesting e-module content	3
	Completeness of information on the e-module	3
	Interactivity of student learning using e-modules	3
	Average score	3.27

Based on Table 1, it is known that the average score of material expert validators is 3.27. This shows that in terms of material, the modules developed have met the validity criteria set because the average score of the validation result sheet is at intervals of 2.5 <SR≤3.5.

Table 2. Average Score of Media Expert Validators

Assessment Aspect	Indicator	Score
Display screen design	The color composition of the writing against the background color (background) is correct and can be read clearly.	4
	A proportional layout (text and images) of the page is appropriate.	3
	The clarity of the title and content of the e-module	3
	Have an appeal to the design of the e-module displayed (colors, images, / illustrations, and letters)	3
Ease of Use	E-modules are presented in sequence according to the part	4
	E-module easily accessible with laptop/PC/smartphone	4
	The content inside the e-module is easily accessible	4
Consistency	Words, terms, and sentences in learning materials are consistent	4
	Font shape and size are consistent	4
	The layout of the display is consistent	3
Graphics	The use of color on the e-module is appropriate, not excessive	3
	The font size used is easy to read and clearly	4
Usefulness	The steps in the e-module make it easier for students to learn	4

Lecturers can interact using e-modules easily	4
Learners can interact using e-modules easily	4
Able to increase the attention of students in learning	3
Average score	3,6

Source: Research Data (2023)

Based on Table 2 it can be seen that the average score of media expert validators is 3.6. This shows that the e-module developed has met the feasibility because the average score of the media expert validation result sheet is at intervals of 2.5 <SR≤3.5.

The average score of material experts and media experts is then added and divided in half so that a score of 3.44 is obtained. The score shows that overall the developed e-modules are valid because they are in the interval 2.5 <SR≤3.5.

To find out the level of practicality of the e-module developed, researchers distributed questionnaires to module users. In this case, the users of the module are students of the Sociology Education Study Program who are taking the Sociology Curriculum Study course. The number of students who have filled out the practical questionnaire for using the module is 29 students. A recapitulation of the results of the practicality questionnaire from students can be presented in table 3.

Table 3. Recapitulation of Module User Practicality Questionnaire

Assessment Aspect	Score
The material presented in the e-module is easy to understand	3,34
The material presented in the e-module is following th indicators	3,31
The presentation of e-modules is logical and coherent so that it easy to understand	3,38
The language used in the e-module is easy to understand	3,38
Clarity of information delivery on the e-module	3,31
The attractiveness of the content of project-based e-modu material increases the spirit of learning	3,38
E-modules are suitable for use in learning sociology curriculu studies	3,52
Project-based e-modules are easily accessible via smartphone and laptops	3,45
The appearance of the e-module is attractive and easy t understand	3,24
The layout design of the e-module is neatly arranged	3,41
The selection of font type and size on the e-module proportional	3,45
Average Score	3,38

Source: Research Data (2023)

Based on the recapitulation table of the practicality questionnaire of module users in Table 3, it is known that the average score obtained is 3.38. This shows that the modules developed have met the practicality criteria because the average score obtained is in the interval 2.5 <SR≤3.5. Based on these data, it can be concluded that the e-module is practical to use. The results of this questionnaire recapitulation are reinforced by a brief description from students stating that practical modules are to be used in Sociology Curriculum Study lectures.

Testing the effectiveness of e-modules is an important step in the development and implementation of e-modules in education. The effectiveness test aims to assess the extent to which the e-module achieves the learning objectives and delivers the expected benefits. Effectiveness testing helps in evaluating whether the e-module is successful in generating the understanding and learning desired by the student. This can help in ensuring that the e-module is appropriate for instructional purposes. Effectiveness tests can help in identifying weaknesses and areas of improvement in the e-module. This allows developers to continuously improve and optimize learning materials. Effectiveness tests can also help in measuring the level of student involvement in using e-modules. This is useful for assessing the extent to which students are involved in the learning process. The results of the effectiveness test can help in adjusting and reviewing the content of the e-module material. This ensures that the material delivered is still relevant and up-to-date. The following can be presented as descriptive statistics of the average

pretest and posttest scores in trials of using modules in lectures. The average score can be seen in Figure 1.

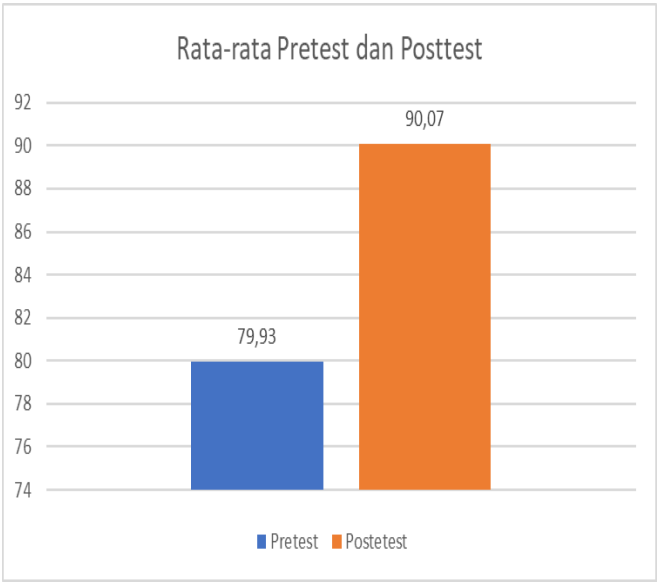

Figure 1. Average Pretest and Posttest Scores.
Source: Research Data (2023)

The average pretest score in Figure 1 is 79.93 while the post-test average is 90.07. This indicates that there is an increase in the average posttest compared to the pretest. To determine the level of effectiveness of using modules in learning, the data was analyzed using the N Gain formula using the SPSS application. The following can be presented SPSS output which shows the value of N Gain score and N Gain Percent as indicators of the effectiveness of using modules in lectures.

Table 4. Output SPSS N Gain Score and N Gain Percent Descriptive Statistics.

	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_Score	29	.20	.85	.5201	.18954
Ngain_Persen	29	20.00	85.00	52.0081	18.95368
Valid N (listwise)	29				

Source: Research Data (2023).

Based on the SPSS output in Table 4, an N-Gain score of 0.52 is obtained. The score is in the interval range of 0.3 ≤g ≤0.7 or the medium category. This means that the e-modules developed are effective in improving student achievement with a moderate/sufficient level of effectiveness.

Based on the results of validation tests, practicality tests, and effectiveness tests, the e-modules developed in the research Development of Project-Based E-Modules in the Sociology Curriculum Study Course have met the elements of validity, practicality, and effectiveness. Based on the results of these trials, the e-modules developed are suitable to be used as teaching materials in the Sociology Curriculum Study Subject.

E-modules, or electronic modules, have an important role in the Sociology Curriculum Study course. E-modules are digital learning tools that can be used to provide study materials, reading materials, assignments, and other resources to students electronically (Widiastuti, 2021). Here are some reasons why the e-modules developed are important in the Sociology Curriculum Review course: *First,* Accessibility. E-modules allow easy and flexible access to learning materials (Pramana et al., 2020; Suyoso & Nurohman, 2014). Students can access it from anywhere with an internet connection, which allows for remote or off-campus learning. *Second,* interactivity. E-modules can include interactive elements, such as videos, images, links, and online exercises. This can increase student involvement in the learning process (Santi, 2011). *Third,* ease of renewal. In the Sociology Curriculum Study course, content and literature can change along with the development of social sciences. E-modules allow lecturers to update material quickly without the need to reprint physical material. *Fourth,* Environmentally friendly. The e-module supports sustainability initiatives by reducing paper use and natural resource use. This is in keeping with the sustainable social approach that is often the focus of sociology courses. *Fifth,* Ease of Collaboration: E-modules allow students and lecturers to collaborate online, share notes, and participate in online discussions, which is in keeping with the sociological approach to social interaction. *Sixth*, Monitoring and Evaluation: E-modules can provide useful tools for lecturers to monitor student progress in courses. They can use reporting features to track individual progress and identify areas for improvement. *Seventh,* Ease of Access to References: E-modules can include direct links to reference resources such as journals, books, and other resources. This makes it easier for students to access relevant reading materials and resources. *Eighth,* Data Security: E-modules can provide a better level of data security than printed materials. This is especially important when there is material that needs to be kept confidential or to prevent illegal printing.

The characteristics of the e-module were developed by the opinion of educational experts. The benefits of e-modules in education have been identified by many experts in the field of education and technology. Here are some of the benefits of e-modules according to some experts: Moore, (1993) states the e-module is beneficial in terms of Learning Flexibility, Bates, (2015) Helpful for accessibility, Anderson & Dron (2011) emphasize the benefits of the field of

interactivity, Siemens & Gasevic (2012) highlighting the benefits in terms of ease of renewal, Garrison et al. (2000) Highlighting the benefits of ease of collaboration, Chickering & Gamson (1987) highlight the benefits of student learning engagement, and Bransford et al. (2000) In his book entitled "How People Learn: Brain, Mind, Experience, and School" highlights the benefits in terms of ease and access to references.

Lecturers and students are advised to maximize the benefits of using e-modules in the Sociology Curriculum Review course. These e-modules can be powerful tools for effective learning if used well and with high involvement from all parties.

Conclusion

Based on the results of research and discussion, it can be concluded that the e-modules developed in this study have fulfilled the elements of validity, practicality, and effectiveness. Based on the results of these trials, the e-modules developed are suitable to be used as teaching materials in the Sociology Curriculum Study Course. E-modules can be an effective tool in supporting learning and improving educational accessibility because E-modules enable flexible learning, which can be accessed from anywhere and anytime, even allowing access to learning materials from different backgrounds and geographical locations.

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