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Meta analyzing the ease of use of e-modules in learning

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ABSTRACT

Technological innovation in education is necessary to increase the quality of learning by utilizing specialized media. One of the efforts made by educators is to use e-modules in learning. E-modules are digital media containing text, video, audio, and animation, which are combined according to the learning needs of students/students. This research was conducted to describe the practicality of using e-modules for teachers/lecturers and students/students. In this study, ten articles were sampled regarding the use of e-modules. Based on the research results, it is known that the average practical value of using e-modules for teachers is 90.63 in the convenient category, while the average practical value of students is 87.09 in the applicable category. Based on the results of a review of the use of the developed e-module, it is included in the practical category so that the e-module can be used in learning activities.

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INTRODUCTION

Efforts to improve human resources are carried out by advancing the quality of Education. Education is an activity to change students to adapt to their environment and develop positive things in students (Pitasari et al., 2022). Education can advance and improve the condition of society in a more advanced direction through changes in science and technology (Sidiq, 2020).

Changes in science and technology in the world of Education have led to appropriate innovations, especially in the learning process (Fadhillah & Andromeda, 2020). Changes in science and technology in the world of Education have led to appropriate innovations, especially in the learning process (Zahwa & Syafi'i, 2022). Learning Media are tools that are used to convey messages or knowledge from teachers (communicants) to learners (communicators) (Kimianti & Prasetyo, 2019). Learning Media is used in the form of hardware (hardware) and software (software) (Hakiki et al., 2022), thus influencing the motivation to learn, attention, thoughts, and feelings of learners toward achieving learning goals (Widiana & Rosy, 2021).

The Learning Media integrated with technology and developed today is the e-module (Rahmadhani & Efronia, 2021). E-module is a self-learning media packaged in digital form (Laraphaty et al., 2021); this aims to realize the learning skills that will be achieved and make students more interactive by using the e-module (Rahmi, 2019). E-modules can also be interpreted

as electronic-based learning media, with animations, texts, images, videos, and graphics (Triyono, 2021). E-modules are expected to be a new learning place for learners and can improve their understanding of learning materials (sa'diyah, 2021).

Based on the results of literature studies in accredited journals, the development of e-modules for learning is very much. However, it is still not seen how much practicality of e-modules that various researchers have developed, so there needs to be the most substantial scientific evidence about the effects of using e-modules on learning. Then, it is essential to meta-analysis the practicalities of using e-modules by lecturers/teachers and students/students. So, it can be found whether the e-module that has been developed is feasible to use in learning activities. The study aims to increase the evidence of the application of e-modules in learning and facilitate practitioners in using e-modules as research and development topics. Furthermore, this research can also motivate further advancements in designing more efficient and relevant e-modules, as well as provide practical guidance for educators and curriculum developers to optimize the use of e-modules in the learning process.

METHOD

Determined this type of research is a meta-analysis. Meta-analysis reviews several research results on similar problem topics (Zaputra et al., 2021). Meta-analysis is research conducted by analyzing, reviewing, and collecting data from a previous study that already exists (Anugraheni, 2018). The stages in this study (1) formulate the research problem, (2) identify the relevant study full-text Article, (3) assess the quality of the study, (4) data analysis and evidence summary, (5) interpret the findings. The data collection technique in this study is to collect several similar articles that discuss the use of e-modules obtained through Google Scholar (Utama, 2022). The Data used in this study is secondary data obtained from previous research.

Stages in data collection as follows: (1) Identify research variables; (2) Identify the average practicality for each article analyzed/ research subject;(3) Identify the average practicality of educators for each article or research subject;(4) identify the average practicality of students each article; (4) Calculate the final average practicality.

Articles collected in this study with the following criteria:

1. Literature that discusses the ease or practicality of using e-modules in learning has as many as ten articles;
2. Literature published in the period from 2021 to 2023;
3. Literature using English and Indonesian;
4. Literature published in accredited national journals.

There are ten articles from several national journals sampled in this study. The information needed to calculate the practicality level of using e-modules is the year of research, the researcher's name, the percentage of the practicality, and the title (Wahyuni & Yerimadesi, 2021). Practicality is the ease of use of the product produced when used (Zaputra et al., 2021). Data analysis techniques using the formula of Percentage = X/Y. Y is lots of data and X is total percentage (Haspen & Festiyed, 2019).

RESULTS AND DISCUSSION

Research Results

Based on the analysis of ten (10) articles on using e-modules from accredited national journals, the data is found in Table 1. Table 1 shows that two components are the guidelines in this study, namely teachers/lecturers and students/students. The average practicality score by teachers/lecturers is 90.63, classified as very practical, while the average practicality score by students is 87.09, classified as valid. The average score of practicalities by teachers is greater than the score of practicalities by students.

Table 1. Practical Evidence of e-Module.

No.	Title	Practicality		Source
		Gr	Pd	
1	Development of e-modules on row and series material using sigil software	86.67	89.72	(Sari et al., 2023)
2	Development of Thematic E-Module Curriculum 2013 Theme 2 Subtheme 1 Grade III Elementary School Based on Flipbook Maker	88.03	92.39	(Pitasari et al., 2022)
3	Development of flipbook-based contextual electronic modules towards understanding mathematical concepts of grade XI MA students	89	72	(Surtini et al., 2023)
4	Development of E-Modules with Canva Applications and Flipbooks on Economist Learning	86.6	86.6	(Sofya & Adzkia, 2023)
5	Development of Smartphone-Based E-Module on Human Excretory System Material for Class XI High School Students	93.83	90.71	(Rambe & Ristiono, 2022)
6	Development of Flipbook Maker Based Sociology Learning E-Module for Class XI High School Social Studies Students	85	80	(Rahayu & Erianjoni, 2021)
7	Development of interactive e-modules based on Kvisoft Flipbook with discoery learing model on arthropod material	87.22	85.8	(Hasibuan, Zulfarina, & Putra 2023)
8	Development of Interactive E-Modules for Electric Lighting Installations in Vocational Education	91	87,.63	(Taali et al., 2023)
9	Development of Character-Based AUD Social Development Learning E-Module Using Flipbook Maker Software	100	98.3	(Susilawati, 2021)
10	Development of e-modules using the professional flip pdf application in the basic education curriculum analysis course	98.95	87.76	(Rama et al., 2022)
		90.63	**87.09**	

Discussion

This study has found the practicality or ease of use of e-modules in learning by teachers/lecturers and students/students from various research results. Here are the details of the explanation.

a. Practicality of e-module by Teacher/Lecturer

Based on ten articles in Table 2, the practicality of using e-modules by teachers in the 9th article proves that the average value of the highest practicality score is 100. The lowest suitability is found in the 6th article, with a score of 85. The results of product development are said to be practical if: (1) the developed product can be implemented in the field or school; (2) the developed product can attract students to learning activities; (3) the subject matter of the developed product is easy to understand (Fitria, 2017).

b. Practicality of E-module students

Based on Table 2, the practicality of the use of e-modules by students from 10 articles analyzed data obtained that the highest level of practicality by students in the 9th article is 98.3. In comparison, the lowest practicality score in the 3rd article is 72. The story of product practicality is seen from the ease of use of the developed Learning media, ease of interpretation, attractiveness, time efficiency, can be used as an independent learning media, and suitability to the material (Yanto, 2019). The results of the calculation of the practicality of the use of e-modules by students prove that the e-modules developed include practical categories because they can attract students ' interest in learning activities. The development of e-modules in learning is a form of technology-based innovation (Triyono, 2021). Various conveniences are offered by the e-module so that the learning process is more flexible.

CONCLUSION

Based on the results of calculations that have been carried out, it is concluded that using e-modules during the learning process includes practical criteria with an average score of practicality by teachers/lecturers of 90.63 in the convenient category and the average score of the level of

practicality by Students/Students of 87.09 practical types. This shows that the e-module developed is well used by teachers/lecturers and learners/students in the learning process to help students/students understand the concept of the material and can improve the value of learning outcomes. The implications of this study are to provide the most substantial scientific evidence against the application of e-modules in learning and facilitate practitioners in using e-modules as a topic of research development.

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