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## Analysis of the benefits of using e-modules as distance learning media: can it help students improve cognitive and affective aspects of students?

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### Abstract

One learning tool with many advantages is interactive e-learning. These e-modules include text, graphics, animation, and videos, making it easier for students to understand lessons, especially when studying remotely. This study uses a literature review methodology to collect information from various sources, including books, articles from online journals, well-known websites, and statistical data from the internet. The information is then investigated and checked through three stages, including descriptive analysis, content analysis, and critical analysis. Based on research findings conducted through library research, interactive e-modules can increase student motivation, scientific literacy skills, learning outcomes, independence, and critical thinking skills. Based on the research results, this e-module can be used by teachers in distance learning as a learning media based on research findings. Interactive e-modules can increase learning motivation, scientific literacy, learning outcomes, independence, and students critical thinking skills.

**Keywords:** benefits, e-module, learning media

### 1. Introduction

Distance learning (PJJ) is a situation where teachers and students do not interact face-to-face during the learning process; instead, the learning process takes place in locations that may be far apart. In distance learning, students are required to study independently (self-study), and teachers are expected to be able to create educational materials using various media to increase student-teacher interaction (Abidin et al., 2020). It is anticipated that teaching and learning activities through distance learning will continue to support the achievement of learning objectives.

An example of using distance learning (PJJ) is when teachers get assignments out of town. In order for learning to continue, the teacher can use this PJJ. Thus in the class, there are no empty terms. Even though the teacher is not in class, learning continues with PJJ using a specific platform. This PJJ is carried out because of the available facilities. Against the backdrop of technological advances, the thought arose of implementing PJJ to overcome teachers not being in class.

Distance learning (PJJ) is a situation where teachers and students do not interact face-to-face during the learning process; instead, the learning process takes place in locations that may be far apart. In PJJ, students are required to study independently (self-study), and teachers are expected to be able to create educational materials using various media to increase student-teacher interaction (Abidin et al., 2020). It is anticipated that teaching and learning activities through distance learning will continue in a supportive way to achieve learning objectives.

For the distance learning process to be successful, educators must focus on several factors, including the students they teach, attention, confidence, experience, ability to use technology, and interpersonal skills (Prasetyo, 2020). Therefore, in this case, the teacher's

position is emphasized as a facilitator who must facilitate and provide various media to improve student learning.

Media originating from the natural environment, both living and dead, is known as reality or real media. Examples include specimens, taxidermy, herbarium, and others (Lestari & Nugrahani, 2021). In addition, even though the learning process does not occur face-to-face, students must be able to communicate with the teacher through learning media, which must represent the teacher's message as a whole (Kartini et al, 2021). However, many teachers still need help selecting and creating teaching materials that can be used to assist in distance learning.

One of the challenges faced during the learning process is the need for more independence and activeness of students in seeking and obtaining their knowledge related to the subject matter being taught (Sudirman et al., 2021). This is also caused by teaching materials outside students' needs and characteristics. Publishers generally make textbooks and worksheets teachers use, not the teachers themselves. Instructors sometimes include power point presentations in their lectures. Due to the Covid-19 outbreak, teaching and learning activities are now online. Teachers usually use WhatsApp as a communication channel between them and their students. Teachers usually send explanations through audio, pdf files, or video links from YouTube (Wulandari et al., 2022).

Due to technological advances, teachers now find it easier to create various learning media to enhance teaching and learning activities. An interactive e-module is one type of media that can be utilized. This e-module is made using an electronic format for various devices such as computers, laptops, and cell phones, unlike the modules in general, which are often delivered to students in hardcopy form. Naturally, this will make it easier for professors to provide learning resources for students, especially when distance learning is involved. In addition, the use of e-modules can help reduce paper consumption. The material is provided in interactive e-modules in text and images and has animations and videos. With this electronic module, the learning process should run more effectively and efficiently and support interaction between educators and students so that students can understand the concept of learning and experience increased learning outcomes (Imansari & Sunaryantiningsih, 2017).

The use and development of interactive learning e-modules have yet to be implemented optimally, causing a lack of student interest in learning. Handbooks owned by teachers and students are limited, and any material presented needs to be more attractive. The previous statement indicates that teacher innovation and creativity greatly influence the development of interactive e-modules that are valid and on par with the characteristics of each student in the learning process.

Teaching materials have a vital role in the educational aspect, one of which is in learning because the teaching materials themselves can be combined with the situations and conditions of students, student characteristics, and the material conveyed in the learning process. This indicates that interactive e-modules are crucial to ongoing learning (Mustika, 2015).

Based on the explanation of the problems, it is necessary to present a practical, innovative, and interactive solution. The solution is to develop teaching materials based on technology, namely interactive e-modules. An interactive e-module is a supporting factor in the teaching and learning process. *Modules* are defined as interactive teaching materials designed in various forms not to be monotonous and generate student interest in learning so that students are more motivated and can develop their thinking through interactive activities contained in interactive e-modules that contain learning images, audio, and videos (Nurida, 2017).

Interactive e-modules have the advantage of being able to increase the flexibility and effectiveness of learning (Surjono, 2009), are not bound by space and time in the sense that they can be used anytime and anywhere (Gozali & Billian, 2012; Suwasono, 2013), can make

the learning process more exciting and not dull because interactive e-modules are equipped with pictures, videos, and various exciting features that can increase students' motivation in learning (Depdiknas, [2008](#)).

## 2. Methods

This research uses the library study method, carried out through a review of various literature such as books, articles in electronic journals, trusted websites, and various statistical data sources from the internet. The definition of literature study, according to Sugiyono ([2010](#)), is theoretical analyses, references, and other scientific literature related to culture, values, and norms that develop in the social situation under study.

Based on the opinions of the experts above, conclusions can be drawn. Literature study is the process of reading some references, which on average, are in the form of writing (both books, articles, journals, etc.), which will later be used as a reference source for the writings compiled. The existence of references helps develop writing, not only so that it can be natural or feel the actual effect. However, it also makes writing weightier or higher quality. Furthermore, the entire literature that has been obtained will be investigated through several stages, including 1) descriptive analysis, namely through collecting and analyzing data that has been obtained during the literature study; 2) content analysis, namely through drawing conclusions using specific techniques; and 3) critical analysis, namely through evaluating and analyzing critically and in-depth the data and also the facts that have been obtained during the literature study and then carrying out the meaning of the phenomena obtained scientifically (Aziza, [2017](#)).

## 3. Results and Discussion

Based on the literature study results obtained from various kinds of literature, interactive e-modules have many roles as learning resources. Interactive e-modules are one of the learning media that can be chosen, especially during the Covid-19 pandemic. This is because interactive e-modules can be used anytime and anywhere to support the distance learning process. In addition, its features are designed interactively to support interaction and communication between teachers and students.

### a. The components contained in the interactive e-module

This interactive e-module has videos and animations that make it easier for students to understand the material (Nufus & Sakti, [2021](#)). Based on the interactive e-module development carried out by (Rafli & Adri, [2019](#)), There are several features presented in interactive e-modules. The e-module page is presented with a 3-dimensional view. In the e-module, the material's explanation is accompanied by videos and practice questions designed interactively. In addition, there is also a video tutorial on how to use it. A table of contents is also provided to make it easier for students to go to the page they want, which can be clicked so that the display can immediately change to the desired page.

### b. Use of language and writing patterns

The use of language in interactive e-modules is adjusted to the language used in students' daily lives. The language's simplicity and attractiveness made it seem like students interacted directly with the teacher through the e-module. Besides the use of language, other factors affect students' understanding of the material presented, namely writing patterns. Writing patterns that are fixed can make it easier for students to recognize essential discussions in the reading (Winatha, [2018](#)). Students find it easy to understand the readings on each topic in the e-module because the writing patterns used are the same or fixed. Hence, the material presented is accessible for students to recognize and process.

In addition, one of the keys to the success of the learning process is good interaction and communication between teachers and students. However, due to the Covid19 pandemic, learning occurs remotely, so teachers cannot interact directly with students. Therefore, with the existence of interactive e-modules which are arranged in simple and exciting language and easy-to-understand writing patterns, it is hoped that they can become a means of supporting interaction and communication between students and teachers and can increase students' interest and motivation in learning and understand the material so that the learning process can be carried out correctly.

c. Benefits of using interactive e-modules

Interactive e-modules can be used flexibly without any space and time limitations. Using the e-module, students can access the link provided by the teacher anytime and anywhere if connected to an internet connection. Apart from that, they can also access the e-module without having to be connected to the network, but before that, they must download it first. Therefore. The learning process can still occur even though students are in different places than the teacher.

Distance learning requires students to be more independent and, simultaneously, more critical in understanding a problem. Interactive e-modules also aim to increase student learning independence and improve students' critical thinking skills. According to Diana & Sukestiyarno (2019), after carrying out independent learning using the e-module, there was an increase in students' mathematical critical thinking skills compared to before students used the e-module independently in the learning process. This indicates that the use of e-modules can improve students' ability to think critically because e-modules are designed so that students can learn independently. Students' critical thinking skills can be seen when they can determine assumptions, evaluate opinions and conclude them clearly and in detail. Meanwhile, students with a low level of critical thinking can still not evaluate arguments and conclude learning accurately and clearly.

The use of e-modules can also increase students' learning motivation because the content contained in the e-modules is neatly packaged to make it easier for students to understand the subject matter. In addition, interactive e-modules also aim to describe material conceptually to increase students' understanding and memory of the material. By using e-modules, there is an increase in students' understanding of the lesson concept. In its development, the e-module is designed in a concise, not verbose, and leads to the essence of the discussion and is adjusted according to students' way of thinking so that it does not cause students to get bored while reading it (Nufus & Sakti, 2021)

Another benefit of using e-modules as learning media is to empower scientific literacy and improve student learning outcomes. Online learning results in students having to read the materials made by the teacher themselves, but sometimes due to its unattractive appearance and the monotonous impression, it causes students to feel bored and not interested in reading the material the teacher has given. Thus, through the presence of this interactive e-module, students are expected to be able to understand the material through various readings as well as written information that the teacher has excitingly arranged; this, of course, will also increase students' interest in reading so that student learning outcomes can experience an increase.

This statement also aligns with research conducted by (Muzijah et al., 2020), who found that using e-modules can improve students' scientific literacy skills. This can be observed through increased student learning outcomes in class XI MIPA 4 SMA Negeri 8 Banjarmasin after using the e-module as a learning medium. This is the same as the research conducted by Aspriyani & Suzana (2020), in which students' learning achievement increased after learning was carried out using interactive e-module media. Besides that, Raharjo et al. (2017) also found that students' scientific literacy can be increased through interactive e-modules based on Adobe Flash, which has been assessed as valid, practical, and effective.

#### 4. Conclusion

An interactive e-module is a type of learning media that provides many conveniences for teachers and students. Interactive e-modules can make learning occur in a conducive manner because it contains features that can help students understand the material, especially during this pandemic, where learning cannot occur face-to-face. Based on the research results through literature study, interactive e-modules can increase learning motivation, scientific literacy, learning outcomes, independence, and students critical thinking skills. Three aspects are measured in knowing students' perceptions of electronic modules (e-modules) as distance learning media: the clarity and suitability of text, images, animations, and videos in e-modules, the presentation of material in e-modules, and the usefulness of e-modules. -module. Based on the research and discussion results, the average student perception results as a whole is in a perfect category. This indicates that the electronic module (e-module) is excellent and suitable for use as a medium for distance learning.

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