

ELECTRONIC MODULE (E-MODULE) AS INNOVATIVE LEARNING MEDIA TO INCREASE KNOWLEDGE AMONG NURSING STUDENTS

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\Abstract

Electronic modules (e-modules) as innovative learning media that can be accessed anytime and anywhere are promised to increase nursing students' knowledge. However, there are still limited studies that examine the effectiveness of E-modules and the effect of E-modules on increasing student knowledge. This study aims to evaluate the effectiveness of the e-module on undergraduate nursing students' knowledge level. One group pre-posttest research design was conducted on 46 students recruited through purposive sampling. Respondents filled out the pretest, followed by studying the E-module material on spontaneous delivery compiled by maternity nursing experts for three reading periods in a week and working on a posttest questionnaire compiled by the researcher. Then the data were analyzed using the Wilcoxon test with a significance level of 0.05. Students' knowledge before giving the intervention was seen in the pretest results, with an average value of 72 and an increase in the average value in the *posttest* after the intervention was given to 97. So there was a significant effect of e-module as a learning medium on increasing student knowledge ($p = 0.00$). The E Module has been proven to be effective in increasing knowledge. Still, nursing education and science continue to develop, so regular updating of the content of the e-module is needed and combining it with nursing moral values is essential because good moral attitudes are also the focus of nursing education.

Keywords: Delivery, electronic module; e-module; knowledge; students; nursing students

INTRODUCTION

Technological developments in the era of globalization affect various fields and aspects of life, one of which is education. The development of technology in the field of education can be seen from the emergence of various methods, models, techniques, media, to changes in the learning system. The learning system commonly used in Indonesia is a face-to-face learning system where students and teachers are in the same place and can interact directly (Vallée et al., 2019). However, with health problems, namely the emergence of the global pandemic *CoronaVirus Disease* 2019 (Covid-19) and the enactment of the circular letter of the Minister of Education and Culture Number 2 of 2020 concerning the prevention of coronavirus disease in Education units which requires the reduction of face-to-face learning activities so that there is a change in the face-to-face learning system. become a learning system in a network (online) or what is commonly called an *e-learning learning* (Uprichard, 2020). System *e-learning learning*; students and teachers are separated by distance and learning is carried out using electronic methods via the internet (A Ambarita, 2016). The use of *e-learning* makes it easier for students and teachers because it can be done anywhere and anytime according to learning needs (Maudiarti, 2018). So e-learning is increasingly used and continues to be developed.

The e-learning program is also used for nursing students during the Covid-19 pandemic. Nursing students use two learning methods, namely, asynchronous and synchronous. The synchronous method is a learning method carried out directly with the teacher using video conferencing such as zoom meetings and google meetings with a predetermined time (McCutcheon et al., 2018). In contrast, the asynchronous method is a learning method carried out indirectly or only by providing teaching materials and assignments using media such as video materials, e-modules, e-books and articles for reading material with flexible times (Maudiarti, 2018). Using various learning media in e-learning can build student insight and assist in achieving learning objectives. In addition to learning media, learning techniques are also needed that follow the needs of students when they go out in the field. For example, one of the techniques applied to nursing students is problem-solving by familiarizing nursing students to analyze cases and find solutions helpful in training students to think critically because this technique can provide an overview of cases following field conditions (Nicklen et al., 2016).

The learning technique used is in line with the research results of Williamson and Muckle (2018), that technology can improve performance, facilitate learning, increase access to resources and improve communication for nursing students. So educators must be able to provide learning that encourages collaboration and independent learning to access and utilize electronic resources (Harerimana & Mtshali, 2019). This condition is reinforced by the Covid-19 pandemic, which causes closures and restrictions on visits to public library facilities, causing students difficulty in finding books as learning media, so students need to take advantage of electronic resources such as e-books, e-modules,

and e-journals as learning media. One of the electronic media courses is the maternity nursing course, with normal birth material as the primary material that requires a deep understanding.

Of course, this is a challenge for nurses who act as educators to develop educational technology innovations to obtain learning media that suit their needs. One of these learning resources is an e-module to support learning effectiveness, the birth of materials and facilitate learning (Yulando et al., 2019). Since e-modules are easily accessible and easy to read anywhere and anytime, it will undoubtedly make it easier for students and teachers to carry out the learning process (Solikin, 2018). In addition, innovation in e-module development can be the first step to increasing student learning motivation and reducing paper use (Yulando et al., 2019). The need for e-module development is reinforced by the absence of e-modules for maternity nursing courses, especially normal birth materials.

Previous research (Ghita, 2021) found that android-based e-modules increased student learning success. After searching the data, it was found that there were not many special e-modules for nursing students, especially in maternity courses with normal birth material. Most of the e-modules in circulation are e-modules for midwifery students. So that the development of this e-module is very much needed, especially for nursing students, because this e-module is adapted to the realm of nursing. Considering the need for innovation related to learning media and research on the effectiveness of the expected birth e-module on student knowledge, more needs to be done in Indonesia. The purpose of this study was to determine the effectiveness of the normal birth e-module on nursing students' knowledge.

METHODS

This study used a pre-experimental design with a *one-group pretest-posttest approach*. This type of design is commonly used to determine the effect of treatment or intervention given to research respondents. With this design, all respondents get the same intervention and assessment; variable assessment is needed before and after the intervention is given to see the difference in the *pretest* and *posttest* so that more accurate results will be obtained (Allen, 2017). This design follows the objectives to be obtained, namely determining the effectiveness of *e-module* on increasing student knowledge after the intervention.

SAMPLES, AND SETTINGS.

The sample of this study amounted to 46 respondents. This research was conducted at a state university in West Java on October 20-26, 2021. The sampling technique used in this study was Non-Probability sampling with the type of purposive sampling. The inclusion criteria in this study were third-year students who had completed maternity courses, especially normal birth, and the exclusion criteria were students who had attended normal birth training. The dropout criteria in this study were respondents who

resigned during the research or did not follow the complete series of studies (pre-test, intervention, post-test). The technique for determining the number of samples is using the GPower software version 3.1 and adding 10% of the total sample to avoid sample dropouts.

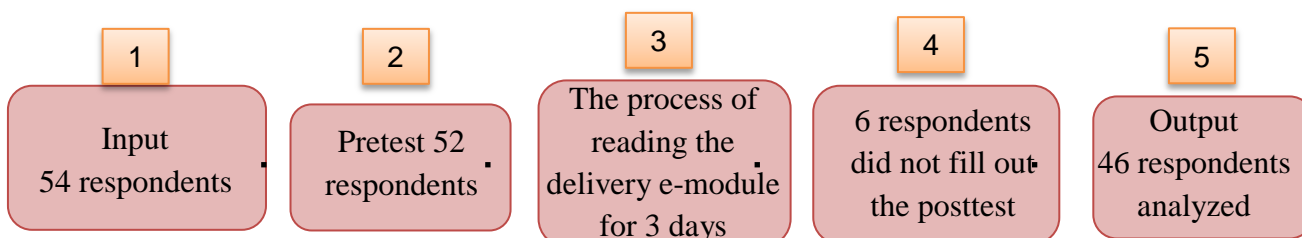
INSTRUMENTS

The research instrument consisted of a demographic data questionnaire and a Knowledge Questionnaire about normal birth. Questionnaires were used to measure students' knowledge of theory and nursing care in normal birth. This questionnaire was prepared by the researcher and consulted by experts in the field of maternity nursing. This questionnaire comprises 15 questions covering theory and nursing care in normal birth. The questions consist of five answer choices, for each correct answer is given a value of 10 and for an incorrect answer is given a value of 0. So this questionnaire has a maximum value of 150 and a score of 0. The minimum is 0. This questionnaire has been tested for validity and reliability. With the results of the validity test of <0.05 and the reliability of Cronbach's alpha of 0.729, it is included in the valid and reliable. In addition, the researchers also used the E-module Normal birth as an intervention given to respondents in order to increase respondents' knowledge. Experts prepared this e-module in the Maternity Nursing area at the national level. The content of the E-module includes material on normal birth and nursing care in normal birth.

PROCEDURE

Respondents selected according to inclusion criteria took a pretest regarding childbirth. When informed consent was obtained, 52 respondents who filled out agreed and did a pretest, and two said they did not agree (dropout). In the next activity, respondents for three days were asked to read the normal birth e-module, which contains material related to normal birth and fill out a logbook in a gsheet to find out whether the respondent has read and how many pages are read each day. In the reading process, respondents are given the freedom to read it gradually or finish it in one reading. After reading the e-module, the following process is a virtual meeting via Zoom Meeting for the posttest. The final results obtained as many as 46 respondents who read and filled out the posttest and as many as six respondents were declared dropouts. Figure 1.

Data Collection Process



Data analysis

After the research procedure was carried out, the data were analyzed using the Statistical Product and Service Solutions (SPSS) software version 25. At first, the researchers conducted a normality test, and the test results were not normally distributed, so the Test was carried out using the Non-Standard Test. The parametric is the Wilcoxon signed rank test with a degree of confidence of 95% with $\alpha = 0.05$.

Ethical consideration

This research has been obtained through ethical approval from the Research Ethics Commission of Padjadjaran University, Bandung with registration number 731/UN6.KEP/EC/2021

RESULTS

This section contains the results of an analysis of the characteristics of respondents who participated in this study. In addition, the analytical results of increasing student knowledge after understanding the material for normal birth are also presented through e-module learning media. Details of the analysis can be seen in tables 1 and 2. Table 1. Frequency Distribution by Age and Gender (n=46)

Characteristics		Total	Percentage (%)
Age	19 Years	1	2.17%
	20 Years	4	8.70%
	21 Years	32	69.57%
	22 Years	8	17.39 %
	23 Years	1	2.17%
Gender	Male	3	6.52%
	Female	43	93.48%

Based on table 1, it was found that the characteristics of the respondents in this study were the majority aged 21 years, as many as 32 people (69.57%) and the majority of respondents were female, namely 43 people (93.48%).

Table 2. Changes in Student Knowledge through the Use of Learning Media E-Module birth (n=46)

Variable	Minimum	Maximum	Average	Standard Deviation	P Value
Pretest	10	110	72	24,157	0.00
Posttest	30	150	97	25,996	

Based on table 2. It is found that there is an increase in the average score on the *posttest* (97) compared to the average value on the *pretest* (72). The results of the *Wilcoxon signed rank test* showed that the p value showed a significant difference ($p = 0.00$). So it can be said that the use of e-module learning media can significantly increase students' knowledge of normal birth.

DISCUSSION

The normal birth material module has been proven to be significant and effective as a learning medium in increasing nursing student knowledge. Media is an important aspect in the educational process because it becomes a means of disseminating and transferring information during learning. The development of types of learning media ranging from e-books, e-journals, videos, and audios have contributed to this process (Maudiarti, 2018). As technology develops, the presence of e-modules makes learning more flexible in time and place. E-modules as learning media can increase students' knowledge of theory and nursing care in normal birth patients. In addition, the use of e-modules can increase the knowledge of midwifery students regarding midwifery care in the first stage as evidenced in the research conducted by Ghita, (2021) in line with the results of previous research that the use of e-modules can increase knowledge (Rahayu, 2020). This is related to the presentation of e-modules that are more interesting, fun, content that spurs students to think critically, productively, actively, effectively, innovatively, and develop student literacy skills (Yulando et al., 2019). The use of e-modules as learning media makes students try to remember and think critically because they can read and understand the contents of e-modules repeatedly with ease. The results of this study reinforce previous research in the maternal area, although in Health Education with different professional backgrounds, namely midwives and nurses.

In addition to the form of the media, the style of birth of learning materials also motivates student learning. The style of birth of learning materials consists of visual,

auditory, and kinesthetic (Lozano-Lozano et al., 2020). E-modules are learning media with a visual birth style where readers are presented with material in the form of writing, pictures, and illustrations that are more attractive than printed books. The use of visually attractive learning media can facilitate understanding and increase student learning motivation. In a study entitled *Interactive multimedia module in the learning of electrochemistry: effects on students' understanding and motivation*, the results showed that the use of e-modules as learning media could increase students' knowledge and motivation in learning (Lee & Osman, 2012). The results of this study are in line with the results of other studies, regarding increasing students' learning motivation by using electronic module media in the era of the industrial revolution 4.0 with the results of the study that there was a significant increase in learning motivation after the use of e-modules as learning media (Zaharah & Susilowati, 2020). Learning motivation is very important as a driving force for students to achieve the highest targets in their learning process. The development of learning motivation can help to improve the quality of learning so that it can improve learning achievement (Ramdhani, 2016). Motivation can also affect the way students process information and regulate emotions which of course can affect the basic goal of health professional education, namely improving patient care practices (Orsini et al., 2016). Learning motivation will increase, one of which is if the media used is attractive, easy to understand and of course easy to use.

The development of learning media occurs in both developing and developed countries. The development of learning media in developed countries is now more focused on combining visual, audio, and kinesthetic birth styles. One example is *Clinical Virtual Simulation in Nursing Education*, a virtual learning simulation developed in Portugal (Padilha et al., 2019). Meanwhile, in Indonesia, it is still focused on one learning media so that it makes students feel bored while studying. This is due to the unequal distribution of *Information and Communication Technologies literacy Skills* possessed by educational stakeholders, so that the development of educational technology has not been in line with global technological developments (Syahputra, 2018). The number of remote areas that makes the knowledge and skills unequal has hampered the development of technology, especially in the field of education. Limitations in internet access are also an obstacle in the field of education in Indonesia (Pei & Wu, 2019). The Ministry of Communication and Information of the Republic of Indonesia said that there are 11 percent of Indonesia's territory that has not been reached by cellular signals, which consists of 5,300 villages, of which 3,500 are located in the Papua Province (*Kementerian Komunikasi Dan Informatika*, n.d.). This will certainly be an obstacle in accessing e-modules via the internet, so the solution that can be used is to send e-modules in the form of files so that not only areas that have internet access can access the e-modules. So that there is no longer a reason for the development of educational technology to be hampered due to difficulties in accessing the internet, thus technological development must be followed by the development of resources and skills from all educational stakeholders, especially in nursing education in order to produce

nurses who are competent and can provide appropriate services for the entire community. .

E-Modules are proven to be effective in increasing knowledge, but geographical conditions and internet facilities in Indonesia which are not evenly distributed in all regions will hinder students' access to E-Modules, so that the creation of e-modules in the form of files that can be accessed without the need for an internet network. This study only examines the effectiveness of the E Module on knowledge, has not tested its effect on student learning motivation and student confidence in mastering the content of Normal Childbirth, further research on student motivation and self-confidence will complete the data on the effectiveness of E Module on student learning processes. This e-module provides complete material regarding normal childbirth nursing care that is valid, credible and up to date. This e-module has also been made with a design that is as attractive as possible, and this e-module not only contains sentences but also contains pictures, and tables so that it is easy to understand. However, the content is entirely about knowledge. On the other hand, as a prospective nurse who will later relate to individual clients, families, or communities, attitudes and behavior are one of the focuses of nursing education. Modifying the material by integrating cases in the E Module with the moral values of nurses will make this E Module not only increase knowledge, but also good attitudes and behavior as nurses.

CONCLUSIONS

The results of this study indicate that the e-module learning media can increase knowledge, as seen from the increase in learning outcomes for nursing students. This can be a recommendation for universities to use e-modules as learning media to increase student knowledge. Various limitations were identified, such as the E Module content, which still focuses on knowledge and has not been integrated with the formation of nurses' attitudes and behaviour. Then the research methodology is still limited to only testing knowledge so it does not describe a comprehensive aspect of learning evaluation. Further research is needed to examine the effect of learning media with E Module on learning motivation and students' self-confidence in mastering the material in order to obtain a comprehensive picture of the effect of E Module on students' knowledge and attitudes.

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