Original Article

The effectiveness of normal birth e-module on increasing nursing students' learning satisfaction

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ABSTRACT

Introduction: E-modules are information technology-based modifications of conventional modules. Students learning satisfaction can be used to gauge learning success. Learning satisfaction is the value of comparing the level of reality with the level of expectation in learning. This study aims to determine the effectiveness of the normal birth e-module in increasing nursing student learning satisfaction.

Methods: Pre-experimental with a one-shot case study design with data from online survey results using the E-Module Satisfaction Questionnaire instrument. The population of this study was 244 active students of the Faculty of Nursing, Universitas Padjadjaran, who had completed the maternity course using the normal birth e-module. As many as 46 people were willing to be respondents and fill out the level of learning satisfaction questionnaire. The study samples were determined by G-Power and data analysis using the Pearson Correlation test and the R square test or the Coefficient of Determination.

Results: Overall, the level of learning satisfaction of nursing students who use the normal birth e-module is very satisfactory/high, with an average of 4.51% in the range of 4.5 - 5.0. The percentage of the results of the assessment of all respondents was dissatisfied (0.2%), quite satisfied (5%), satisfied (38.7%), and very satisfied (56.1%). However, 2.2% or 1 out of 46 participants reported dissatisfaction with the respondent's understanding. The coefficient of determination or R square test of 0.876 or 87.6% is in the 0.8 – 0.99 (very effective).

Conclusions: The use of the Normal Birth E-Module is very effective as a learning method that can increase the level of learning satisfaction of nursing students.

Keywords: e-module; learning satisfaction; normal birth; nursing students

INTRODUCTION

The developing technology can affect various aspects of life, such as communication/socialization, work, basic needs, and even learning. This condition results from an effort to achieve the targets of the Industrial Revolution 4.0, namely the Internet of Things, artificial intelligence, human-machine interfaces, robotic and sensor technology, and 3D printing technology (Disdik, 2019). According to the WHO (2020), COVID-19 is an infectious disease of the respiratory tract, such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) caused by a newly discovered type of coronavirus. The prevalence of COVID-19 in Indonesia until August 16, 2021, is as many as confirmed 3,871,738 cases and 118,833 deaths (Satgas Penanganan COVID-19, 2021).

The government implemented policies to prevent the spread and minimize transmission of the COVID-19 virus. These included the implementation of community activity restrictions, large-scale social restrictions, and the application of health protocols such as the use of personal protective equipment (PPE), clean and healthy living behavior, social distancing, avoiding crowds, and online activities for work, worship, and even study (Alqhtani et al., 2021), namely distance learning such as e-learning (Alabdulkarim, 2021). E-learning is expected to produce competent students through existing digital technology (Nurhayati & Zuhra, 2020). It can provide unlimited access to face-to-face space and time, which is one of the obstacles for students in the pandemic era (Al Munawar & Fuadaturrahmah, 2021).

In Indonesia, the e-learning method is not commonly implemented (Rajeh et al., 2021); therefore, the change in the learning method requires Indonesia to prepare and improve the system's quality. Moreover, based on the Regulation of the Minister of Education and Culture number 137 of 2013, students need to acquire six aspects of learning, including religious and moral values, physical-motor, cognitive, language, socio-emotional, and artistic (Zahra, 2020). Therefore, besides cognitive abilities, students must be skilled in motor skills, especially those who need these abilities to prepare for future work, such as nursing students.

Based on the Guidelines for the Undergraduate Nursing

Education Study Program of Universitas Padjadjaran, nursing student learning consists of lectures, tutorials, laboratories, self-study, and structured assignments. Achievement is evaluated using components such as the cognitive scores of the Midterm Exam/Final Exam, SOCA, assignment/tutorial scores, and skill scores (OSCE) (Juniarti & Trisyani, 2017). In this pandemic situation, the matter of practicum activities is a problem that needs to be considered because the limited sources of material and practicum material tools can hinder the implementation of the practicum. Several agencies were forced to temporarily stop their practicum activities due to the absence of a solution related to this problem (Agung, 2020). This situation presents a challenge for a nurse as an educator to implement strategies or media following the needs of nursing students.

One learning media that can be used in the COVID-19 pandemic is e-module. E-module is a modification of conventional modules by combining information technology to make existing e-modules more exciting and interactive. Additional multimedia facilities such as images, animations, audio, and video are a part of such modules (Partono, 2019). The students' learning satisfaction can be assessed or measured to determine the success of learning; thus, the level of learning satisfaction of e-module users can reflect the quality of e-learning because good quality will also produce optimal results (Manurung et al., 2020). However, learning about pregnancy restrictions during the COVID-19 pandemic is still limited, and students are challenged to understand, given such limited learning. In this study, through the normal pregnancy e-module, it is hoped that students can learn how to help mothers give birth effectively and be easily understood. It will be interesting to study so that it will increase student learning satisfaction even during the COVID-19 pandemic.

From this description, studies on the level of satisfaction in e-learning, especially e-modules in the learning process, have attracted the attention of researchers and are supported by the absence of research on student satisfaction from the use of e-learning using e-modules in the learning process, especially regarding normal birth for nursing students. This study aims to identify the effectiveness of using the normal birth e-module in increasing nursing student learning satisfaction. The following are the research hypotheses: H0 - there is no correlation between the use of the normal birth e-module and an increase in nursing student learning satisfaction; H1 - there is a correlation between the use of the normal birth e-module and an increase in nursing student learning satisfaction.

METHODS

Design

The study used a pre-experimental one-shot case study design to determine the effectiveness of the normal birth e-module in increasing student learning satisfaction through population/ specific sample research, data collection using research instruments, and quantitative/statistical data analysis.

Sample and Setting

This research was conducted at the Faculty of Nursing, Universitas Padjadjaran, from October 23-26, 2021. The population in the study was active undergraduate nursing students in the 2018 cohort of 244 people, with a total sample of 46 respondents based on calculations. The sampling technique used in this study is non-probability sampling (purposive sampling) using the inclusion criterion of active undergraduate student class of 2018 from the Faculty of Nursing, Universitas Padjadjaran, who have completed maternity courses with the normal birth e-module. The G-Power software version 3.1 was used to calculate the sample size, and 10% of the total sample was added to account for sample dropouts. The independent variable in this study is the normal birth e-module, and the dependent variable is learning satisfaction.

Instruments

The instrument used is the satisfaction with e-module, an adaptation of the satisfaction with the e-textbooks instrument by Philip and Moon (2013), which has been modified and validated by two validators/evaluators/experts. The results of the content validity carried out by the evaluators/experts on the instrument for researching the level of satisfaction of the users of the normal birth e-module were analyzed using the Gregory formula (Sugiharni, 2017). The results of calculations and analysis using the Gregory formula can later be interpreted descriptively by categorizing/classifying the instrument's validity, which refers to the classification of validity proposed by Guilford as follows: 0.80 < rxy 1.00: very high validity (very good), 0.60 < rxy 0.80: high validity (good), 0.40 < rxy 0.60: moderate validity (enough), 0.20 < rxy 0.40: low validity (less), 0.00 < rxy 0.20: very low validity (poor), and rxy 0.00: invalid. The results obtained in this study are ten valid instruments categorized in very high validity (excellent), used to research users' satisfaction level with the normal birth e-module.

Table 1. Results of Content Validation/Content of Research Instruments User Satisfaction Level of Normal Birth E-Module

Validator 1		Validator 2	
Less relevant (score 1-2)	Very relevant (Score 3-4)	Less relevant (score 1-2)	Very relevant (Score 3-4)
(0)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	(0)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Validator Judgment uses italics for foreign languages and changes the order of instrument items, starting from visual, content, and personal.

Table 2. Cross-Tabulation of the Results of the Two Validators

		Validator 1	
		Less Relevant (Score 1 – 2)	Very Relevant (Score 3 – 4)
Validator 2	Less Relevant (Score 1 – 2)	(0)	(0)
	Very Relevant (Score 3 – 4)	(0)	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

The formula for calculating the content validity of the research instrument satisfaction level of the normal birth e-module is as follows.

Content Validation/Content = D/(A+B+C+D)

Description:
1) A= cell indicating disagreement between the two raters
2) B and C= cell showing the difference in views between raters
3) D= cell indicating valid agreement between the two raters
4) Content Validation = 10/(0+0+0+10) = 10/10 = 1.00

The results obtained in this study are ten valid instruments categorized in very high validity (excellent), used to research the satisfaction level of users of the expected birth e-module.

Procedure

This e-module design aims to be a learning reference material for nursing students in maternity courses, especially on the topic of normal birth. First, the Author distributed the registration form using Google Forms as an initial consent survey for respondents willing to participate in this study. Then, it was organized into interventions that needed to be implemented. Second, a meeting was arranged over the Zoom meeting platform between the Author and the respondents and provided informed consent after the former had gone through the technical details of the intervention. Next, the intervention was conducted by directing respondents to read the e-module from 23-36 October 2021. Then, the e-module for normal birth was distributed via the Google Drive link. After the respondents finished reading, they were directed to fill out a logbook to show their participation in the intervention process. Then the researchers and respondents again held meetings through Zoom to measure respondents' level of learning satisfaction after getting an intervention to read the normal birth e-module.

Data Analysis

After the research procedure, the data were obtained and then analyzed for normality using SPSS version 23 for Windows with the One-Sample Kolmogorov-Smirnov Test to determine the type of further data analysis.

The data normality test results using SPSS Version 23 for Windows with One-Sample Kolmogorov-Smirnov Test obtained the value of Sig. 0.42 (Sig. > 0.05), which means normal data distribution. Therefore, the type of data test used is a parametric test. This study uses the Pearson correlation test (sample > 30 people) and the R square test or the coefficient of determination.

Ethical Considerations

Before data collection began, the Research Ethics Committee of Padjadjaran University registered and approved this research with Ethics Letter Number: 731/UN6.KEP/EC/2021. During the research process, the researcher applied the respondents' legal ethics, which the respondents had also approved during the informed consent session, such as autonomy (respondents have the right to choose without coercion, intimidation, and abuse); beneficence (can learn nursing information related to normal birth and contribute to providing valuable information for research and evaluation of the use of e-modules); confidentiality (all respondent information is confidential, and no one else knows except the research team, and published data is anonymous); and veracity (respondents provide accurate information).

RESULTS

Based on Table 3, the characteristics of the dominant respondents are female (93.5%), 21 years old (71.7%),

Jatinangor campus area (98.8%), and residential address in urban areas (67.4%).

Table 3. Demographics of Respondents, October 2021 (N=46)

Characteristics	n	%
Gender		
Male	3	6.5
Female	43	93.5
Age		
20	3	6.5
21	33	71.7
22	9	19.6
23	1	2.2
Campus area		
Jatinangor	45	98.8
Pangandaran	1	2.2
Address		
Village	15	32.6
City	31	67.4

Ten questions include an assessment of satisfaction with the normal delivery e-module with an assessment of each component using a Likert scale, measured using five question items adopted from the instrument following the method by Kuo et al. (2014). In this case, a 5-point Likert scale is also used, namely 1 = very dissatisfied; 2 = dissatisfied; 3 = quite satisfied; 4 = satisfied; and 5 = very satisfied. From Table 5, the assessment given by respondents to this normal delivery e-module is that the lowest is dissatisfied, and the highest is very satisfied.

Table 5 shows that the visual variables and the content/content of the e-module are rated quite satisfied, satisfied, and very satisfied. However, one variable gets an assessment of dissatisfaction, about 2.2% or 1 of 46 respondents, which is personal regarding the respondent's understanding. The percentages of assessment results from all respondents were dissatisfied (0.2%), quite satisfied (5%), satisfied (38.7%), and very satisfied (56.1%). Thus, the results of the assessment are dominated by very satisfied, according to the average level of satisfaction of all respondents, which produces a score of 4.51 (Table 5), which falls in the range of 4.5 - 5.0 (student learning satisfaction level in the category of very satisfied/high satisfaction). From Table 6, the overall level of student learning satisfaction using the normal birth e-module is very satisfactory/high.

Table 6. Pearson Correlation Test: Characteristics of Respondents on Learning Satisfaction Levels

Category	Pearson Correlation	Sig. (2-tailed)
Gender	-188	.210
Age	.061	.689
Address	.056	.711
Campus Area	.106	.482

Following Table 6, the results of the calculation of the Pearson correlation test using SPSS Version 23 for Windows, the value of Sig. (2-Sided) of the respondent's characteristics

Table 4. Recapitulation of Respondents' Answers to E-Module Users Related to Learning Satisfaction, October 2021 (N=46)

Variables	Question items	Indicator				
		VD n(%)	D n(%)	QS n(%)	S n(%)	VS n(%)
Visual	The e-module is visually appealing	0 (0)	0 (0)	0 (0)	16 (34.8)	30 (65.2)
	The writings/fonts in the e-module are easy to read	0 (0)	0 (0)	4 (8.7)	15 (32.6)	27 (58.7)
	The pictures/tables/illustrations in the e-module are easy to understand	0 (0)	0 (0)	2 (4.3)	15 (32.6)	29 (63)
Contents	The e-module is easy to access	0 (0)	0 (0)	1 (2.2)	10 (21.7)	35 (76.1)
	The e-module content is complete	0 (0)	0 (0)	4 (8.7)	23 (50)	19 (41.3)
	The e-module content is new/up to date	0 (0)	0 (0)	1 (2.2)	23 (50)	22 (47.8)
	The quality of e-module content	0 (0)	0 (0)	0 (0)	18 (39.1)	26 (56.5)
	References on e-modules can be accessed	0 (0)	0 (0)	3 (6.5)	18 (39.1)	25 (54.3)
Personal	The e-module material is easy to understand	0 (0)	1 (2.2)	2 (4.3)	21 (45.7)	22 (47.8)
	The E-module is fun to use	0 (0)	0 (0)	4 (8.7)	19 (41.3)	23 (50)
	Total	0 (0)	1 (0.2)	23 (5)	178 (38.7)	258 (56.1)

VD = Very Dissatisfied; D = Dissatisfied; QS = Quite Satisfied; S = Satisfied; VS = Very Satisfied

Table 5. Learning Satisfaction Level, October 2021 (N=46)

Category	Mean	n	(%)
Very Dissatisfied	1 - 1.49	0	0
Not satisfied	1.5 - 2.49	0	0
Quite satisfied	2.5 - 3.49	1	2.2
Satisfied	3.5 - 4.49	17	37.0
Very satisfied	4.5 – 5	28	60.9
Total		46	100

Table 7. Pearson Correlation Test: e-Module on Learning Satisfaction Levels

Variables	Question items	Pearson Correlation	Sig. (2-tailed)
Visual	The e-module is visually appealing	.689	.000
	The writings/fonts in the e-module are easy to read	.685	.000
	The pictures/tables/illustrations in the e-module are easy to understand	.756	.000
Contents	The e-module is easy to access	.443	.002
	The e-module content is complete	.623	.000
	The e-module content is new/up to date	.671	.000
	The quality of e-module content	.804	.000
	References on e-modules can be accessed	.698	.000
Personal	The e-module material is easy to understand	.788	.000
	The E-module is fun to use	.791	.000

(gender, age, address, campus area) with the level of learning satisfaction resulted in a significance value of 0.210-0.711 (Sig. value > 0.05), meaning that there was no correlation between the characteristics of the respondents and the level of learning satisfaction of nursing students.

Table 7 is related to the Pearson correlation test calculation results using SPSS Version 23, the value of Sig. (2-Sided) of the e-module with the level of student learning satisfaction resulted in a significance value of 0.00-0.02 (Sig. <0.05), meaning that the use of the e-module correlated with the level of learning satisfaction of nursing students. The degree of correlation of the e-module with the level of satisfaction is in the range of 0.44-0.80, which means a moderate-strong correlation.

Coefficient of Determination Test

The coefficient of determination test (KD) or R2 test is used to find out how much effect the e-module has on student learning satisfaction with the interpretation of the results: 0.0 - 0.19 = very ineffective, 0.2 - 0.39 = ineffective, 0.4 - 0.59 = quite effective, 0.6 - 0.79 = effective, and 0.8 - 0.99 = very effective. The following results are from calculating the KD or R2 test using SPSS Version 23 for Windows.

Table 8. Coefficient of Determination Test Results

Model	R	R Square	Adjusted R Square	Std. error of the Estimate
1	.936	.876	.840	.216

Table 8 shows the coefficient of determination or R2 of 0.876, which means that the effect of e-modules on student learning satisfaction is 87.6%. At the same time, the remaining 12.4% is influenced by other factors not discussed in this study. Therefore, the e-module can be categorized as very effective for increasing nursing student learning satisfaction.

DISCUSSION

The satisfaction level of e-module users is very satisfactory as the percentage of satisfaction level for each variable dominates 76.1% of content variables: related to ease of access of e-modules, 65.2% of attractive visual variables, 63% of visual variables related to images/tables/illustrations that are easy to understand, 58.7% of visual variables related to easy-to-read writings/fonts, 56.5% of content variables related to e-module quality, and 54.3% content variables related to easily accessible reference materials.

Easy access to e-modules is the primary variable in assessing respondents being very satisfied with the use of e-modules. Because this is the respondent's first step in using e-modules, research conducted by Rahmawati (2013) resulted in two dominant variables that affect the level of learning satisfaction, namely, ease (70.63%) and comfort (67.38%) when accessing academic information. So that the characteristics of the respondents related to the respondent's residence also need to be considered because it can affect the respondents' readiness regarding the required internet access.

Research conducted by Budhianto (2020) also stated that individual characteristics become one of the centers of attention in determining factors that affect a person's acceptance of new information systems/technology or individual readiness to use technology in general. Likewise, research by Mahyanti and Sriathi (2017) also stated that individual characteristics become one of the centers of attention in determining factors that affect a person's acceptance of new information systems/ technology or individual readiness to use technology in general.

Some people need more pictures to understand something in the form of sound and images. Therefore, the visualization variables of e-modules in terms of using pictures/tables/ illustrations and attractive writings/fonts increase the user's focus and the level of user understanding. Research conducted by Yusmiono (2018) concluded that the use of visual learning media positively contributed 21.94% to student learning outcomes, as evidenced by the average value before treatment of 74.70, which increased to 82.50 so that there was a difference in the average value of 7.90.

When respondents are satisfied with a learning media, the quality of the learning media is good. Therefore, the quality of the e-module used is also an essential assessment of respondents' learning satisfaction. Rokhani and Marlianingrum (2021) stated that there was a positive and significant effect between the quality of learning on student satisfaction as evidenced by the path parameter coefficient of 0.48 with the at-statistical value of 6.516 > 1.64 at the significance level = 0.05 (5%).

Regarding the variable understanding of e-modules that received a dissatisfied rating of 2.2% in Table 5, it is supported by different levels of student understanding according to their respective types of learning because the intervention time for reading e-modules is also limited. Research conducted by Isnayni and Hermansyah (2020) produced data that online learning makes it difficult for students to understand the material presented, and questioning the material they need help understanding is limited. In addition, other problems were faced by respondents, such as difficulties in terms of internet networks and limited data quota problems.

Research conducted by Al Munawar and Fuadaturrahmah (2021) related to student satisfaction with using e-learning media in the COVID-19 pandemic era resulted in good satisfaction. However, e-learning media in online learning was considered ineffective due to the uneven distribution of the internet network, especially to remote areas of the country. Their study concluded that the level of learning satisfaction is the influence of the lecturer's skills in delivering learning (providing teaching materials and using media) and the ability of students to use learning media to understand the material presented.

The study is in line with Simaremare and Junaidi (2020), who concluded that the satisfaction level of e-learning users is satisfied by the percentage of very satisfied levels of each dominating variable, such as 76.69% content variable, 62.41% accuracy variable, 49.62% format variable, 63.91% ease of use variable, and 43.61% timeliness variable. The simultaneous positive and significant effect on e-learning student satisfaction is evident from the calculated f value of 51.064 > 2.29 and a significance level of 0.000 < 0.05. The other factors that influence user satisfaction, according to Hanan and Karp (1991), are divided into eight attributes forming customer satisfaction known as "The Big Eight" which consists of Value to Price Relationship, Product Quality, Product Features, Reliability, Warranty, Response to, and Remedy of Problems (Rahmawati, 2013).

The suggestions for increasing the satisfaction and quality of e-learning from e-learning users are the results of research using open-ended questions by Elshami et al. (2021), namely using a combination of synchronous and asynchronous interactions and the incorporation of other applications that support the learning process. Fitri's (2021) research also added that lecturers' teaching skills could positively affect student learning satisfaction, with a correlation value of 0.1194, contributing 1.4%, and can be an additional factor that needs to be considered to increase student learning satisfaction.

CONCLUSION

According to this study's findings, using the normal birth e-module is associated with nursing students' learning satisfaction levels, as shown by the Pearson correlation test's significant value of 0.00-0.02 (Sig. 0.05). As a result, employing the e-module on normal birth is a very successful teaching strategy that can raise student learning satisfaction. This research suggests the development of the normal birth e-module as a solution to the problems of the current nursing learning system through the development of information technology. However, further research is needed using meta-regression to identify factors influencing satisfaction to improve the quality of the normal birth e-module.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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