

# Development of nursing learning program for COVID-19 patients with e-learning method for nursing department students Poltekkes Ministry of Health Jayapura Papua



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## ABSTRACT

**Introduction:** In the COVID-19 pandemic, educational institutions must align learning programs with advances in information technology and conditions of COVID-19. Knowledge about COVID-19 nursing care is also very much needed, especially for students majoring in Nursing. One of the media suitable for current conditions is e-learning, which can have a positive effect because students can study independently anytime and anywhere. The learning method has more independence. Some experts believe that in learning, learner autonomy and self-determination are important. This research method uses the ADDIE Model. This study aims to investigate the problems and needs of the learning program in nursing care COVID-19 and to respond to the Nursing care learning program for COVID-19 disease.

**Method:** The research was conducted at the nursing department of Jayapura Health Polytechnic. Data collection techniques using questionnaires and observation sheets. The data were analyzed using quantitative descriptive, namely changing the quantitative data from the results of product validation and testing into qualitative data based on the criteria for the validity and feasibility of the product. The ADDIE model stages consist of five steps: analysis, design, development or production, implementation and evaluation.

**Result:** The results showed that 78.2% of COVID-19 nursing care learning was inadequate, and 82% indicated the need for COVID-19 nursing care learning. The expert team's assessment of program development is averaging 81.6% with valid criteria. The results of product trials in the small group obtained an average result of 81.11% with very good criteria. While the results of product trials in the large group were 81.26% with very good criteria.

**Conclusion:** The results of the COVID-19 nursing care learning program using e-learning were developed through the stages of analysis, design, development, trial and evaluation. It is necessary to test the product to produce an up-to-date program. The development of COVID-19 nursing care learning programs using e-learning makes it easier to understand and be able to achieve the competencies expected in the COVID-19 pandemic situation.

**Keywords:** COVID-19, e-Learning, learning program, nursing care.

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## INTRODUCTION

The World Health Organization (WHO) on January 30, 2020 declared COVID-19 as a public health emergency, as a result several countries implemented lockdown policies in order to prevent the spread of the Coronavirus.<sup>1</sup> In Indonesia, a Large-Scale Social Restriction (PSBB) policy was implemented to suppress the spread of this virus. More than 4.6 million cases have been recorded in 216 countries and territories since April 19, 2020, resulting in more than 311,000 deaths. Meanwhile, data released by the Task Force for the

Acceleration of Handling COVID-19 of the Republic of Indonesia, the number of confirmed positive cases as of September 7, 2020 was 194,109 people with a death toll of 8,025.<sup>2</sup>

The risk to the community due to the COVID-19 pandemic is very broad, and the sector that occurs most often due to the COVID-19 pandemic is education. Several educational institutions, from low to high levels, showed that the offline learning process was temporarily suspended. The COVID-19 pandemic has become an obstacle in the face-

to-face teaching process. The learning process in schools from low to high level was closed. UNESCO data states that the COVID-19 pandemic has caused 150 countries to close learning in schools due to the COVID-19 pandemic. The impact of the global COVID-19 pandemic caused around 1.2 billion or 68% of students and students to have problems in education.<sup>3</sup>

The high number of COVID-19 cases has had a major impact on the education system. The strict protocol implemented as an alternative to preventing the transmission of COVID-19 is a new

challenge for education. Adaptation of education to the needs of society and developing technology is felt as very important to produce graduates as expected. Thus, educational institutions must improve the implementation of the educational process by finding solutions so that the learning process continues to run well. Educational institutions need to anticipate making education policies so they continue to exist and progress.<sup>4</sup>

Nursing education as one of the institutions that aims to produce professional nursing staff also experiences various problems that are not much different from other educational institutions. The COVID-19 pandemic still increasing is an obstacle and challenge in the continuity of the face-to-face teaching process. On the other hand, Nursing education programs must produce qualified nursing personnel in accordance with current needs. The educational process must be prepared properly because it poses unwanted risks. The risk of being infected is not only for students but also for transmitting it to others, it continues to be a study so that the educational process continues.<sup>5</sup>

On the other hand, competent nursing graduates must be able to provide nursing services to patients according to applicable nursing standards. Therefore, the nursing department seeks to develop a learning process in accordance with the applicable curriculum to anticipate the current situation. Polytechnic of health Jayapura is one of the health education institutions under the auspices of the Ministry of Health Indonesia, which organizes health education programs in various fields of science, including nursing. To anticipate the current developing situation, the nursing department seeks to develop a learning process in accordance with the applicable curriculum. The improvement of student competence is carried out by adjusting several learning materials and learning methods that can be accessed by students and lecturers whenever and wherever they need them.<sup>6</sup>

The development of the COVID-19 nursing care learning program is felt to be an important need that cannot be ignored considering that COVID-19 cases continue to soar from time to time. The COVID-19 nursing care learning program is designed to make it easier for

students to gain knowledge and skills in performing nursing care for COVID-19 patients. Meanwhile, e-learning media is an appropriate alternative to problem-solving because it can be accessed anytime and anywhere. This is in line with the development of information technology, which is currently a trend, namely the use of learning media such as e-learning. E-Learning is one of the learning media used today as a new strategy in achieving the learning process adapted to the development of technology and information. The use of e-learning provides great benefits in easy access to journals, articles, and other scientific sources integrated into the learning process. The development of the COVID-19 Nursing Care learning program using the E-Learning method is a development that is related to both learning materials and the use of technology media that are currently being used in connection with pandemic conditions. However, the learning program for nursing care for COVID-19 patients using e-learning has not been implemented properly.<sup>6</sup>

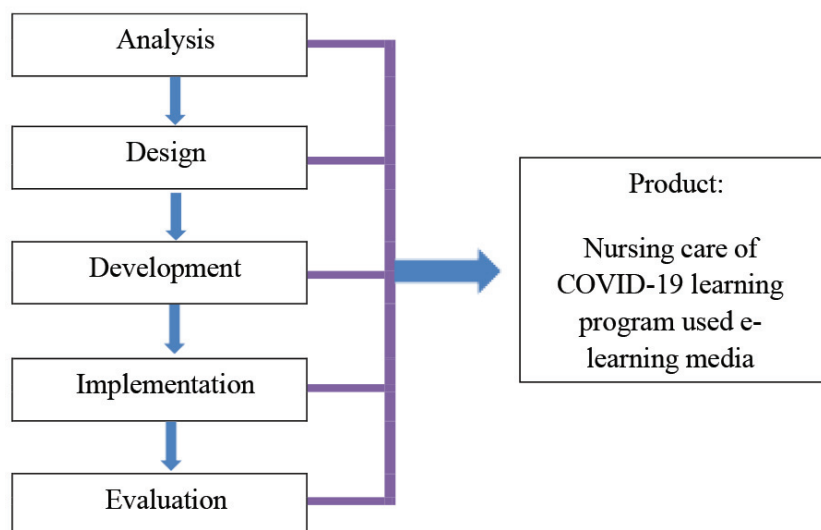
Based on observations and interviews of researchers with lecturers and students of the Department of Nursing Poltekkes Kemenkes Jayapura, found that the COVID-19 nursing care learning program such as COVID-19 nursing care learning materials had not been developed, teaching materials were still minimal and lecturers did not yet have handbooks used in the learning process.

COVID-19 nursing care is still a small part of medical-surgical nursing learning, so it has not discussed COVID-19 nursing care in detail. Learning methods and media have not been developed in accordance with technological and information developments, considering that the COVID-19 pandemic is still ongoing and transmission can occur if learning is carried out face-to-face. To improve and maintain the quality of nursing education, online learning about COVID-19 nursing care using E-Learning is an alternative route in transferring knowledge to students. This study aims to investigate the problems and needs of the learning program in nursing care COVID-19 and to respond to the Nursing care learning program for COVID-19 disease.

## METHOD

This study uses the R & D (Research and Development) method. According to Sugiyono,<sup>7</sup> research and development is a method used to produce certain products, and test the effectiveness of these products. This study uses the Dick and Carry<sup>8</sup> development model developed by Mulyaningtyas.<sup>9</sup> This model consists of stages 1) analysis, 2) Design, 3) Development, 4) Implementation and 5) Evaluations. The design for developing the COVID-19 nursing care learning program can be seen in the [Figure 1](#).

Based on [Figure 1](#), stage 1) analysis, carried out after a preliminary study and



**Figure 1.** Development learning program for nursing care COVID-19 using e-learning

exploration first to identify problems and needs for the development of the COVID-19 Nursing Care learning program and the methods to be used in the learning program. 2) Design stage, GBPP design is carried out, competencies to be achieved, the subject matter of learning COVID-19, TIU and TIK of COVID-19 Nursing Care learning and learning methods through E-Learning. 3) Development phase, the development of learning programs is carried out including the preparation of COVID-19 textbooks for Nursing students and e-learning as a method. 4) Implementation stage is carried out by implementing the results of the design and development of the COVID-19 patient nursing care learning program using E-Learning. 5) Evaluation stage, is carried out in the form of activities assessing the program that has been developed in accordance with the goals that have been set or not.<sup>8</sup>

## RESEARCH SUBJECTS AND DATA COLLECT

The research was carried out for 5 months starting from May to September 2021 and was carried out at the Department of Nursing, Polytechnic of Health Jayapura. Subjects of this research are key informants in determining the problem of learning program development needs, because they are subjects involved in the daily learning process. Subjects of this study were students of the Department of Nursing at three Diploma III Nursing Study Programs, namely in Nabire, Timika and Wamena.

Data were collected through observation, interviews and questionnaires. Observations were made by observing the document records of the learning program implementation starting with studying the curriculum, the availability of the syllabus, RPS related to COVID-19 Nursing Care and the methods and media used. Interview techniques were carried out with Nursing Department lecturers and Nursing students to obtain information related to problems and learning needs related to Nursing Care for COVID-19 patients and the methods used. Questionnaires are used to determine expert responses to the consistency of the designed learning

model and student assessment of product trials that have been developed. The data analysis technique used descriptive quantitative by converting quantitative data from the results of product validation and testing into qualitative data based on product validity and feasibility criteria. The product constancy assessment is produced by comparing the results of the product assessment with the assessment criteria. The assessment criteria are seen in the scores contained in the table below. The results of the product assessment that were developed reached a product assessment score of >80% which could be continued at the product trial stage because it had met the valid criteria. The data were analyzed using quantitative descriptive, namely changing the quantitative data from the results of product validation and testing into qualitative data based on the criteria for the validity and feasibility of the product. This study has received ethical approval from the Ethics Committee of the Polytechnic of Health Jayapura (No: KE/KEP/131/EC/2021).

## RESULT

The research problem was obtained through interviews conducted by research on 8 participants from the Nursing Department. Based on the interview results, it was found that nursing care learning problems of COVID-19 had not been taught in detail, competencies and indicators of learning achievement in COVID-19 nursing care were still a small part of respiratory system competence, learning materials were not systematic, the media used were not in accordance with technological developments at the moment. Therefore, the development of the learning program begins with the development of curriculum, syllabus and subjects, indicators, basic competencies, RPS and teaching materials related to the Nursing Care of Covid-19 disease. The ADDIE development model is carried out with the following steps:

### 1. Analysis phase

At the analysis stage, the first step is data collection. The aim is to obtain or identify problems and needs for developing learning programs. The identification carried out concerns 1) the characteristics

of the Nursing Department students as the target of the learning process, 2) the curriculum and syllabus used, 3) the identification of Basic Competencies and Indicators as the basis for the preparation of COVID-19 Nursing Care teaching materials, 4) Analysis of methods/models and learning media and 5) Analysis of teaching materials related to COVID-19 nursing care.

### 2. Product design phase

The product design stage is carried out by establishing a basic framework or prototype. Furthermore, the design of the learning program is carried out by studying the curriculum, teaching materials and competencies achieved as well as indicators of the achievement of COVID-19 nursing care learning. The presentation of teaching materials refers to basic competencies containing details of learning objectives that will be achieved by students and have been developed in the Learning Implementation Plan (RPP), namely 1) students can understand the basic concepts of nursing care for COVID-19 patients, 2) students can explain about nursing care for COVID-19 patients, 3) Students can perform skills related to nursing care for COVID-19 patients. To achieve these learning objectives, a structured learning program was developed with the design of methods and media in the form of E-Learning, so that students understand more easily.

### 3. Program Development Phase

At this stage, learning tools are made regarding:

- a. The development of teaching materials is carried out by 1) collecting texts, and images related to teaching materials, 2) compiling teaching materials through a literature review, 3) determining some of the materials needed to achieve the predetermined COVID-19 nursing care learning objectives and 4) making questions.
- b. Development of learning methods/media through 1) reviewing the situation of the availability of facilities, 2) selecting videos as learning media and 3) making videos containing teaching materials or materials. The final result of this stage is a product of

a learning program for nursing care for COVID-19 patients using E-Learning.

- c. Product revision through validation results from learning model experts and media experts related to the E-Learning method in audio-visual form. The researcher gave a questionnaire to the expert team so that it got a score for use in product revision. The results of the validity assessment from the expert team can be seen in the table as follows:

Based on **Table 2**, the validity assessment was carried out twice by the validator, in this case the expert team. The assessment results on the items of instructional development, learning materials and methods/media were then revised and improved to achieve product validity. Furthermore, the products that have been developed can be implemented.

#### 4. Implementation phase

The implementation stage is done through product testing the nursing care learning program for COVID-19 patients using E-Learning. The implementation

stages in this product test were carried out with three subjects, namely:

- One-to-one trying out  
Learning products that have met the validation criteria were tested on 3 respondents with different achievement abilities in the low, medium and high categories. The trial results used a questionnaire that had been distributed to get feedback and comments, as follows: 1) This Learning program makes me excited because it is easy to understand, and easy to access at any time, 2) The COVID-19 ascetic learning program with E-Learning was able to make me interested. This material is important and appropriate to the current situation.
- Small group tryout  
The trial was conducted on a small group of respondents, as many as 10 people with different abilities. The trial results by distributing questionnaires showed that respondents' responses to the product averaged 81.1 and were categorized as very good.  
Thus, there is no design revision of the

learning program product

- c. Field tryout

The product trial of this research was carried out with a larger subject, namely 60 respondents. The learning program trial was carried out per the instructional objectives that had been prepared. The results of the trial by distributing questionnaires show the results of data analysis as follows: in the table below:

The table 3 shows the results of 60 students' assessment of the Askep COVID-19 learning program using E-Learning, an average of 81.26 with very good criteria.

#### 5. Evaluation Stage

The evaluation stage in the research and development design is the final step. Researchers reassessed the product that had been produced by consulting a team of experts. Reviewing the results of the expert team's assessment from the field of instructional development, development of teaching materials, experts in developing methods and learning media is an important source of information in drawing conclusions and following up on this research.

## DISCUSSION

In today's digital era, updating the delivery of information related to learning materials using methods and media is something that cannot be ruled out, especially during a pandemic where social distancing is one way to prevent the transmission of COVID-19. So, the use of e-learning media is a big requirement in the learning process to maintain the quality of graduates.<sup>11</sup> Thus, the Nursing Section of the Jayapura Health Polytechnic should be able to accommodate the development of the Nursing Care learning program for COVID-19 patients using E-Learning.

The learning program development process is prepared by considering various aspects of learning, including learning materials, methods, and media used. This is an important component in the success of an educational program. Learning material is the content of the curriculum itself, it needs to be developed from time to time to be effective and in accordance with educational needs.

**Table 1. Criteria for scoring product<sup>10</sup>**

No	Score (%)	Interpretation	Follow-up
1.	81 – 100	Valid	Unrevised
2.	65 – 80	Enough	Revised
3.	< 65	Non-valid	Revised

**Table 2. Validity result of the COVID-19 nursing care learning program**

Validator team	Evaluation I		Evaluation II	
	Score (%)	Criteria	Score (%)	Criteria
Instructional Development	76	Enough	81	Valid
Development of teaching Materials	78	Enough	84	Valid
Learning methods and media	78	Enough	80	Valid

**Table 3. Result Analysis of student assessment on the development of nursing care learning programs for COVID-19 patients using E-Learning**

No		Score (%)	Criteria
1	Clarity of Purpose	82,37	Very good
2.	Ease of access to learning programs	83,21	Very good
3	Ability to understand learning instructions	81, 22	Very good
4	The breadth of the scope of teaching materials	80,00	Good
5.	Aesthetics design of learning methods and media	79,50	Good
The average score of all aspects assessed		81,26	Very good



The previous study stated that externally advanced education can be interpreted as education that leads to the development of science and technology through the development of advanced education, which always updates the information and knowledge being taught.<sup>12</sup> Furthermore, curriculum, subject matter, instructional goal setting, basic competencies and indicators are inseparable. Determining learning objectives is a point that becomes a reference so that the process of implementing the learning program is carried out effectively. Formulating measurable indicators used in authentic assessment is a consideration in taking advantage of learning development opportunities. In addition, interesting learning media for students can stimulate students in the learning process. Therefore, lecturers must be able to develop learning systems, syllabuses and learning methods that are in accordance with their students' situations, conditions and needs. The first step that is a common concern in improving the education system, especially related to online learning, is that all lecturers must be able to teach remotely using technology.<sup>2</sup> One way out that can provide a solution is to maintain the learning process and consciously all components are forced to transform the internet-based learning process, one of which is by using e-learning. In line with that, the previous study stated that dynamic nursing education must be able to adapt to various factors, namely globalization and the use of information technology, including e-learning, both mixed and fully online.<sup>5</sup> The use of e-learning media has a positive impact on student performance and achievement.

Online learning should encourage students to be creative in accessing as many sources of knowledge as possible, produce works, hone insights and ultimately shape students to become lifelong learners. A designer uses the concept or component of a learning strategy as a principle of learning technology. Implementing a learning strategy depends on the learning situation, the nature of the material and the type of learning desired. This is in accordance the other study, which states

that teaching materials are made in such a way as to become teaching materials that can help students learn.<sup>13</sup> Thus, the development of the COVID-19 Nursing Care learning program using E-Learning is one way of transferring knowledge to nursing graduates who can provide nursing services in accordance with the current COVID-19 pandemic situation which is currently increasing. Develop an e-learning learning system as one of the media in learning so that the learning process can take place in accordance with the conditions of the COVID-19 pandemic and prepare all facilities for using e-learning learning media by utilizing information technology that is currently developing.

## CONCLUSIONS

The results of the COVID-19 nursing care learning program using e-learning were developed through the stages of analysis, design, development, trial and evaluation. It is necessary to test the product to produce an up-to-date program. The development of COVID-19 nursing care learning programs using e-learning makes it easier to understand and be able to achieve the competencies expected in the COVID-19 pandemic situation

## AUTHOR CONTRIBUTION

All author had contributed for manuscript writing and agreed for the final version of the manuscript for publication.

## CONFLICTS OF INTEREST

The author reports no conflicts of interest in this work.

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