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Development of Blended Learning Modules to Improve Critically and Creativity Thinking of Students

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ABSTRACT

This study aims to develop a blended learning module for health behaviour and ethics courses to improve critical and creative thinking for students of the faculty of health and science. This research refers to the 4-D development model. The research data were obtained from the population of first-semester students of the faculty of health and science who took courses in health behavior and ethics. The samples of this study were students from the health and science faculty of UNIPMA, namely class 1A of the Pharmacy Study Program, which amounted to 18, and class 1A of the Sports Science Study Program, which amounted to 17, bringing the total combined class to 35 students. Data were collected utilizing observation, tests, and questionnaires. Data analysis was carried out using descriptive statistical analysis techniques. The results showed that the Blended Learning Module was developed to improve students' critical and creative thinking skills during the Covid-19 pandemic.

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1. INTRODUCTION

The Covid-19 pandemic has had a significant impact on all aspects of life. One of them is the transformation in the field of education. To form good graduate competencies, universities must prepare for varied and innovative learning. One form of creative learning is by utilizing e-learning programs. The e-learning system (electronic learning) is the basis and logical consequence of developing technology, information, and communication (Allen, 2016). E-learning allows knowledge not limited to space-time, so the learning target will be shorter (Kristanto & Mariono, 2017). Thus E-learning also saves operational costs incurred by program studies to organize conventional learning (Kristanto & Mariono, 2017).

Several universities in developed countries provide several alternative models of learning activities to their students. It is intended that students can manage their learning flexibly. Students can choose three learning models: entirely face-to-face (conventional), part face-to-face, and part internet, completely over the internet. Siemens (2004) mentions that blended learning is one of the categories of e-

learning. Characteristics and devices required by blended learning include (1) utilizing electronic technology services, (2) utilizing the advantages of computers, (3) using independent teaching materials, and (4) utilizing the learning schedule (Clark & Mayer, 2016).

This critical thinking ability is very important to be possessed and trained by every student because it is used in mental activities in terms of solving problems, making decisions, analyzing assumptions, and conducting scientific research. Critical thinking skills are one of the life skills that need to be developed through the educational process (lectures, research and community service) (Eka et al., 2020; Syafitri et al., 2021). The paradigm shift from the lecturer-focused learning process to student-centred learning is expected to encourage students to be actively involved in building knowledge, attitudes and behaviour. This is in line with the pattern of practising critical and creative thinking skills for students. Providing a learning experience with the Project model and independent study allows students to have various alternatives to problem-solving (Sari & Putra, 2016).

The online learning system requires a learning model that can support students in improving their Critical And Creativity Thinking. One of the appropriate learning models is Problem-Based Learning. Learning Model Problem-Based Learning is a learning model which involves students thinking critically and creatively so that they gain skills in problem-solving. The learning process using the Problem-Based Learning learning model can start with giving students problems, and then students will deepen their knowledge of what they already know and what is not yet known to solve the problem.

Based on the material in the developed module, it is hoped that students can learn about behavioural science and health ethics. Both of these sciences are very useful, especially in the pandemic and post-pandemic era. In addition to students learning the theory of science, students can directly apply it in everyday life. Moodle, a blended learning facility that can be utilized, is relatively easy, and the availability in the field is sufficient (Hudha et al., 2018; Yusro et al., 2020). Moodle makes it easy for teachers and students to interact fully in the virtual world. With Moodle, students can learn independently but remain in the corridor of materials, assignments, and evaluations given by the teacher.

In early 2020 the Ministry of Education and Culture published the Merdeka Belajar-Kampus Merdeka (MBKM) policy. MBKM policy generally provides the right to study for undergraduate and applied undergraduate students for three (3) semesters outside the study program (Fuadi & Aswita, 2021; Susilawati, 2021). Kampus Merdeka is part of the Merdeka Belajar Policy by the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia, which provides opportunities for students to hone their abilities according to talents and interests by plunging directly into the world of work as a preparation for future careers.

In the new academic year 2021, Universitas PGRI Madiun determined that all study programs in the UNIPMA environment must redesign and create a new curriculum for new students in the 2021/2022 academic year to follow the MBKM policy. The Faculty of Health and Science coordinates with the pharmacy and sports science programs, where there must be Faculty characterizing courses by MBKM policy rules and instructing both programs to redesign the curriculum.

From the curriculum redesign and discussion with the speakers, there must be a faculty-characterizing course which contains learning achievements to be achieved by pharmacy and sports science students. In the odd semester of the 2021/2022 academic year, Faculty of Health and Science students conducted a blended learning method that used an offline and online learning system for students in Semesters 1 and 3. For this reason, the faculty will create blended learning modules in behavioral science and health ethics courses to improve the critical and creative thinking of students of the Faculty of Health and Science. The focus of this study is: (1) how to develop blended learning modules in behavioral science and health ethics courses to improve the critical and creative thinking of Faculty of Health and science students; and (2) how the effectiveness of blended learning modules in behavioral science and health ethics courses to improve the critical and creative thinking of Faculty of Health and science students.

Research on the development of e-modules to improve critical thinking and creative thinking in students has been done before (Latifah et al., 2020; Ridho & Setyawan, 2022; Turnip & Karyono, 2021; Utami, 2022; Wahyuni et al., 2020). The results of this study indicate that the e-module is effective in

improving critical thinking and creative thinking. The difference between this study and the five studies above is that in this study e-Modules were used in behavioral science courses and health ethics.

Based on the above background, the purpose of this research is to develop a blended learning module in behavioral science and health ethics courses to improve critical and creativity thinking for students of the faculty of health and science; and to describe the effectiveness of the blended learning module in behavioral science and health ethics courses to improve critical thinking and creativity for students of the faculty of health and science. This e-module is in accordance with learning needs in the era of Society 5.0 where students can access materials anywhere and from anywhere.

2. METHODS

This study's research type is research and development (R&D). Research and development is a process or steps taken to develop a new product or improve existing products and can be accounted for (Sugiyono, 2012). This research produces a product in the form of blended learning modules in behavioural science and health ethics courses to improve the critical and creative thinking of students of the Faculty of Health and Science, Universitas PGRI Madiun. The location of this research development is the Department of Pharmacy and Sports Science Department of PGRI Madiun University. This study was conducted on students in Behavior Science and health ethics courses. The total number of students who took this course, as many as 35, came from the 1st semester of Pharmacy and Sports Science Department FIKS Universitas PGRI Madiun.

This development research uses the design model (Thiagarajan, 1974), known as the 4-D model, namely, define, design, develop, and disseminate. These four stages were later modified into three stages: namely, the analysis stage, the design stage, and the development stage. This study took the data source in the form of primary data. Primary data sources are pure or un-processed data from the first party or research subject. Researchers took data from the results of product validation questionnaires given to three expert validators and student response questionnaires after teaching using product development in the form of blended learning modules. Based on these data sources, the data used as the basis of the research is to determine the results' validity, efficiency, and attractiveness (Arifin, 2011).

Descriptive techniques do data analysis of the development process. The descriptive technique is carried out from the defining stage to the development stage. At the same time, data derived from expert validators are analyzed by quantitative descriptive technique with Likert scale calculation criteria. Data from validators were analyzed using descriptive statistical test techniques.

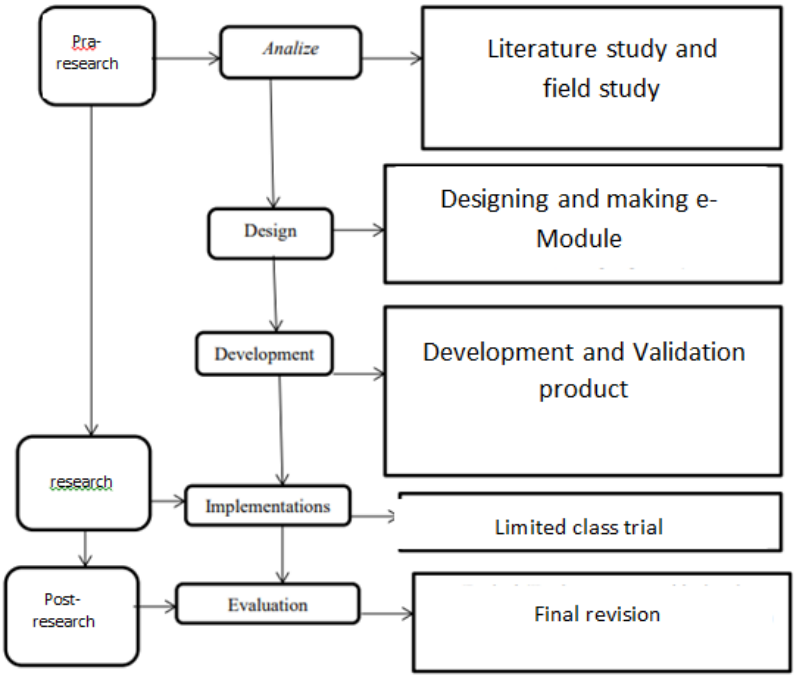


Figure 1. Research procedure

3. FINDINGS AND DISCUSSION

3.1. Module Development Process

The module development process has three stages, namely the analysis stage, the design stage, and the development stage.

a. The Analysis Stage

The analysis phase is carried out by digging for information in research on the development of blended learning modules in behavioural science and health ethics courses to improve the critical and creative thinking of students of the Faculty of Health and Science, Universitas PGRI Madiun. Digging for information is carried out by analyzing and redesigning the curriculum. The Faculty of Health and Science coordinates with the pharmacy study program and the sports science study program, where there must be Faculty characterizing courses by the rules of MBKM policy and carrying out instructions for both programs to redesign the curriculum. The pharmacy study program implemented a curriculum redesign in August 2021 by inviting resource person Mr HY, S.Si, M.Si., Ph. D, Apt and several stakeholders from Professional organizations IAI Kota Madiun, IAI Kabupaten Madiun, PAFI Kota Madiun, government agencies, including RS TKIV Madiun and Poliklinik Denkesyah Madiun, Private hospital include RSIA Al-Hasanah, Pharmacies include Apotek Sendang Farma, Gesang, Seroja, Aji Waras, Sumber Waras, Kanita, Metro and Health Vocational Schools including SMK Farmasi Bina Farma and SMK Farmasi Aditapa Madiun. The Sports Science study program also carried out Curriculum Redesign activities in September 2021, where it invited speakers from the Chairman of the P2SIKI Organization (Dr Said Junaidi, M.Kes) and some stakeholders from KONI Kota Madiun, KONI and Dispora Kabupaten Magetan, Piranha Fitness Kota Madiun, Dikbudpar Kabupaten Ponorogo.

b. The Design Stage

The design stage consists of the design of learning modules and the initial design. Activities at this stage resulted in the design of learning modules. Activities at this stage produce learning

modules and the initial design of learning tools for Behavioral Science and health ethics courses consisting of RPS and teaching materials.

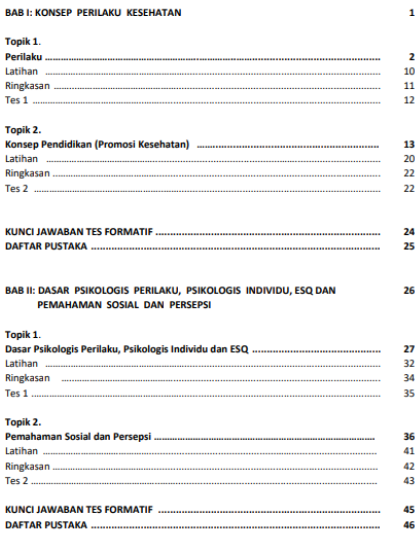


Figure 1. Module Content Design

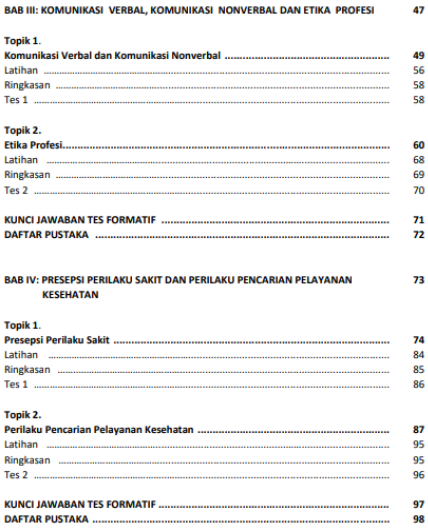


Figure 2. Module Content Design

The learning module produced at this stage is the initial draft of the learning module developed.

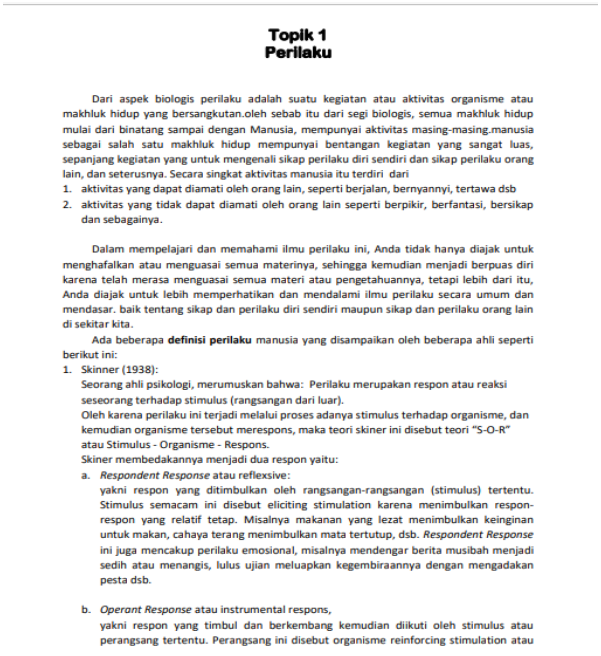
c. The Development Stage

The stage of development is the form of the results of planning. The results of the planning developed are learning outcomes. The learning outcomes of the course modules developed cover two domains. First, in the Cognitive realm, students know, understand, and analyze aspects of behavioural science and health ethics; Second, in the Affective realm, students can take the values contained in the behavioural sciences and health ethics courses and uphold human values in carrying out their duties and society based on religion, morals and ethics. With the subject matter of the basic concept of Public Health, the concept of healthy and sick, the concept of disease incidence, the concept of ethics in public health, the concept of health behaviour, theories in health behaviour, and the concept of behaviour change. In implementing the course through the blended-learning

program, each theme is run with five stages: preparation, material, discussion, independent tasks, and independent tests.

Figure 3. Teaching Module Cover Development

Each chapter contains two developed topics. In each topic, there are materials, summaries and tests.



Topik 1
Perilaku

Dari aspek biologis perilaku adalah suatu kegiatan atau aktivitas organisme atau makhluk hidup yang bersangkutan.oleh sebab itu dari segi biologis, semua makhluk hidup mulai dari binatang sampai dengan Manusia, mempunyai aktivitas masing-masing.manusia sebagai salah satu makhluk hidup mempunyai bentangan kegiatan yang sangat luas, sepanjang kegiatan yang untuk mengenali sikap perilaku diri sendiri dan sikap perilaku orang lain, dan seterusnya. Secara singkat aktivitas manusia itu terdiri dari

1. aktivitas yang dapat diamati oleh orang lain, seperti berjalan, bernyannyi, tertawa dsb
2. aktivitas yang tidak dapat diamati oleh orang lain seperti berpikir, berfantasi, bersikap dan sebagainya.

Dalam mempelajari dan memahami ilmu perilaku ini, Anda tidak hanya diajak untuk menghafalkan atau menguasai semua materinya, sehingga kemudian menjadi berpuas diri karena telah merasa menguasai semua materi atau pengetahuannya, tetapi lebih dari itu, Anda diajak untuk lebih memperhatikan dan mendalami ilmu perilaku secara umum dan mendasar. baik tentang sikap dan perilaku diri sendiri maupun sikap dan perilaku orang lain di sekitar kita.

Ada beberapa **definisi perilaku** manusia yang disampaikan oleh beberapa ahli seperti berikut ini:

1. Skinner (1938):
   Seorang ahli psikologi, merumuskan bahwa: Perilaku merupakan respon atau reaksi seseorang terhadap stimulus (rangsangan dari luar).
   Oleh karena perilaku ini terjadi melalui proses adanya stimulus terhadap organisme, dan kemudian organisme tersebut merespons, maka teori skiner ini disebut teori "S-O-R" atau Stimulus - Organisme - Respons.
   Skiner membedakannya menjadi dua respon yaitu:
   a. *Respondent Response* atau reflexsive:
      yakni respon yang ditimbulkan oleh rangsangan-rangsangan (stimulus) tertentu. Stimulus semacam ini disebut eliciting stimulation karena menimbulkan respon-respon yang relatif tetap. Misalnya makanan yang lezat menimbulkan keinginan untuk makan, cahaya terang menimbulkan mata tertutup, dsb. *Respondent Response* ini juga mencakup perilaku emosional, misalnya mendengar berita musibah menjadi sedih atau menangis, lulus ujian meluapkan kegembiraannya dengan mengadakan pesta dsb.

   b. *Operant Response* atau instrumental respons,
      yakni respon yang timbul dan berkembang kemudian diikuti oleh stimulus atau perangsang tertentu. Perangsang ini disebut organisme reinforcing stimulation atau

Figure 4. Development of Every Topic

3.1. Module Development Process

After the validator has assessed all instruments, the next step is to analyze the assessment results from the validator. The validation sheet is analyzed to determine whether the developed module is

feasible. Based on these data, it can be seen that the validation of the material in this blended learning module is feasible to use. This module is said to be feasible because the number of checks in the "very good" option gets 64 checks, the "good" option gets 76 checks, the "less" option gets 0 checks, and the "very less" option gets 0 checks. From the results of this material assessment, it can be seen that the module; 1) the relevance of the material with learning outcomes and learning materials, 2) the accuracy of the material, 3) supporting learning materials, 4) completeness of the presentation of learning, 5) the material is presented in a straightforward, communicative, dialogical, and interactive, 6)relevant to the level of Student Development, 7) the accuracy of the use of terms, symbols, and icons, 8) the suitability between contextual nature and contextual components.

The results of the student response questionnaire in this module are feasible to use. This module is said to be feasible because the number of checks in the "very good" option gets 55 checks, the "good" option gets 45 checks, the "less" option gets 0 checks, and the "very less" option gets 0 checks. From the results of this student response, a questionnaire assessment can be seen in the module: 1) the module is accompanied by attractive colours and writing, 2) the type and size of the letters in the module are suitable and comfortable to read, 3) the module layout is good and ideal, 4) the module is arranged in order and neat, 5) the language used in the module is generally easy to understand, 6) the commands in the module are easy, 7) evaluation of the questions presented following the ability of students, 8) illustration images used following the material, 9) modules facilitate students to learn material about behavioural science and Health Ethics, and 10) have an exciting observation worksheet.

After receiving the required data, the researcher will analyze students' critical and creative thinking ability before and after the application of the virtual module and analyze the critical and creative thinking questionnaire and student response questionnaire. This study's analysis of pre-test and post-test questions are presented as follows. Based on the data, students' critical thinking ability at the time of the pre-test got an average result of 44.8. After the implementation of learning using blended learning-based modules through post-test 85 questions, the average result was 84. With the increase in the ability of critical thinking, students achieve an average n-gain of 0.68, which is included in the medium category. This result is in line with the research conducted by (Andrini et al., 2019), where the electronic module developed by taking into account local wisdom can help students in studying the material/theory presented. From the results of these data, the blended learning module in this course can improve the ability of critical and creative thinking students. The improvement can be seen in the following chart.

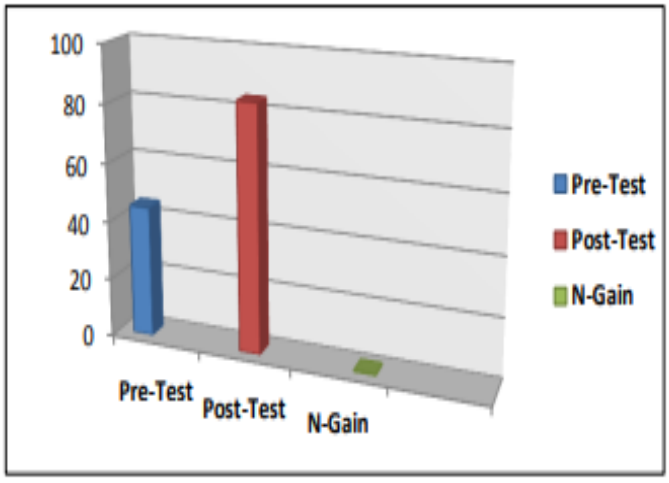


Figure 5. Improving Students' Critical and Creative Thinking

4. CONCLUSION

Based on the discussion and research presented, it can be concluded as follows. 1) The Blended Learning module developed can improve students' critical and creative thinking skills during the

Covid-19 pan-demic. This Module will be applied to behavior science and health ethics courses to improve the critical and creative thinking of students of the Faculty of Health and Science. 2) Behavioral Science and health ethics course module can improve the ability of critical and creative thinking students by calculating the average N-Gain of 0.88 with a high category. 3) the assessment results of the average student response to the three aspects of the assessment of this module include 1) aspect display 63.2% good Category, 2) presentation of material 78.54% good category, and 3) benefits 76.5% good category. A blended learning module to increase the ability of critical and creative thinking declared feasible by three validators with CVR results of 1 category is very feasible.

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