Development of Community Education Innovation Digital Modules to Support Implementation Outcome Based Education Curriculum

Rosdiana[1], Mahfuzi Irwan[2], Elizon Nainggolan [3], Melly Br Bangun[4]

{rosdianafip@gmail.com[1], mahfuziirwan@gmail.com[2], elizonnaingg60@gmail.com[3]}

Faculty of Education, Universitas Negeri Medan, Medan, Indonesia

Abstract. This study is driven by the diminished motivation and learning outcomes among students in educational innovation courses, alongside the imperative for digital modules to meet workforce demands in the Outcome Based Education (OBE) era. The primary objectives are to (1) develop a digital module for a case method-based community education innovation course to bolster OBE implementation in the Unimed Penmas Study Program, and (2) assess the feasibility of case method-based digital modules in the Community Education Innovation course. Following the ADDIE (Analysis, Design, Development, Implementation, Evaluation) design, product validation involved two expert lecturers in Community Education and two in information technology. Participants included second-semester community education students, and data collection methods encompassed observation, questionnaires, and written tests. Quantitative descriptive analysis was applied. Findings indicate that (1) digital module development can support outcome-based curriculum implementation in community education programs, and (2) case method-based digital modules are apt for student use in community education programs.

Keywords: Learning kit , digital module, curriculum, OBE

1 Introduction

In 2020, Saiful Mujani Research and Consulting (SMRC) published findings from a survey carried out from August 5th to 8th, 2020, focusing on online education amidst the Covid-19 pandemic. The survey revealed that 92,10% of students encountered numerous challenges while engaging in online learning during the corona pandemic. Among those who participated in online studying or teaching, 92% perceived a significant amount of issues disrupting their online learning experience. Merely 8% reported encountering minor challenges, while none reported experiencing no issues.

This difficulty naturally increases in accordance with the teaching materials being developed [1]. During the Covid-19 and post-Covid-19 periods, learning in higher education in Indonesia also experienced massive changes, especially in the use of learning models. Generally, the learning model used in Indonesia for higher education is classroom-based learning which is simply interpreted as learning that combining learning that is done online and that is done outside the network [2]. Not only in the context of learning forms, changes are

also occurring in the context of teaching materials such as modules, learning videos and other learning media which are dominated by digital teaching materials [3].

Digitizing teaching materials is something that must be done by all educators, including lecturers in universities. Various developments in teaching materials, modules and other learning media have been carried out, such as what has been done [3] which has developed digital teaching materials for biology education for students. Then [4], [5] who developed various types of digital-based teaching materials for universities, making the downstreaming of digital-based teaching materials something that needed to be done by lecturers in higher education. On the other hand, students are of course required to master all the teaching material that will be delivered by the lecturer and which has been provided by the lecturer on a certain platform so that the activities carried out in class are no longer explaining the material but students have studied the material with the lecturer and discussed according to the direction of the lecturer. lecturer.

Then, the urgency of digital teaching materials is also due to the increasing use of the internet in Indonesia compared to last year [6]. In January 2021, Indonesia counted 202.6 million internet users, marking a 1.03 percent rise. Notably, over the past five years, internet usage in Indonesia has consistently surged, with a 54.26 percent increase observed from 2018, when there were 132.7 million users.

However, the problem is not only how learning is carried out but also how the material is delivered and how to relate it to life, as is required in learning in higher education [7] that campuses must be able to bring lecture material closer to the work context. which will be carried out by students as determined by the government The Minister of Education and Culture issued Decree Number 754/P/2020, which outlines Main Performance Indicators for Higher Education. Among the objectives outlined in this decree is the enhancement of curriculum and learning quality. An indicator of this goal stipulates that undergraduate and D4/D3/D2 subject classes must adopt either the case method or project-based group learning approaches.

In simple termsThe utilization of the case method facilitates the refinement of analytical skills by necessitating the generation of both quantitative and qualitative evidence to substantiate recommendations. This process enhances problem-solving capabilities and fosters meticulous and logical thinking. [8]. When employing the case method, students assume several roles: (1) they embody the "protagonists," endeavoring to resolve the case; (2) students engage in case analysis to propose solutions, collaborate in group discussions to evaluate and refine solution proposals; and (3) students actively participate in discussions, while the instructor serves as a facilitator, tasked with observing, posing questions, and guiding the discourse, ask questions and make observations. The application of the case method can also be used as a solution to online learning problems, when students are not interested in lectures with boring material, the application of the case method can increase motivation, higher level thinking and student learning outcomes [9]–[12].

To overcome the problems described above, Medan State University is one of the universities that adopted a policy of digitizing teaching materials and implementing the case method before Covid-19 appeared in Indonesia. This is based on predictions of learning styles and models which will definitely change. So, Medan State University to date has consistently carried out various study programs in the field of education in order to respond to these changes. Study programs are required to be able to develop learning models, methods, and up-to-date learning support devices such as modules, teaching materials, digital-based learning media. The Community Education Study Program is one of the study programs that implements classroom-based online learning. Based on the results of monitoring and

evaluation and audits carried out by quality assurance, the Community Education study program continues to receive significant increases in value in the learning process. However, in some cases there are still results that have not improved, such as the availability of teaching modules in a form that is more relevant to the classroom learning process. Learning necessitates assistance from dependable resources, among which a learning module stands as a crucial component.[2].

Apart from that, based on the results of monitoring carried out by the Quality Assurance Group (GPM) and the Department Quality Assurance Team (TPMJ) in 2022, the public education study program still needs to prepare case method content in several courses that are deemed to really need to apply case method content, one of which is the course Community education innovation. Community education innovation is a study program subject that students need to take in order to fulfill the learning outcomes of study program graduates. Therefore, this course needs to develop a module so that it is relevant to the OBE curriculum and in the module content implements the case study method so that the findings of the quality assurance team above can be minimized and students can increase their motivation, perception and learning outcomes. Community education innovation course Community education.

2 Research Method

The methodology employed in this study is development research. According to Borg and Gall (1989), development research is a method utilized to create or authenticate products utilized in educational and learning contexts. In this research, a community education innovation module was developed for students of the PENMAS FIP study program, Medan State University. Based on the characteristics of several existing development models, the researcher chose the ADDIE (Analyze, Design, Development, Implementation, and Evaluation) model as a reference in this research, because the ADDIE model uses general, systematic and gradual basics so that each element is related. one with another[13].
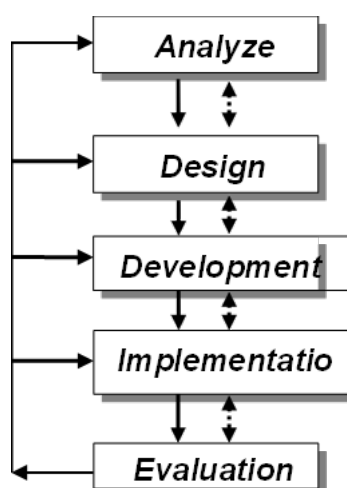

Fig. 1. ADDIE Diagram Model

In general, the development steps in this research are explained through the process of forming the ADDIE model, as stated by Grafinger (in Molenda, 2003: 2), as depicted in Figure 1. The ADDIE model diagram depicts a continuous development flow, where each stages are connected to each other and proceed to the next stage.

    a. In the initial stage, known as Analysis, a needs evaluation is bring out by detailing the Semester Learning Plan (RPS) for educational innovation courses. The focus of this analysis is to identify field needs related to community education innovation materials. The findings from this analysis then become the basis for designing community education innovation modules.

    b. The Design Stage is the next step, where researchers Utilize the findings of the needs analysis as a foundation for designing digital-based community education innovation modules. Suggestions from various parties are also taken into account in an effort to ensure the quality and suitability of the modules created. The output from this stage is in the form of material content that will be presented in digital modules.

    c. The Development Phase focuses on revising and improving the parts identified in the previous phase. All aspects that require adjustment are revised in accordance with applicable standards or provisions. The main objective of this stage is to create a digital-based community education innovation module that has undergone improvements.

    d. Implementation, the fourth stage, involves the use of revised or improved modules in the learning process of community education innovation courses. The main objective at this stage is to test the applicability of digital-based modules by undergraduate students of the Community Education Study Program within the Faculty of Education, Universitas Negeri Medan.

    e. The fifth stage, evaluation, is carried out to gain a thorough understanding of the effectiveness of the module being developed. Through this evaluation, it will be identified whether the module still requires revision or has met the desired quality standards. The evaluation process play a crucial role in ensuring the success, then quality from the community education innovation modules that have been developed.

In order to achieve a product that meets standards and can be used well, it is important to carry out product trials. In the context of development research, product testing aims to collect data that becomes the basis for assessing the level of effectiveness, efficiency and attractiveness of the product produced. This research limits product development activities to the small group testing stage. The reason behind this decision is so that the product produced has undergone evaluation by experts and meets the criteria for use by undergraduate students of the Unimed FIP PENMAS Study Program in the context of learning community education innovation courses.

3 Results and Discussion
3.1 Results

The findings of this study include: (a) Internal Evaluations, wherein expert lecturers assessed the feasibility of initial learning device prototypes; and (b) External Evaluation, representing the feasibility testing phase for the second draft conducted by two expert lecturers specializing in community education.

Table 1. The Outcomes Derived from the Evaluation of Learning Tools by Experts

Device	Expert I	Expert II	Max Value	Category
Course outline	29	27	46	A
RPS	68	72	130	A
Instructional resources	86	95	181	A
Evaluation tool	73	76	152	A

Subsequent to the validation of the draft, the next step involves assessing the expert lecturers' perceptions regarding the validation instrument. This phase seeks to ascertain the level of consensus among experts in assessing learning devices through the validation sheet designed by the researcher. The results of the agreement calculations between the two expert lecturers are outlined in Table 2.

Table 2. The computed findings regarding the viewpoints of two expert lecturers.

Educational Materials	%
Course outline	100
RPS	91
Instructional resources	90
Evaluation tool	97

According to the calculations derived from the agreement index equation between the two experts, the intermediate percentage value surpasses 74,78%. This indicates a shared perception among the two lecturers regarding the instrument's suitability for use.

3.2 Discussion
3.2.1 Development Of Digital Modules For Community Education Innovation Courses Based On The Case Method

The research findings demonstrate a data presentation structured according to the ADDIE model development framework, comprising the Analyze, Design, Development, Implementation, and Evaluation stages. Additionally, upon the completion of the final product, a feasibility test is conducted as an indispensable component of the developmental research process.

3.2.1.1 Analyze Stage (Analysis)

The Analyze stage aims To gather diverse information pertinent to the product under development and discern the underlying learning issues that necessitate its development Community Education Innovation Course Modules Community Education for Community Education Students, Faculty of Education, Medan State University.

Analysis (Analyze) is carried out as a needs analysis (need assessment) based on the Semester Learning Plan (RPS) for Community Education Innovation and Community Education courses and what they need in the field regarding Community Education Innovation and Community Education materials. The results of this analysis are used as input to obtain a design for the Community Education Innovation module for community education.

3.2.1.2 Design Stage (Design)

The aim of this stage is to develop existing modules into more effective and efficient modules. The following is the existing module design. Existing modules were developed by taking into account the data obtained at the analysis stage. In general, this design stage is where the module is developed using simple language, colorful designs and images to make it attractive, the module consists of 10 (ten chapters).

3.2.1.3 The Phase Of Development (Development)

This developmental phase aims to create a Community Education Innovation module utilizing the Case Method, following a sequence of validation, revision, and field testing. Within this stage, validation occurs through two phases: first, validation by subject matter experts and learning media experts; subsequently, the module is tested on student respondents at the Community Education Department, Faculty of Education, Medan State University to get input from potential users directly.

This finding is in line with various theories put forward by experts that a module can be considered a learning program package Comprising a multitude of elements, including learning objectives, instructional materials, teaching methodologies, instructional tools or media, as well as learning resources and evaluation mechanisms. So that students can learn independently, the components in the module must be organized hierarchically and systematically in accordance with the learning plans and objectives that have been formulated in the learning implementation plan or RPP. However, a teacher or expert in the field still needs to provide guidance regarding the use of media so that the lesson material can be more easily understood. Modules can support independent and conventional learning, as stated by Khasanah and Nurmawati (2021)[3]. This module is equipped with independent learning instructions, allowing Students are encouraged to learn at their own pace and according to their individual abilities and fulfill all the competencies that must be mastered.

To meet varied learning styles and can be applied by teachers who have To foster a genuine enthusiasm for learning, it is imperative to devise teaching materials capable of addressing challenges encountered during the learning journey[14]. An approach to tackle this issue involves the utilization of modules and technology integration. Leveraging advancements in technology, a fusion of print and computer technologies emerges within the

realm of learning.. Printed modules can be converted into electronic form, producing digital modules. Digital modules are the provision of self-directed learning materials systematically organized into bite-sized units to attain specific learning objectives. These modules are available in electronic format, with each learning activity linked for seamless navigation, enhancing student interactivity. Moreover, electronic modules feature video tutorials, assessment queries, and illustrative images to enhance the depth of the learning encounter. [15].

When crafting instructional materials, it's essential to consider factors such as content accuracy, conceptual precision, language usage, illustrations, visual appeal, and the comprehensiveness of teaching components [3]. The use of standard textbook teaching materials involves four main components, namely appropriateness of content, language, presentation and graphics. Based on this view, It can be inferred that teaching materials are deemed to meet established standards. if it meets the aspects of readability, graphics and appropriateness of content [16].

Apart from considering aspects of the suitability of the content or material, it is also important to note aspects of the presentation of the material in textbooks or textbooks. According to the book center, the presentation of material is related to several elements, including learning objectives, regularity in explanations, attractiveness to arouse student interest and attention, ease of understanding, student activity, and the relationship between material, exercises and questions. Teaching materials should be meticulously designed to be easily understood by students, and teaching materials that can be understood easily reflect a high level of digestibility. The presentation of the material is carried out regularly, meaning it is arranged systematically and does not jump around. Abstract concepts are illustrated with appropriate examples and illustrations to clarify the explanation of the concept.

In this research, the term case study is simplified into terms in the learning context because in an effort to define the purpose of education, Yin states that "Case studies do not need to contain a complete or accurate series of events; instead, the aim is to form a framework for discussion and debate among students" [8]. Case development criteria originate from single cases, which is much different from case studies intended for research purposes. For example, case studies of clinical psychological disorders based on specific research are developed using diagnostic criteria and clinical observations. Although case notes are used for record keeping purposes, the primary focus is not research, but the cases can be useful data in a research context. Utilization of case notes is used to describe health care management for a specific patient or population. Case studies or case research are intended to investigate complex activities or processes that are difficult to separate from the social context in which they occur. This category maintains the use of methodology to present accurate and reliable findings as data representation [17].

Case studies are employed in research to explore phenomena within real-life contexts, particularly when the distinctions between the phenomena and their contexts are ambiguous. Such research delves into unique circumstances characterized by multiple intriguing variables, relying on evidence triangulation and cross-referencing with other sources to verify results. The theoretical foundations outlined above offer valuable guidance for data collection and analysis processes. [18].

3.2.2 Feasibility of A Case Method-Based Digital Module In The Community Education Innovation Course to Support OBE Curriculum

To bolster the execution of the OBE curriculum at the study program level, this research also examines through analysis various studies on OBE. Outcome-Based Education (OBE) is an educational approach that focuses on learning outcomes rather than just focusing on the material that must be covered. OBE measures learning outcomes and provides opportunities for students to develop new skills that prepare them to compete at the global level [10], [16]. OBE is also recognized as an approach that emphasizes innovation, interaction, and effectiveness in the learning process. This approach influences the entire educational process, including curriculum design, setting learning goals and achievements, educational strategies, learning methods, assessment procedures, and the educational environment/ecosystem.

On the other hand, outcomes in the OBE context are also understood as knowledge and skills that can be measured concretely. Input, in this case, includes the hours of lessons conducted and the teaching materials used. Assessment in OBE is based on criteria, not norms, so that each student is assessed based on their achievement of predetermined outcomes, not compared with other students. If a student has not reached the specified outcome level, then assistance measures are needed to help them reach that level. The OBE scoring system is different to the traditional approach, although it may look similar. Evaluation in OBE is calculated in percentages to assess Course Learning Achievements (CPMK). For example, the first evaluation might have a weight of 10%, the second evaluation 30%, the third evaluation 20%, and the fourth evaluation 40%, for a total of 100%. CPMK itself refers to course learning outcomes based on the outcomes to be achieved by the study program or university, which are determined based on input from stakeholders [16], [19].

The developed learning tools are deemed viable due to their through validation procedures and reliability assessments conducted by a range of experts, encompassing content specialists, media professionals, and digital module experts, it is affirmed that this educational innovation course is aptly designed for integration into community education study programs. The learning materials have garnered significant acclaim and endorsement from experts, particularly in pivotal areas such as lesson plans, syllabi, teaching resources, and assessment instruments. Previous research underscores the suitability of learning tools when subjected to expert scrutiny and achieve commendable ratings across these four critical components of lesson planning, syllabus design, learning content, and evaluation tools [4], [18].

Moreover, an adoption of Teaching materials incorporating multimedia elements are increasingly favored by educators to enhance learning outcomes, supported by research findings from various educational institutions such as schools [11], [20] and universities [21]. Numerous experts advocate for multimedia teaching materials, asserting that they facilitate better understanding among students. Edgar Dale, for instance, contends that students' memory retention levels are 10% through reading, Dale (1969) suggests that learning comprises 50% reading, 20% listening, and 30% viewing video or film. Thus, the introduction of this Learning Management System (LMS)-based educational kit intends to enhance students' memory retention by incorporating reading, listening, and video viewing elements.

Beside that, continuous development of learning kits is imperative for educators, especially in the current era of disruption, as the content must consistently adapt to future changes **[7]**. This necessity for ongoing development is particularly crucial in courses centered around the theme of educational innovation. Research findings highlight A significant level of immediacy and The requirement for teaching materials and planning tools within courses

emphasizing innovation, given the ever-changing and dynamic nature of the theme across different times and eras[22].

4 Conclusion

In light of the research findings and discussion, it can be inferred that products with the digital module type of community education innovation can be developed using the ADDIE development model with case method content for each discussion point. Then the Community Education Innovation module is suitable for use by students of the Medan State University community education study program in the learning process additionally, to facilitate the implementation of outcome-based education (OBE) curriculum in the study program.

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