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Development of Canva-Based E-Modules on HIV and AIDS Materials to Improve the Learning Outcomes of Class XI Vocational School Students in Physical Education, Health, and Sports

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ABSTRACT: This article aims to develop and assess the feasibility, practicality, and effectiveness of Canva-based E-Modules on HIV and AIDS material for vocational school students. The research used the Research and Development method with the ADDIE model through the stages of needs analysis, design, development, implementation, and evaluation. Validation by subject matter experts and media experts showed that the e-modules were highly feasible with an average score of 92.89%. The practicality test received positive responses from students, namely 88% in the limited test and 91% in the field test, as well as from teachers at 93%. Effectiveness testing using a One-Group Pretest–Posttest design showed an increase in learning outcomes from an average score of 64.31 to 86.25, with an N-Gain of 0.61 in the moderate to high category. These findings indicate that the Canva-based E-Module is capable of improving student understanding through interactive displays and visual presentations that are suitable for digital natives, making it suitable for application in PJOK learning.

KEYWORDS: E-Module, Canva, HIV and AIDS, ADDIE

I. INTRODUCTION

Education is a planned effort to create a learning process that enables students to develop actively and creatively, as well as to optimize their potential. Through education, students are expected to develop spiritual strength, self-control, personality, noble character, and competencies that are beneficial to themselves, society, the nation, and the state (Nurkholis, 2013). An effective learning environment requires the implementation of strategies that can stimulate learners' motivation to learn. Therefore, the educational process must be carried out actively, innovatively, and adaptively to the needs of learners (Lestari et al., 2021). The development of digital technology is a major factor driving curriculum change in Indonesia. Curricula that include learning designs, teaching materials, and learning experiences need to be adapted to the challenges of the times. In this context, the Merdeka Curriculum has emerged as a response to the need for more flexible, contextual, and learner-centered learning. This curriculum is not only a solution to the decline in learning after the pandemic, but also provides space for teachers and principals to develop learning according to the needs and characteristics of their students.

Educational issues in Indonesia are inseparable from the learning process that takes place in schools. Wahdaniah (2018) emphasizes that improving the potential of students is achieved through a continuous and high-quality learning process. Active student involvement in the classroom, enthusiasm for learning, and self-confidence are important indicators of successful learning. These ideal conditions are often not achieved, including in Physical Education, Sports, and Health (PJOK) learning. Physical Education is a subject taught from elementary school to college. Through Physical Education, students are expected to undergo a learning process that results in behavioral changes towards a healthy lifestyle. Suherman (2007) states that Physical Education emphasizes physical activities that improve fitness, motor skills, knowledge, and a healthy lifestyle. One important topic in PJOK is HIV/AIDS, which is particularly urgent for adolescents. Adolescents are the group most vulnerable to HIV/AIDS infection, making health education a very important preventive measure (Kusmiran, 2011). Providing accurate and structured information has been proven effective in increasing knowledge and influencing adolescents' attitudes toward HIV/AIDS risk (Notoatmodjo, 2012).

However, the results of the researcher's observations on PJOK learning at SMK Negeri 2 Terbanggi Besar in October 2024 showed that students tended to be more enthusiastic about learning outside the classroom than the health material provided in the classroom. Low learning motivation was evident from the lack of enthusiasm, focus, attention, and low self-confidence of the

students. The perception that PJOK only focuses on physical activities causes health material to be neglected. This has an impact on student learning outcomes, especially HIV/AIDS material, which is considered abstract and difficult. This finding is reinforced by Alif (2019), who states that PJOK learning is still underdeveloped due to the limited use of textbooks, uninnovative packaging of material, and the dominance of lecture methods. Interviews with educators and students reveal that the learning process is still teacher-centered, lacks the use of engaging media, and the limited availability of books makes it difficult for students to review the material. In line with the times, innovative learning approaches have become an important requirement in PJOK. Li et al. (2022) emphasize that traditional teaching models can no longer meet the demands of 21st-century learning, so teachers need to be more creative in choosing learning media. The use of digital technology has been proven to increase students' interest and motivation to learn, including in PJOK learning (Koekoek & Van Hilvoorde, 2018). Technology allows for more interesting, interactive, and accessible presentation of material (Ferrari et al., 2009).

One learning medium that is relevant to these demands is the electronic module (E-Module). E-Modules are digital teaching materials that contain learning materials, methods, and evaluations in a systematic and interesting manner. According to Mills (2006), the use of digital-based learning resources enables the development of complex skills while supporting learner-centered learning. E-modules as independent learning resources provide flexibility for students to access materials anytime and anywhere. The development of Canva-based e-modules for HIV/AIDS material is a potential solution to overcome PJOK learning problems. Canva allows material to be presented through attractive visualizations such as animations, images, videos, and quizzes, thereby increasing student motivation and understanding. In addition, Canva-based e-modules can be shared widely, overcoming the limitations of space and time in learning. The novelty of this research lies in the development of a Canva-based e-module product that contains comprehensive HIV/AIDS material with visual and interactive elements to support PJOK learning in the Merdeka Curriculum at SMK Negeri 2 Terbanggi Besar class XI. With this development, learning is expected to be more effective, interesting, and able to improve student learning outcomes. Based on the above description, this research is titled “Development of Canva-Based E-Modules on HIV and AIDS Materials to Improve the Learning Outcomes of Grade XI Vocational High School Students in Physical Education.”

II. METHOD

This study uses research and development (R&D). The product development stage was carried out using the ADDIE development model, which consists of five stages (Branch, 2009), (1) The analysis stage is the initial stage, which involves assessing the conditions of PJOK learning, particularly HIV and AIDS material, the needs of teachers, and the needs of students in using teaching materials that are interesting, interactive, and easy to understand. (2) The design stage is the second step in which the researcher develops a Canva-based E-Module design that is tailored to the curriculum, Teaching Module, and Learning Objective Flow (ATP) applicable in the school and aligned with the Learning Outcomes (CP) and Learning Objectives (TP). (3) The development stage is the realization stage. At this stage, the researchers created a complete Canva-based E-Module by compiling materials, integrating images, illustrations, supporting videos, interactive quizzes, and practice questions. The developed product is then tested for validity by expert validators consisting of PJOK material experts and learning media experts. The assessment carried out by validators includes the suitability of the material content, language accuracy, media suitability, and module design quality. 4) The implementation stage is carried out by applying the validated Canva-based E-Module to grade XI vocational school students as a limited trial. The purpose of this stage is to determine the practicality of the E-Module through the responses of students and teachers to its use in learning. Data from this implementation is used to make revisions so that the product becomes more optimal and ready to be applied in trials on a wider scale. 5) The next evaluation stage is carried out to test the effectiveness of the E-Module. The evaluation was conducted using a One Group Pretest–Posttest Design by administering a pretest before the use of the E-Module and a posttest after learning to determine the improvement in student learning outcomes.

The data collection techniques in this study included: (1) observation, which aimed to observe facts in the field related to PJOK learning conditions and the use of previous media; (2) interviews, which aimed to gather information about the needs of teachers and students and their experiences in the learning process; and (3) questionnaires, which were given to validators, teachers, and students during the trial to determine the feasibility, practicality, and response to the use of Canva-based E-Modules.

Data analysis techniques use qualitative and quantitative analysis. Validation of Canva-based E-Modules is carried out by experts using assessment instruments analyzed with Aiken's V formula to determine their validity level. The questionnaire instruments used undergo validity and reliability tests, where the validity test uses Product Moment correlation and the reliability test uses Cronbach's Alpha formula. The practicality of the E-Module was analyzed through the responses of students and teachers

using a descriptive percentage formula. Furthermore, the effectiveness of the E-Module in improving learning outcomes was analyzed using the N-Gain test to see the increase in scores from the pretest to the posttest.

III. RESEARCH RESULTS AND DISCUSSION

A. *Results*

This study aims to develop a Canva-based E-Module as an innovative learning medium on HIV and AIDS material in Physical Education, Sports, and Health (PJOK) subjects for grade XI vocational high school students.

(1) Analysis

Comprehensively to understand learning needs, student characteristics, and the relevance of HIV and AIDS material in PJOK learning in vocational schools. Needs analysis was conducted through observation, interviews, and document review to identify gaps between ideal conditions and actual learning practices. The results of observations and interviews showed that learning still used conventional methods that were monotonous and lacked interactivity, so that students' understanding of HIV and AIDS concepts tended to be low and rote. The material presented also did not utilize digital media that supported clearer and more interesting visualization of concepts. Analysis of the material based on the Merdeka Curriculum confirmed that the topic of HIV and AIDS is relevant to be developed through digital learning media in order to encourage conceptual understanding and healthy living behaviors. In addition, the characteristics of vocational school students, who are accustomed to technology and more interested in visual and interactive learning, demand adaptive and communicative media innovations. Based on the results of the analysis of needs, material, and student characteristics, it was determined that the product to be developed is a Canva-based E-Module that combines text, illustrations, videos, and interactive quizzes.

(2) Design

At this stage, researchers designed the initial framework of the E-Module based on the results of the learning needs analysis, which included formulating learning outcomes, determining core material on HIV and AIDS concepts, and integrating relevant content to encourage the adoption of healthy lifestyles among students. The E-Module design is compiled in an interactive digital form by combining text, illustrations, educational videos, and animated elements that support contextual understanding of the concepts. The design is carried out through the preparation of a concept map and material presentation structure, the determination of visual displays using Canva, including color themes, typography styles, layouts, and supporting illustrations, as well as the preparation of a storyboard that describes the sequence of content presentation, starting from the opening page, introduction, content, to evaluation. At this stage, the researchers also designed the navigation flow, such as buttons to access learning videos, practice questions, and self-reflection, to make the module easily accessible and provide an interactive learning experience. In addition, a validation instrument in the form of a feasibility questionnaire for subject matter experts and media experts is also developed as a basis for design refinement. With this approach, the design stage produces an initial prototype of the E-Module that is not only attractive and easy to use but also aligns with the digital learning characteristics of vocational high school students and supports the improvement of their health literacy.

(3) Development

The development stage in this study was the main process that produced the final product, namely a Canva-based E-Module on HIV and AIDS for 11th grade vocational school students. At this stage, all initial designs were applied to the actual product through a series of systematic activities, including material selection, content compilation, visual design, interactive media creation, digital module compilation, and validation and revision processes. The development results show that the material included has been adapted to the learning outcomes of the Merdeka Curriculum, the needs of students, and the urgency of adolescent health literacy, so that the content produced is relevant, accurate, and meaningful. The visual design of the E-Module was created using Canva, paying attention to color consistency, layout, illustrations, and readability, and supplemented with supporting media such as infographics, virus illustrations, QR codes, and hyperlinks to credible learning resources. The modules were structured from cover to evaluation and equipped with interactive navigation to support independent learning. The initial product was then validated by two subject matter experts and one media expert. The validation results showed that the E-Module received a “Highly Suitable” rating with an average percentage of 92.89%, covering content suitability, conceptual accuracy, visual appearance, and pedagogical suitability. The formative revision process was carried out based on input from the validators, which included refining scientific illustrations, improving hyperlinks, rearranging the layout, and adding collaborative content. These revisions ensured that the e-module was more effective, attractive, and suited to the learning needs of PJOK in vocational schools. Overall, the development stage successfully produced an interactive, informative, and easily accessible Canva-based E-Module that meets the standards of modern

learning media. This E-Module product is declared ready for use in the learning process and has the potential to support the improvement of health literacy, particularly related to HIV and AIDS, among vocational high school students.

(4) **Implementation**

The implementation stage of this study showed that the Canva-based e-module on HIV and AIDS material could be used optimally by vocational school students after being declared highly feasible by subject matter experts and media experts. Implementation was carried out through limited trials and field trials to ensure the practicality, readability, and effectiveness of the e-module in learning activities. The results of the limited trial showed that students were able to understand the module content well, the display was considered attractive, and navigation was easy to use. After revisions based on feedback from the initial stage, field testing showed that the e-module was able to improve students' understanding of HIV and AIDS concepts, as seen from the learning test results and positive student responses. Overall, the implementation proved that the e-module is not only feasible but also practical for use in digital learning, and is able to create an interactive, engaging, and meaningful learning experience for vocational school students.

(5) **Evaluation**

The evaluation stage, which includes formative and summative evaluations, shows that the Canva-based E-Module has met the aspects of effectiveness, efficiency, and usability as a learning medium. The formative evaluation conducted during the development process, from expert validation to initial testing, provided important input for product refinement so that the module became more accurate, attractive, and easy to use. The summative evaluation conducted after implementation showed a significant increase in student learning outcomes based on pretest and posttest analysis, as well as a high level of positive response to the appearance, ease of use, and usefulness of the module. Qualitative and quantitative data confirm that the e-module is effective in helping students understand HIV and AIDS material, while encouraging active learning through the interactive features available. With continuous evaluation, the final product was declared feasible, effective, and relevant for widespread use in vocational high school physical education learning.

B. Discussion

The discussion in this study integrates the results of the development of Canva-based E-Modules on HIV and AIDS material with learning theory and empirical findings from expert validation, practicality tests, and effectiveness tests. In general, this discussion aims to explain the extent to which the developed e-module meets the quality standards for learning media and supports the achievement of PJOK learning objectives in the Merdeka Curriculum. Based on needs analysis, interviews, and observations at SMK Negeri 2 Terbanggi Besar, it was found that HIV and AIDS learning is still abstract, dominated by lecture methods, and lacks support from interesting interactive media. This condition results in low student participation and suboptimal learning outcomes. In this context, the development of Canva-based e-modules is a relevant solution because it can integrate text, images, videos, and animations into one attractive visual display that suits the characteristics of 21st-century students, while also providing flexibility in independent and face-to-face learning.

Conceptually, the e-module design is based on modern Instructional Design principles and Mayer's multimedia theory, which emphasizes the importance of combining text and visuals to reinforce understanding. The principles of coherence, contiguity, signaling, and modality are consistently applied so that the presentation of material does not overload the working memory of learners. Sweller's cognitive load theory is used to simplify the flow of scientific material, such as the mechanism of virus transmission. From a pedagogical perspective, the e-module is designed based on a constructivist approach, providing exploratory activities, reflection, case studies, and independent exercises that enable learners to actively build their understanding. The structure of the e-module, which includes an introduction, concept map, core material, collaborative activities, and evaluation, is combined with attractive illustrations and video QR codes, in line with the learning objectives of PJOK and health literacy competencies in the Merdeka Curriculum.

The theoretical validity of the e-module was obtained through assessment by two subject matter experts and one media expert from the Faculty of Sports Science and Health at Yogyakarta State University. The validation results gave an average feasibility score of 92.89% with a category of highly feasible. The experts assessed that the substance of the material was accurate, in line with developments in reproductive health knowledge, relevant to the learning outcomes of PJOK SMK, and presented using communicative language. From a media perspective, the visual display was assessed as meeting instructional design principles, with harmonious color selection, clear navigation, and consistent layout, thereby supporting independent learning. These findings reinforce that the e-module has a strong academic and pedagogical foundation for use as innovative teaching material.

The feasibility of the e-module was further strengthened through small-scale and large-scale field trials. In the small-scale trial, students gave a feasibility score of 88%, while in the large-scale trial the score increased to 91% and was categorized as highly feasible. Students assessed that the e-module was easily accessible on various devices, had an attractive appearance, and the presentation of visual content helped them understand concepts that were previously considered difficult. Physical education teachers gave a score of 93% and assessed that the e-module supported learner-centered learning and facilitated the delivery of sensitive material such as HIV and AIDS. These results are in line with the theory of Nieveen, Folmer, and Plomp, which states that an educational product is of high quality if it meets the aspects of validity, practicality, and effectiveness.

From a practical standpoint, both students and teachers found the e-module easy to use without requiring additional training. Simple navigation, a clean display, and compatibility with mobile phones make the e-module suitable for the learning habits of the digital generation. This practicality supports Zaharias' concept of usability, which emphasizes the importance of clear navigation and efficient interaction on digital media. Students appreciate the infographics, flowcharts, and educational videos that clarify the concepts of HIV and AIDS, while teachers find that the systematic organization of the material makes it easier for them to manage the learning process. Thus, the e-module meets the practicality criteria outlined by Asyhar, namely that it is easily accessible, easy to use, and capable of supporting an effective learning experience.

The effectiveness of the e-module was proven through a one-group pretest–posttest research design. The average score of students increased from 64.31 to 86.25 after using the e-module, with an N-Gain of 0.61, which falls into the moderate to high category. This increase shows that the e-module plays a significant role in improving students' understanding of HIV and AIDS concepts, transmission methods, and prevention. These findings are consistent with Mayer's multimedia theory and Moreno's view, which emphasizes that text, images, and interactive elements improve retention and knowledge transfer. In addition, the positive responses of students regarding their learning experiences indicate that the e-module not only improves cognitive aspects but also motivation and learning engagement. Teachers also stated that the e-module makes learning more systematic and in line with the characteristics of the Merdeka Curriculum, which emphasizes independence and meaningful learning.

Based on the results of validation, practicality testing, and effectiveness testing, it can be concluded that the Canva-based E-Module on HIV and AIDS material is very feasible, practical, and effective for use in PJOK learning for grade XI at vocational high schools. This e-module not only supports the achievement of health literacy competencies but also enhances students' motivation, understanding, and awareness of reproductive health issues. As such, this e-module has the potential to serve as an innovative and relevant alternative learning medium aligned with technological advancements and the evolving needs of health education in the digital age.

IV. CONCLUSIONS

Based on the results of research on the development of Canva-based E-Modules on HIV and AIDS for vocational school students, it can be concluded that (1) the developed product has met the aspects of validity, practicality, and effectiveness in accordance with the criteria for quality learning media, The results of validation by subject matter experts and media experts show that the e-module is in the highly feasible category with an average score of 92.89%, so that it is substantially and visually in accordance with learning theory, multimedia design principles, and student characteristics. (2) During the trial phase, both small-scale and large-scale, students and teachers gave excellent ratings, indicating that the e-module is easy to use, engaging, and supports independent learning. (3) In addition to being feasible and practical, the e-module has also proven effective in improving student learning outcomes, as evidenced by an increase in pretest to posttest scores with an N-Gain score of 0.61 in the moderate-high category. Thus, the Canva-Based E-Module on HIV and AIDS can be an alternative innovative learning medium that is relevant, interactive, and capable of improving students' health literacy and conceptual understanding in the PJOK subject at vocational high schools.

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