


Development of React-Based E-Modules Using Local Riau Malay Wisdom in Learning Media Courses

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ABSTRACT

Technological developments with the industrial revolution 4.0 and society 5.0 have brought many changes to the world of education. Global demands require the world of education to always and always adapt technological developments to efforts to improve the quality of education, especially adapting its use to the world of education, especially in the learning process. Digital technology is useful for changing behavior in searching, collecting, documenting, processing and retransferring teaching materials according to needs. One of the teaching materials as a learning tool for students is a teaching module, which contains all systematic learning implementation plans starting from objectives, activities and assessments. Technology-based teaching modules or E-Modules aim to combine the use of information technology so that the modules can be more interesting and interactive. The Merdeka Curriculum does not only focus on the use of technology but also the implementation of local wisdom in the learning process. So that it can elevate regional diversity into a local advantage. The research will be conducted in May-October 2024 in the Community Education Study Program in learning media courses. This research is R&D (Research and Development) research with the ADDIE (Analysis, Design, Development, Implementation and Evaluation) development model. The development of this E-Module uses a REACT (Relating, Experiencing, Applying, Cooperating, Transferring) based approach strategy, with the local wisdom of Riau Malay culture. The data collection instruments used were questionnaires and observation sheets. The data analysis technique that will be used is adjusted to the type of data collected, then analyzed descriptively and quantitatively.

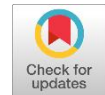
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INTRODUCTION

The development of technology in the era of the Industrial Revolution 4.0 and Society 5.0 has brought significant transformation in the world of education. In this context, education does not only focus on the transfer of knowledge, but also on the development skills 21st century which includes creativity, collaboration, and problem solving problem. According to report from the World Economic Forum (2020), 50% of all employees around the world will need skills new in 2025. Global demands require the world of education to always and continuously adjust technological developments to efforts to improve the quality of education, especially the adjustment of its use for the world of education, especially in the learning process. Digital technology is useful for behavioral changes in searching, collecting, documenting, processing and transferring back teaching materials according to needs.

Learning is one of the factors that influences and plays an important role in the formation of an individual's personal behavior. Learning is also an activity that can be done

psychologically and physiologically. To get fun, active learning that makes it easier for students and is able to raise students' enthusiasm for learning, an educator must provide variation when learning, such as providing strategies in the learning process (Rusman , 2016).

The essence of learning is a process or a container that regulates and organizes the environment around students so that learning can foster and encourage students to carry out the learning process in the classroom with the guidance of educators, so that learning becomes effective learning. Learning is also associated as a process of guidance or assistance from educators to students in carrying out the process. One of the teaching materials as a means of learning for students is a teaching module, which contains all the learning implementation plans systematically starting from objectives, activities and assessments. Technology-based teaching modules or E-Modules aim to integrate the use of information technology so that the modules can be more interesting and interactive. A learning module is a collection of learning experiences (usually in the form of independent learning) that are conceptualized or created to achieve specific interrelated goals; usually consisting of several hours or several meetings. The Ministry of National Education (2008) explains that "a module is a learning tool that includes materials, methods, limitations, and evaluation methods that are designed systematically and attractively to achieve the expected competencies according to their level of complexity.

E-Modules are a form of presentation of independent learning resources that are systematically arranged into specific learning units, which are presented in electronic format, making students more interactive with the program, equipped with video tutorials, animations, and audio to enrich the learning experience. In the Independent Curriculum, it does not only focus on the use of technology but also the implementation of local wisdom in the learning process. So that it can elevate regional diversity into a local advantage. This local culture is actually still growing and developing in society and is agreed upon and used as a shared guideline. Thus, local cultural sources not only in the form of values, activities and results of traditional activities or the ancestral heritage of the local community, but also all the cultural components or elements that apply in the community as well become typical and/or only develop in certain societies.

One way to improve the quality of education is through the use of technology-based teaching modules, or better known as E-Modules. E-Modules not only function as learning aids, but also as a means to integrate information technology into the learning process. These teaching modules are designed to create a more interactive and engaging learning experience for students, which in turn can improve motivation and learning outcomes (Meyer, 2019). In the context of the Independent Curriculum, there is an emphasis on the importance of local wisdom in the learning process. Local wisdom, especially Riau Malay culture, has great potential to be integrated into E-Modules. Thus, the E-Modules developed will not only be technologically relevant, but will also reflect the cultural values that exist in society. This is important to maintain cultural diversity and provide students with a deeper understanding of their identity (Sari, 2021).

The combination digitalization with experience previously can be applied with REACT approach (Relating, Experiencing, Applying, Cooperating and Transferring) so that expected existence integration experience with lessons in class . Strategy REACT is strategy learning with approach contextual Which offered by Center of Occupational Research and Development (CORD). Strategy REACT is strategy learning contextual Which is core principles of constructivism. In effort For allow participant educate build And use knowledge . Therefore, to apply it , it is necessary to conduct research development of REACT -based E-Modules with wisdom local Culture Riau Malay .

E-Module as one of the innovation in education own Lots excess compared to module conventional . According to research by Supriyadi (2020), E-Modules can increase accessibility and flexibility in learning . Students can access material learning When anywhere and anytime , which allows they For Study in accordance with speed each . Besides That , E-Module also allows use various media, such as videos, animations , and quizzes interactive, which can increase student engagement. A learning module is a collection of learning experiences (usually in the form of independent learning) that are conceptualized or created to achieve specific interrelated goals; usually consisting of several hours or several meetings. The Ministry of National Education (2008) explains that "a module is a learning tool that includes materials, methods, limitations, and evaluation methods that are designed systematically and attractively to achieve the expected competencies according to their level of complexity. Thus, it can be concluded from the three opinions above that a learning module is a collection of materials or teaching materials that are arranged and designed in an attractive manner based on a certain curriculum into a learning unit that can improve student competency in the learning process.

The use of modules is often associated with self-instruction activities. Because of its function as mentioned above, another consequence that must be met by the module is the completeness of the content; meaning that the content or material presented in a module must be completely discussed through the presentations so that readers feel they understand a certain field of study from the results of learning through the module. In compiling learning modules, there must be a purpose and function. According to the Ministry of National Education (2008), there are several purposes and functions of the module, as follows: 1. Clarify and simplify the presentation of material so that it is not too verbal. 2. Overcome the limitations of time, space, and sensory abilities, both for students and educators. 3. Can be used appropriately and in a variety of ways, such as to increase motivation and interest in learning, develop the ability to interact directly with the environment and other learning resources that allow students or learners to learn independently according to their abilities and interests. 4. Allow students or learners to measure or evaluate their own learning outcomes.

Module evaluation is intended to determine whether the developed teaching materials/modules are good or whether there are still things that need to be revised/improved. This evaluation technique can be done in several ways, in this study the evaluation technique uses evaluations from material experts and media experts. According to the Ministry of National Education (2008), the criteria for good media/teaching materials are seen from the material and media aspects. E-Modules are a form of presentation of independent learning resources that are systematically arranged into certain learning units, which are presented in electronic format, making students more interactive with the program, equipped with video tutorials, animations, and audio to enrich the learning experience. According to Fausih and Danang (2015) in their research, E-Modules are electronic media that are effective, efficient, and prioritize student independence in carrying out learning activities that contain one unit of teaching materials to help students solve problems with their own abilities.

Another definition explains that, electronic book is portable hardware and software system that can display large quantities of readable textual information to the user, and lets the user navigate through this information (Borchers, 1999). From the explanation above, it can be concluded that electronic book is a portable hardware (module) and software that can display large quantities of text information that is easy to read by the user, and lets the user know through this information. The three definitions that have been described can be concluded that E-Module is an electronic-based learning module containing teaching materials or collections of materials that are made interactively and attractively using

sophisticated information technology such as computers or androids which are inserted with a number of links, video tutorials, and animations with the aim that students have independent learning resources.

Strategy REACT is strategy learning with approach contextual Which offered by Center of Occupational Research and Development (CORD). Strategy REACT is strategy learning contextual Which is core constructivism principles (Wiwik, 2016). In effort For allow participant educate build And use knowledge in science, Crawford defines five strategy, that is strategy learning contextual, Which Also called as a strategy REACT to this covers connection, experience, implementation, cooperation And process transfer. Activity learning based on This REACT strategy encourages students to analyze information. And comment on knowledge in ability understanding each- each (Sukru, Ali, 2015). Strategy Relating, Experiencing, Applying, Cooperating, Transferring (REACT) launched by discussing the views educator on the material and examples they created, meaning the REACT strategy is output from the observations and experiences of educators and not the problems that theoretically designed with a decrease in participant interest and attitudes educate.

REACT This Also in accordance with view constructivist, material lesson Which served through context life participant educate result in learning will more meaningful And pleasant. Then learning with strategy REACT requires students to be active in learning so that draft participant educate which they have from process learning will remember with good. Curriculum And learning based on strategy learning contextual This must arranged in five important thing that is *Linking, Experience, Apply, Work Same, and Transferring* (Wardani and Meyta, 2014). Culture is a set of ideas that determine the beliefs and behavior of individuals and groups of people in society, both visible (e.g. artifacts) and invisible (e.g. customs) (Hofstede, 1980; Stephens, 2007). According to (Koentjaraningrat 2000) culture with the basic word culture comes from the Sanskrit language "buddhayah", which is the plural form of buddhi which means "mind" or "reason". So Koentjaraningrat defines culture as "mind power" in the form of creativity, will and feeling, while culture is the result of creativity, will and feeling.

Meanwhile, according to (Hawkins, 2012) culture is a complex that includes knowledge, beliefs, arts, morals, customs and other abilities and habits possessed by humans as part of society. 3 For more details on the above, Koentjaraningrat distinguishes three forms of culture, namely: (1) The form of culture as a complex of ideas, concepts, values, norms, regulations and so on. (2) The form of culture as a complex of activities and patterned actions of humans in a society. (3) The form of culture as objects produced by humans. Local culture includes ways of life, customs, traditions, arts, thoughts, value systems, ways of working that are typical of a particular society or ethnic group in a particular region. The diversity of Indonesian culture. According to Nawari Ismail (2011), what is meant by local culture is all ideas, activities and results of human activities in a community group in a particular location. The local culture is actually still growing and developing in society and is agreed upon and used as a shared guideline. Thus, local cultural sources not only in the form of values, activities and results of traditional activities or the ancestral heritage of the local community, but also all the cultural components or elements that apply in the community as well become typical and/or only develop in certain societies.

Local culture has local cultural functions, there are at least 4 functions according to Suyanto in Ismail (2011), namely: a. Local culture as a meeting point for community members from various backgrounds such as social status, ethnicity, religion, ideology, and politics. This can be proven from various slametan ceremonies that continue to develop amidst the roar of modernization. b. Local culture such as traditional institutions, traditions can also function as social norms that have a significant influence in regulating the attitudes and behavior of society. c. Local culture as a social controller of each member of society. For example, the tradition of cleaning the village is not just an activity that is mutual cooperation

and the environment but also has the meaning of cleansing the sins of each member of society. According to (Caraka et al., 2019) Culture is one of the characteristics of each region such as Riau culture. However, most people often do not realize the importance of knowing and recognizing the culture of their region of origin which causes the culture to slowly disappear from local communities.

METHOD

This study use Research and Development (R&D) method with the ADDIE model which consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. At the stage analysis, done identification need students and lecturers in the media learning process. Data is collected through questionnaire and interview with students and lecturers in the Community Education Study Program. The results of the analysis show that there is significant need For further development of E-Modules interactive and based technology.

At the stage design, E-Module is designed with consider REACT approach and wisdom local Riau Malay. This design covers election material, development content, and creation of appropriate interactive media with characteristics students. As example, material about learning media will integrate with examples use of media in context culture Riau Malay, such as use story people and art traditional in learning. After the stage design, stage development done with make E-Module prototype. Prototype This Then tested try on group small student to get the effectiveness and usability of E-Modules. Feed return earned will used to get improvements and refinements to the E-Module before implemented in a way wider. Stage implementation involves implementation of E-Modules in the learning process in the classroom. Lecturer will using E-Module as internal aids teaching, while student will participate active in activity designed learning. Observation done to evaluate involvement students and the effectiveness of E-Modules in increase understanding the material. Finally, the stage evaluation done For evaluate success E-Module development. Evaluation covers analysis of quantitative and qualitative data obtained from questionnaire and observation. Evaluation results will used For revise the E-Module to make it more in accordance with need students and goals desired learning.

FINDINGS AND DISCUSSION

Research findings show that the development of REACT-based E-Modules integrating Riau Malay local wisdom can enhance student engagement and motivation. During the trial phase, students reported that the E-Module provided a more interesting and relevant learning experience. About 85% of students stated that they found it easier to understand the material when using the E-Module compared to conventional methods.

The use of the REACT approach in E-Modules has also proven effective in helping students connect new knowledge with their experiences. For example, when learning about educational media, students were asked to share their experiences using media within the context of Riau Malay culture. This not only improved their understanding but also strengthened their cultural identity. Statistical data indicate a significant improvement in student learning outcomes after using the E-Module. The average student score before using the E-Module was 70, whereas after its use, the average score increased to 80. This demonstrates that the E-Module not only makes learning more engaging but also effectively enhances academic performance.

An interesting case was observed when students were assigned group projects to create learning media inspired by local wisdom. This project not only improved their collaboration skills but also allowed them to explore and appreciate their own culture. The project outcomes showcased creativity and a deep understanding of the taught material. The

Learning Media course in Community Education focuses on introducing, developing, and applying various media that support a more effective, efficient, and engaging learning process. This course covers the basic concepts of learning media, different types (print, audio, visual, audiovisual, and digital), and media design tailored to student needs.

Students are trained to use modern technology and local resources as creative learning media. Through this learning process, they are expected to develop innovative learning media products and integrate them into various educational settings, both formal and non-formal. This course is relevant to creating interactive learning and supporting educational goals in the digital era. The Community Education Study Program does not yet have a module guide as a learning resource for students. Instead, students rely on various textbooks and e-books. Therefore, the development of high-quality teaching materials is essential to support effective learning processes.

In the learning process, teaching materials hold a strategic position as they facilitate independent learning. Teaching materials are typically equipped with learning objectives, instructional content, illustrations, exercises, summaries, formative tests, and references. Their development should aim to achieve specific learning objectives and ensure high-quality educational content. The results of the E-Module needs analysis show that most students consider E-Modules essential and effective learning media for better understanding the Learning Media course. Students expect interactive features such as automatic quizzes, explanatory videos, and formative evaluations. Additionally, students prefer E-Modules that are easily accessible both online and offline, with attractive visual designs, structured layouts, and relevant illustrations to clarify concepts. These features help make learning more engaging and effective.

The use of Riau Malay culture-based E-Modules has successfully increased student engagement. The combination of attractive designs and varied multimedia elements enables a more enjoyable and less monotonous learning experience. Visual elements such as traditional images, videos of cultural ceremonies, and Riau Malay songs captivate students' interest in their own heritage. Furthermore, the E-Module allows students to access learning materials anytime and anywhere, offering flexibility in the learning process. This aligns well with the needs of the digital era, where technology plays a crucial role in education.

Evaluation of students' understanding of Riau Malay culture shows a significant improvement after using the E-Module. Before using it, most students had limited knowledge of Riau Malay history and traditions. However, after completing lessons with the E-Module, they demonstrated a better grasp of cultural topics, including traditional ceremonies, clothing, and cuisine.

This finding highlights that a culture-based E-Module can serve as an effective tool to introduce and deepen students' understanding of local culture, which is often overlooked in formal curricula. By integrating cultural elements into digital learning, students can develop a stronger appreciation for their heritage. The effectiveness of the E-Module is further supported by statistical data showing improved student learning outcomes. Post-test results indicate a significant increase in scores compared to pre-test scores. This success is attributed to the structured module design, clear content distribution, and evaluation features at the end of each chapter. The interactive quiz feature also helps students measure their understanding of the material. Feedback from both lecturers and students regarding the E-Module has been overwhelmingly positive. Lecturers find it helpful in explaining abstract concepts through visuals and multimedia, while students enjoy the engaging format and interactive components. However, some challenges remain, such as the lack of adequate technological facilities in certain schools, which hinders optimal E-Module utilization. Therefore, continued support from schools or government bodies is necessary to improve technological infrastructure for broader access.

The development of Riau Malay culture-based E-Modules demonstrates that digital technology can be leveraged to preserve and introduce local culture to younger generations. Additionally, it serves as an effective solution to enhance education quality in areas with limited conventional teaching resources. Despite its success, some areas require further development, such as ensuring better technological infrastructure, expanding interactive content, and providing teacher training. This is crucial to ensure that the E-Module is used effectively and achieves the intended learning objectives. A crucial aspect of this E-Module is its role in cultural preservation. In the era of globalization and foreign cultural influences, integrating technology with cultural conservation becomes increasingly important. The E-Module not only educates students about their heritage but also instills cultural pride and awareness. Through digital technology, knowledge and local wisdom can be disseminated more widely and quickly. This ensures that Riau Malay culture is not only preserved locally but also introduced to a broader audience, even beyond Indonesia. Digital documentation of cultural heritage serves as an invaluable resource for future generations.

Finally, the development of the Riau Malay culture-based E-Module provides opportunities for cultural figures, artists, and community elders to contribute directly to cultural preservation. By involving them in content creation, traditional knowledge and practices can be authentically represented, ensuring a meaningful and educational experience for students.

CONCLUSIONS

The development of REACT-based E-Modules that integrate Riau Malay local wisdom in Learning Media lectures has shown positive results in enhancing student engagement, motivation, and learning outcomes by providing a more interactive and contextual learning experience. This progress is crucial in addressing educational challenges in the digital era. Ongoing development of the E-Module should involve collaboration among lecturers, students, and education experts to ensure its effectiveness and alignment with diverse learning needs. Additionally, periodic evaluations are essential to identify areas for improvement and maintain relevance with technological advancements and evolving educational demands. By incorporating local wisdom into learning, students not only gain academic knowledge but also develop an appreciation for and commitment to preserving their cultural heritage, fostering strong character and national identity. The REACT-based E-Module initiative serves as a valuable foundation for achieving these goals and can serve as a reference for further E-Module development in other educational fields, encouraging innovation in more effective and contextual learning methods. Ultimately, this effort contributes to building a better education system that aligns with societal needs in the era of globalization.

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