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Mangrove Organic Batik E-Module Model in Batik Lessons

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Abstract

The State Vocational High School (SMK) 1 Berastagi is a tourism cluster school that in the learning process is still conventional, so the learning results of batik have not met the competency standards. This is indicated because students do not have a background in batik. Knowledge development introduces modules as alternative teaching materials that are able to improve student learning outcomes effectively and efficiently. The purpose of this research is to, 1) produce valid, practical and effective batik learning e-modules, 2) develop learning e-modules on batik materials for Vocational High Schools. This type of research is Research and Development, with the achievement of designing and making batik e-modules, then the results of validity, practicality and effectiveness tests, with data analysis techniques consisting of validity, practicality and effectiveness analysis. The data was analyzed using the Likert scale, the object of the research was grade XI students of SMK Negeri 1 Berastagi. The data from the research results obtained shows that the batik learning e-modules produced in the valid, practical and effective categories both in terms of the feasibility of the content of the e-module, the language of the e-module, the presentation of the e-module and the graphics of the e-module. It can be concluded that the batik learning e-module is worthy of being used as an alternative reference material in the development of the Batik e-module.

Keywords: e-module, batik, vocational school students

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INTRODUCTION

In the industrial revolution 4.0, technology has a fairly important role in realizing an innovative and modern learning system which is a manifestation of educational progress. The ability of human beings to think, can be realized and poured through the level of education that they will take in order to get a recognition from the community about its existence.

The State Vocational High School (SMK) 1 Berastagi is located in Karo Regency, North Sumatra, where this school has several majors including the DPKT (Textile Craft Design and Production) department. The DPKT expertise program is a expertise program that aims to become experts who are able to prepare graduates who are competent in the field of batik, with elements of traditional batik learning, so that the learning outcomes are expected that students are able to apply theories and skills as well as attitudes in creating, producing, marketing and entrepreneurship batik.

The application of natural dyes from mangrove plants in batik cultivation is an important topic in learning traditional batik. Batik is an important part of Indonesia's cultural heritage that needs to be preserved, and the use of natural dyes from mangrove plants is an environmentally friendly option. However, in the process of learning batik in many educational institutions, especially at SMKN 1 Berastagi, there are a number of problems that need to be overcome.

Observations that have been made to Batik teachers have resulted in the main problem in learning batik is the limitation of interactive learning resources and supports a deep understanding of batik techniques with natural dyes. Limited accessibility of reading materials, videos, and practical guides is an obstacle to understanding the basic concepts and applications of natural dyes. Students often feel less interested and involved in learning batik. Less interactive and less interesting learning media leads to a lack of student interest in this Batik subject, this greatly affects students' understanding of batik techniques with natural dyes. In addition, due to the lack of batik practicum, it becomes a problem in the achievement of batik learning. Students need hands-on practice in the batik-making process to understand batik techniques well. Limited practicum makes students not remember the subject matter delivered by the teacher. Students still find it difficult to mix dyes from various types of mangrove plants and this affects their understanding and learning outcomes.

The media that is suitable for use during the implementation of Batik learning should be e-modules, which are modules with a physical form that is different from printed modules, the components of the printed module are processed in such a way that they transform into electronic forms. The use of e-modules makes students interested in the learning process, because it can be accessed anytime and in any condition anywhere supported by adequate tools, and does not make it difficult for students (Iriani et al., 2020), teachers are also easy to carry out teaching activities even though they are in different places from students (Fourlilla & Fauzi, 2019). E-modules as a means of learning that include materials, methods, and are also provided with learning evaluations that are designed practically so that they attract students' interest in learning (Wibowo, 2018) (Istuningsih et al., 2018).

E-Modules will include links, complete with animations and moving images so that a new and non-boring learning experience is created (Hafsah et al., 2016) (Serevina et al., 2018) (Jonias, 2014), displays images with vivid colors, learning videos can also be inserted, and formative tests equipped with automatic feedback transmission can also be included so that students can know the results of their evaluations (Zulkarnain et al., 2015). However, e-modules have another perspective, sometimes the material presented is incomplete, the visual images presented are also sometimes uninteresting, and often the links listed are inaccessible (Suarsana & Mahayukti, 2013).

The creation of a learning environment that overcomes these problems can be done by implementing interactive learning resources, increasing students' interest in batik art with natural dyes, providing more structured practicum opportunities, and helping students in mixing dyes effectively by following the flow that needs to be done to achieve learning to make natural dyes from mangrove plants that is more effective and attractive.

The purpose of the study is to see the effectiveness of e-module teaching media in filling the gap between reality and ideals in learning batik with natural dyes from mangrove plants. Through the E-Module on Making Mangrove Natural Dyes, which is designed to support students' understanding, arouse interest in learning, provide practical guidance, and overcome obstacles in concocting natural dyes from mangrove plants, it is hoped that students will be able to obtain learning outcomes that go beyond competence and have a deep understanding of batik art with natural dyes. Thus, this research will make a positive contribution to the learning of batik art by using natural dyes of Mangrove in students of SMK Negeri 1 Berastagi.

METHODS

This research uses research and development techniques, with *the four-D* development model applied during the creation of E-modules as learning media in Batik subjects. Thiagadjaran's approach (Sugiono, 2019) divides the process into four main phases, namely *Define, Design, Development, and Disseminate*.

The E-module test developed was carried out to evaluate the product. At this stage, the activity is focused on determining whether the e-module has been effectively used in improving student learning outcomes, namely by the following process:

1) Practicality Test; states that a practicality test is a quality that demonstrates the ability to be used as a commonly used assessment technique, based on cost, time required to compile, ease of preparation, and ease of assessment.

2) Effectiveness Test; The effectiveness of learning media is carried out to find out whether the validated e-modules have improved student activities and learning outcomes. The learning outcome test is used to find out how effective the learning media is.

Product testing is an assessment process to determine whether the product has been valid, practical, and effective. Product trials are carried out by comparing values before using the media and after using the learning media. This research focuses on Batik subjects using dyes from mangrove leaves, by developing e-module learning media to help students and improve learning outcomes. The

subjects of this study are 28 grade XI students at SMK Negeri 1 Berastagi, majoring in Textile Craft Design and Production (DPKT).

The primary data collected involves the use of media practicality test questionnaires filled out by teachers and students. The validation process of electronic-based learning media is carried out by validators, while data on effectiveness tests are obtained from the results of student learning tests. Validity Instruments are used to determine the validity of electronic-based learning media; Validity is defined as the meaning, benefit, and suitability of the test so that the resulting product can be used. In this study, the validation sheet is a validation carried out by a validator. Instruments of practicality. The learning outcome test serves to explore the necessary information to calculate the percentage of student success after using learning media in the form of e-modules in the subject matter of Mangrove Organic Batik. In the analysis, the validity, practicality, and effectiveness of the e-module learning media were assessed. The effectiveness test was carried out to see the completeness of student learning in the Batik subject.

RESULTS & DISCUSSION

Modules are a medium for acquiring material effectively because students can learn according to their abilities and speed (Arthur et al., 2017) (Linda et al., 2018) (Hasanah & Dewi, 2012). The media that is effectively used when independent learning is carried out is e-modules, which are modules with a different physical form than printed modules, the components of the printed modules are processed in such a way that they transform into electronic forms. The use of e-modules makes students interested in the learning process, because it can be accessed anytime and anywhere supported by adequate tools, and does not make it difficult for students (Iriani et al., 2020), teachers are also easy to carry out teaching activities even though they are in different places from students (Fourlilla & Fauzi, 2019). E-modules are used as a means of learning that include materials, methods, and are also provided with learning evaluations that are designed practically so as to attract students' interest in learning (Wibowo, 2018) (Istuningsih et al., 2018)

Batik learning materials are prepared with formulation by several batik experts so as to form a relationship with relevant material concepts. To compile the material in the e-module, it is also done by analyzing several reference books used by teachers in learning and also from the observation of researchers at batik centers. In this material, the components that must be present in the batik learning material are considered. These components were obtained from the results of researchers' observations and discussions with various batik experts. So in this batik learning e-module, there are 5 materials that will be described, namely the meaning of batik

and its limitations, batik design, batik tools and materials, batik making techniques and batik dyeing techniques.

At this stage, a batik learning e-module was produced that has been designed, made, validated and also tested. At this stage, the researcher designed a batik learning e-module, the following modules have been produced: a) Preparing the e-module framework, in this e-module framework the learning achievements, indicators and learning objectives that have been formulated are displayed on the e-module. b) Prepare a detailed program that includes all components of the e-module including: cover, instructions for using the e-module for students and teachers, introduction, table of contents, student learning activity sheets, test/review sheets, evaluation sheets, test answer keys, feedback, bibliography, and glossaries. 3. The results of the Development Stage aim to produce an e-module that is valid for use in this research and is suitable for use in this batik learning. This stage contains the validity of e-modules, revisions and trials of learning modules that have been developed in classroom learning.

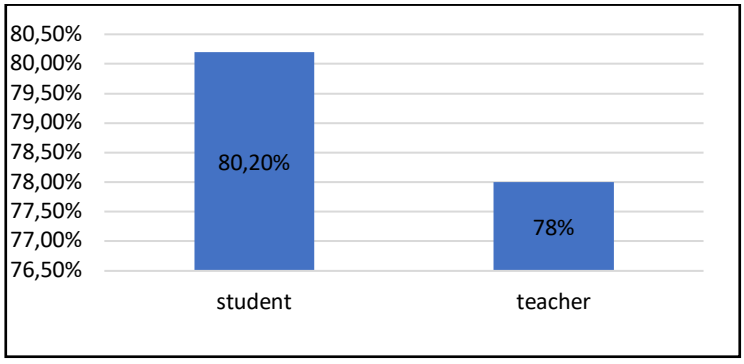

Figure 1. Average results of teacher and student responses to the use of E-modules

The results of the e-module user response were seen from the student response and the teacher's response after learning using the e-module, which was the overall average of the student response questionnaire of 80.2%, and the teacher's response was obtained by 78%, each in the very good category. Maisarmah (2022) explained that the use of e-modules in learning supports both students and teachers, because e-modules can be used anytime and anywhere.

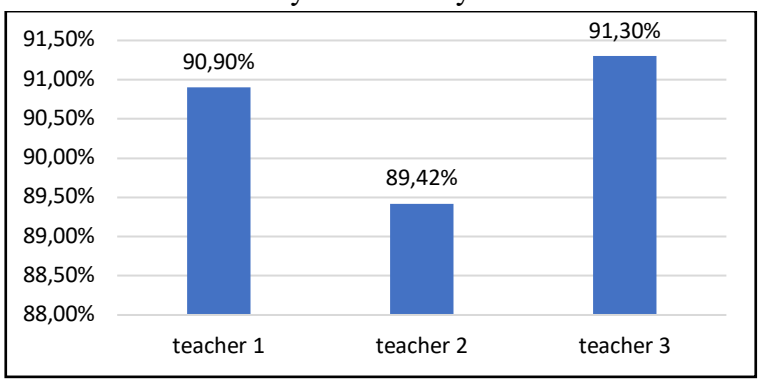

Figure 2. Results of the practicality test questionnaire

Subsequently, the results of the practicality questionnaire filled out by batik teachers are also an indicator to find out the response from users of the e-module developed. The response from teacher 1 was obtained on average 90.9%, teacher 2 was 89.42% and teacher 3 obtained an average of 91.3% in the very practical category. In line with the results of the research conducted by Khoerunnisa, et al., (2016) explained that the results of the research in the practicality category with the results of the category were very good in the development of batik e-modules, so it was concluded that the e-modules were able to solve media problems for teachers.

The effectiveness of the e-module is determined from the results of student evaluations, observation sheets, and student assessment questionnaires, namely the evaluation questions are analyzed for the percentage of classical completeness and mastery achievement for the material taught in the e-module. The percentage of student scores in working on evaluation questions for the aspect of achieving student mastery was obtained at 79.4% with high criteria. In the analysis of students' classical completeness, a percentage of 100% was obtained, which means that 29 students were able to achieve the KKM score set by the school, which is 70. The minimum percentage of media is said to be effective, which is 75% and is in line with the research of Safitri et al., (2018) which states that an e-module can be said to be effective if the student learning outcomes are classically complete by ≥ 80%.

The overall average result of the student activity sheet in the feasibility test reached a percentage of 86.6% which was in the very good category. In line with the opinion of Safitri et al., (2018) stated that the percentage of student learning activities was 84.33% with the category of very good. The results of student character observation given directly to students during learning time in the classroom as a whole resulted in a percentage of 87.58% with a very high category in the feasibility test 2. The indicator with the lowest percentage is an innovative indicator of 80.70%, this is because students are still imitating batik motifs and have not maximally expressed their ideas in batik. The indicator with the highest percentage, which is responsible at 90.30%, can be seen when students are responsible for completing visiting activities and collecting all assigned tasks.

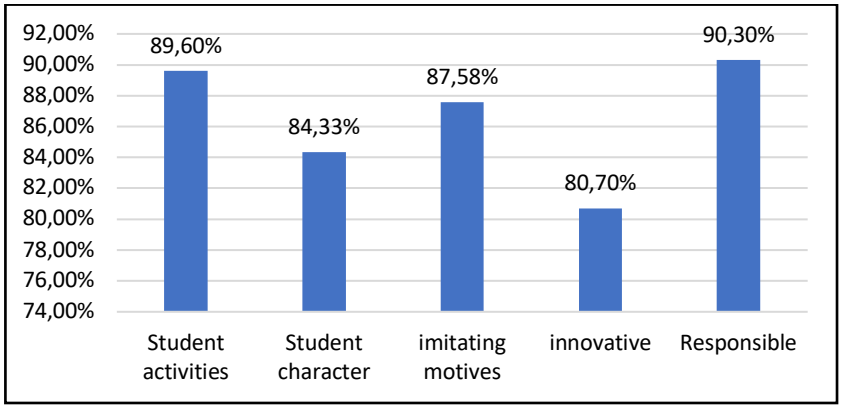

Figure 3. Images of student activities on the feasibility test

DISCUSSION

Batik is defined as a pictorial cloth that is made specifically by writing or putting night (batik candles) on the fabric, then the processing is processed in a certain way. Drawing on the fabric by connecting the dots into a certain image using night (batik wax), then dyed, and processed in a certain way until it becomes batik. Inside a piece of batik there is always a motif, because the motif is the main element of an ornament, while the ornament is the application of decoration to a product (Sunaryo, 2009).

The effectiveness of the batik e-module in mangrove coloring, has paid attention to the beauty aspect when slamming as a motif and the results of the use of mangrove leaf color are also good. The design elements that are used as a reference for making new batik motifs are points, lines, planes, colors, shapes, positions, numbers, sizes, directions, distances, and rhythmsThrough motifs, themes or basic ideas of an ornament can be recognized because the embodiment of motifs is generally a composition of forms in nature or as a representation of nature. However, there are also those that are purely imaginary because they are imaginative and even because they cannot be recognised, the compositions of a motif are then called abstract forms (Sunaryo, 2009). Furthermore, the various motifs are divided into the following: the main motif, which is the ornamental variety that determines the motif itself and in general the main motif has a meaning, so that the arrangement of the ornamental variety that forms it becomes the soul or meaning of the motif itself. Additional motifs, namely motifs that have no meaning and function as field fillers, and motif fillings, namely in the form of dots, lines, or a combination of the two that function to fill in the fields in the motif and the fields between the motifs (Susanto, 1980).

The E-Module includes links, equipped with animations and moving images so that a new and not boring learning experience is created (Hafsah et al., 2016) (Serevina et al., 2018) (Jonias, 2014), displays images with vivid colors, learning videos can also be inserted, and formative tests equipped with automatic feedback transmission can also be included so that students can know the results of the evaluations they are doing (Zulkarnain et al., 2015). However, e-modules also have another perspective, sometimes the material presented is incomplete, the visual images presented are also sometimes less interesting, and often the links listed are inaccessible (Suarsana & Mahayukti, 2013). E-Module has a self-instructional nature which means that it only covers one learning material so that students are really focused on the material being taught. Self-contained, namely all material components listed in the module. Stand-alone means that the module can be used alone so it does not depend on other media. Adaptive because the development of e-modules is in accordance with the character of students. User frendly means matching the user. Consistency is a property that in the use of fonts and other

components is the same and no different from modules in general (Fausih, 2015). In planning, the use of e-modules must first pass validation carried out by experts in accordance with the field, validators are given the opportunity to assess so that electronic modules are suitable for use for learning (Imansari & Suryantiningsih, 2017) (Irwansyah et al., 2017) (Fonda & Sumargiyani, 2018).

E-modules, learning models can also be combined by paying attention to their compatibility so that it can facilitate the student learning process (Sugihartini & Jayanta, 2017). Electronic modules can be in the form of documents or articles that are not in printed form, so that it is not inconvenient for students when they are traveling, because e-modules can be accessed through students' electronic devices, anywhere and anytime the user needs them (Solikin, 2018) (Perdana et al., 2017). Electronic modules also exist in the form of compact discs (CDs) so that they give users the option to run directly from the CD or install it first, online or offline by downloading it first (Chong et al., 2005) and the delivery strategy of electronic modules is very easy so that it does not make it difficult for the sender or receiver (Winatha & Abubakar, 2018) to be more effective in the use of time (Astalini et al., 2019).

The original batik dyeing uses natural dyes, such as from mangrove leaves, to produce a brown color. Soaking with alum can take more than a day to get a color fastness that blends with the fabric.

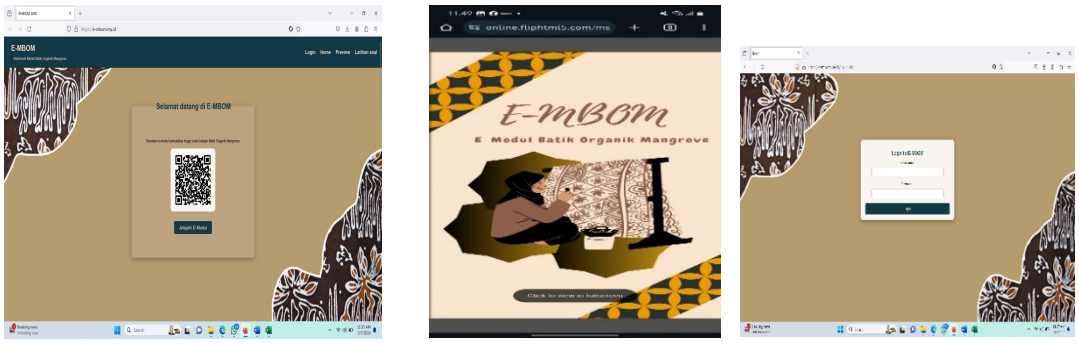

Figure 4. Batik E-module Display Picture

According to Sarwono (2007), design in the field of ornamental variety is an effort to find innovation by creating a new product that meets the criteria (or desired conditions), is humanistic. Furthermore, Sarwono (2007), design is an effort to make changes to man-made goods. Meanwhile, in the Encyclopaedia Britanica (in Sachari, 2005), design is an arrangement of lines or shapes that perfect the work plan of a craft innovation by placing special emphasis on aspects of proportion, structure, motion, and beauty in an integrated manner; identical to the meaning of composition that applies to various branches of art.

CONCLUSION

The results of the product study that have been produced can be concluded that the e-module is developed through several stages, namely design, develop, implementation and evaluate. The results of the validation of material experts obtained valid criteria, and the results of the validation of linguists with valid criteria and the results of the validation of media experts with valid criteria. The results of the test of the response of batik e-module users show the level of practicality in practical criteria.

The responses of teachers and students showed the practical e-module and helped students in learning batik, the e-module can be used independently by students with the help of a computer. To support the exploration of more complex material components, users (students) can integrate e-modules with internet links.

The batik e-module is equipped with text, animation, images, and videos as supporting materials for the batik making process. To accommodate students' independence in learning, the e-module is also equipped with evaluation questions as a material for students to reflect on while learning using the batik e-module. The recommended e-module teaching materials can be used on a wider scale through implementation and dissemination in different schools. For other researchers, they can develop further using devices that can be integrated with smartphones that are not limited to their use on computers. The product feasibility testing stage should not only be carried out in one school so that product quality is increasing.

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