

Development of E-Module Learning Basic Sewing Technology Based on Discovery Learning for Tenth Grade Fashion Students of Vocational High School Citra Harapan

Hutabarat Nur Nahar¹, Ampera Dina², Farihah³

¹Student of Education Technology, Postgraduate School of State University of Medan, Indonesia

²Lecturer of Department Education Technology, University of Medan, Indonesia

³Lecturer of Department Education Technology, University of Medan, Indonesia

*Corresponding author. Email: naharnur741@gmail.com

ABSTRACT

This study was to determine (1) the Feasibility of Discovery Learning-Based Sewing Technology Basic Learning E-Module in Class X Fashion Design Vocational High School Students Citra Harapan. Citra Harapan Vocational High School Clothing. This type of research is an R & D research research using the Borg and Gall development model which is often known as R & D research, this model was chosen because it is systematic and suitable for developing learning tools. The subjects of this study consisted of two material experts, two learning media experts, two learning design experts, and 60 students of class X SMK Citra Harapan T.A 2020/2021. As objects in this study are learning media, the scale of student responses to learning media and tests of student learning outcomes and student practice results. The results showed (1) the learning material expert test was in very good classification (94.44%), (2) the learning media expert test was in the very good classification (92.94%), (3) the learning design expert test was at very good classification (97.35%). The results of the Hypothesis Submission prove that (1) Discovery Learning-Based Sewing Technology Basic Learning E-Module in Class X Fashion Design Vocational High School Students The image of hope is feasible to use (2) there is a significant difference between student learning outcomes using the Sewing Technology Basic Learning e-module and student learning outcomes using textbooks. This is indicated by the results of data processing on the posttest results obtained by the value of t count = 10,691, At the significant level ($\alpha = 0,05$) with dk 58 obtained t table = 1,167 so that tcount > t table for practice results obtained the price of t count = 11,023, At the significant level ($\alpha = 0.05$) with dk 58 obtained t table = 1.167 so that t count > t table. The average effectiveness of learning outcomes on the use of e-module media for basic learning sewing technology is 85 %, while the group of students who use textbooks is 68%. For the effectiveness of practice results, the average practice results in the group of students who use the e-Module Basic Learning Sewing Technology media is 91%, while the group of students who use textbooks is 77%. From this data, it is proven that the use of the e-module media for sewing basic learning technology is more effective in increasing students' knowledge and competence in learning the edge finishing of clothing than without using the e-module media for basic learning sewing technology.

Keywords: *Development of E-Module Learning Basic Sewing Technology, Discovery Learning.*

1. INTRODUCTION

Information and Communication Technology (ICT) is currently very developed in society. Generally, Information Technology is a technology used to manage data, including: processing, obtaining, compiling,

storing, manipulating data in various ways and procedures in order to produce quality information and high use value. The development of ICT continues to increase along with the increasing human needs, especially in the field of education (Mursid, 2017: 1). Currently, the trend of using e-meaning electronics is

emerging, such as e-education, e-learning, and so on, including the use of e-modules. Currently, information technology seems to have become a transfer of teachers, books, and conventional learning systems. Therefore, with the development of progress in the field of science and technology, educational institutions, especially schools that are competent in the vocational field, have prepared human resources, namely students who are competent in their respective fields of expertise, one of which is in the vocational field of fashion.

Citra Harapan Vocational School is one of the school educational institutions that has a vocational expertise program in the field of Fashion Design.

Based on the results of observations made by researchers at SMK Citra Harapan on teaching and learning activities (KBM) in November 2020, it is known that teachers and students have not used adequate learning media in the learning process and only use learning media such as worksheets, powerpoints, and textbooks. Learning also still uses conventional methods in the form of lecture methods and provides examples of frames for basic learning of sewing technology. The media is considered less practical because it cannot be used by students at certain times, students also lack learning media in the form of fun and innovative software/multimedia, students also do not get software media that make it easier to learn. It is also known that the learning media that is often used in practical learning at the Citra Harapan Vocational High School (SMK) is still in the form of modules. While the use of the module there are still some weaknesses, among others, that is less practical. In making learning media, it must be packaged as attractively as possible and also follow the development of society in this digital era.

This happens because students still find it difficult in the learning process, especially in the rompok material which is considered very difficult. In the learning process, there are still many students who have not been able to cut the oblique cloth, unite the oblique cloth, thin the seam, which causes a large number of twisted rompok results, and there are still many rompok sizes that do not match the size they should be. This is caused by one of the factors, namely the lack of motivation of students in the learning process, because teachers still have not used effective learning media for students.

According to Putra, Wirawan and Pradnyana (2017:41) related to e-module development research, the research results obtained show that (1) The results of the design and implementation of discovery learning-based e-modules that have been developed in computer systems subjects for the classroom X Multimedia at SMK Negeri 3 Singaraja was declared successfully implemented

based on several tests carried out. (2) The results of the teacher response data analysis show that, an average response score of 41% is obtained, if it is converted into a response classification table, it is included in the positive category. For student responses to the development of e-modules, the average response score was 64.74, if it was converted into a table for classifying student responses, it was included in the positive category.

To overcome the problems above, a new learning media is needed in the form of an E-book (electronic book/book) that uses software assistance, where an E-book is a book in digital/electronic form that can only be read and used through computers, laptops, tablets, and smartphones. One of the right applications as a solution to this need is the flippingbook.com online application. Flippingbook.com online application is an editor for epub (Maharani, et al 2015). This software is free and can be used for everyone (legal). With all the conveniences provided by this online.flippingbook.com application, it can be used as a solution to existing problems in the world of education, especially in teaching materials in the form of learning media such as electronic books (E-books). Previous research related to the online.flippingbook.com application used the online.flippingbook.com application as an easy, inexpensive and user friendly e-learning media with the epub format as a source of material, and concluded that the use or utilization of the flippingbook.com online application could be used as a website for making learning media that provides sources of material and has economic value for students. Thus the development of this learning media can motivate students' interest and interest in basic sewing technology subjects which are quite difficult to understand, especially in basic basic sewing technology competencies.

This e-module assisted by the online application flippingbook.com is expected to be a learning medium used by students independently and students can be more intensive in learning anywhere. The advantage of this e-module is that it is practically used for learning anywhere. This e-module learning media is packaged as attractively as possible according to the development and needs of students, so that students are more motivated in learning. In addition, this e-module is equipped with images, videos and also the background can be adjusted according to the user's preferences so that users are more interested in reading the e-module.

In this regard, the author wants to develop an e-module by applying one of the learning models in the e-module, namely discovery learning. The research that the author will develop is entitled "Development of E-Module Learning Basic Sewing Technology Based on

Discovery Learning for Tenth Grade Fashion Students of Vocational High School Citra Harapan”.

1.1. Basic Learning Sewing Technology

Effective learning is characterized by the ongoing learning process from within students. A person is said to have experienced a learning process if there is a change in behavior from not knowing to knowing, and unable to be able and so on. In learning learning outcomes can be seen directly, therefore so that students' abilities can be controlled and developed as much as possible in the learning process in the classroom, the learning program must be designed in advance by the teachers by paying attention to various learning principles that have been tested for excellence, one of which is source of learning material for students.

Basic Sewing Technology is divided into several basic competencies as follows: 1) explain the meaning and types of seams 2) make various types of seams 3) explain the meaning and types of seams 4) make various types of seams 5) explain the meaning and types of cleavage 6) make types of seams -types of cleavage 7) explain the meaning and types of wrinkles 8) make various kinds of wrinkles 9) explain the meaning and types of pleats 10) make various kinds of pleats 11) explain the purpose and types of edge finishing 12) make the seam, depun and chip seams 13) explain the meaning, purpose and types of pockets 14) make various types of pockets 15) explain the meaning, types of damage to sewing machines 16) analyze minor damage to sewing machines and finishing machines 17) explain the meaning, purpose and types of maintenance of sewing tools 18) carry out maintenance of sewing tools. Based on the syllabus, the material for finishing the edge of clothing is included in the competency standard for the basics of sewing technology.

1.2. E-Learning Module

According to Suarsana and Mahayukti (2013: 266) Electronic module or E-Modul is an ICT-based module that has interactive nature, facilitates navigation, allows displaying or loading of images, audio, video, and animation and is equipped with formative tests or quizzes that allow feedback. automatic return immediately.

According to Priyanthi (2017: 3) an electronic module is an electronic version of a printed module that can be read on a computer and designed with the necessary software. E-module is a tool or learning tool that contains materials, methods, limitations and ways of evaluating that are designed systematically and attractively to achieve the expected competencies according to the level of complexity electronically.

Therefore, based on several opinions regarding the understanding of E-modules, it can be concluded that basically e-modules are electronic media that can be accessed by students and have different benefits and characteristics. If viewed from the benefits of electronic media itself can make the learning process more interesting, interactive, can be done anytime and anywhere and can improve the quality of learning.

1.3. Flippingbook.com Online Application

Flippingbook.com online application is an open source website editor for epub. Epub (electronic publication) is a digital format which is a standardized format introduced by the International Digital Publishing Forum (IDPF) in 2011. eBooks are an alternative that can be chosen to cultivate public interest in reading, not only among students. This eBook is more modern and interesting to read because in this eBook there are more interesting features such as text, images and can also be filled with sound to help facilitate the delivery of the contents of the book. eBooks are published in digital form, making it easier for authors to publish their books.

According to Harit (2013) flippingbook.com online application is an open source software editor for epub. Some of the features of the flippingbook.com online application are free and open source with a GPLv3 license, Multiplatform: can run on Windows, Linux and Mac, Multiple views, can directly edit the appearance of epub in book view, table of contents generator with support for multi-level headings, and a metadata editor.

1.4. Discovery Learning

According to Seel (2012) in his book Encyclopedia of the sciences of learning discovery learning is discovery learning, namely learning from contemporary studies in cognitive psychology to encourage the development of more specific methods, whose characteristics are defined as that students must produce units and abstract knowledge structures such as concepts and plots by their own inductive reasoning about non-abstract things in the learning material.

According to Sudjana (2005: 49) the discovery learning method is a teaching method that regulates teaching in such a way that children acquire previously unknown knowledge, not through notification but partially or discovered by themselves. Thus, in discovery learning, students can gain knowledge from their experience in solving problems, not through transmission from the teacher.

Therefore, based on several opinions regarding the notion of discovery learning, it can be concluded that discovery learning is a problem-solving model that will

be useful for students in dealing with their lives in the future. The application of this discovery learning model aims to make students able to understand the material changes in the form of objects as well as possible and learning feels more meaningful, so that student learning outcomes will increase. Because this discovery learning model in the process uses activities and direct experience so that it will attract the attention of students and allow the formation of abstract concepts that have meaning, and the activities are more realistic.

2. MATH AND EQUATIONS

This research was conducted to produce an electronic module for basic learning of sewing technology. This type of research includes research and development (Research and Development). This research was conducted at Citra Harapan Vocational School, Saentis Village, Percut Sei Tuan District, Deli Serdang Regency. Department of Fashion.

The subject of this research is the basic learning material of sewing technology. While the object of this research is the class X students of the Department of Clothing who are studying the basic learning materials of sewing technology.

To find out student learning outcomes with the application of the e-module learning basic sewing technology based on discovery learning, researchers collected research data using research instruments, namely tests and observation sheets (observations). Observations made in the form of observations of all activities of the teaching and learning process and aim to find out the changes that occur when the action is taken. Before this observation sheet is used as a research instrument, first this observation sheet is validated by a team of validation experts.

To test the test research instrument, using the validity test, reliability test, test difficulty level test, and test differentiating power.

Data analysis in this study used the normality test, homogeneity test, and t test.

3. FIGURES AND TABLES

Hypothesis testing consists of testing the feasibility and effectiveness of the developed product:

3.1.1. *Test the Feasibility Hypothesis of the Product Developed*

Table 1. Expert Feasibility Validation Test Results

| No | Expert Assessment | Percentage | Criteria |
|---------|--------------------------|---------------|------------------|
| 1. | Learning Material Expert | 94,44% | Very Good |
| 2. | Learning Media Expert | 92,94% | Very Good |
| 3. | Learning Design Expert | 97,35% | Very Good |
| Average | | 94,90% | Very Good |

Table 2. Field Trial Results

| No | Aspect Assessment | Percentage | Criteria |
|---------|-------------------|---------------|------------------|
| 1. | Display | 91,74 | Very Good |
| 2. | Presentation | 92,44 | Very Good |
| 3. | Language | 92,22 | Very Good |
| 4. | Graphics | 93,33 | Very Good |
| Average | | 92,43% | Very Good |

The results of the e-module Feasibility test based on the results of the validation test of material experts, design experts, media experts and field trials were declared suitable for use with an average assessment result of 92.43% and included in the "Very Good" category. This assessment consists of material experts obtained a percentage of 94.44%, which means this product is very feasible to use. Media experts get a percentage of 92.94% which means this product is very suitable for use. Learning design experts get a percentage of 97.35%, which means this product is very feasible to use. Based on the results of field trials conducted by 30 students, they received a very good response with a percentage of 94.64%, which means this product is very suitable for use in basic learning sewing technology.

3.1.2. *Hypothesis Testing the Effectiveness of the Product Developed*

The results of the Effectiveness test of the average learning outcomes on the use of e-Module media for sewing basic learning technology are 85%, while the group of students who use textbooks is 68%. For the effectiveness of practice results, the average practice results in the group of students who use the e-Module learning basic sewing technology media is 91%, while the group of students who use textbooks is 77%.

AUTHORS' CONTRIBUTIONS

Development of e-module learning basic sewing technology based on discovery learning for tenth grade fashion students of vocational high school citra harapan

ACKNOWLEDGMENTS

The authors would like to thank the supervising lectures in the university of medan postgraduate program of

education technology who have contributed to providing the best support in this research and to the holding of the aisteel 6th conference.

REFERENCES

- [1] Mursid, R. (2017). *Teknologi Informasi dan Komunikasi (TIK) Dalam Pendidikan Berbasis Higher Order Thinking Skills (HOTS)*. Sumatera Utara : CV. Gema Ihsani
- [2] Nanie Asri Yuliat. (1993). *Teknologi Busana*. Yogyakarta: IKIP Yogyakarta.
- [3] Sardirman. (2007). *Interaksi dan Motivasi Belajar Mengajar*. Jakarta: P.T. Raja Grafindo Persada.
- [4] Putra, K.W.B., Wirawan ,I. M.A & Pradnyana, G.A. (2017). Pengembangan E-Modul Berbasis Model Pembelajaran Discovery Learning Pada Mata Pelajaran “Sistem Komputer” Untuk Siswa Kelas X Multimedia Smk Negeri 3 Singaraja. *Jurnal Pendidikan Teknologi dan Kejuruan* Vol. 14, No.1, (<https://www.researchgate.net/publication/315302769>, diakses 25 February 2021)
- [5] Porrie Muliawan. (2010). *Dasar-Dasar Teknik Menjahit*. Jakarta : Penerbit Libri.
- [6] Suarsana, I.M. dan Mahayukti, G.A. (2013). “Pengembangan E-Modul Berorientasi Pemecahan Masalah untuk Meningkatkan Kemampuan Berpikir Kritis Mahasiswa”. *Jurnal Pendidikan Indonesia*. Jil. 2 (2): 266. (<https://ejournal.undiksha.ac.id/index.php/JPI/article/view/2171>)
- [7] Priyanthi, K. A. (2017). “Pengembangan E-Modul Berbantuan Simulasi Berorientasi Pemecahan Masalah Pada Mata Pelajaran Komunikasi Data (Studi Kasus: Siswa Kelas XI TKJ SMK N 3 Singaraja)”. *Jurnal KARMAPATI* Volume 6, no. 1, (<https://ejournal.undiksha.ac.id/index.php/KP/article/view/9267>, diakses tahun 2021)
- [8] Seel, N.M. (2012). *Encyclopedia of Science of learning*. New York: Springer.
- [9] Sudjana. (2005). *Metoda statistika* (edisi 6). Bandung: Tarsito
- [10] Solihatin, Etin dan Raharjo. (2008). *Cooperative Learning : Analisis Pembelajaran IPS*. Jakarta : PT. Bumi Aksara.
- [11] Sudijono, Anas. (2011). *Pengantar Evaluasi Pendidikan*. Jakarta : PT. RajaGrafindo Persada.
- [12] Suprijono, Agus. (2010). *Cooperative Learning: Teori dan Aplikasi PAIKEM*. Yogyakarta : Pustaka Pelajar.
- [13] Suprijono, Agus. (2011). *Cooperative Learning*. Yogyakarta : Pustaka Pelajar.
- [14] Tim Pengembang MKDP Kurikulum dan Pembelajaran. (2011). *Kurikulum dan Pembelajaran*. Jakarta : PT. Rajagrafindo Persada.
- [15] Trianto. (2007). *Model Pembelajaran Terpadu*. Jakarta : Prestasi Pustaka Publisher.
- [16] Wiriaatmadja, Rochiati. (2008). *Metode Penelitian Tindakan Kelas*. Bandung : PT. Remaja Rosdakarya.