Ebook Embroidery Variations to Improve Learning Outcomes in Basic Embroidery Techniques Courses

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ABSTRACT

Many students experience the difficulty of applying the right variations of embroidery to clothing. The available learning resources only contain material on clothing variations without providing appropriate examples for applying embroidery variations to clothing. This research aims to develop an electronic book on the application of embroidery variations to clothing. This research is R&D research. The development model used is the Brog and gall model. Validation of teaching materials is carried out by material experts and media experts. The validation results from material experts obtained 92.06% in the very feasible category. The validation results from media experts obtained an average of 94.43% which was very feasible. Small group trials obtained an average result of 82.87% in the very feasible category. Large group trials with an average score of 87.85% in the very feasible category. Based on these data, it can be concluded that the e-book on embroidery variations is very suitable for use in basic embroidery techniques courses. The development of an electronic book on embroidery variations can facilitate the delivery of practical material in applying embroidery variations on clothing so as to increase students' understanding of learning basic embroidery techniques.

*Keywords***: *embroidery, ebook, fashion decorative*

INTRODUCTION

The existence of the 21st Century is marked by the era of the industrial revolution 4.0 which prioritizes knowledge as the main spear and there is a balance between knowledge and skills as the basis for quality human resources in current developments (Mardhiyah, et al. 2021). The 21st century is centered on the development of various technological speeds, interaction and development of digital systems, artificial intelligence and virtuality (Lase, 2019; Shahroom & Hussin, 2018; Hermann et al., 2016; Lee et al., 2013). It is easier for society to carry out its activities effectively and efficiently in the Industrial Revolution Era 4.0 (Wibawa & Pritandhari, 2020; Cholily et al., 2019; Ngafifi, 2014). The progress of the 4.0 revolution era cannot be separated from quality human resources. Quality human resources are one of the main assets in the progress of a nation in the fields of economics, science and technology, politics, culture and national character (Mulyani, 2020). Efforts to build quality Indonesian human resources can only be done through education. Education is an integral part that cannot be separated from the process of providing quality, tough and skilled human resources.

Vocational education is education that aims to prepare human resources who have expertise and skills in accordance with industry needs so that they are more ready to work (Sukoco, 2019). Vocational education is an educational model that carries excellence in the form of 70% practice and 30% theory which prepares college graduates with applied skills needed by the labor market. Learning in higher education has different characteristics from learning in school. Learning in higher education is greatly influenced by the nature of the courses taught and the competency requirements that must be achieved (Zaini et al, 2002). Achieving competency in each lesson is greatly influenced by the learning media used. Learning media are anything that has benefits as a means of conveying messages given by educators to their students, so that they can

stimulate students' thinking, emotions and interest in the learning process (Tafonao, 2018). The use of technology in learning media is one of the university's efforts to prepare superior human resources so that lecturers and students are able to keep up with developments in the industrial revolution 4.0 which demands skills in using digitalization. We can see digitalization in the world of education through the concept of digital learning, online courses, e-books and integrated academic information systems. In higher education, digital learning is a form of educational disruption that has the ability to fundamentally change the learning process (Allen and Seaman, 2013 in Chitkushev, 2014). Based on the results of research by BrckaLorenz, et al (2013) conducted at 42 institutions in the United States and Canada with student respondents, it shows that technology is a significant part of the learning process and is closely related to the effectiveness of learning practices and increased study results. Furthermore, O'Donnell and Sharp (2011) stated that the effective use of technology in higher education does increase student satisfaction with learning so that students feel increasingly connected to their teaching material. This means that technology in learning has a positive impact on education.

Basic embroidery techniques are practical subjects that are the basis for making embroidery. Students must master competence in learning basic embroidery stitches, various embroidery techniques, the art of stringing thread, arranging colors and applying embroidery to clothing. Students must be able to master these competencies before continuing on to the next mandatory course, namely embroidery appreciation. Based on the results of observations, it was found that there were still many students who experienced difficulties in basic embroidery techniques courses. This can be seen from the results of the embroidery practice made by students which are not optimal, students still make mistakes in combining colors, applying basic embroidery stitches and applying embroidery to clothing. Apart from that, students also feel that the time to do embroidery is too short because it is only done during lectures. Students cannot do embroidery at home because there is no learning media that can help them learn independently. So far, lecturers only provide examples of embroidery through embroidery fragments. Students only look at the fragment and then imitate the fragment in class. In fact, verbal learning communication alone will not be able to help students understand abstract learning material, equipment or media is needed that can help concretize abstract material (Prior, et al. 2016) and create an interesting learning atmosphere. Students cannot repeat lessons because there is no media that helps them learn independently. Therefore, there is a need for learning media that can help students learn basic embroidery techniques in more detail and be able to visualize the material in a more realistic way.

Electronic books are books in electronic form containing information in the form of text and images that are compiled or converted to digital format to be displayed on a computer screen or handheld device (Jannah et al., 2017; Cipta, 2019; Reynaldo, 2020). E-books provide fun, easy and practical learning so that students can read learning material anywhere and anytime, and can read it on smartphones and gadgets (Hadaya et al., 2018). The existence of e-books makes students more active, critical, independent and increases students' literacy and interest in reading (Smaldino et al., 2008). Developing e-books is expected to make it easier and more efficient for users to spend time studying learning material (Vassiliou & Rowley, 2008). Many students depend on the internet. This situation is encountered during discussions in class, when lecturers give cases or assignments, students search more on the internet than reading books to answer questions (Jasrial, et al. 2022). Therefore, the use of e-books is deemed necessary in learning.

The aim of this research is to develop an e-book on embroidery variations to improve learning outcomes for Basic Embroidery Techniques. The e-book being developed will contain material, search features, practice questions, pictures and videos to make it easier to understand the material on embroidery variations.

METHOD

This research is Research and Development (R&D). The development model used in this research is the Brog and Gall model. This research was conducted on odd semester students of fashion design education

at Medan State University. Brog and Gall's (1983) development model consists of 10 steps. The steps for developing the Brog and Gall model can be seen in Figure 1.
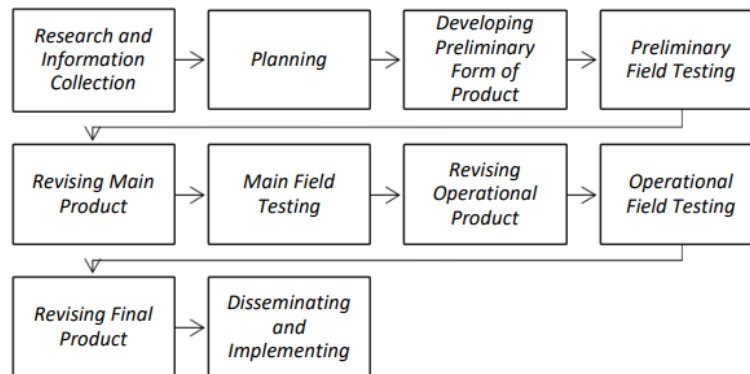

Figure 1. Borg and Gall development model (1983)

The Borg and Gall development model has 10 implementation stages: (1) research and information colleting; (2) planning; (3) develop preliminary form of product; (4) preliminary field testing; (5) main product revision; (6) main field testing; (7) operational product revision; (8) operational field testing; (9) final product revision; (10) dissemination and implementation (Hamdani, 2011). In this research, the Borg and Gall model was modified to be simpler due to the needs and context of the research. In this research, it is only limited to 5 steps: product analysis; product development; expert validation and revising; small and large group trials; and final product.

Media feasibility is obtained from validation results by material experts and media experts in the form of quantitative data or numbers and then analyzed again with descriptive data. The data collection technique in this media development research uses an instrument in the form of a questionnaire. Sugiono (2019) Questionnaires are questions and written statements that have been prepared to be given to research respondents to answer. The questionnaire is validated first by the material and media validator then collects the data that has been filled into a table and calculates the media suitability score. The validation results from material experts and media experts will become a reference for improving the fashion decoration e-book.

Questionnaire measurements use a Likert scale to measure a person's opinion on social events. The answer to each item uses a Likert scale and the answer is given a score. the results of material and media expert validation in the form of quantitative data or numbers to see the suitability of the media. then analyzed again with descriptive data. The final step concludes the calculation results based on aspects with the criteria in the table below, namely:

Table 1. Scoring category

No	Intervals	Category
1	81% - 100%	Strongly agree
2	61% - 80%	Agree
3	41% - 60%	Disagree
4	21% - 40%	Don't agree
5	0% - 20%	Strongly Disagree

Source: Riduwan, 2016

RESULTS AND DISCUSSION

The development of decorative variations of electronic books uses the Borg and Gall model which has been modified into 5 stages, namely: product analysis; product development; expert validation and revision;

small and large group trials; and final product. At the product analysis stage, observations were made about product needs for learning basic embroidery stitches. The results of product analysis show that 94% of students need media that can help them understand the various standard variations of decoration on clothing. The students' learning outcomes of basic embroidery techniques were less than optimal and the time for embroidery was too short because it was only done during lectures. Students cannot study independently at home because there is no learning media that can help them in independent learning. Therefore, learning media is needed that can help students learn basic embroidery techniques in more detail and be able to visualize the material more realistically.

At the product development stage, initial storyboards were made for e-book variations of embroidery and material development in accordance with learning objectives, as well as practical exercises. E-book development uses flipbook software because of the ease of making it and the ease of operation that can be felt by students (Setiadi, et al. 2021)

Figure 2. E-Book Display of Variations in Clothing Decorations

The validation stage is carried out by material expert validators and media expert validators. Validation is carried out to see the suitability of the media. material expert assessment based on aspects of material content, language, and presentation percentage.

Table 2. Material expert validation results

No	Assessment Aspects	Percentage	Category
1	Material Content Aspects	92.85%	Very good
2	Language Aspects	91.67%	Very good
3	Presentation Aspects	91.66%	Very good

Based on the data in table 1, it is known that the content aspect of the material received 92.85% in the very good category. The linguistic aspect received 91.67% in the very good category and the presentation aspect obtained 91.66% in the very good category. The average assessment of material expert validation results is 92.06% in the very good category. These data show that the results of material expert validation are very suitable for use in learning basic embroidery techniques, especially in variations of embroidery material on clothing. Using media means teachers must master the content of core competency material and basic

competencies so that it will have a good impact on students in understanding the content. in terms of material (Hidayah, et al. 2016).

Media validation aims to find out the balance of learning media with the need for fashion decoration EBook media. assessment of media validation results based on aspects of media appearance, media quality and media benefits.

Table 3. Media expert validation results

No	Assessment Aspects	Percentage	Category
1	Media display Aspect	98.5 %	Very Good
2	Media Quality Aspect	90.47%	Very Good
3	Benefit Aspect	94.33 %	Very Good

Media expert validation results averaged 94.43% in the very good category. The assessment of media display aspects obtained 98.5% in the very good category. The media quality aspect assessment obtained 90.47% in the very good category. The assessment of the usefulness aspect obtained 94.33% in the very good category. Based on these data, it shows that the e-book media for variations of fashion embroidery is very suitable for use in learning basic embroidery techniques. Media that is said to be very appropriate is media that provides good aspects of the benefits and functions of the media (Mawaddah et al., 2019).

After validity is carried out by material experts and media experts, the material and media are then revised according to suggestions from material experts and media experts. After the revision, a small group test and a large group test were carried out by odd semester students who took the basic embroidery technique course. The results of the small group test carried out by 10 students obtained an average rating of 82.87% in the very good category. These results are based on several aspects of assessment, including comfort, attractiveness and time. These results show that the electronic books developed are practically used by students as learning media. The results of the large group test carried out by 33 students found that 87.85% were in the very good category. This data shows that the e-book on variations of fashion embroidery is very suitable for use in learning basic embroidery techniques.

Discussion

E-book media, embroidery variations, were developed using the Brog and Gall development model. Electronic books are a collection of text, images, videos and sounds packaged in one application format that can be read with certain electronic devices (Saefullah, 2017; Tompo, 2017; Kolle et al., 2018; Awaludin, et al., 2020). Teaching materials in the form of e-books can be used in the learning process (Nurlaela & Sumantri, 2021). Apart from that, it can also be a learning resource (Raihan & Ahmadi, 2018). The e-book embroidery variation is designed with several advantages, namely: Ebooks are easier to access at any time conveniently (Subiyantoro, 2014). So it is easier to use and relevant to the synchronization currently used. There are dynamic sound and image elements such as videos that can be included in electronic teaching materials (Riwu et al., 2018) which makes it easier to use to understand abstract material so that it can be used as a good learning medium (Hayati et al., 2015; Candra & Irianto, 2016). The material presented is easier for students to understand. Ebooks have characteristics in the form of learning objectives, competencies, materials and activities in the learning process (Novalia, et al., 2020). Material refers to the quality of educational products from the perspective of learning material development (Zulkifli, 2018). In addition, e-books involve activating students in the transmission of individual and group activities. With digital books, students no longer have to read material from printed books, they can read digitally using the technology they already use. (Liu et al., 2020).

The results of e-book development research show that the results of the material expert assessment obtained 92.06% in the very feasible category. The assessment is based on aspects of material content, language and percentage aspects. Meanwhile, media expert validation results obtained an average of 94.43% in the very appropriate category. Media expert assessments are based on aspects of appearance, media quality and media usefulness. Interesting e-books can attract students to use them for learning (Sani, 2014). Based on

these data, it can be concluded that the e-book on embroidery variations is very suitable for use in basic embroidery technique courses. Several studies have concluded that e-books are suitable for use in learning and provide a positive impact on learning (Sianturi, et al., 2021; Krisnaresanti, et al., 2018; Rofiah & Maslahah, 2021; Wardhana, et al., 2O21; Muslim, et al., 2O21; Nurlaela & Sumantri, 2O21; Raihan, et al., 2018; Nurhikmah, et al., 2021; Filivani & Agung, 2021).

The use of ebooks can support the implementation of an interactive learning process, both interactions between students and students, students and teachers, and students and learning resources to support learning success (Astiti, et al, 2016). This is in line with research by Mentari, et al (2018) which states that learning using e-books can improve students' creative thinking abilities. Practical e-book-based learning is used in learning (Febrian, et al. 2023). Apart from that, e-books are effective in increasing students' learning motivation, this is characterized by increasing aspects of attention, relevance, confidence and satisfaction as perceptual motivation factors (Adnan, 2019). Furthermore, Oksa & Soenarto (2020) stated that e-books are very feasible and effective to use to increase student learning motivation. The use of e-books in the learning process is expected to maximize students' interest in learning (Krisnaresanti, et al., 2O18). In this way, e-books on embroidery variations can increase students' learning motivation so that students are able to think creatively to improve learning of basic embroidery techniques.

CONCLUSIONS AND RECOMMENDATION

Based on the results and discussion, it can be concluded that the media developed uses the Brog and Gall model. This research produces a product in the form of an e-book on embroidery variations to improve learning outcomes in learning basic embroidery techniques. The validation results from material experts obtained 92.06% in the very feasible category. The validation results from media experts obtained an average of 94.43% which was very feasible. Small group trials obtained an average result of 82.87% in the very feasible category. Large group trials with an average score of 87.85% in the very feasible category. Based on these data, it can be concluded that the e-book on embroidery variations is very suitable for use in basic embroidery techniques courses. The use of ebooks in the learning process has a positive impact on increasing student achievement both academically and practically. The development of an electronic book on embroidery variations can facilitate the harmonization of practical material in applying embroidery variations on clothing so as to increase students' understanding of learning basic embroidery techniques.

The limitation of this ebook media is that there is no video page available to show step by step how to vary embroidery stitches. Therefore, the researcher suggests that future researchers develop a learning video that explains the process of making variations of embroidery. Apart from that, in further media development, it is hoped that the media can be accessed online and offline, making it easier for teachers and students to access the media

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