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Development of Kebaya Pattern E-Module Elements Preparation Fashion in Vocational High Schools

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ABSTRACT - The development of science and technology affects the use of technology in the world of education increasing. This study aims to 1) analyze the e-module of the kebaya pattern on the preparation element of making clothes in Vocational High School, 2) test the feasibility of developing the e-module of the kebaya pattern in the preparation element of making clothes in Vocational High School, 3) find out the response of students to the development of e-module for making new kebaya patterns in the preparation element of making clothes in Vocational High School. This type of research is research and development using the four-D development model, namely define, design, development, and dissemination. Data collection uses observation, documentation, and questionnaires. Development of a Kutu Baru Kebaya pattern e-module through a flipbook heyzine. The results of the study showed that: 1) the Kutu Baru Kebaya pattern e-module on the preparation element for making flipbook clothing equipped with pictures and videos of making new kutu kebaya patterns can be accessed anytime and anywhere, 2) the e-module developed is suitable for use based on material experts with a percentage of 100% (feasible) and media experts with a percentage of 100% (feasible), and 3) students' responses to the Kutu Baru Kebaya pattern e-module in small-scale trials got a percentage of 88.03% (strongly agree) and the limited-scale trial got a percentage of 88.10% (strongly agree).

Keywords: E-module, kebaya pattern, new kebaya.

INTRODUCTION

Education has an important role in shaping human resources who are skilled in using technology and able to compete in the era of society 5.0. Education is essentially a process of liberating students from ignorance, incompetence, helplessness, untruth, dishonesty, and from bad heart, morals, and faith (Mulyasana, 2015). Education is a teaching and learning process that is expected to be able to develop attitudes, knowledge, and skills in order to become human beings who have noble ethics, independence, and skills in life (Kartikasari & Sholikhah, 2023). One way to strive for human resources who are able to compete in the current era is by utilizing digital technology in the learning process.

The use of technology in the world of education is increasing rapidly. The role of technology in learning today is considered very important in human life as a support in carrying out various activities both in doing work and in terms of education (Salsabila & Agustian, 2024). Technological advances have an impact on the learning process, so technology must always be developed. This shows that the development of technology-based teaching materials is one of which is e-modules. Technology-based teaching materials can be accessed at any time. Teaching materials are teaching resources used by teachers or students to facilitate the learning process (Kosasih, 2021).

Vocational High School (SMK) is one of the formal education that teaches students in certain skills according to the field studied by the student (Novitama & Simamora, 2022). Vocational schools have an important role in producing graduates who have skills and are ready to work (Sulistiani et al., 2022). Another important role is to maintain and

improve the quality of students and graduates so that the knowledge and skills learned can be applied optimally in the world of work (Santika et al., 2022). Students who graduate from vocational education are expected to work in accordance with the field of expertise that has been learned during school.

SMK Muhammadiyah Imogiri is one of the vocational schools that has four areas of expertise, one of which is the field of fashion design expertise which consists of two classes for each generation. Learning at SMK Muhammadiyah Imogiri uses an independent curriculum and the scope of learning that is applied in accordance with the learning elements. The element of preparation for making clothes is one of the elements contained in the independent curriculum phase F majoring in Fashion Design. This element contains materials for various fashion patterns in accordance with the competency standards for making patterns, one of which is the Kutu Baru Kebaya pattern.

Based on the results of observations, observations of learning in the classroom and interviews with fashion teachers about the learning process at SMK Muhammadiyah Imogiri on the material for making Kutu Baru Kebaya patterns using teaching materials in the form of printed modules, pattern notes, and jobsheets. The jobsheet used does not include special materials and videos for making Kutu Baru Kebaya patterns, so it is incomplete. The learning process does not attract students' attention because the material and practical steps have not been understood in detail, so students do not understand the learning practice material. Learning can attract students' interest by changing teaching materials to be more practical and easy to understand. Students today are more interested in learning through digital technology than print media because of its more flexible form.

Development of a new technology-based kebaya pattern e-module that can be accessed online. The e-module contains pictures, materials, and videos of making Kutu Baru Kebaya patterns, so that the e-module is more complete. E-modules can be used as a reference for teaching materials to help and facilitate students and teachers in the learning process. Based on this description, the purpose of this study is to analyze the e-module of the kebaya pattern in the preparation element of making clothes in Vocational High School, to test the feasibility of developing the e-module of the kebaya pattern in the preparation element of making clothes in Vocational High School, and to find out the response of students to the development of e-modules for making new kebaya patterns in the preparation element of making clothes in Vocational High School.

METHOD

This research is a type of research and development (R&D) with a 4D (Four-D) research model. This research was carried out at Muhammadiyah Imogiri Vocational High School class XI in the field of Fashion Design. Research and development (R&D) methods are scientific processes or methods for researching, designing, producing, and testing a product (Sugiyono, 2017). The development procedure is carried out according to the steps in the four-D method proposed by Thiagarajan, there are four stages, namely define, design, development, and dissemination (Navila, 2024). The stages of the 4D (Four-D) model flow can be seen in **FIGURE 1.**

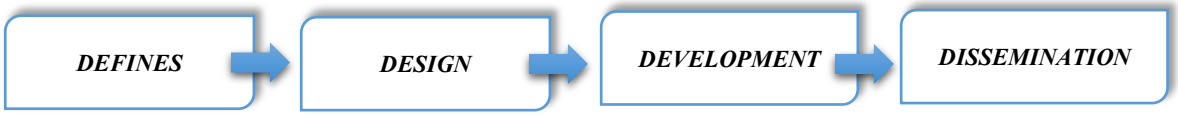

FIGURE 1. Stages of 4D model development.

The definition stage is the initial stage to obtain information related to the product to be developed. The steps at the define stage are initial analysis, student analysis, task analysis, concept analysis, and formulation of learning objectives. The design stage is the stage to design the product to be developed. The steps at the design stage are a) the creation of a storyboard is used as a guideline to compile a product consisting of a design and layout that will be displayed in the e-module, b) media selection aims to select and determine the media that suits the material and the needs of students is the e-module, and c) format selection includes the selection of writing, the selection of the size of the writing, and the layout arrangement of the e-module. Designing flipbook e-modules through HTML5 heyzine. The flipbook link can be accessed through smartphone and laptop devices. Pages can be flipped like a digital book containing pattern-making images, materials, and videos.

The development stage aims to produce a Kutu Baru Kebaya pattern e-module that has been validated by material experts and media experts, as well as to find out student responses through small-scale trials and limited-scale trials. The validators of the material experts consist of two validators, namely Lecturers of Vocational Education for Family

Welfare and Fashion Teachers. The media expert validators consist of two validators, namely Lecturers of Vocational Education, Family Welfare and Fashion Teachers. Respondents in this study were for a small-scale trial of 7 respondents and a limited-scale trial of 25 respondents. The dissemination stage is carried out by distributing flipbook links to students and teachers so that they can be accessed anytime and anywhere. The following expert instruments used as a measure of the feasibility of the e-modules developed can be seen in **TABLE 1.**

TABLE 1. Expert validation instruments.

Products	Aspects	Indicator
E-module for making Kutu Baru Kebaya patterns	Aspects of the content of the material	Suitability of the material with learning outcomes
		Suitability of the material with learning objectives
		Accuracy of the sequence of materials in learning
		Material completeness
		Completeness and clarity of required body size
		Image fit and pattern creation steps
		Evaluation according to the learning material
	Aspects of material presentation	Completeness of the material presented
		The attractiveness of the presentation of the material
		Ease of understanding material
	Linguistic aspects	Clarity of language and terminology
		Readability of the Scriptures

The data collection techniques used are observation, documentation, and questionnaires. The instrument or measurement tool used to collect data in this study is a questionnaire to test the feasibility and determine the students' response to the developed e-module. The eligibility instrument for material experts and media experts uses the Guttman scale through two answers, namely feasible with a score of 1 and unfeasible with a score of 0. The student response instrument uses a likert scale through four answers, namely strongly agree (score 4), agree (score 3), disagree (score 2), and disagree (score 1). The criteria for determining the eligibility of the product by material experts and media experts can be seen in **TABLE 2**.

TABLE 2. Eligibility criteria by material members and media members.

Categories	Value Interval	Value
Feasible	(Smin+P) ≤S≤ Smax	1
Not Feasible	Smin ≤S≤ (Smin + P -1)	0

Description:
S = Respondent score
P = Interval class length
Smin = Minimum score
Smax = Maximum score
(Source: Kurniani et al., 2024)

The calculation of the data interval on the expert instrument is the min score obtained by the lowest score x the number of questions. The max score is the highest score x the number of questions. Class length is the score range: number of categories. The score range is derived from the maxsimal score – the minimum score. Criteria to determine students' response to developed e-module products such as **TABLE 3.**

TABLE 3. Student response criteria.

Categories	Value Interval	Value
Strongly agree	(S min + 3P) < S≤ S max	4
Agree	S min +2P) < S< (S min + 3P)	3
Disagree	(S min + D) < S< (S min + 2P)	2
Disagree	S min < S < (S min + P)	1

Description:
S = Respondent score
S min = Lowest score
P = Interval class length
S max = Highest score
(Source: Waningyu, 2021)

The calculation of the data interval on the student response instrument is the min score obtained by the lowest score x the number of questions. The max score is the highest score x the number of questions. Class length is the score range: number of categories. The score range is derived from the maxsimal score – the minimum score. The scores obtained from the validation test of material experts and media experts, as well as student responses through small-scale trials and limited-scale trials to obtain the percentage of e-module feasibility can be seen in **TABLE 4**.

TABLE 4. E-Module eligibility attendance.

Categories	Interpretation
Highly Worth It	> 75% - 100%
Worthy	> 50% - 75%
Less Worthy	> 50% - 25%
Not Eligible	> 25% - 0%

(Source: Utami, 2024)

The eligibility category score in **TABLE 2** will be used as a guideline for the results of the validation test for material experts and media experts. The score of the student response category in **TABLE 3** will be used as a guideline to determine the student's response to the e-module.

RESULTS AND DISCUSSION

The development of a Kutu Baru Kebaya pattern e-module on the preparation element of fashion making was carried out using the four-D development research model. The four-D model has four stages, namely 1) define, 2) design, 3) development, and 4) dissemination.

Define

This stage is the initial stage in the research process for the development of the four-D model. The definition stage is carried out to find information related to the research (Listyaningrum, 2020). The define stage has steps, namely initial analysis, student analysis, task analysis, concept analysis, and formulation of learning objectives. Initial analysis to find out the problems that exist in the learning process of making Kutu Baru Kebaya patterns. Student analysis aims to know and understand the characteristics of students so that the products developed are in accordance with student needs. The task analysis aims to find out the students' tasks on the material for making Kutu Baru Kebaya patterns. Concept analysis is carried out to identify material concepts that need to be taught to students. The formulation of learning objectives is prepared based on the learning outcomes that are the goals to be achieved. The analysis carried out in this study was observation with the teaching teacher of the fashion department and observing the learning process in the classroom. The observation result is that the learning process does not attract students' attention because the material and practical steps have not been understood in detail, so that students do not understand the learning practice material. The teaching materials used in the form of printed modules, pattern notes, and jobsheets have not been included special materials and videos for making Kutu Baru Kebaya patterns, so they are incomplete.

Design

The design stage is carried out based on the results of the analysis of the define stage. The design stage aims to design a predetermined product (Ameriza & Jalinus, 2021). This stage consists of three steps, namely storyboarding, media selection, and format selection. Storyboards contain the arrangement of writing, displays, and things that will

be presented in the e-module product. The selection of media is adjusted to the needs of students in the learning process and the selection of formats based on the material and media to be developed. The design stage that has been compiled is used as a guideline in designing e-modules. The following is the cover design of the Kutu Baru Kebaya pattern e-module can be seen on **FIGURE 2**.

FIGURE 2. E-Module cover design.

E-modules are designed so that students can learn interactively. E-module can be operated by sliding the pages on the flipbook, thus attracting students' interest in learning. The kebaya pattern material is complemented by pictures and videos of pattern making. The e-module presents a video of making a new kebaya cutu pattern that can be viewed by clicking on the video. E-modules can be accessed through mobile devices such as smartphones and laptops, making it easier for students to understand learning.

Development

This stage develops a new e-module of the kebaya kutu pattern on the preparation element of technology-based fashion making in the form of flipbook. The development stage produces products in the form of e-modules, then tested for validation by material experts and media experts to determine their feasibility, and e-modules are tested through small-scale trials and limited-scale trials to determine students' responses to the Kutu Baru Kebaya pattern e-module developed (Azkiyah et al., 2022). The challenge in the e-module development process is the considerable cost to develop the e-module. In line with (Feriyanti, 2019) that "the challenge of e-module development is that it requires a large cost and a relatively long period of time in the e-module development process". The following is a display of the Kutu Baru Kebaya pattern e-module, which can be seen in paada **FIGURE 3**.

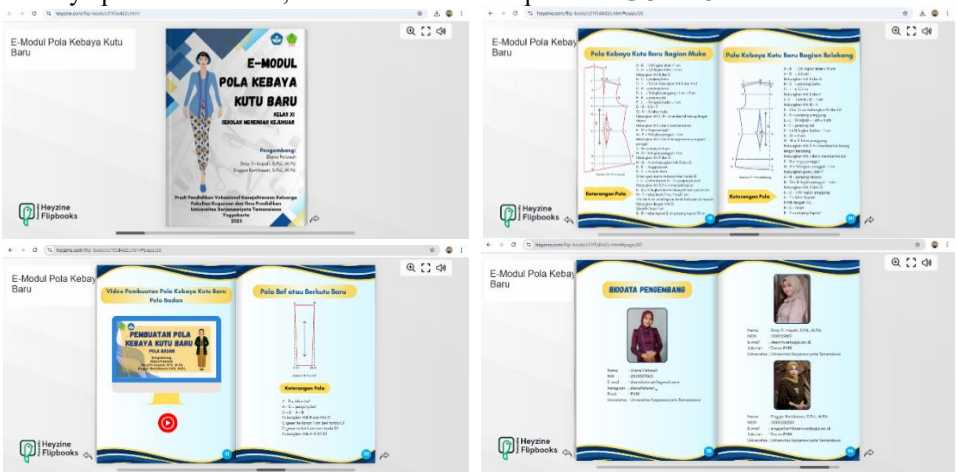

FIGURE 3. Display of the Kutu Baru Kebaya pattern e-module.

The next step is a feasibility test conducted by material experts and media experts. The results of the feasibility of the Kutu Baru Kebaya pattern e-module on the element of clothing preparation carried out by two material experts by providing an assessment through the feasibility test instrument that has been provided can be seen in **TABLE 5**.

TABLE 5. Results of e-module qualification test by material experts.

Score	Rating Categories	Quantity	Value
1	Feasible	30	100 %
0	Not Feasible	0	0 %

Based on the data on the feasibility of the e-module by subject matter experts measured using the Guttman scale, a maximum score of 1 x 30 = 30 was obtained, a minimum score of 0 x 30 = 0, number of classes = 2, class length (p) = 30 : 2 = 15. Qualification test by material experts through aspects of material content, presentation, and language. The results of the assessment by material experts received a percentage of 100% of the feasible category. The percentage of qualifications by the subject matter can be seen in **FIGURE 4**.

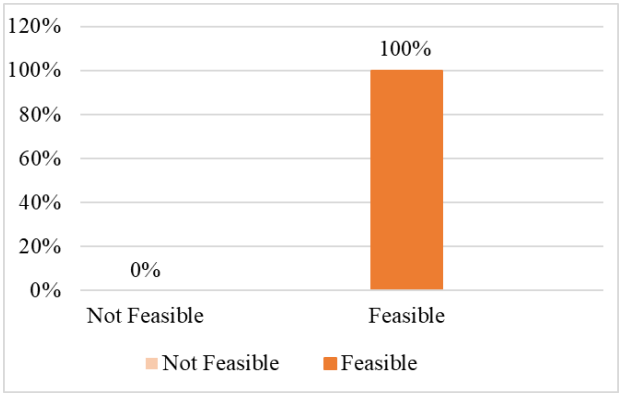

FIGURE 4. Eligibility pre-emption by subject matter experts.

In addition, the results of the e-module of the Kutu Baru Kebaya pattern on the element of fashion preparation carried out by two media experts by providing an assessment through the feasibility test instruments that have been provided can be seen in **TABLE 6**.

TABLE 6. E-Module qualification test results by media members.

Score	Rating Categories	Quantity	Value
1	Feasible	30	100 %
0	Not Feasible	0	0 %

Based on the data on the feasibility of e-modules by media experts measured using the Guttman scale, a maximum score of 1 x 30 = 30 was obtained, a minimum score of 0 x 30 = 0, number of classes = 2, class length (p) = 30 : 2 = 15. Qualification by media members through aspects of display, graphics, and programming. The results of the assessment by media experts got a percentage of 100% of the feasible category. The percentage of eligibility by media members can be seen in **FIGURE 5**.

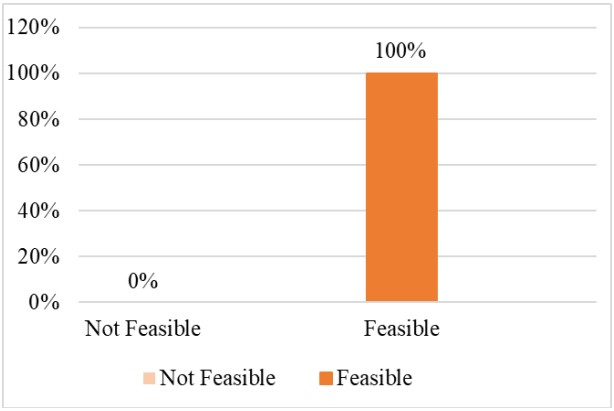

FIGURE 5. Percentage of eligibility by media members.

The results of the feasibility test by material experts and media experts, the e-module of the Kutu Baru Kebaya pattern received a 100% qualified preposition. The next step is to test the product through a small-scale trial with 7 respondents and a limited-scale trial with 25 respondents. The following results of small-scale trials can be seen in **TABLE 7** and the percentage of small-scale trials can be seen in **FIGURE 6**.

TABLE 7. Small-scale trial results.

Score	Rating Categories	Quantity	Value
4	Strongly agree	292	59.22 %
3	Agree	201	40.77 %
2	Partially Disagree	0	0 %
1	Disagree	0	0 %
Total			100 %

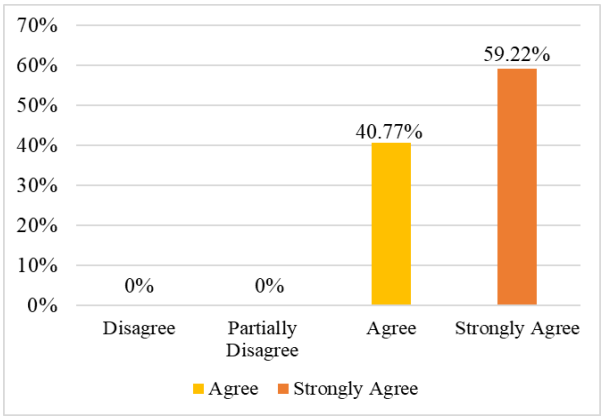

FIGURE 6. Small-scale trial results.

Based on the results, it can be described that the small-scale trial through 7 respondents obtained a score of 4 × 73 = 292 (strongly agree) with a percentage of 59.22%, a score of 3 × 67 = 201 (agree) with a percentage of 40.77%, a score of 2 (disagree) of 0%, and a score of 1 (partially disagree) of 0%, so the total score in the small-scale trial was 493. The percentage of student responses in the small-scale trial, which was $\frac{493}{560}$× 100% = 88.03%, showed that the e-module of the Kutu Baru Kebaya pattern received a very agreeable response to be used as a reference for teaching materials. The results of the limited scale trial can be seen in **TABLE 8**. and the percentage of limited-scale trials can be seen in **FIGURE 7**.

TABLE 8. Results of a limited-scale trial.

Score	Rating Categories	Quantity	Value
4	Strongly agree	1048	59.47 %
3	Agree	714	40.52 %
2	Partially Disagree	0	0 %
1	Disagree	0	0 %
	Total		100 %

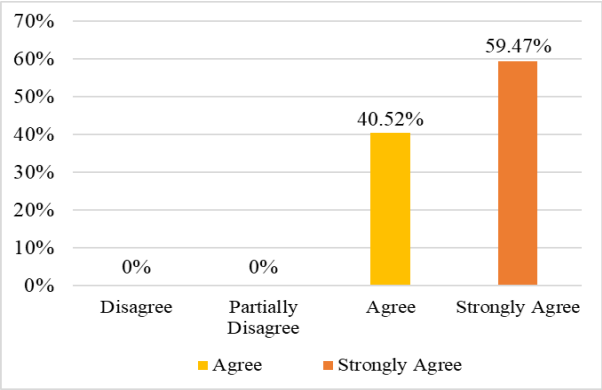

FIGURE 7. Results of a limited-scale trial.

Based on the results of the limited-scale trial, it can be concluded that the respondents in the limited-scale trial through 25 respondents obtained a score of 4 × 262 = 1048 (strongly agree) with a percentage of 59.47%, a score of 3 × 238 = 714 (agree) with a percentage of 40.52%, a score of 2 (partially disagree) of 0%, and a score of 1 (disagree) of 0% for a total score of 1762. The percentage of student responses in the limited-scale trial, which was $\frac{1762}{2000}$× 100% = 88.10 %, it was concluded that the e-module of the Kutu Baru Kebaya pattern received a very agreeable response to be used as a reference for teaching materials.

Dissemination

The dissemination stage is the final stage of the Four-D research model. This stage is carried out after the e-module is declared feasible by material experts and media experts, and receives a response from students. The development stage can be done by providing soft files to subject teachers, so that the media can be used sustainably (Purwanto & Setiawan, 2022). The distribution of the Kutu Baru Kebaya pattern e-module is distributed to teachers and students in the preparation element for the fashion making program of SMK Muhammadiyah Imogiri by providing a flipbook link. The limitations and implications in the future are that e-modules can increase the accessibility of education because they can be widely used. E-modules can increase students' literacy in understanding learning, so that it can facilitate the learning process, by using e-modules students can learn anytime and anywhere (Rahmadhani et al., 2021). In addition, e-modules can increase the efficiency of students' learning time, and the use of e-modules as teaching materials to improve the quality of learning

CONCLUSION

Based on the results of the study, it can be concluded that the development of a new kebaya kutu pattern e-module on the preparation element of making clothes as a teaching material can simplify the learning process because the e-module is clearly designed, so that it can increase student motivation and learning outcomes. The feasibility results of the new kebaya kutu pattern e-module through a validation test of material experts get a percentage of 100% of the feasible category and media experts get a percentage of 100% of the feasible category, the implication is that the e-module can be used by teachers in the process of delivering material to students and helping students in understanding the learning material. Students' responses to the new kebaya kutu pattern e-module in the small-scale trial received a

precedent of 88.03% of the category strongly agreed, while in the limited-scale trial the percentage of 88.10% of the category strongly agreed with the implication that the e-module can be used by students to learn independently anytime and anywhere according to the student's learning needs, so that it is effective and efficient.

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