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Feasibility of E-Comic Learning Media in the Making of Phase F Blouse Patterns

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Abstract
Vocational High Schools (SMK) have a strategic role in preparing students to be ready to compete in the world of work through mastery of technical skills and understanding of industry concepts. In the Fashion Skills Program, one of the important materials in the Preparation element of Fashion Making Preparation phase F is the creation of blouse patterns. Learning this material is generally rarely found in the form of E-comics. Therefore, this study aims to assess the feasibility of E-comic learning media in the material for making blouse pattern phase F. This study uses a quantitative descriptive method. The feasibility of E-comics is assessed by material experts and media experts using instruments that have been proven to be valid and reliable. The data was analyzed using a percentage descriptive technique to determine the level of media feasibility based on the criteria that had been set. The results showed that E-comics made blouse patterns obtained a feasibility percentage of 91.1% from material experts and 88.8% from media experts, which is included in the "Very Feasible" category.

Keywords: e-comics, learning media, fashion, phase f, blouse pattern

INTRODUCTION

Vocational schools have a strategic role in preparing students to be able to compete in the world of work. Vocational schools are required to produce graduates who master technical skills while understanding the basic concepts that are the basis of industrial practice. One of the expertise programs that contributes to the creative field and garments is Fashion Design. The program teaches a variety of competencies, such as textile knowledge, pattern basics, and sewing techniques that are the foundation in the fashion production process (Agustia utami et al., 2025).

Learning media is a component that functions as an intermediary in conveying information from teachers to students. The media not only helps clarify the material, but also facilitates the understanding of concepts through the presentation of information in a more concrete and easily digestible form (Islamiah et al., 2025). Vocational education requires learning media that can visualize processes, clearly outline work steps, and help students understand technical procedures appropriately (Sari et al., 2024). A wide variety of media forms can be used, such as text, images, illustrations, each of which has its own characteristics to support learning (Shabrina et al., 2025).

The role of media in learning Fashion is very important for educators today. National regulations also emphasize the importance of using learning resources that are relevant to the characteristics of the educational unit, as stated in the Government Regulation of the Republic of Indonesia Number 19 of 2005 Article 43. In the era of rapid technological development and innovation, learning media is required to be more adaptive, interactive, and able to attract the attention of students, especially digital generation students who are more responsive to visual content. (Suprapti et al., 2025)

The independent curriculum is a national education policy that encourages learning transformation

to be more flexible and focused on students (Prasetyaningtyas et al., 2025). In phase F of the independent curriculum, students are expected to be able to develop independent learning skills, think critically, creatively, and be able to solve problems related to their fields of expertise. Phase F is not only a continuation of the previous phase, but is an important stage where learners are prepared to enter the world of work, continue their studies, or become entrepreneurs. This can be seen from the curriculum structure that places project-based learning, strengthening skill competencies, and assignments that are based on higher independence and responsibility (Handayani & Prasetyaningtyas, 2026). On the other hand, the characteristics of a generation of students who are familiar with the internet, and visual content demand learning media innovations that are not only informative, but also visually appealing and easily accessible digitally.

Based on the Flow of Learning Objectives and Learning Outcomes Phase F in the subject of Fashion Design and Production, there are 7 elements designed to equip students with knowledge, skills, and work attitudes (hard skills and soft skills) which include understanding fashion drawings, technical drawings, style and design development, textile experimentation and decorative design, preparation for fashion making, sewing fashion production, to the preparation of fashion collections. Among these elements, the preparation of making clothes is one of the elements that determines the quality of the final product. Skills and work attitudes in preparation for making clothes which include making worksheets according to the design, making production work steps, taking measurements, making patterns, cutting materials, as well as calculating costs and determining product prices. Characteristically, pattern making materials include conceptual as well as procedural material (Asfia et al., 2025). Students need to understand the basic concept of pattern construction and follow the sequential steps in drawing patterns on pattern paper with certain sizes and marks. Therefore, learning Blouse Pattern Making Phase F in the element of Preparation for Fashion Making has generally utilized various conventional media such as jobsheets, learning modules, package books and direct demonstrations in front of the classroom or in the practice room. Jobsheets and modules function as written guides that contain work steps and simple illustrations, this media is very helpful as a reference when students practice independently.

Phase F students are generally in the adolescent age range, which is around 16-18 years old, where at this age adolescents prefer to read short and light content in digital media such as webtoons, fancfiction that presents texts visually and not heavy like long textbooks (Loh & Sun, 2022). These preferences show that adolescents tend to be interested in media that combines visual elements and simple narratives, so that they are able to attract attention and increase interest in reading.

The characteristics of these adolescent students show that learning media with a narrative visual approach has the potential to be used in learning to make blouse patterns. The need for learning media that is able to provide visualizations in a clear, concise, and easy-to-understand manner is important, considering that the use of visual media helps students understand the material faster because they can see concrete examples of the process being taught, not just imagining or reading text.

This condition shows that there is a gap between the characteristics of phase F students who tend to like narrative visual media and the learning media for making blouse patterns that are currently available, which are still dominated by written guidance in the form of procedural texts and simple illustrations.

Learning with text media also makes learning feel monotonous and less relevant to the character of today's students who prefer visual materials (Susanti et al., 2024). Monotonous text media can reduce students' motivation to learn, make students bored and hinder creativity and problem-solving skills (Tarchi et al., 2021).

In line with technological developments, digital-based learning media has become an innovative alternative that can improve the quality of learning (Novela et al., 2024). The development of learning models needs to be adjusted to the behavior and characteristics of students . Students tend to use various electronic media more often than reading through print media or books, therefore innovations in electronic-based learning services continue to be developed (Aeni & Yusupa, 2018). One of them is the creation of electronic-based learning media in the form of e-comics.

The choice of comic media as a learning medium is based on its interesting and fun visual characteristics. Comics are a medium that presents stories through a series of images, text, and sequential panels that make it easier for readers to understand the flow of information (Putri & Rayhan Pradana, 2024). The combination of visuals and narrative makes comics effective in conveying learning material

that is procedural, as concrete illustrations can help students understand step by step more clearly (Lestari et al., 2025). Comics in vocational learning have been proven to be able to increase interest, motivation, and understanding of concepts because they provide a more fun and interesting learning atmosphere (Gitta Andhika et al., 2023).

In line with the development of technology, comics have evolved into digital or e-comic forms. E-comics are comics that are presented in electronic format and can be accessed through digital devices such as smartphones, tablets, or computers (Sutomo & Kusmaryono, 2025). The use of e-comics as a learning medium offers various advantages, such as high accessibility, sharper visual display, ease of reading illustration details, and suitability with the characteristics of digital generation students. E-comics also allow for more efficient revision and distribution, making them an innovative alternative in technology-based learning (Khotimah et al., 2021).

Blouse pattern learning material in the preparation element of fashion making, E-comics has the potential to be a medium that can present pattern construction steps in the form of narrative visuals. Every stage, from taking measurements to creating patterns can be visualized in the panels of a series of stories. Characters in comics can present teachers and students who are carrying out learning in the classroom who practice making blouse patterns. This way of presentation is expected to help students relate concepts, procedures, and real practices. This study does not aim to assess the extent to which E-comics can improve students' learning motivation or learning outcomes, but is specifically directed at assessing the feasibility of E-comics products as a learning medium.

The selection of elements for the preparation of clothing making as the context of this research is based on the consideration that this element is one of the bases of the fashion production process. In the preparation elements of making clothes, there are various scopes of materials such as home clothes, children's clothing, blouses, pants, and others. However, this study specifically chose materials for making blouse patterns, even though jobsheets and modules are available as written learning media, students still feel the need for media that is more visually appealing and digitally accessible. The jobsheet is generally summarized in the format of the work step text with some simple illustrations. Learning modules also tend to be structured with a formal writing style and a standard look. As a reinforcement, the researcher conducted a survey of student needs through filling out a Google Form questionnaire on November 12, 2025 to Phase F students of Fashion Design. The survey results showed that 80% of the 30 respondents wanted a comic-based visual teaching media to help understand the steps of making Phase F Blouse Patterns.

Several previous studies have examined the development of comics or E-comics as a learning medium in various subjects, such as research conducted by (Anis Setyaningsih et al., 2022)who developed E-comics for business opportunity materials in high school, was declared very feasible with a validation score of 89-80% and effectively improved student learning outcomes based on the Paired Samples T-Test. In addition, research conducted by (Tridelpina Purba et al., 2025) Developing Interactive Biocom E-comics to improve students' science literacy on environmental care materials, the results of the study show that E-comics are able to increase learning motivation, material understanding, and student activeness in the learning process. Based on the results of previous research, it can be concluded that E-comic media is effectively used as a learning medium because it is able to present visual material that is interesting, and easy to understand. However, there has been no development of E-comics as a learning medium in the manufacture of F-phase blouse patterns. The novelty of this research lies in several aspects. First, this study specifically develops an e-comic for blouse pattern making materials which is part of the preparation element for making blouse patterns which is part of the preparation element for fashion making in phase F of SMK Fashion Design. Second, this study only assesses the feasibility of media based on assessments from material experts and media experts, without directly measuring students' motivation or learning outcomes. This research focuses on the development of the media produced that meets quality standards in terms of content and presentation. The e-comics developed are directed as digital media that can be accessed through devices that are commonly owned by students, so that they have the potential to support learning in the classroom and independent learning outside of the lessons.

Based on this description, it can be formulated that the main problem underlying this research is the lack of attractive digital learning media, especially E-comics in the material for making blouse patterns in Phase F of the Fashion Vocational School, even though there are already media such as jobsheets and

modules available in schools. On the other hand, the characteristics of digital generation students, as well as the need for visual media that can help understand complex pattern-making materials, show that relevant media innovations are needed.

METHOD

The method in this study uses quantitative descriptive approach research to describe the development process and analyze the feasibility level of E-comic learning media on the material for making blouse patterns phase F of the Fashion Vocational School. This approach was chosen because the research focuses on collecting and analyzing data in the form of numbers that are used to objectively describe the feasibility of media based on expert assessments. Quantitative descriptive research allows researchers to obtain data and information through the presentation of numbers which includes the process of data collection, analysis, and systematic presentation of research results, resulting in structured and easily interpresentable data (Kotronoulas et al., 2023).

The subjects of this study consist of panelists who are experts in materials and media expert panelists who have competence and experience relevant to the field of research. The expert panelists in this study are teachers of Fashion Schools who have expertise in teaching elements of preparation for fashion making, especially in the material of blouse pattern phase F, while the media expert panelists are lecturers who have expertise in the development of learning media and digital media design. The determination of the subject in this study was carried out purposively by considering the scientific background, experience, and relevance to the research objective, namely assessing the feasibility of E-comics as a learning medium in the material for making blouse patterns phase F of the Fashion Vocational School. Furthermore, the analysis and input from media experts and subject matter experts are used as a reference to make improvements.

The E-comic feasibility research instrument in the assessment of material experts is prepared based on 3 indicators, namely from the aspect of material, material presentation, and language, each indicator has 6 questions, so that the total instrument for material experts consists of 18 assessment items. Meanwhile, the research instrument on the feasibility of E-comics in the assessment of media experts is prepared based on 2 indicators, namely from the aspect of graphics and visual media presentation, each indicator has 10 questions, so that the entire instrument for media experts consists of 20 questions.

Before being used in data collection in this study, the assessment instrument was first tested for validity and reliability to ensure that each statement item represented an indicator of the feasibility of E-comic learning media in the manufacture of blouse patterns. The instruments in this study are assessed by expert validators as *expert judgement* to determine the feasibility of the validity and reliability of the instruments that have been made, so that the feasibility can be known at the time of data collection. The validity used in this study is proof of validity.

Proving the validity of the instrument involves 5 expert validators, then the validators are asked to provide an assessment of the level of relevance of each statement item using an assessment scale of 1-5. The data from the validator's assessment results are then assessed using *the Aiken's V* index with the following formula:

$$V = \frac{\sum s}{n(c-1)}$$

Sources: (Prasetyaningtyas & Wening, 2022)

Description :
V=Aiken validity index
S=r – the
lo=Lowest validity rating number
C=Highest number of validity assessments
n=Number of raters
r=Numbers given by the assessment

The validity of each question item using Aiken's V formula was obtained from the 38 items of the

statement ≥ 0.75. The interpretation criteria for each item in this study stipulate that Aiken's V is declared valid if the coefficient V ≥ 0.75 (Prasetyaningtyas & Wening, 2022). The instrument as a whole was declared valid and suitable for use as a data collection tool in this study.

The reliability of the instrument was analyzed using *the Intraclass Correlation Coefficient* (ICC). Reliability is carried out to determine the level of consistency of assessment between raters on all instrument items. The results of the reliability calculation are presented in the following table.

Table 1. ICC Test Results of Media Experts

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.368a	.141	.840	12.667	4	76	.000
Average Measures	.921c	.766	.991	12.667	4	76	.000

Table 2. Material Expert ICC Test Results

	Intraclass Correlation[b]	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.437a	.182	.873	14.956	4	68	.000
Average Measures	.933c	.801	.992	14.956	4	68	.000

The ICC *Average Measure value* for media expert instruments is 0.921 and for material expert instruments is 0.933 with a significance level of 0.000 which means that the reliability category is very high. An interpretation based on the analysis of the instruments used to analyze the feasibility of E-comics shows that the ICC value is in the range of 0.75 to 1.00, which reflects an excellent estimation level (Prasetyaningtyas & Wening, 2022).

The data analysis technique used to determine the feasibility of E-comics for making blouse patterns is to use percentage descriptive analysis. The data analysis technique used to measure the level of product feasibility according to (Sugiyono, 2017) is with a percentage descriptive formula:

$$P=\frac{\sum n}{\sum N} \times 100\%$$

Description :

P : E-comic eligibility percentage

n : Total score of the evaluation aspect by the expert

N : Maximum score number of assessments (maximum score of each item x number of question items x number of respondents)

The percentage of the score obtained is then changed into the form of a descriptive sentence. The suitability of aspects in the development of E-comics for making blouse patterns can be guided by the following table:

Table 3.Product Eligibility Categories

Percentage Score	Criteria
85% - 100%	Highly Worth It
69% - 84 %	Worthy
53% - 68%	Quite Decent
37% - 52%	Less Worthy
20% - 36%	Not Eligible

RESULTS AND DISCUSSION

The E-comic media that will be tested for feasibility is entitled "Learning to Make a Blouse Pattern with Sinta and Rina", this media is designed in a digital format with a 16:9 ratio so that it is comfortable to read on smartphones, tablets, and laptops. The number of pages in this E-comic is 88 pages including the front cover and back cover. To make the story closer to the lives of students, this E-comic was designed

by several main characters, such as a student of the Fashion Vocational School and a female teacher. The story setting is placed in the classroom and the fashion practice room. The dialogue between the characters is designed using language that is communicative, straightforward, and not too formal, but still maintains the technical terms that are important in the creation of blouse patterns.

Figure 1. Front cover E-comic blouse pattern


Figure 2. Back cover E-comic blouse pattern

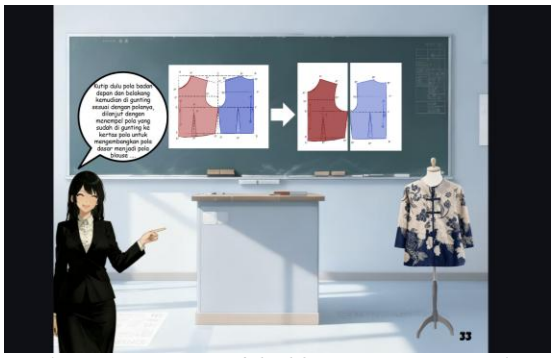
Figure 3. Contents of the blouse pattern E-comic

The material for making blouse patterns in this E-comic is arranged according to the order of work in the jobsheet but packaged in the form of a story. In this E-comic, students are invited to follow the journey of the characters in understanding and practicing making blouse patterns, not just reading procedural instructions. This E-comic product was tested by 5 media experts, and to test the feasibility of the E-Comic display was carried out by 5 material experts to test the existing material. In the E-comic making blouse patterns, the results of the assessment are then analyzed in the form of a percentage of media eligibility. The results of the feasibility test from material experts and media experts are presented as follows.

Table 4. Results of the qualification analysis of the subject matter

Yes	Indicator	Material Expert
	Material	30,0%
	Presentation of Materials	30,3%
	Language	31,8%
Total Captions		91,1%

Based on the assessment obtained in table 4, the percentage of eligibility from subject matter experts is 91.1%. If referring to the interpretation criteria, the percentage between 85%-100% falls under the category of "Very Feasible". The results were obtained from an assessment of three indicators, namely material, material presentation, and language. This percentage shows that the content of the material presented in the comic media is in accordance with the learning competence of making blouse patterns in phase F and supports the achievement of learning objectives.

The material indicator obtained a percentage of 30.0%, which shows that the basic concept of blouse pattern construction, the sequence of work steps, and the accuracy of the content of the material have been assessed in accordance with learning standards. The material presented in the media is considered to have included concepts and procedures needed by students in understanding the creation of blouse patterns gradually and systematically (Aulia et al., 2025). This shows that the media is able to present material accurately and in accordance with the applicable curriculum.

The material presentation indicator obtained a percentage of 30.3%, which shows that the presentation of material in E-comic media is considered very feasible by material experts. The presentation of the material is considered to be straightforward, easy to understand. The order of delivery of the material on the steps to make blouse patterns is clearly presented so that it is easier for students to follow the learning flow. These findings show that E-comic media not only functions as a visual medium, but is also able to support students' conceptual and procedural understanding (Dalimunthe et al., 2025)

The language indicator obtained a percentage of 31.8%, this result shows that the use of language in comic media is considered communicative, simple, and in accordance with the level of development of students. The language used in E-comics is easy to understand and supports the delivery of material effectively without causing ambiguous sentences, so that it can improve students' readability and comprehension (Utami et al., 2025).

The language indicator obtained the highest percentage of 31.8%, compared to the material indicator and the presentation of the material. The high percentage of language indicators shows that the linguistic aspect in the media is considered the strongest and dominant in supporting learning effectiveness, this happens because the language used in E-comics is composed of simple, communicative sentences, and in accordance with the level of development of phase F students. In addition, the characteristics of E-comic media that combine short text with visual illustration demand the use of concise, clear, and direct language at the core of the material (Iakovleva, 2021). Therefore, the language aspect received a higher assessment than other indicators, if the language is presented clearly and unambiguously, then the learning message can be conveyed effectively, even though the material is technical (Siti Koriah et al., 2025). This is what causes language indicators to get higher scores than material indicators and material presentation.

Table 5. Results of media member qualification analysis

Yes	Indicator	Media Member
1.	Graphic	42,3%
2.	Visual Media Presentation	46,5%
Total Captions		88,8%

Based on the assessment obtained in table 5, the results of the feasibility test conducted by media experts showed a feasibility percentage of 88.8%, which is included in the "Very Feasible" category. The assessment of media experts was carried out on two indicators, namely graphics and visual media presentation. This percentage shows that the developed comic media has met the visual and visual aspects of good learning media and is in accordance with the characteristics of phase F students.

The graphic indicator obtained a percentage of 42.3%, which shows that the visual appearance of

E-comic media is considered very feasible. The graphic aspect includes layout, use of colors, selection of typefaces and font sizes, and the quality of illustrations (Marsela et al., 2022). The illustrations used are considered to be able to clarify the material and support students' understanding of the steps to make blouse patterns. In addition, the visual appearance of E-comic media is considered interesting and not monotonous.

The visual media presentation indicator obtained a percentage of 46.5%, which is the highest percentage in the assessment of media experts. These results show that the presentation of media is considered very optimal in supporting the learning process. The visual presentation in E-comic media not only displays images as an aesthetic element, but also serves as the main means of conveying learning information (Bukian et al., 2024a). Each stage of making blouse patterns is visualized sequentially, so that students can follow the learning process independently. A clear visualization of work steps allows students to focus more on the learning process without having to read long texts, so that the learning process becomes more effective.

The visual media presentation indicator obtained a higher score with a value of 46.5%, this shows that media experts consider the functional aspect of visual presentation to be more dominant than the aesthetic aspect of the display alone, while the graphic indicator emphasizes more on aesthetic elements, such as layout, color use, type of selection and font size, and illustration quality. Meanwhile, the visual media presentation indicator focuses on how the visual elements are used to convey the material effectively. E-comic media not only has an attractive appearance, but is also able to present material clearly and easily understand(Lusiana & Nuryanto, 2025). Therefore, the presentation of visual media that is consistent and communicative is a more influential aspect in supporting the achievement of learning objectives, this causes the visual media presentation indicator to obtain a higher percentage of assessment than the graphic indicator. Overall, the results of the feasibility analysis from material experts and media experts show that the E-comic learning media in the manufacture of blouse patterns is declared "Very Feasible" to be used as a learning medium, but with revisions according to the suggestions of experts, suggestions and improvements from material experts and media experts can be seen in the following table:

Table 6. Product advice and improvement

Aspects	Suggestions for improvement
Material	Photos taken from the web should be given the source information Images of various blouses are not yet sourced
Media	E-comic display background in default color

Product revision based on input and suggestions from material experts and media experts, revision is focused on improving material and media aspects that are considered to still need to be refined so that the quality of the final product is better. Following up on these suggestions, the researcher has revised the product as follows:

Table 7.Display of E-comics before revision and after revision

No	Appearance of E-comics before revision	E-comic Appearance after revision
1.	Taken from online sources, has not been completed with source information 	Taken from an online source, has been completed with a source description 
2.	E-comic display background using black 	The E-comic display background already uses the default color 

Based on the suggestions and inputs provided by material experts regarding the use of images taken from online sources, images of various blouses have not been completed with source information. This needs to be corrected to avoid academic ethical problems. The inclusion of image sources is also important so that students know the origin of visual references used in learning, follow up on these suggestions and inputs, the researcher revises by adding source information to images from the web. Meanwhile, on the media aspect, media experts suggested improvements to the appearance of E-comic backgrounds. The background on some pages is considered to need to be equated with the default color to make the visual look neater. The selection of the right background color is considered to be able to increase reading comfort and clarify the visual elements and text presented in the E-comics, revisions are carried out by adjusting the background color of the E-comics to make them more attractive in appearance, so that the final product becomes more suitable for use as a learning medium in the material for making blouse patterns phase F of SMK Fashion Design. Based on the results of the feasibility test of the E-comic product for the manufacture of blouse pattern phase f, it can be concluded that the E-comic learning media for the manufacture of blouse pattern phase F has met the feasibility criteria in terms of material and media, then it is ready to be used as an alternative learning resource for students of SMK Etiquette.

CONCLUSION

The results of the feasibility test for E-comic products for the manufacture of blouse patterns meet the category of "Very Feasible" in terms of material and media. The results of the evaluation showed that the qualification of the material obtained a rating of 91.1% and the qualification of the media member 88.8%. The assessment of material experts shows that E-comics are appropriate in terms of material, material presentation, and language. Meanwhile, media experts' assessments show that E-comics meet the graphic aspects and visual presentation of media. However, this study is still limited to the effectiveness of blouse pattern E-comics on improving learning outcomes and practical skills that have not been tested experimentally. Overall, it can be concluded that the E-comic learning media for making phase F blouse patterns is suitable for use as an alternative learning resource at the Fashion Vocational School.

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