



Design and Feasibility Evaluation of Multimedia-Based Digital Learning Module for Women's Body Proportion Drawing in Vocational Education

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Abstract

This study focuses on the design and feasibility evaluation of a multimedia-based digital learning module developed to support the teaching of women's body proportion drawing in grade X vocational education. The module was designed as an interactive digital system integrating text, images, audio, and video to enhance user engagement and independent learning. The feasibility assessment was conducted by expert panelists using a mixed closed–open questionnaire based on module characteristics, including self-instruction, self-contained, adaptive, stand-alone, and user-friendly aspects, as well as media quality elements such as format, organization, attractiveness, typography, white space, and consistency. A descriptive quantitative approach with a one-shot case study design was employed to analyze the evaluation results. The findings indicate that the module achieved a score of 90.27% for module characteristics and 92.5% for media quality elements, with an overall feasibility score of 91.44%, categorized as “very good.” These results demonstrate that the developed module meets the criteria of a well-structured and functional digital learning system that can effectively support independent learning. This study contributes to the development of applied digital learning technology in vocational education by demonstrating how multimedia-based instructional design can enhance learning accessibility and usability. The findings also provide a reference for future development of technology-integrated learning media in technical and applied educational contexts.

Keywords: Digital Pedagogy, Instructional Design, Integrated Media, Skill-Based Learning, Self-Directed Learning.

INTRODUCTION

Digital technology has increasingly transformed educational practices, particularly through the development of interactive and system-based learning media. Education plays a crucial role in developing a creative, innovative, and competitive generation in this digital era (Surani, 2019; Aini, 2024).

Technological advancements have transformed teaching methods, learning processes, and instructional materials, requiring continuous adaptation in educational practices (Hassan, 2023; Dhawan, 2020).

Several previous studies have also emphasized that technology-integrated learning environments can improve students'

motivation, engagement, and independent learning skills, particularly in vocational and multimedia-based education contexts (Adinda & Mohib, 2020; Zainuddin & Perera, 2018; Çeken & Taşkın, 2022). In addition, multimedia-based instructional design is considered effective in facilitating meaningful learning experiences and improving conceptual understanding among students (Agisni et al., 2023; Güney, 2019; Mayer, 2020; Moreno & Mayer, 2007). Digital learning media have been widely recognized for improving student engagement, accessibility, and flexibility in learning (Huda, 2024; Arifudin, 2025; Dhawan, 2020). Recent studies have also shown that digital learning environments and interactive e-learning content can significantly improve student engagement, independent learning, and academic achievement (Bond et al., 2021; Kim et al., 2021; Nkomo et al., 2021).

The use of digital technology in education has provided various benefits, particularly in enhancing the effectiveness and efficiency of the teaching and learning process through multimedia-based instructional design (Clark & Mayer, 2016). In addition, online and blended learning environments support more interactive and student-centered learning experiences (Capone, 2022; Huett, 2018). Learning media also play an important role in facilitating interaction between teachers and students, leading to improved learning outcomes. One commonly used form of learning media is the module, which allows students to learn independently through structured instructional materials and self-evaluation opportunities.

Along with technological advancements, learning modules have evolved from printed formats into electronic modules. The use of e-modules can reduce paper consumption, eliminate the need to carry heavy books, and offer greater practicality and ease of use. E-

modules are considered easy to use, attractive, and capable of increasing students' learning interest (Sari & Novrita, 2020; Dewi et al., 2024). In addition, e-modules can be designed in the form of flipbooks to enhance interactivity and engagement. Flipbooks that contain images, videos, and audio can serve as effective learning media, as they are able to create an interactive learning environment (Rahayu et al., 2021). In addition, the integration of digital technology in education has encouraged the development of more adaptive and student-centered learning systems, particularly in vocational and technology-based learning contexts (Haleem et al., 2022; Situmorang et al., 2022).

Furthermore, the integration of multimedia elements such as text, images, audio, and video can enhance student engagement and understanding (Hidayati & Slamet, 2025). However, previous studies have mainly focused on the general use or effectiveness of e-modules in education, while limited research has examined their feasibility in vocational education contexts, particularly in fashion learning (Fitriana & Sumaryati, 2024; Suryana & Hamsar, 2025). Moreover, studies specifically addressing e-modules for teaching women's body proportion drawing remain scarce. This indicates a gap in literature regarding the development and evaluation of digital learning media tailored to vocational fashion education.

Previous research has shown that interactive e-modules and digital instructional media can support flexible learning environments and enhance students' accessibility to learning materials (Yulando et al., 2019; Yusrawati et al., 2025). Furthermore, the use of multimedia-supported learning media has been associated with increased learner participation and improved learning outcomes across various educational levels

(Hou et al., 2022; Jannah et al., 2024).

In the field of fashion education, understanding women's body proportions is a fundamental skill in fashion design, as it serves as the basis for drawing and garment construction (Pandarum, 2025; Habib & Alam, 2024). This skill requires both conceptual understanding and continuous practice. However, without appropriate learning media, students may face difficulties in mastering the material effectively. Based on preliminary observations conducted at SMKN 2 Depok, particularly in Grade X vocational fashion students, several problems were identified. The availability of learning resources, especially basic design textbooks, is limited and insufficient for the number of students. In addition, the existing printed modules do not provide systematic step-by-step guidance for drawing women's body proportions. Furthermore, the limited learning time, which is conducted only once a week, makes it difficult for students to fully understand and retain the material. These conditions indicate the need for more effective and accessible learning media.

Students also stated that the lack of interactive learning media made it harder for them to learn independently. One student stated that understanding body proportions was difficult due to unclear explanations and the absence of interactive media to support practice. Therefore, the use of an e-module is considered a suitable solution, as it can provide interactive, flexible, and independent learning opportunities for students. E-modules have been widely recognized as effective tools in supporting digital and student-centred learning environments (Diansyah, 2024; Naibaho et al., 2025). This study offers novelty by focusing on the evaluation of an e-module specifically designed for teaching women's body proportion drawing in vocational fashion

education. Unlike previous studies that emphasise general applications or effectiveness, this study highlights the feasibility of the e-module as a learning medium in a specific vocational context. Based on these considerations, this study aims to evaluate the feasibility of an e-module for teaching women's body proportion drawing to Grade X vocational fashion students.

METHOD

The development of the digital learning module followed a systematic design process consisting of three main stages: content preparation, instructional design, and multimedia integration. The learning materials were structured based on the instructional objectives of women's body proportion drawing. The module was developed as a multimedia-based digital system using the Heyzine flipbook platform, integrating various elements such as text, images, audio, and video to enhance interactivity and user engagement. This module represents an original digital product specifically designed for this study. This study employed a one-shot case study design, where the developed module was implemented and evaluated through post-treatment observation. The evaluation focused on assessing the functional and design quality of the module rather than measuring its effectiveness in improving learning outcomes.

Data Collection

Data were collected through a structured questionnaire distributed to four expert panelists consisting of lecturers and vocational school teachers. The instrument included both closed and open-ended items and was designed based on established criteria for evaluating digital learning systems. The evaluation aspects consisted of module characteristics (self-instruction, self-contained,

adaptive, stand-alone, and user-friendly) and media quality elements (format, organization, attractiveness, typography, white space, and consistency). The instrument was reviewed by experts to ensure its content validity.

Data Analysis

The collected data were analyzed using descriptive statistical analysis in the form of percentage calculations. The scores obtained from the questionnaire were converted into percentages to determine the feasibility level of the e-module. The results were then classified into several categories, to facilitate interpretation. Inferential statistical analyses were not applied in this study, as the research focuses on feasibility assessment rather than effectiveness measurement.

The validity test was conducted using construct validity, which was assessed based on expert opinions in accordance with relevant theories. The data obtained from the evaluation by the content and media expert panellists was analysed using the percentage calculation method. The feasibility score was calculated using a percentage formula by comparing the total score with the maximum possible score, as shown in Equation (1). The maximum score was determined by multiplying the highest score (4) by the number of items and the number of panellists. For example, for module characteristics consisting of 27 items evaluated by 2 panellists, the maximum score is calculated as: $4 \times 27 \times 2 = 216$. The results were then classified into predefined categories ranging from very poor to very good, as shown in Table 1.

$$P = \frac{\text{total score achieved}}{\text{maximum score}} \times 100\% \quad (1)$$

Table 1. Table of Assessment Percentages

No	Score in Percentage	Criteria
1	0-25%	Very poor
2	26-50%	Poor
3	51-75%	Good
4	76-100%	Very Good

RESULT AND DISCUSSION

The developed e-module on women's body proportions is considered feasible as a learning medium based on expert judgment. The evaluation was conducted by expert panelists focusing on two main aspects, namely module characteristics (content aspect) and module quality elements (media aspect). The preview of the developed e-module, including the front and back cover as well as sample content pages, is presented in Figure 1 and Figure 2. The e-module is designed in the form of an interactive flipbook that integrates various multimedia elements such as text, images, audio, and video. In addition, it incorporates interactive features including pop-ups and hyperlinks, which are intended to facilitate navigation, enrich content delivery, and enhance student engagement during the learning process. Such integration of multimedia components is widely recognized as an effective approach to support meaningful learning and improve knowledge retention in digital environments (Mayer, 2020).

The results of the content feasibility assessment based on module characteristic indicators are presented in Table 2. The overall score for module characteristics reached 90.27%, which falls into the "very good" category. This indicates that, in general, the e-module has fulfilled the essential criteria of well-designed instructional material. Among the evaluated aspects, the highest score was obtained in the stand-alone criterion (93.75%), suggesting that the e-module can function independently without requiring additional

learning resources. This finding aligns with the concept of stand-alone modules, which emphasizes that instructional materials should be usable without dependency on other media. This characteristic is particularly important in supporting self-directed learning, as it allows students to access, control, and utilize the learning material flexibly according to their own pace and needs (Zainuddin & Perera, 2018; Adinda & Mohib, 2020).

Furthermore, the strong performance in the stand-alone aspect also reflects the effectiveness of integrating multimedia and interactive features within a single platform. The availability of comprehensive learning components—ranging from theoretical explanations to visual demonstrations—enables the e-module to serve as a complete learning environment. This supports previous studies which highlight that interactive digital modules can enhance learner autonomy and engagement, especially in skill-based and practice-oriented subjects (Bond et al., 2020; Martin et al., 2020).

On the other hand, the lowest score in module characteristics was found in the self-contained aspect (87.5%). Although still categorized as “very good,” this result indicates that certain parts of the material require further refinement. In particular, the step-by-step explanation of women’s body proportion drawing needs to be improved to ensure clarity, completeness, and instructional coherence. According to Yusrawati et al. (2025), a self-contained module should provide comprehensive content that is systematically organized, allowing learners to achieve learning objectives without external assistance. In line with more recent perspectives, effective digital learning materials should present content in a structured, scaffolded manner to

reduce cognitive load and facilitate skill acquisition (Mayer, 2020).

The relatively lower score in this aspect may also suggest that the procedural nature of drawing skills requires more detailed visual guidance, such as sequential illustrations, annotated steps, or additional video demonstrations. Prior research indicates that in visual and practical learning domains, the clarity of procedural instruction significantly influences learning outcomes and user comprehension (Guo et al, 2020). Therefore, enhancing the completeness of instructional content, particularly in the demonstration of drawing techniques, will further strengthen the effectiveness of the e-module.

Overall, the findings demonstrate that the developed e-module meets the criteria of a high-quality digital learning medium in terms of both content and functionality. However, continuous improvement is necessary, especially in ensuring that all learning materials are fully self-contained and pedagogically optimized. Future development should also consider user-based evaluation involving students to validate the effectiveness of the module in improving learning outcomes and practical skills, as recommended in recent studies on digital learning innovation (Bond et al., 2020; Martin et al., 2020).

Table 2. E-Module Score Assessment Based on Module Characteristic Indicator

Aspect	Percentage
Self-instruction	90.27%
Self-contained	87.50%
Adaptive	90,00%
Stand alone	93.75%
User friendly	91.07%
Total	90.27%

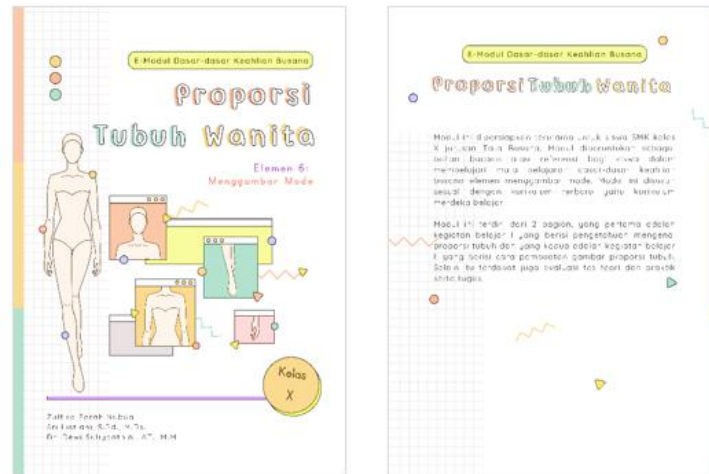


Figure 1. Front and Back Cover of the E-Module

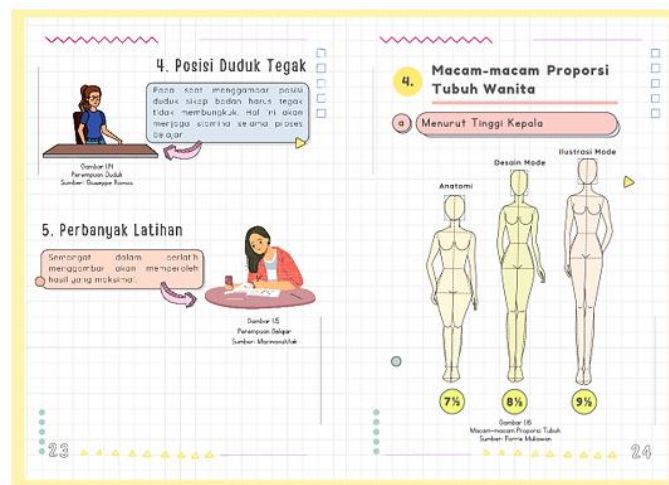


Figure 2. Preview Content Display of the E-Module

The evaluation results for media quality elements are presented in Table 3. The overall score for this aspect reached 92.5%, also categorized as “very good.” The highest scores were observed in terms of format, attractiveness, and white space (93.75%), indicating that the e-module has a well-organized layout, clear structure, and visually appealing design. These findings align with the criteria proposed by Güney (2019) and Jannah et al. 2024, which highlight the importance of visual organization and layout in enhancing the quality of instructional media.

The integration of multimedia elements such as images, videos, audio, and interactive features contributes significantly to the attractiveness of the module and enhances user

engagement. This supports the principles of multimedia learning, which suggest that combining multiple forms of media can improve understanding and learning effectiveness (Çeken & Taşkın, 2022; Agisni et al., 2023).

However, the lowest score in media quality elements was found in the font type and size aspect (87.5%), indicating that readability, particularly on mobile devices, still needs improvement. In line with Somai et al. (2025) and Hou & He (2022), appropriate font selection plays a crucial role in ensuring readability and user comfort. Therefore, adjustments to typography are necessary to improve accessibility.

The overall evaluation results, as

presented in Table 4, show that the e-module achieved a total score of 91.44%, which is categorized as “very good.” This indicates that the developed module meets the criteria of a feasible and well-designed digital learning system. The high feasibility score suggests that the module is structurally sound, visually appropriate, and capable of supporting independent learning (Yulando et al.,2019).

From a theoretical perspective, these findings support multimedia learning theory and the concept of self-directed learning, emphasizing the importance of interactive and flexible digital learning media. From a practical perspective, the e-module can be utilized as an effective supplementary learning resource for teachers and as an independent learning tool for students in vocational fashion education. It provides a structured and interactive approach to learning women’s body proportion drawing, which is a fundamental skill in fashion design.

Despite these positive results, several limitations should be acknowledged. The use of a pre-experimental design with a one-shot case study limits the generalizability of the findings and does not allow for the measurement of learning effectiveness. Additionally, the use of descriptive statistical analysis restricts deeper analytical interpretation. Therefore, future research is recommended to employ more rigorous experimental designs and advanced statistical methods to further evaluate the effectiveness and impact of the e-module.

From a social and ethical perspective, the implementation of digital learning media such as e-modules requires consideration of accessibility and digital literacy. Not all students may have equal access to digital devices or stable internet connections, which may affect the usability of the module. Therefore, it is important to ensure that the development and implementation of digital learning systems support inclusive and

equitable learning opportunities.

Table 3. Assessment of E-Module Scores
Based on Module Quality Element Indicators

Aspect	Percentage
Format	93.75%
Organization	92.85%
Attarctiveness	93.75%
Letter size and shape	87.50%
White spaces	93.75%
Consistency	91.67%
Total	92.50%

Table 4. Overall Evaluation of the E-Module
Based on Module Characteristic Indicators and
Module Quality Elements

Indicators	Percentage
Characteristic Module (Material)	90.27%
Module Quality Elements (Media)	92.50%
Total	91.44%

CONCLUSION

This study concludes that the developed multimedia-based e-module for women’s body proportion drawing is feasible as a digital learning medium, as indicated by an overall score of 91.44%, categorized as “very good.” The module demonstrates strong performance in content organization, visual design, and usability, supporting independent and flexible learning. The findings highlight the potential of multimedia-based digital modules as applied learning technologies in vocational education, particularly in enhancing student engagement and supporting self-directed learning. The developed module also provides a structured approach to learning fundamental fashion design skills. Future research is recommended to employ more rigorous experimental designs with larger samples to examine the effectiveness of the module on learning outcomes. Further studies may also explore the development of similar digital learning systems in other vocational fields and assess

their long-term impact on student competencies.

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