

The Feasibility and Suitability of Jobsheet-Assisted Modules Developed Using the 4D Model for Fashion Business Learning

Halida Hanim¹, Eka Rahma Dewi¹, Yudhistira Anggraini¹

¹ Universitas Negeri Medan, Medan

dist.tira@gmail.com

corresponding author: dist.tira@gmail.com

ABSTRACT

Learning in the fashion business field requires considerable time and effort because it combines theoretical concepts of business management with practical sewing procedures. These complex learning activities often make it difficult for students to fully comprehend and apply the material effectively. This study aimed to determine the feasibility and suitability of a jobsheet-assisted module developed using the 4D (Define, Design, Develop, Disseminate) model for Fashion Business learning. The research employed a research and development (R&D) method following the 4D stages. The feasibility of the developed module was validated by material experts (87.7%), media experts (93.8%), and students through small, medium, and large group trials. The small group trial involving 10 students achieved 88.25%, the medium group trial with 25 students reached 91.8%, and the large group trial involving 37 students achieved 96.4%, all of which fall into the very suitable category. These results indicate that the jobsheet-assisted module is feasible and suitable for use as a learning medium in Fashion Business courses, providing an integrated approach that connects management concepts with hands-on sewing practice.

Keywords: 4D model, learning module, jobsheet, fashion business

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INTRODUCTION

Human Resources (HR) have a very important role in national development; therefore, improving the quality of human resources requires quality education. Education serves as a means to enhance the competence and capacity of individuals through structured learning processes. To increase the effectiveness and efficiency of education, improvements in educational management are required (Sholihah, 2019). Education aims to form individuals who are not only intellectually capable but also spiritually and morally developed (Darman, 2017). It is a continuous effort to develop individuals' capacities through formal, informal, and non-formal education at various levels, from primary to higher education (Hapsari, 2021). Education, therefore, is a process of interaction and training between teachers and students that results in positive changes in knowledge, attitudes, and behavior (Sakerebau, 2018). The quality of education implemented today will determine the nation's future, hence careful attention must be paid to existing weaknesses to ensure future improvement.

Improving the quality of education requires innovation in curriculum, learning methods, and teaching materials. Educators are therefore expected to create more innovative and independent learning environments that enable students to develop their own potential (Hartono, 2017). One such innovation involves the development of learning modules and instructional media designed to facilitate self-directed learning aligned with learning objectives and competency standards. Within the Department of Family Welfare Education, particularly the Fashion Education Study Program, students are expected to master not only pedagogical competencies but also practical skills in the fashion field—from production processes to business management. The *Fashion Business* field in this study refers to an integrated discipline that combines fashion

business management concepts and sewing practices. Mastery of both areas is essential to prepare students for future entrepreneurship and professional fashion industries. Therefore, appropriate and engaging learning media are needed to strengthen students' understanding of both theoretical and practical aspects of the fashion business.

Based on preliminary observations of lecturers and students in the Fashion Business Management course at Universitas Negeri Medan, learning activities face significant challenges. Limited practice time and the absence of structured modules make it difficult for lecturers to explain both management concepts and sewing procedures simultaneously. Consequently, students rely heavily on the lecturer's explanations and struggle to review or repeat material independently. These findings are consistent with previous studies. Research by Harahap (2022) at the Interstudi Design College identified the absence of learning modules discussing fashion business development, highlighting the need for structured teaching materials to support independent learning. Similarly, Astuti et al. (2018) reported that 17% of students were inactive during class because learning was overly teacher-centered and lacked engaging learning media. These studies emphasize the importance of developing interactive, varied, and applicable learning modules that promote student engagement and autonomy.

Learning media play a vital role in conveying information effectively. According to Yaumi (2018), media development in education is a conscious, planned effort to improve the quality of learning outcomes. Learning media serve as tools to channel messages and stimulate students' interest, thoughts, and emotions (Harahap, 2022). Print-based media, such as learning modules, are among the most commonly used forms due to their structured and systematic presentation (Muldiyana et al., 2018). A well-designed module provides learning materials, methods, exercises, and evaluation tools that guide students to achieve learning objectives independently (Setiawati et al., 2017; Ulfa et al., 2019).

Modules that integrate jobsheets can enhance learning effectiveness. A jobsheet is a print-based learning tool containing detailed practical instructions, work steps, and illustrations that guide students through a specific learning task (Widyastuti, 2017). By incorporating visual explanations and step-by-step guidance, jobsheets help students understand complex production processes more easily (Arsyad, 2021). An effective jobsheet provides clear operational instructions and technical drawings that serve as practical references during learning activities (G.P. Cikarge, 2018).

Considering these issues, this study focused on developing a jobsheet-assisted learning module for the Fashion Business Management course, specifically applied to the *convection fashion business* context. This business model was selected because it involves the shirt production process, which requires mastery of several critical techniques that students must understand. The developed module was designed to integrate theoretical and practical learning materials in a single resource, making learning more interesting, structured, and effective for both classroom and independent study.

The purpose of this study is to determine the feasibility and suitability of the jobsheet-assisted learning module for Fashion Business learning developed through the 4D model (Define, Design, Develop, Disseminate). The results of this study are expected to contribute to the development of innovative, practice-oriented learning resources that address the real needs of vocational students in the fashion field.

METHOD

The development of learning media in the Fashion Business Management course was conducted using Research and Development (R&D) methods. According to Sugiyono (2012), R&D is a research approach used to produce certain products and test their effectiveness or feasibility in real learning contexts. This study employed the 4D development model introduced by Thiagarajan et al. (Sutarti et al., 2017), which includes four main stages: Define, Design, Develop, and Disseminate.

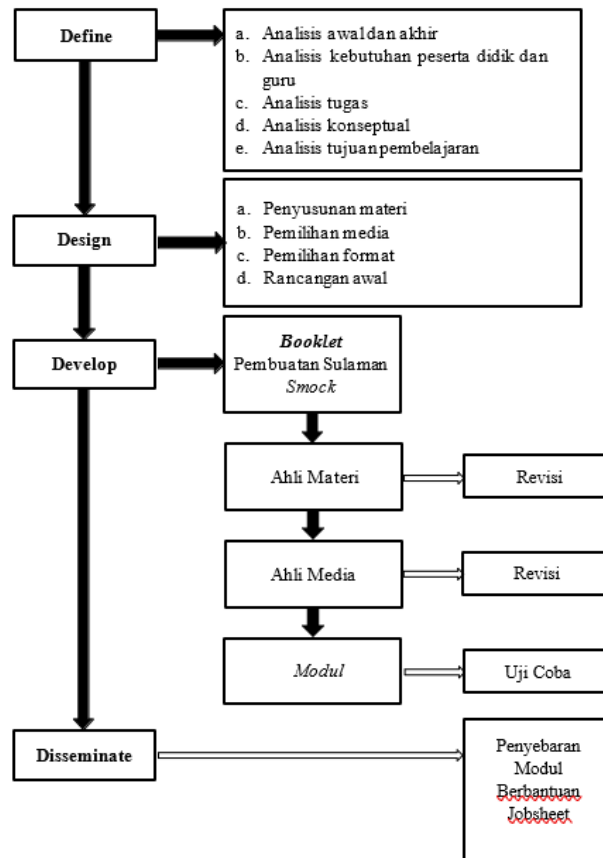


Figure 1. Procedure for Developing a 4D Model for Jobsheet-Assisted Learning in the Fashion Business in the Fashion Design Study Program
(Source: Sutarti et al, 2017)

1. Define Stage (Definition)

The first stage aimed to identify the core problems and learning needs. This process involved five key steps:

- Front-end analysis, which identified learning challenges faced by students in the 2021 cohort of the Fashion Design Study Program;
- Needs analysis, conducted through questionnaires to understand students' learning preferences and difficulties in Fashion Business courses;
- Task analysis, identifying essential learning tasks related to fashion business production and management;
- Concept analysis, examining key theoretical and practical concepts relevant to the module; and
- Learning objectives analysis, which formulated measurable learning outcomes that the module aimed to achieve.

2. Design Stage (Planning)

The design stage focused on developing the structure and content of the module assisted by jobsheets. This included:

- Compiling the material content based on the Fashion Business learning objectives;
- Selecting relevant illustrations, photos, and examples to clarify the material;
- Choosing an appropriate format and layout design; and

- d) Preparing an initial module draft that integrated theoretical explanations and practical steps in a visually coherent manner.

A flowchart was also developed to visualize the systematic process of creating the jobsheet-assisted module (Figure 2 in the original manuscript).

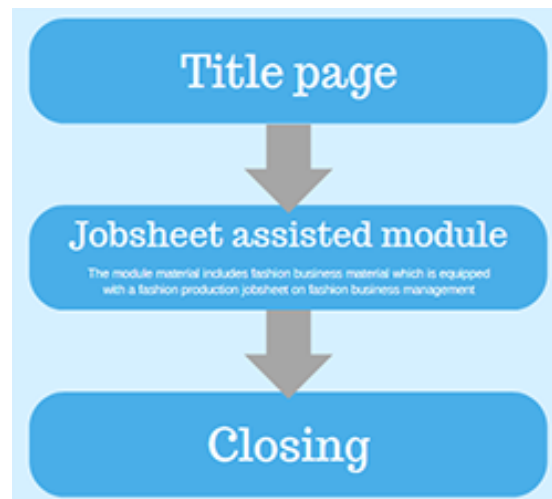


Figure 2. Flowchart of Jobsheet-Assisted Learning Module Development in the Fashion Business Management Course

3. Develop Stage (Development)

At this stage, the prototype module was evaluated by material experts and media experts to ensure content validity and design quality. The validation process aimed to obtain feedback and identify necessary revisions before broader implementation.

The material experts assessed aspects of learning content, objectives, and language, while the media experts evaluated visual design, typography, functionality, and aesthetics. Revisions were made based on expert feedback to produce a refined version of the module ready for limited trials.

4. Disseminate Stage (Dissemination)

After completing the expert validation, the module's feasibility was tested through small, medium, and large group trials involving students from the Fashion Design Education Program.

- a. The small group trial involved 10 students representing low, medium, and high ability levels to identify initial usability issues.
- b. The medium group trial involved 25 students to evaluate learning feasibility after revisions.
- c. The large group trial involved 37 students to test the module's final suitability for classroom implementation.

The *Disseminate* stage in this study was limited to these internal trials within Universitas Negeri Medan. Wider dissemination to other institutions or professional settings was not conducted due to time and resource constraints. However, the trial results serve as the foundation for future application and broader implementation of the module.

5. Data Collection Instruments.

Data were collected using observation, interviews, and questionnaires. The questionnaire was structured using a Likert scale, which is commonly used to measure perceptions, attitudes, and opinions regarding a phenomenon (Bahrun et al., 2018; Pranatawijaya et al., 2019).

According to Djaali and Muljono (2008), the Likert scale allows for the conversion of qualitative responses into quantitative data, which can be analyzed descriptively. In this study, positive statements were rated using a 5-point scale:

- a. 5 = Very good,
- b. 4 = Good,
- c. 3 = Fair,
- d. 2 = Poor, and
- e. 1 = Very poor.

6. Data Analysis and Feasibility Criteria

The validation results were analyzed descriptively to determine the feasibility level of the developed module. The following percentage categories were used to interpret the results (adapted from Djaali et al., 2008):

Table 1. Category

Percentage Range	Category
81%–100%	Very Suitable
61%–80%	Suitable
41%–60%	Fairly Suitable
21%–40%	Less Suitable
≤20%	Not Suitable

The results from expert validation and group trials were summarized in tables and visualized in graphs to illustrate the feasibility levels of the jobsheet-assisted module.

RESULTS AND DISCUSSION

Results

Product validation was conducted to determine the opinions of material experts, media experts, and students regarding the feasibility of the jobsheet-assisted learning module for the Fashion Business Management course. The material expert validation involved assessing the quality of learning materials, the suitability of content and objectives, and language clarity. The results showed that the overall feasibility of the module was 87.7%, categorized as *very suitable*. Specifically, the learning material aspect obtained 88.3%, the content and objective aspect 83.7%, and the language aspect 91%. These findings indicate that the module's content is relevant to the learning objectives and can be effectively used in teaching Fashion Business courses.

Table 2. Percentage of Material Feasibility Test Results

No	Aspect	Percentage	Criteria
1	Learning materials	88.3%	Suitable
2	Quality of content and goals	83.7%	Suitable
3	Language	91%	Very Suitable
Average		87.7%	Very Suitable

Media expert validation assessed aspects such as function, visual presentation, typography, and aesthetics. The overall average score reached 93.8%, with sub-aspect scores as follows: functions and benefits (96.7%), visual media (96.7%), typography (95%), and aesthetics (86.7%).

Table 2. Percentage of Media Feasibility Test Results

No	Aspect	Percentage	Criteria
1	Functions and benefits	96.7%	Very Suitable
2	Visual media	96.7%	Very Suitable
3	Typography	95%	Very Suitable
4	Aesthetics	86.7%	Suitable
Average		93.8%	Very Suitable

The small group trial involving 10 students achieved an average score of 88.25%, categorized as *suitable*. The medium group trial with 25 students obtained 91.8% (*very suitable*), and the large group trial involving 37 students reached 96.4%, categorized as *very suitable*. These results demonstrate that the module was well-received by students across all stages of testing, showing consistent improvements from small to large group trials.

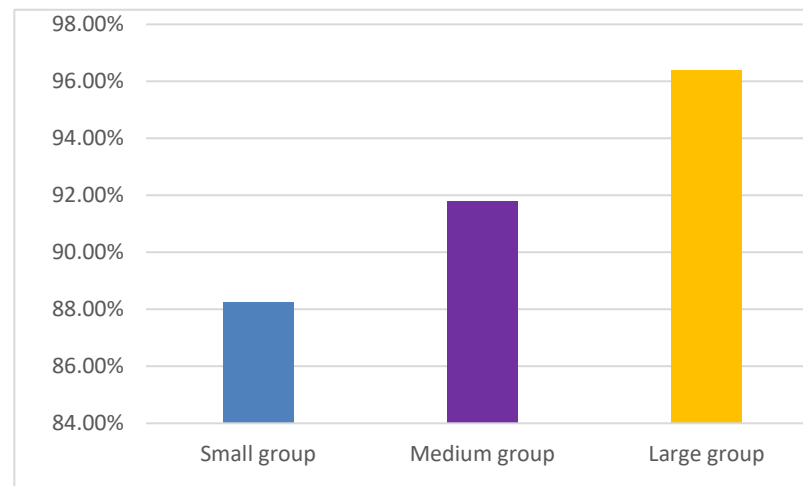


Figure 3. Group Trial of Jobsheet-Assisted Learning Module Development in the Fashion Business Management Course

Discussion

The validation results show that the jobsheet-assisted module developed using the 4D model achieved very high feasibility scores from both experts and students. These findings indicate that the module effectively meets the learning needs in Fashion Business education.

The high validation scores can be attributed to several factors:

1. **Integration of Theory and Practice:** The module combines business management concepts with sewing production steps in a single structured document. This integration directly addresses the main learning issue identified in the introduction—students' difficulty in connecting theoretical knowledge with hands-on practice. As a result, students can follow a clear, sequential guide from business planning to garment production, reducing confusion and saving classroom time.
2. **Visual and Structural Clarity:** Media experts rated the module highly (93.8%) because of its clear visual layout, consistent typography, and use of illustrations that make complex sewing procedures easier to understand (Arsyad, 2021). This finding aligns with Muldiyana et al. (2018), who emphasized that visually appealing and systematic modules enhance students' motivation and learning efficiency.

3. Student Engagement and Autonomy: The student trials demonstrated increasing satisfaction and feasibility levels, suggesting that the module fosters independent learning. As Marniati (2021) and Aprillia (2016) note, jobsheets allow lecturers to deliver material efficiently while enabling students to practice independently and review steps as needed. This characteristic supports the self-paced learning model essential in vocational education.
4. Relevance to Real-World Practice: The focus of the module on convection-based fashion business (shirt production) provides authentic, industry-relevant learning experiences. Students not only learn sewing techniques but also understand how production management functions in real business contexts (Perdanawati, 2017; Segarwati & Patimah, 2018).

Systematic Development Using the 4D Model: The application of the 4D model ensured that the module was developed through structured stages—starting from needs analysis to dissemination. Each stage allowed for continuous revision and improvement, ensuring that the final product aligned with learner characteristics and industry expectations (Sutarti & Irawan, 2017).

Novelty and Contribution

The novelty of this study lies in its unique integration of fashion business management concepts and sewing procedures into a single jobsheet-assisted module. Previous studies (Harahap, 2022; Astuti et al., 2018) developed e-modules or practical modules separately focusing either on business theory or sewing skills. However, this study bridges both domains in one cohesive format, providing students with a holistic understanding of the fashion business process—from production to management.

This integration not only improves the feasibility and suitability of the learning process but also establishes a new approach to vocational learning design that can be adapted for other courses combining theory and practice.

Interpretation of Findings

The consistent increase in feasibility scores from small to large group trials (88.25% → 91.8% → 96.4%) reflects the iterative improvement process guided by feedback. This pattern shows that revisions made after expert and small-group evaluations effectively enhanced the clarity and usability of the module. According to Djaali et al. (2008), validation through multiple stages improves product reliability and user satisfaction, which is evident in this study's outcomes.

Overall, the results validate that the jobsheet-assisted learning module developed using the 4D model is both feasible and suitable for Fashion Business learning. Its integration of conceptual, managerial, and practical elements provides a balanced approach that supports independent and effective vocational learning.

CONCLUSIONS AND RECOMMENDATION

The results of this study indicate that the jobsheet-assisted learning module developed using the 4D model (Define, Design, Develop, Disseminate) is feasible and suitable for use in the Fashion Business Management course. Validation by material experts yielded a feasibility score of 87.7%, media experts obtained 93.8%, and student trials achieved average scores of 88.25% for the small group, 91.8% for the medium group, and 96.4% for the large group. According to the established criteria, all results fall within the *very suitable* category.

These findings demonstrate that the developed module meets the pedagogical and practical needs of Fashion Business learning, providing an effective medium that integrates theoretical business management and practical sewing procedures. The use of jobsheets enhances student independence and understanding by allowing them to review and practice steps systematically, both inside and outside the classroom.

The study contributes to vocational education by presenting a structured and integrated learning module that aligns with the dual competencies required in the fashion industry—business planning and garment production.

It is recommended that future research expand this development by testing the effectiveness of the module through experimental methods such as pre-test and post-test designs or N-Gain analysis. Additionally, the module can be adapted into an electronic or web-based format to improve accessibility and interactivity for students in various learning contexts.

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