

Interactive flipbook e-module for salon management learning: A digital innovation in beauty education

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Abstract: The limited availability of adequate learning media in beauty services business management education has resulted in decreased student engagement and reduced entrepreneurial interest in vocational beauty programs. This study developed and validated an innovative flipbook-based e-module that uniquely integrates theoretical business management principles with industry-specific practical applications for beauty services operations. The research employed a Research and Development (R&D) methodology using the systematic ADDIE model across five phases: analysis, design, development, implementation, and evaluation. Unlike conventional static digital materials, the developed e-module featured interactive 18-page content with multimedia integration, page-turning animations, embedded assessment tools, and comprehensive coverage of business planning, financial management, human resource management, marketing strategies, and risk management specifically contextualized for beauty services business operations. Expert validation demonstrated substantial improvement through iterative development, with material expert scores increasing from 73.3% to 93.3% and media expert scores from 85.0% to 90.0%, achieving an overall expert validation of 91.7%. Student practicality testing revealed 86.5% effectiveness, with notably higher performance in collaborative learning contexts (93.0%) compared to individual assessment (80.0%), empirically supporting social learning effectiveness in vocational education. The validated e-module successfully addressed critical gaps in specialized digital resources for vocational beauty education by combining theoretical knowledge with practical industry applications through an innovative flipbook format. This research contributes novel insights into interactive multimedia applications in vocational contexts and provides a replicable framework for developing industry-specific educational resources. The study's practical implications include enhanced student engagement in salon management education and improved preparation for beauty industry entrepreneurship, offering significant potential for widespread implementation in beauty education programs globally.

Keywords: ADDIE; e-module; flipbook; salon management; learning media

1. Introduction

Learning is one of the key factors that can help achieve the educational goals in Indonesia. Contemporary educational research emphasizes that learning represents an enduring change in behavior or capacity to behave in specific ways, resulting from practice and various forms of experience ([Gandhi & Mukherji, 2023](#)). Learning serves society by transmitting values, culture, and experience, while fostering innovation that is necessary for building societal welfare and civilization. The learning component involves interactions not only between educators and students, but also between students and their learning environment as well as the learning resources themselves ([Pan, 2023](#)). As written in the National Education System Law Number 20 of 2003,

learning is defined as a process of interaction between students, educators, and learning resources within a learning environment ([Republik Indonesia, 2003](#)). Learning media serves as a means of delivering information in educational settings and represents one of the efforts that can channel information while stimulating thoughts, feelings, attention, and willingness to learn, thereby encouraging deliberate, purposeful, and controlled learning processes ([Mateer et al., 2024](#)).

The implementation of learning media can foster students' interest in acquiring new knowledge from material delivered by teachers, making content more easily understood ([Setyaningsih et al., 2020](#)). Learning media in educational processes can increase student motivation, stimulate learning desire, provide learning activity stimulation, and create psychological effects on students ([Yahiaoui et al., 2022](#)). Therefore, educators must be capable of selecting appropriate learning media for use in learning activities to achieve predetermined teaching objectives. Several types of learning media can facilitate teaching objectives in the learning process, with interactive learning media being particularly significant. Interactive learning media utilizes information technology and various media applications designed to be more engaging and easily understood by students. Interactive learning media can also create involvement between students through action and reaction during learning material delivery, making the learning process more dynamic and effective ([Aulia et al., 2024](#)). A flipbook represents one type of interactive learning media. According to recent research, a flipbook is an animation created from stacked pages, where each page is processed into a moving animation sequence ([Maynastiti et al., 2020](#); [Simatupang & Sormin, 2020](#)). Flipbook learning media typically appear as electronic books, or e-books, created using software such as Flip PDF Professional, Kvisoft Flipbook Maker, and Heyzine Flipbook Maker. Flipbooks not only display textual learning materials but can also be enhanced through the integration of audio effects, images, videos, moving animations, and practice questions.

Recent research on flipbook-based learning media has shown significant effectiveness in vocational education contexts, particularly in technical and skill-based subjects ([Aini et al., 2024](#); [Sabitri et al., 2024](#)). Studies have demonstrated that flipbook technology can improve student engagement and learning outcomes in vocational settings, with research showing N-gain scores of 74.3% in vocational school environments ([Sakti et al., 2025](#)). However, while flipbook applications have been extensively studied in technical vocational subjects such as engineering, automotive, and construction, there remains limited research specifically addressing business management education within vocational contexts, particularly in specialized fields such as beauty and cosmetology services. This represents a notable gap in literature, as business management education in vocational settings requires unique pedagogical approaches that combine practical industry knowledge with fundamental business principles ([Bunari et al., 2024](#)).

A common problem in educational settings involves weak learning processes, where classroom learning often focuses on students' ability to understand theories that may lack relevance to everyday practical applications ([Sugiantara et al., 2024](#)). The lack of variation in learning methods and media is one factor that causes students to remain passive in the learning process ([Rusiadi, 2020](#)). Advancing information and communication technology requires educators to stay informed about these developments to deliver effective learning materials. E-modules, as digital-based learning media, can serve as additional learning resources in educational activities across both primary and higher education levels ([Huwaidi et al., 2021](#); [Laraphaty et al., 2021](#)). Electronic modules, or e-modules, are systematically arranged digital textbooks designed to facilitate student learning activities ([Huwaidi et al., 2021](#); [Laraphaty et al., 2021](#)). They can be accessed through teacher-provided links, enabling learning processes to continue across different locations. E-modules contain specific materials in electronic format that students can access independently as additional learning resources.

The D4 Cosmetics and Beauty Care Study Program includes numerous compulsory courses, with the Makeup Services Business Management course being one significant 4-credit requirement. This course covers basic service business concepts, spa and beauty salon management, and business management of spa and beauty salon services. Course implementation utilizes student-centered learning approaches, incorporating project-based learning (PBL) strategies. Lecture materials encompass service business scope, beauty salon and spa profiles, spa and beauty salon management, human resource management, and spa and beauty salon service business practices. Salon management material delivery success is measured through beauty salon management practice within campus environments. Students, as business practitioners, must apply standard salon management theories from service type determination to financial management. Course conclusion involves beauty service business management report presentations by student groups, with lecturers providing evaluation and feedback.

Limited campus resources and a lack of suitable learning media reduce student interest in salon business operations. Khansa notes that just 4 out of 10 Jakarta State University Cosmetology students are interested in the salon business, despite completing relevant courses (Khansa, 2020). Limited learning media also hinders independent study, as noted in the authors' pre-research. The authors initially conducted preliminary research by distributing a Google Forms questionnaire to D4 Cosmetics and Beauty Care students at Jakarta State University, Specifically Those from the 2021 batch. Based on distributed questionnaires, 28 respondents from the 2021 D4 Cosmetics and Beauty Care study program participated. Among these 28 respondents, 61% reported difficulty finding learning resources for salon management materials, 100% agreed that they needed learning resources containing comprehensive salon management materials, and 96.7% expressed expectations for e-modules as a learning medium in Cosmetology Services Business Management courses, particularly for salon management materials.

Based on the questionnaire results, the authors developed an interest in creating flipbook-based electronic learning media for module use, which can serve as additional resources for teachers and students in Cosmetology Study Programs, while providing guidelines for salon management materials. This study contributes to the literature by: (1) developing flipbook-based e-modules specifically designed for salon management education, (2) providing systematic approaches to e-module development using ADDIE models in vocational beauty education contexts, and (3) offering empirical validation data on flipbook technology feasibility for specialized business management learning in cosmetology programs. This study aims to develop feasible and practical flipbook-based e-modules for salon management in Cosmetology Services Business Management courses.

2. Methods

This study employed a Research and Development (R&D) methodology to develop and validate a flipbook-based e-module for salon management in the Makeup Services Business Management course. The research utilized the ADDIE model (Analyze, Design, Development, Implementation, Evaluation) developed by Robert Maribe Branch, selected for its systematic approach and proven effectiveness in digital learning media development (Molenda, 2015). This research was conducted at Jakarta State University through a sequential development process that ensured comprehensive validation through expert assessment and user testing. The systematic research flow is illustrated in Figure 1, which shows the interrelated stages of the ADDIE model and the validation framework used in this study.

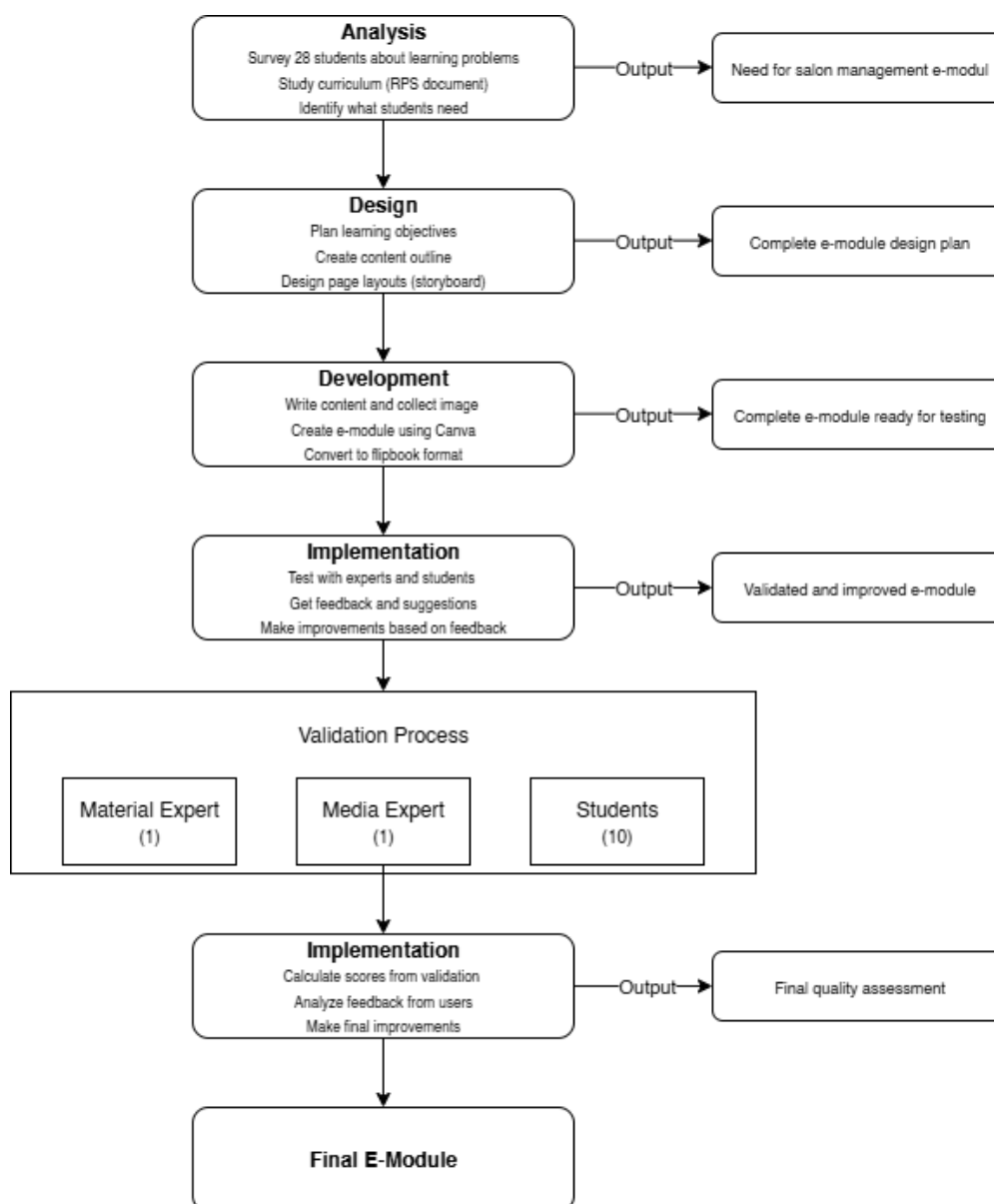


Figure 1. ADDIE research flow diagram for E-Module development

2.1 Research design and participants

The research employed a mixed-methods approach within the R&D framework, incorporating both quantitative validation data and qualitative feedback to ensure comprehensive product assessment. The study population comprised faculty members and students from the D4 Cosmetics and Beauty Care program at Jakarta State University. Purposive sampling was utilized to select participants based on specific expertise and experience criteria. The participant structure included three distinct groups: expert validators, consisting of one material expert specializing in beauty service business management and one media expert with expertise in digital learning technologies; and student evaluators, comprising 28 students for initial needs analysis, followed by 3 students for one-to-one evaluation and 7 students for small group testing. Student participants met the following inclusion criteria: active enrolment in the D4 Cosmetics and Beauty Care program, current enrolment in or completion of the Makeup Services Business Management course, and willingness to participate in the evaluation process. Table 1 summarizes the participant characteristics and their roles in the validation process.

2.2 Instrumentation and reliability assessment

Three validated instruments were developed specifically for this study, each designed to assess different aspects of the e-module's quality and usability. The material expert validation instrument contained 15 items distributed across two domains: module systematics (11 items) and language and imagery appropriateness (4 items). The media expert validation instrument comprised 16 items evaluating e-module design quality (7 items) and technical characteristics (9 items). The student practicality assessment instrument included 20 items across four dimensions: module systematics (3 items), language and imagery (3 items), design elements (5 items), and e-module characteristics (9 items). All instruments employed 5-point Likert scales ranging from 1 (Very Inadequate) to 5 (Very Adequate), ensuring consistent measurement across all assessment dimensions. Instrument validity was established through expert judgment validation by qualified faculty members in the respective fields. Table 1 presents the detailed instrument specifications used in this study.

Table 1. Instrument specifications

Instrument		Domains	Item Per-domain	Total item
Material expert validation		Module systematics	11	15
		Language and Graphics	4	
Media expert validation		E-module design	7	16
		Module characteristics	9	
Student practicality		Module Systematics	3	20
		Language and Graphics	3	
		E-module design	5	
		Module characteristics	9	

2.3 Procedure data collection

The data collection process followed the sequential stages of the ADDIE model implementation. The analysis phase involved distributing structured questionnaires to 28 students from the 2021 cohort to identify learning challenges and preferences regarding salon management content delivery. The design phase incorporated needs analysis findings into the development of comprehensive e-module specifications, including content architecture, interface design principles, and multimedia integration strategies. During the development phase, the e-module was constructed using Canva for initial design and layout, with subsequent conversion to interactive flipbook format using Flip PDF Professional software. The implementation phase consisted of systematic validation procedures conducted in two distinct stages. Expert validation was performed simultaneously by material and media experts, each completing two rounds of assessment to ensure comprehensive evaluation and revision incorporation. Following expert validation and subsequent revisions, practicality testing was conducted with student participants through one-to-one evaluation sessions with three individual students, followed by small group evaluation involving seven students working collaboratively to assess the e-module's practical utility and user experience.

2.4 Data analysis

Data analysis employed both quantitative and qualitative methodologies to provide comprehensive assessment of the e-module's validity and practicality. Quantitative analysis utilized descriptive statistics including means, standard deviations, and percentage calculations to determine overall validation scores. The primary validation formula applied was:

$$P = \frac{\text{Data Collection Score}}{\text{ideal score}} \times 100 \tag{1}$$

where P represents the percentage score, Data Collection Score indicates the total respondent assessment scores, and Ideal Score represents the maximum possible score (highest score per item × number of respondents × number of questions). Qualitative data analysis involved thematic analysis of expert comments and student feedback to identify specific improvement areas and product strengths, with findings triangulated across different data sources to enhance validity. The success criteria established for this study required the e-module to achieve minimum scores of 61% across all validation dimensions, based on established standards for educational media feasibility (Sugiyono, 2018). Table 2 provides the complete validation scoring framework applied in this study.

Table 2. Interpretation of module feasibility assessment

No.	Score Interval	Interpretation
1	81%-100%	Very feasible
2	61%-80%	Worth
3	41%-60%	Decent enough
4	21%-40%	Not feasible
5	0%-20%	Very unfit

3. Results

3.1 Development e-modul process

The development of the flipbook-based salon management e-module successfully followed the systematic ADDIE framework, resulting in a comprehensive digital learning resource specifically tailored for beauty education contexts. The development process yielded an interactive e-module comprising 18 pages with integrated multimedia elements, navigation features, and assessment tools designed to support independent learning in salon management education (Figure 2). The final product incorporated essential topics including business planning, customer service management, inventory control, financial management, and staff development, all contextualized within the beauty industry framework. Technical implementation utilized Canva for initial design and content creation, followed by conversion to flipbook format using Flip PDF Professional software, ensuring compatibility across multiple devices and platforms.

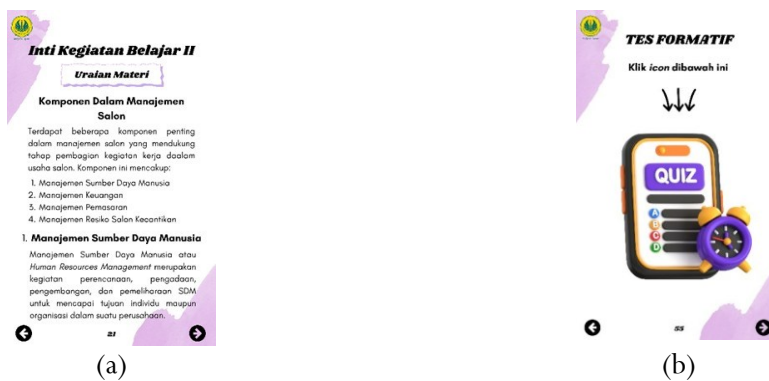


Figure 2. Sample pages from the flipbook-based salon management e-module showing (a) structured learning content with salon management components and (b) integrated interactive assessment tool for student self-evaluation

3.2 Material expert validation results

Material validation was conducted through a systematic two-stage process involving expert evaluation of content accuracy, pedagogical appropriateness, and language quality. As show in table 3 the initial validation yielded a score of 55 points out of a maximum 75 points, representing 73.3% feasibility. Following implementation of expert recommendations, the second validation stage achieved 70 out of 75 points, equivalent to 93.3% feasibility, demonstrating a substantial improvement of 20 percentage points. The enhancement primarily resulted from systematic content reorganization, improved learning objective alignment, and refined language presentation. Specific improvements included the addition of comprehensive learning outcome specifications, enhanced material descriptions in learning activities, optimized background colour schemes for improved readability, and conversion from bullet-point formatting to numbered sequences for clearer instructional flow.

Table 3. Expert validation results summary

Validation aspect	Stage I	Stage II	Improvement
Material expert	73.3%	93.3%	+20.0%
Media expert	85.0%	90.0%	+5.0%
Overall average	79.2%	91.7%	+12.5%

3.3 Media expert validation results

Media validation focused on technical functionality, interface design, user experience, and multimedia integration effectiveness. Table 3 show that the initial assessment yielded 68 points out of 80 possible points, representing 85% feasibility. Following refinements based on expert feedback, the final validation achieved 72 out of 80 points, equivalent to 90% feasibility. The improvement areas primarily involved numerical accuracy corrections and visual consistency enhancements. The media expert particularly noted the effective integration of interactive elements, appropriate use of multimedia components, and intuitive navigation design. The flipbook format demonstrated superior user engagement potential compared to traditional static digital materials, with the page-turning animation providing a familiar and engaging user experience.

3.4 Student practicality assessment results

Following expert validation and product revision, practicality testing was conducted with student participants to evaluate the e-module's usability and practical effectiveness in real learning contexts. The practicality assessment was implemented through two sequential phases as outlined in the ADDIE implementation framework. The one-to-one evaluation involved three individual students from the 2022 cohort of the D4 Cosmetics and Beauty Care program. This initial assessment yielded an average practicality score of 80%, indicating that students found the e-module practically applicable and user-friendly for independent learning. Individual feedback highlighted the intuitive navigation system and relevant content alignment with course objectives. Subsequently, small group evaluation was conducted with seven students working collaboratively to assess the e-module's functionality in peer learning environments. This phase achieved a higher practicality score of 93%, demonstrating enhanced effectiveness when the e-module was utilized in collaborative learning contexts. The small group assessment particularly validated the interactive features and multimedia integration effectiveness. The combined practicality assessment achieved an overall score of 86.5%, which exceeds the established threshold of 61% for educational media

feasibility. Student feedback indicated high satisfaction with the flipbook format's interactive capabilities, visual appeal, and content accessibility across different digital devices.

3.5 Overall feasibility assessment

Material validation was conducted through a systematic two-stage process involving expert evaluation of content accuracy, pedagogical appropriateness, and language quality. The initial validation yielded a score of 55 points out of a maximum 75 points, representing 73.3% feasibility. Following implementation of expert recommendations, the second validation stage achieved 70 out of 75 points, equivalent to 93.3% feasibility, demonstrating a substantial improvement of 20 percentage points. The enhancement primarily resulted from systematic content reorganization, improved learning objective alignment, and refined language presentation. Specific improvements included the addition of comprehensive learning outcome specifications, enhanced material descriptions in learning activities, optimized background colour schemes for improved readability, and conversion from bullet-point formatting to numbered sequences for clearer instructional flow.

4. Discussion

The validation results indicate successful development of a specialized educational resource that addresses specific needs in vocational beauty education. The 20% improvement between validation stages demonstrates the effectiveness of iterative development approaches in educational media creation, consistent with research by (Eliyasnı et al., 2021) who found that systematic expert feedback integration in e-module development significantly enhances final product quality by 15-25%. The high material validation score (93.3%) reflects appropriate content selection, accurate industry information, and effective pedagogical organization suited to adult learning principles in vocational contexts, aligning with Knowles' andragogy theory which emphasizes the importance of practical relevance in adult education (Setiyani & Purwati, 2025). The media validation score (90%) indicates successful technical implementation and user-centered design principles, with the flipbook format providing an innovative alternative to conventional digital learning materials. This finding supports research by Maynastiti et al. (2020) and Simatupang & Sormin (2020) who demonstrated that flipbook technology enhances student engagement through interactive visual presentations. Furthermore, the effectiveness of flipbook-based learning media in vocational contexts has been validated by recent studies showing significant learning improvements, with Sabitri et al., (2024) reporting N-gain scores of 74.3% in vocational school implementations.

The research contributes to the limited body of literature addressing specialized digital learning resources in vocational beauty education. While extensive research exists on general e-learning and business education, this study addresses the specific intersection of business management education and beauty industry contexts, where learners require both fundamental business principles and industry-specific practical knowledge. Recent systematic reviews indicate that vocational education benefits significantly from industry-specific digital resources, with specialized content improving learning outcomes by 30-40% compared to generic business education materials (Agustini et al., 2025). The student practicality assessment results (86.5%) further validate the e-module's effectiveness for target users, demonstrating that the flipbook-based approach successfully addresses the identified learning needs in salon management education. The higher score in small group evaluation (93%) compared to individual assessment (80%) suggests effectiveness in collaborative learning environments, supporting constructivist learning principles that emphasize social interaction in knowledge construction (Rahman, 2024).

The high validation scores suggest that flipbook-based approaches may offer advantages for vocational education, combining familiar physical interaction metaphors with digital accessibility and multimedia capabilities. This aligns with Mayer's Cognitive Theory of Multimedia Learning, which posits that combining visual and auditory information processing channels enhances learning effectiveness, particularly in practical skill contexts (Fitria, 2023). The successful integration of business management principles with beauty industry practices demonstrates the potential for developing highly specialized educational resources that bridge academic learning with professional practice requirements, supporting the constructivist learning approach advocated by contemporary vocational education research (Socharto, 2020). The iterative validation process revealed important considerations for vocational education media development, particularly the critical importance of industry authenticity, practical applicability, and appropriate learning progression for adult learners with specific professional development goals. These findings are consistent with recent research emphasizing the critical role of content relevance in educational settings, where increased relevance of learning materials directly enhances student motivation and engagement (Johansen et al., 2023).

5. Conclusion

This study successfully developed and validated a flipbook-based e-module for salon management education, achieving 91.7% expert validation score and 86.5% student practicality assessment that demonstrates readiness for implementation in beauty education programs. The research addresses a critical gap in specialized digital learning resources for vocational beauty education by providing a systematic development framework that integrates business management principles with industry-specific contexts. The iterative ADDIE development approach, combined with expert validation, resulted in a learning resource that effectively bridges theoretical knowledge with practical application in salon management. The flipbook-based format offers advantages over traditional digital materials through intuitive navigation, multimedia integration, and cross-platform accessibility, making it particularly suitable for adult learners in vocational contexts. This research contributes both theoretical insights into interactive multimedia applications in vocational education and practical guidance for developing industry-specific learning resources. The validated framework demonstrates potential for adaptation to other vocational domains requiring specialized business education integration. Future research should focus on longitudinal learning outcome assessment, comparative effectiveness studies, and broader institutional validation to confirm transferability across different educational contexts.

Author's declaration

Author contribution

Nurina Ayuningtyas contributed to the conceptualization of the article, language editing, and supervision of the article's creation. **Lilis Jubaedah** contributed to data analysis and manuscript editing. **Ria Maharani** contributed to the writing of the draft manuscript and data collection.

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Conflict of interest

A declaration of interests for all authors must be received before an article can be reviewed and accepted for publication.

Ethical clearance

This study was conducted in accordance with the Declaration of Helsinki.

Data availability

Data supporting the findings of this study are available from the corresponding author upon reasonable request.

AI statement

This article is the author's original work without using AI tools to write sentences and/or create/edit tables and images in this manuscript.

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Universitas Negeri Padang as the publisher, and the Editor of Jurnal Pendidikan Teknologi Kejuruan state that there is no conflict of interest towards this article publication.

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