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Development and Validation of Canva-Based Interactive PowerPoint Media for Hot Beverage Instruction in Culinary Vocational Education

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ABSTRACT

Purpose of the study: This study aimed to develop and validate a Canva-based interactive PowerPoint learning medium for hot beverage instruction in vocational culinary education.

Materials and methods: This research employed a Research and Development (R&D) approach using the ADDIE instructional design framework, covering the stages of analysis, design, development, and implementation. The study involved six expert validators consisting of three material experts and three media experts, as well as 32 Grade 11 culinary vocational students from SMK Negeri 8 Surabaya, Indonesia. Data were collected through material validation questionnaires, media validation questionnaires, and student response questionnaires. Quantitative data were analyzed descriptively using percentage-based feasibility criteria, while qualitative feedback supported product revision and refinement.

Results: The results demonstrated that the developed media achieved high feasibility validation outcomes, with material feasibility reaching 96% and media feasibility reaching 95%. Student responses also showed an excellent level of acceptance, obtaining an overall score of 89%. These findings indicate that the interactive multimedia successfully enhanced student understanding, motivation, engagement, and readiness to apply practical culinary skills. The integration of audiovisual elements, interactive navigation, and gamified assessments contributed positively to instructional effectiveness.

Conclusions: Canva-based interactive PowerPoint media represents an effective and innovative instructional solution for vocational culinary education. The study highlights the potential of multimedia-supported learning to modernize vocational pedagogy and strengthen learner-centered educational practices in the digital era.

Keywords
Canva, interactive PowerPoint, vocational education, culinary learning, multimedia learning, ADDIE.

INTRODUCTION

The accelerating digitalization of education has emerged as a defining global issue, fundamentally transforming pedagogical paradigms across primary, secondary, and tertiary learning environments (Herlandy et al., 2024, p. 185; Marzalius & Jasril, 2026). In the era of Industry 4.0 and Education 5.0, educational institutions worldwide are under increasing pressure to integrate innovative digital technologies that enhance instructional quality, foster learner autonomy, and develop future-ready competencies (Pushpanjali, 2025; Zou et al., 2025). This transformation is particularly significant in Technical and Vocational Education and Training (TVET), where educational effectiveness depends not only on conceptual understanding but also on the successful integration of practical, industry-relevant skill development. Across both developed and developing nations, vocational education systems are increasingly challenged to modernize instructional strategies in response to evolving workforce demands, technological advancements, and student preferences for flexible, interactive, and multimedia-rich learning environments (Cai & Aquino, 2023; Luo et al., 2018, p. 3).

Within vocational secondary education, especially in culinary and hospitality training, instructional delivery remains heavily dependent on conventional methods such as teacher-centered lectures, static PowerPoint presentations, textbooks, and printed modules(Díez, 2025; Hsu et al., 2015). While these approaches may provide foundational knowledge, they often fail to adequately engage contemporary learners, who increasingly favor visually stimulating, interactive, and self-paced educational experiences. This pedagogical mismatch may hinder learner motivation, reduce cognitive engagement, and constrain skill acquisition, particularly in procedural subjects requiring sequential understanding and practical application, such as hot beverage preparation (Fisher & Louw, 2020, p. 100249; Sadegh-Zadeh et al., 2023, p. 2). Consequently, the modernization of vocational instructional media has become an urgent educational priority globally.

Extensive international literature has consistently emphasized the pedagogical value of interactive multimedia in improving educational outcomes. Studies indicate that multimedia-based instructional designs can significantly enhance student motivation, academic performance, retention, and learner satisfaction by integrating multimodal elements such as text, animation, audio, video, gamification, and nonlinear navigation (Jaiswal, 2020, p. 153; Plodkaew et al., 2025, p. 164). Theoretical frameworks such as Mayer's Cognitive Theory of Multimedia Learning further support the integration of interactive digital resources, suggesting that appropriately designed multimedia can optimize cognitive processing by reducing extraneous load and enhancing meaningful learning (Surbakti et al., 2024; Wisniewski & Hortman, 2019, p. 1; Wu, 2023, p. 429).

Recent scholarship has increasingly explored the use of design platforms such as Canva in educational settings due to their accessibility, visual sophistication, and multifunctional capabilities (Abidin et al., 2025; Anam et al., 2023, p. 378; Jamaludin & Sedek, 2024). Canva offers a cloud-based platform enabling educators to create dynamic educational resources incorporating animations, hyperlinks, embedded media, voiceovers, assessments, and AI-assisted design features. Previous studies have demonstrated Canva's effectiveness in improving student engagement, creativity, and instructional efficiency across various educational disciplines (Abidin et al., 2025; Kryvoruchko et al., 2025; Sarimah et al., 2025). Additionally, interactive PowerPoint media enhanced through Canva has shown promise in supporting learner-centered instruction through responsive navigation systems and multimedia integration.

However, despite growing interest in Canva-based educational innovation, critical examination of existing literature reveals several limitations. First, most prior studies predominantly focus on elementary education, general academic subjects, or theoretical learning contexts rather than vocationally specialized domains (Herlandy et al., 2024, p. 192). Second, existing research frequently emphasizes usability or student satisfaction without sufficiently addressing comprehensive product validation through systematic material and media feasibility assessments (Kay & Knaack, 2008, p. 13). Third, limited scholarly attention has been directed toward the application of Canva-based interactive media in culinary vocational education, where instructional materials must bridge theoretical knowledge and procedural competency (Asnur et al., 2025; Rahmi et al., 2025). Specifically, the topic of hot beverage instruction remains underrepresented despite its importance within hospitality and culinary service curricula.

This gap in the literature underscores the need for research that not only develops innovative digital instructional media but also rigorously validates its curricular relevance, technical quality, and pedagogical effectiveness within specialized vocational contexts. Given the increasing demand for digitally competent vocational graduates, there is a strong rationale for designing instructional solutions that align with learner needs, curriculum standards, and contemporary technological opportunities. Interactive PowerPoint media developed through Canva may offer an effective solution by combining curriculum alignment with engaging, practical, and accessible learning experiences that support both independent study and classroom instruction.

Therefore, this study seeks to address these scholarly and practical gaps by developing a Canva-based interactive PowerPoint learning medium specifically designed for hot beverage materials in vocational culinary education. Using the ADDIE instructional design framework, this research aims to systematically design, develop, and validate the instructional product while examining student responses toward its implementation (Chiang & Lan, 2014; Dewi, 2025).

The objectives of this study are: (1) to develop a Canva-based interactive PowerPoint learning medium for hot beverage instruction; (2) to evaluate the material feasibility of the developed media through expert validation; (3) to assess the media feasibility in terms of instructional design quality and technical effectiveness; and (4) to examine student responses regarding usability, engagement, and learning support.

By addressing these objectives, this study contributes to the growing body of international educational technology research by extending digital instructional innovation into vocational culinary education. Moreover, the findings are expected to provide practical implications for educators, curriculum developers, and policymakers seeking to modernize vocational pedagogy through scalable, learner-centered, and technologically adaptive educational solutions.

MATERIALS AND METHODS

Study Participants

The study involved multiple participant groups selected purposively based on their relevance to the instructional product development and evaluation process. First, expert validation was conducted by six professional validators, comprising:(1) three material experts, including one university academic specializing in culinary education and two vocational culinary teachers. They were responsible for assessing curriculum alignment, material accuracy, content relevance, and instructional clarity;and (2) three media experts, including one educational technology academic and two vocational instructors. They were responsible for evaluating media design quality, technical functionality, navigation, audiovisual integration, and user accessibility. Second, limited field implementation involved 32 Phase F (Grade XI) culinary vocational students from SMK Negeri 8 Surabaya, Indonesia, enrolled in the culinary service concentration program. Participants were selected because of their direct curricular exposure to hot beverage instructional materials. The student cohort represented adolescent vocational learners with foundational culinary competencies and active engagement in hospitality-oriented coursework. This demographic was deemed appropriate for evaluating the usability, pedagogical effectiveness, and learner response toward the developed interactive media.

Study Design and Study Organization

This study employed a Research and Development (R&D) methodology utilizing the ADDIE instructional design framework, which consists of five systematic phases: Analysis, Design, Development, Implementation, and Evaluation. However, consistent with the scope of this research, we conducted the study through the Implementation stage, focusing primarily on product development, expert validation, and limited field testing. The ADDIE model was selected due to its comprehensive, iterative, and flexible structure, which is widely recognized for developing educational products that are pedagogically sound, technologically relevant, and adaptable to learners' needs.

The study was organized into four primary phases:

Table 1. Study Organization Research and Development (R&D) methodology utilizing the ADDIE instructional design framework

Phase	Activities	Description / Output
Analysis	Needs Assessment and Curriculum Analysis	Researchers conducted an initial needs assessment through interviews with teachers and students to identify instructional challenges, learner preferences, curriculum requirements, and technological limitations. Curriculum analysis emphasized alignment with the Indonesian Merdeka Curriculum, particularly competency standards in culinary hospitality education.
Design	Instructional	Researchers developed a comprehensive instructional blueprint, including content mapping,

	Design Planning	storyboard preparation, learning navigation systems, multimedia integration planning, assessment design, and user interface architecture. Researchers selected the Canva platform due to its accessibility and advanced multimedia features.
Development	Media Production and Expert Validation	Researchers developed the interactive PowerPoint using Canva, integrating audiovisual narration, interactive navigation buttons, embedded videos, gamified mini-assessments, AI-assisted visual design features, and responsive learning modules. Researchers conducted iterative expert validation to refine the product based on qualitative feedback and quantitative evaluation scores.
Implementation	Limited Field Trial	Researchers conducted a limited field trial involving 32 students to assess learner responses across cognitive, affective, and conative dimensions related to instructional media acceptance.
Evaluation	Conceptual Acknowledgment	Although the evaluation phase was conceptually acknowledged, long-term experimental testing of learning effectiveness was beyond the scope of the present study.

Data Collection Instruments

Data collection in this study employed three systematically developed research instruments designed to comprehensively evaluate the pedagogical validity, technical feasibility, and learner acceptance of the Canva-based interactive PowerPoint instructional media. These instruments consisted of: (1) material validation questionnaires, (2) media validation questionnaires, and (3) student response questionnaires. Each instrument was specifically structured to align with the study's developmental objectives and to ensure rigorous evaluation across expert and learner perspectives.

Table 2. Data Collection Instruments and Measurement Framework

Instrument	Respondents	Assessed Dimensions	Indicators / Focus	Purpose
Material Validation Questionnaire	Subject-matter experts	Appropriateness	Alignment with curriculum standards, learning objectives, and competency indicators	To determine instructional content validity and curricular feasibility
		Accuracy	Correctness, reliability, and procedural validity of hot beverage materials	
		Currency	Relevance and up-to-dateness with contemporary culinary practices and educational standards	
		Clarity	Comprehensibility, coherence, and instructional organization	
Media Validation Questionnaire	Educational technology & media experts	Media Design Quality	Visual aesthetics, layout consistency, typography, graphics integration, animation effectiveness, and multimedia presentation	To assess technical quality and instructional media design effectiveness
		Technical Functionality	Navigation systems, hyperlink accuracy, audiovisual performance, usability, accessibility, and system responsiveness	
Student Response Questionnaire	Vocational culinary students	Student Engagement	Motivation, interest, attention, and emotional involvement during media use	To measure learner acceptance, usability, and instructional impact
		Learning Motivation	Encouragement to understand, retain, and apply learning content independently and practically	

Table 3. Measurement Scale Used in the Study

Scale Value	Response Category
1	*Strongly Disagree*
2	*Disagree*
3	*Neutral*
4	*Agree*
5	*Strongly Agree*

Statistical Analysis

Quantitative data analysis in this study employed descriptive statistical techniques to evaluate both product feasibility and user acceptance. Expert validation data were analyzed by converting the scores assigned by validators into percentage-based feasibility indices using the formula feasibility percentage = (obtained score / maximum score) × 100. The resulting percentages were interpreted according to predefined criteria, where scores of 81–100% indicated a highly feasible product, 61–80% feasible, 41–60% moderately feasible, 21–40% less feasible, and 0–20% not feasible. This analytical procedure was applied to determine the pedagogical soundness and technical validity of the developed instructional product. Similarly, student response data were analyzed by transforming questionnaire scores into percentage values to measure levels of cognitive acceptance, affective engagement, and conative readiness toward the instructional media. The interpretation followed established benchmarks, with percentage scores of 81–100% categorized as excellent, 61–80% as good, 41–60% as fair, 21–40% as poor, and 0–20% as very poor. In addition to quantitative analysis, descriptive qualitative analysis was employed to examine validators' comments, revision suggestions, and students' feedback. This qualitative interpretation provided contextual insights that informed iterative product

refinement and enhancement.

Ethical Considerations

This study adhered to institutional ethical standards for educational research involving human participants. Ethical approval was obtained from the appropriate academic ethics review board of Surabaya State University prior to data collection. Official research authorization was also secured from SMK Negeri 8 Surabaya. All participants, including expert validators, teachers, and students, were informed of the study's objectives, procedures, voluntary nature, and confidentiality assurances. Written informed consent was obtained from all adult participants, while institutional permission and guardian acknowledgment were secured for student participants where applicable. Participant anonymity was maintained throughout data analysis and reporting processes. Data were used exclusively for academic research purposes, and all procedures complied with ethical principles concerning participant welfare, informed consent, confidentiality, and responsible educational research practice.

RESULTS

This section objectively presents the outcomes of the development, validation, and implementation of the Canva-based interactive PowerPoint learning media for hot beverage instruction among vocational culinary students. The findings are organized according to the sequential phases of product development, expert validation, and student response evaluation, emphasizing statistical outcomes, instructional feasibility, and major pedagogical discoveries.

Product Development Outcomes

Using the ADDIE framework, the instructional product was successfully developed through systematic analysis, design, development, and implementation stages. The final product consisted of a Canva-based interactive PowerPoint integrating curriculum-aligned instructional content, embedded instructional videos, audio narration, navigation buttons, gamified assessments, and AI-supported multimedia features. The completed media were designed to facilitate self-paced, visually engaging, and competency-based learning for culinary vocational students.

The development and validation process of the Canva-based interactive PowerPoint instructional media generated several important outcomes related to instructional feasibility, media quality, and learner acceptance. The instructional product was systematically developed using the ADDIE framework and subsequently evaluated through expert validation and limited field implementation involving vocational culinary students. To provide a comprehensive overview of the development stages, interface characteristics, validation outcomes, and student response dimensions, the integrated visual presentation is illustrated in Figure 1.

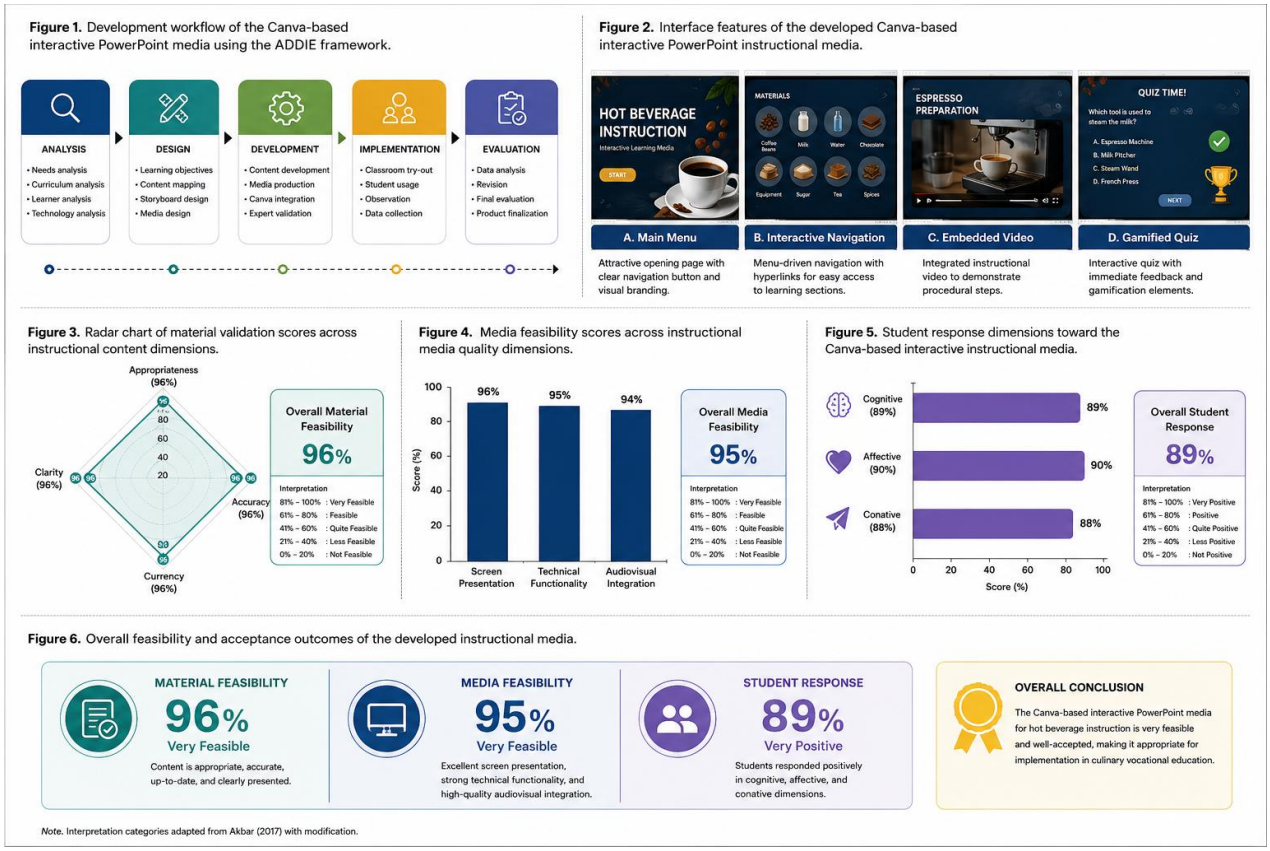

Figure 1-5. Integrated development, validation, and student response outcomes of the Canva-based interactive PowerPoint instructional media for hot beverage learning.

Figure 1-5 demonstrates that the developed instructional media achieved highly positive outcomes across all evaluated dimensions. The ADDIE workflow confirms that the instructional product's systematic development through sequential instructional design stages. The interface visualization further illustrates the integration of interactive navigation systems, embedded multimedia content, and gamified assessment features designed to support learner engagement and self-directed learning. Material validation results

revealed exceptionally high feasibility scores across appropriateness, accuracy, currency, and clarity dimensions, with an overall score of 96%, indicating strong curricular alignment and instructional validity. Media feasibility evaluation achieved a 95% score, confirming the technical effectiveness and audiovisual quality of the instructional product. Student response analysis also demonstrated excellent acceptance levels across cognitive, affective, and conative dimensions, with an overall response score of 89%. Collectively, these findings indicate that the Canva-based interactive PowerPoint media possesses strong pedagogical value, technical quality, and learner-centered effectiveness for vocational culinary education.

Material Feasibility Validation

Table 4. The final material feasibility score

Validation Aspect	Initial Score (%)	Final Score (%)	Interpretation
Appropriateness	78	98	Highly Feasible
Accuracy	73	95	Highly Feasible
Currency	71	96	Highly Feasible
Clarity	76	96	Highly Feasible
Overall Mean	74	96	Highly Feasible

Material validation demonstrated substantial improvement following expert revisions. The final material feasibility score reached 96%, categorizing the instructional content as highly feasible. This indicates strong curriculum alignment, high conceptual accuracy, contemporary relevance, and instructional clarity.

Media Feasibility Validation

Media validation results indicated that the developed instructional product achieved a final score of 95%, placing it within the highly feasible category. Key evaluated dimensions included text quality, graphics, navigation systems, color selection, animation, audio integration, and video functionality. Expert recommendations primarily focused on optimizing navigation consistency, font readability, and additional multimedia enhancements.

Table 5. Media validation results

Evaluation Dimension	Final Score (%)	Interpretation
Screen Presentation & Design	95	Highly Feasible
Technical Functionality	95	Highly Feasible
Audiovisual Integration	95	Highly Feasible
Overall Media Feasibility	95	Highly Feasible

To provide a clearer representation of the media validation outcomes, the feasibility scores across major instructional media quality dimensions are presented visually in Figure 6. Media experts conducted the evaluation, focusing on screen presentation quality, technical functionality, and audiovisual integration. The visualization illustrates the consistency of expert assessments regarding the technical and instructional effectiveness of the developed Canva-based interactive PowerPoint learning media.

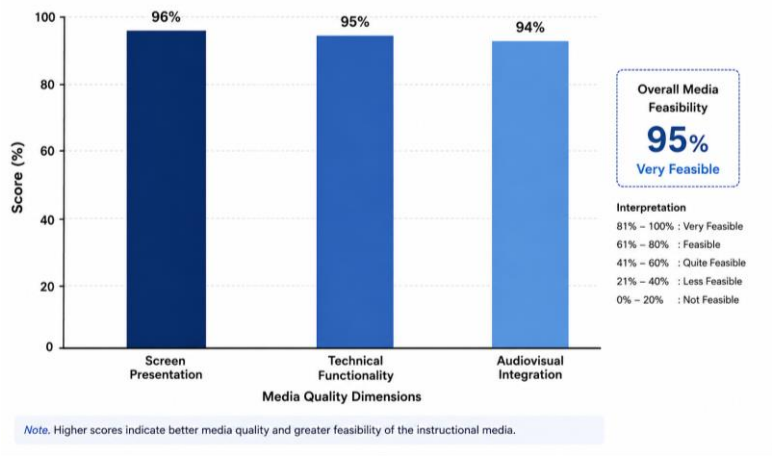

Figure 6. Media feasibility scores across instructional media quality dimensions of the Canva-based interactive PowerPoint learning media.

Figure 6 demonstrates that all evaluated media quality dimensions achieved exceptionally high feasibility scores, indicating strong technical validity and instructional effectiveness of the developed learning media. The screen presentation dimension obtained the highest score (96%), suggesting that the visual layout, typography, graphical consistency, and overall interface design were considered highly appropriate and attractive for vocational learning contexts. Technical functionality achieved a score of 95%, indicating that navigation systems, hyperlinks, media responsiveness, and operational usability functioned effectively without major technical limitations. Audiovisual integration reached a score of 94%, confirming that the embedded videos, audio narration, animations, and multimedia components successfully supported learner engagement and instructional clarity. Overall, the media feasibility score reached 95%, which falls within the “Very Feasible” category, demonstrating that the Canva-based interactive instructional media possesses strong pedagogical and technological quality suitable for implementation in vocational culinary education.

Student Response Evaluation

Table 6. Student Response Evaluation

Response Dimension	Score (%)	Interpretation
Cognitive	89	Excellent
Affective	89	Excellent
Conative	88	Excellent
Overall Mean	89	Excellent

Student response analysis revealed an overall acceptance score of 89%, classified as excellent. These findings suggest that the interactive media effectively enhanced student understanding, motivation, and readiness to apply acquired knowledge in practical culinary contexts. High cognitive scores indicate improved comprehension, affective scores reflect strong learner engagement, and conative outcomes suggest increased confidence in skill application.

To further illustrate the level of learner acceptance toward the developed instructional product, student response outcomes across cognitive, affective, and conative dimensions are visually presented in Figure 5. The evaluation was conducted following limited field implementation involving 32 vocational culinary students. The visualization provides a multidimensional representation of students' perceptions regarding knowledge acquisition, emotional engagement, and behavioral readiness after interacting with the Canva-based interactive PowerPoint learning media.

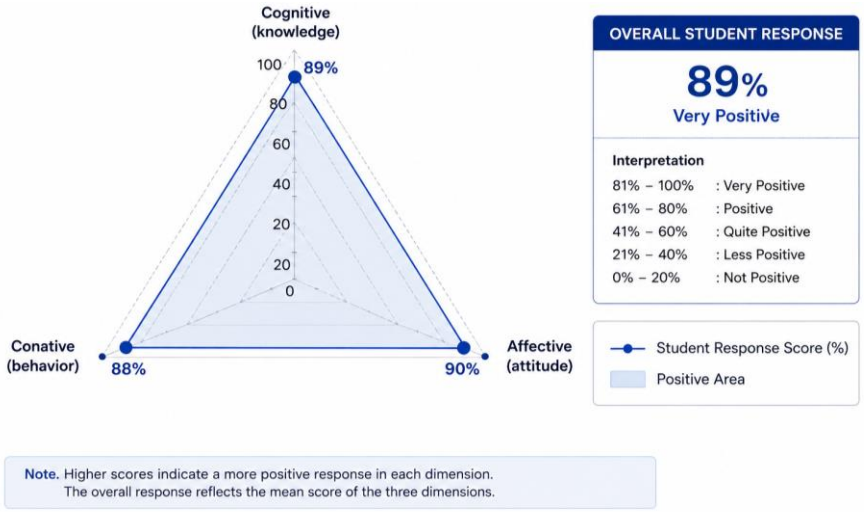

Figure 7. Student response dimensions toward the Canva-based interactive instructional media among vocational culinary students (n = 32).

Figure 7 demonstrates that all student response dimensions achieved highly positive scores, indicating strong learner acceptance of the developed instructional media. The affective dimension obtained the highest score (90%), suggesting that the media successfully increased students' interest, motivation, and emotional engagement during the learning process. The cognitive dimension reached a score of 89%, reflecting improved understanding and knowledge acquisition related to hot beverage instructional materials. Meanwhile, the conative dimension achieved a score of 88%, indicating that students demonstrated positive behavioral readiness and confidence in applying the acquired knowledge within practical culinary contexts. Overall, the mean student response score reached 89%, classified as excellent, confirming that the Canva-based interactive PowerPoint media effectively supports learner-centered vocational instruction through engaging multimedia integration and interactive learning experiences.

Statistical Implications of Findings

Descriptive statistical evaluations confirmed that both expert validators and student participants consistently rated the developed instructional media within the highest interpretive categories. The convergence of material feasibility (96%), media feasibility (95%), and student response (89%) provides robust evidence that the instructional product possesses strong pedagogical validity, technical quality, and learner-centered effectiveness. These statistical outcomes support the functional suitability of Canva-based interactive PowerPoint as an innovative instructional medium for vocational culinary education.

Significant Discoveries

Several significant findings emerged from this study: (1) Canva-based interactive PowerPoint can be systematically developed into a highly valid vocational instructional product; (2) expert-guided iterative revisions substantially enhance educational media quality; (3) multimedia integration effectively addresses learner preferences for audiovisual, flexible, and self-directed learning; and (4) specialized vocational subjects such as hot beverage preparation benefit substantially from interactive digital instructional innovation. Collectively, these findings demonstrate that Canva-supported interactive instructional media not only fulfills curriculum standards but also advances digital transformation within vocational pedagogy by improving learner engagement and instructional effectiveness.

DISCUSSION

The present study aimed to develop, validate, and implement a Canva-based interactive PowerPoint learning medium for hot beverage instruction in vocational culinary education. The findings demonstrate that the developed instructional media achieved exceptionally high levels of material feasibility (96%), media feasibility (95%), and student acceptance (89%), indicating that the product is pedagogically robust, technically effective, and highly engaging for vocational learners. These outcomes provide compelling evidence that strategically designed interactive multimedia can significantly enhance vocational instructional practices, particularly in procedural and practice-oriented educational domains.

Interpretation of Research Outcomes

The exceptionally high material feasibility score suggests that the developed media successfully aligned with curriculum standards, learning objectives, and vocational competency requirements. Expert evaluations confirmed that the instructional content demonstrated strong appropriateness, conceptual accuracy, relevance, and clarity, all of which are essential for effective vocational pedagogy. This indicates that the integration of interactive digital media within culinary instruction can preserve curricular rigor while simultaneously enhancing accessibility and learner engagement (Hsu et al., 2015; Molejon, 2026; Pujiastuti et al., 2024, p. 382).

Similarly, the media feasibility findings reveal that Canva-based PowerPoint can function as a highly effective educational technology platform when designed systematically (Abidin et al., 2025; Sarimah et al., 2025). The strong performance across dimensions such as navigation, graphics, audiovisual integration, and usability highlights the importance of multimedia design quality in supporting student learning experiences (Davis & Frederick, 2020, p. 3; Noetel et al., 2021). Interactive elements such as embedded videos, voice narration, gamified assessments, and nonlinear navigation appear to have significantly contributed to learners' positive perceptions (Martin & Bolliger, 2022, p. 13).

The excellent student response score further reinforces the product's practical educational value. High cognitive, affective, and conative outcomes suggest that students not only understood the instructional material more effectively but were also more motivated and more confident in applying learned concepts to practical culinary activitie (Hu et al., 2023; Molejon, 2026)s. These results indicate that multimedia-supported vocational instruction can simultaneously strengthen knowledge acquisition, emotional engagement, and behavioral readiness.

Comparison with Previous Studies

The findings of this study are consistent with prior research emphasizing the effectiveness of interactive multimedia in educational contexts. Previous studies have shown that Canva-based instructional media enhances student engagement, creativity, and instructional quality across various academic disciplines (Abidin et al., 2025; Jamaludin & Sedek, 2024; Warda et al., 2025). Likewise, interactive PowerPoint has been widely recognized for improving motivation and comprehension by providing visually rich and learner-centered educational experiences.

However, this study extends existing scholarship in several important ways. First, unlike much of the previous literature, which primarily focuses on elementary education or general classroom contexts, this research specifically addresses vocational culinary education—a relatively underexplored field in educational technology research (Kab-Young & Kang, 2006). Second, while many antecedent studies emphasize usability or motivation, this study incorporates comprehensive dual validation processes involving both material and media experts, thereby offering stronger empirical rigor (Wahyudianto et al., 2025). Third, the focus on specialized procedural content, namely hot beverage instruction, demonstrates the applicability of digital instructional innovation within technical skill-based curricula (Yu et al., 2021). Thus, this research contributes novel evidence that Canva-based multimedia can be effectively adapted beyond general education into specialized vocational training environments, thereby broadening the international discourse on digital transformation in TVET systems.

Ramifications of the Findings

The implications of these findings are substantial for educational practitioners, curriculum developers, and policymakers. From a pedagogical perspective, the study supports the integration of interactive multimedia as a scalable strategy for modernizing vocational education. Canva-based instructional products offer affordable, accessible, and adaptable solutions for educators seeking to improve learner engagement while maintaining curriculum alignment (Ledentsov et al., 2023).

For vocational institutions, particularly in developing educational contexts, this instructional model provides a practical framework for addressing common challenges such as limited student motivation, static teaching methods, and insufficient digital innovation. The integration of flexible, self-paced, multimedia-rich resources may enhance both classroom and independent learning, thereby improving overall instructional efficiency.

At the policy level, the findings support broader initiatives promoting digital literacy, technological integration, and competency-based education in vocational systems. The successful implementation of such tools may contribute to workforce preparedness by fostering technologically adaptive learners with stronger practical competencies. Moreover, the study reinforces theoretical perspectives from multimedia learning theory by demonstrating that well-structured multimodal resources can optimize cognitive processing and improve instructional effectiveness within vocational settings.

Research Limitations

Despite its significant contributions, this study has several limitations. First, the implementation phase was limited to a relatively small sample of 32 students from a single vocational institution, which may constrain the generalizability of the findings across broader educational populations. Second, the study focused primarily on feasibility and learner response rather than long-term experimental measurement of learning effectiveness, academic achievement, or comparative performance outcomes. Third, the research was confined to one specialized subject area—hot beverage instruction—thereby limiting its direct applicability to other vocational disciplines without further contextual adaptation. Fourth, while the ADDIE framework includes an Evaluation stage, this study was restricted to the Implementation phase, meaning that longitudinal product effectiveness and sustainability were not fully

assessed.

Future studies should therefore consider larger, multi-site experimental designs incorporating control groups, longitudinal learning outcomes, and broader vocational subject applications to strengthen evidence regarding the long-term educational impact of Canva-based interactive learning media. Overall, despite these limitations, the study provides strong foundational evidence that Canva-based interactive PowerPoint represents a highly feasible and pedagogically valuable innovation for vocational culinary education, offering important pathways for future educational technology development and research.

CONCLUSION

This study successfully developed and validated a Canva-based interactive PowerPoint learning medium for hot beverage instruction within vocational culinary education using the ADDIE instructional design framework. The research findings conclusively demonstrate that the developed instructional product achieved exceptionally high standards of pedagogical validity, technical feasibility, and learner acceptance, as evidenced by material feasibility scores of 96%, media feasibility scores of 95%, and student response evaluations reaching 89%.

These outcomes confirm the central hypothesis proposed in the introduction that innovative, multimedia-based instructional technologies can effectively address persistent challenges in vocational education, including low learner engagement, limited instructional flexibility, and inadequate adaptation to digital learning preferences. By integrating curriculum-aligned content, interactive navigation, audiovisual elements, gamified assessments, and learner-centered design principles, the developed media successfully transformed traditional culinary instruction into a more dynamic, accessible, and pedagogically effective educational experience.

The study reinforces the broader theoretical proposition that digital transformation in Technical and Vocational Education and Training (TVET) requires not merely technological adoption, but the strategic development of context-specific, curriculum-responsive, and evidence-based instructional solutions. The successful implementation of Canva as an educational design platform illustrates its substantial potential to modernize vocational pedagogy by enhancing cognitive comprehension, affective engagement, and practical readiness among learners.

Importantly, this research contributes to international educational technology scholarship by expanding the application of interactive multimedia beyond general academic disciplines into specialized vocational culinary contexts. The findings suggest that Canva-based instructional innovation offers scalable, cost-effective, and adaptable pedagogical solutions capable of improving both teaching effectiveness and student competency development across vocational systems.

From a practical perspective, the study's results hold significant implications for educators, curriculum developers, and institutional policymakers seeking to strengthen vocational learning through digitally enhanced instructional practices. The developed model may serve as a replicable framework for broader implementation across diverse vocational subjects, supporting educational modernization efforts in alignment with global Industry 4.0 and Education 5.0 initiatives. Nevertheless, while the findings strongly support the feasibility and instructional value of the developed product, further research is recommended to examine long-term learning effectiveness, comparative academic outcomes, broader cross-institutional applicability, and full-scale implementation through experimental methodologies.

Based on the outcomes of this research, it is recommended that future studies: (1) expand implementation to larger and more diverse vocational populations; (2) conduct experimental or quasi-experimental studies to measure direct impacts on academic achievement and practical skill mastery; (3) adapt Canva-based interactive instructional models for other vocational competencies and disciplines; (4) integrate advanced learning analytics to evaluate learner progression and engagement patterns; and (5) investigate long-term sustainability and institutional scalability of multimedia-supported vocational learning systems.

In conclusion, Canva-based interactive PowerPoint represents a highly promising innovation in vocational education, offering substantial potential to improve instructional quality, learner engagement, and digital pedagogical transformation. This research underscores the critical role of technologically sophisticated, learner-centered instructional design in shaping the future of vocational education on both national and international levels.

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Conflict of Interest

The authors declare that there are no financial, professional, or personal conflicts of interest that could have influenced the research design, data collection, analysis, interpretation, or publication of this study. This research was conducted independently and solely for academic and educational development purposes.

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