JOVES (Journal of Vocational Education Studies)
VOL 9, No. 1, 2026, pp. 82 - 102
pISSN: 2614-7483 pISSN: 2614-7475 https://doi.org/10.12928/joves.v9i1.14639

Development of Teaching Materials Based on Digital Pocket Book Chapter on Cake Decorating for Students of Vocational School of Culinary Art

[1]Teti Setiawati*, [1]Aditia Gustiana Gunawan, [1] Wiwik Wahyuni, [1]Nunung Nurjanah [2]Resta Rendriana.

[1]Universitas Negeri Malang, Malang, Indonesia
[2]SMKS Madinatul Ulum, Jember, Indonesia

*Coresponding Email: teti.setiawati.ft@um.ac.id

ARTICLE INFO

Article history
Received: Oct 03, 2025
Revised: Nov 03, 2025
Accepted: Nov 05, 2025

Keywords
Development
Teaching Material
Digital Pocket Book
Cake Decorating

ABSTRACT

Digital learning tools in vocational education, especially in culinary arts is relatively limited. Cake decorating is one of the crucial topics that requires engaging and accessible materials to provide students' independence yet often underrepresented. The purpose of research and development is to produce teaching material products based on digital pocket book chapter material for cake decorating materials for class XII vocational students of culinary skills and determine the feasibility and practicality of teaching materials. The development of teaching materials uses the four-D model which consists of define, design, develop, disseminate. Research data collection in the form of validation questionnaires and trial questionnaires. The validation results showed that the teaching materials were feasible with the acquisition of material expert scores of 118 with a percentage of 78% in the fairly feasible category, media experts 109 with a percentage of 97% in the feasible category, information technology experts 70 with a percentage of 92% in the feasible category, linguists 48 with a percentage of 100% in the feasible category, small-scale trials 790 with a percentage of 82% in the feasible category, large group trials 1,200 with a percentage of 88% in the feasible category, and practicality tests 795 with a percentage of 83% in the practical category. The findings conclude that the digital pocket book chapter material for cake decorating materials is suitable and effective teaching resource for Grade XII vocational students in the Culinary Skills Program.

Introduction

The 21st century, characterized by the development of technology and communication, is one of the causes of the new paradigm shift in education (Anggraini & Hudaidah, 2021). In the 21st century,

the educational paradigm focuses on the ability to find out, formulate, think critically and work together in problem solving. Changes in 21st century education must be undertaken by providing learning media, learning resources, and IT-based teaching materials in learning activities that are useful for training students' 4C skills Marsa and Desnita, (2020).

To align with these shifts, the integration of digital based learning materials has become essential to the success of learning process by encouraging students' independence and active participation. As a foundational element, teaching materials are the key to build student learning motivation, train reasoning and thinking processes Priscylio, (2019). In recent years, the growth of sophisticated technologies have become a turning point in the advancement of educational resources, focusing on the effectiveness of student learning Crompton and Burke (2018). Consequently, digital-based teaching materials represent a transformative approach in enhancing student learning by offering accessible, engaging, and self-directed sources materials. These learning resources are considered effective supporting students' independent comprehension and fostering deeper understanding, making it an essential instrument in recent educational procedure Ulpayana (2019).

According to Zaharah and Susilowati (2020), a well-designed digital teaching resources not only facilitate independent comprehension, but also serve as pedagogical references that foster student engagement. By offering interactive and visually appealing content, such materials can significantly enhance learning motivation and reduce student passivity during instructional activities Bajaj (2024). Additionally, digital learning platform frequently featured multimedia elements, such as infographics animations, and interactive portrayal, these contents serve as various learning style that essential to maintain cognitive engagement. Cognitive engagement comprises deep, sustained, meaningful investment in learning process. Conventional text-heavy instruction often struggles to achieve this level of immersion, especially in vocational education settings Greene (2015).

One of the essential competencies in the Culinary Arts Vocational curriculum is cake decorating, which requires high level of creativity skill Rinawati (2016). Creativity in cake decorating art trains the ability to think, act and develop the ability to innovate Tien et al., (2020). Observations at SMKN 1 Batu reveal that resources on this particular topic is limited to textbooks despite the growing integration of digital platform in education. The lack of contextual, technology-integrated teaching materials in vocational Gunawan et al.,(2023) subjects such as cake decorating presents a significant gap in facilitating effective learning. As noted by Hafizhasando et al. (2021), insufficient and outdated teaching resources contribute to low student engagement and unsatisfactory learning

outcomes. Text-based resources fail to demonstrate practical skills like piping techniques, color blending, or decorative sequencing, which are better conveyed through interactive media such as video tutorials or digital simulations.

Observations at SMKN 1 Batu indicate that the utilization of communication and information technology, such as smartphones has not yet optimized for learning purposes. Student frequently uses smartphones to access social media and online games which disrupts focus and comprehension (Johan, 2019; Praditasari et al., 2019). In addition, SMKN 1 Batu also indicate that the use of communication and information technology, such as smartphones in learning is not yet optimized. Student often smartphones to access social media and online games which hinders focus and comprehension (Johan, 2019; Praditasari et al., 2019). Feedback from teachers and students reveal the failure of existing educational methods, textbook based learning. The urgencies of an attractive and interactive multimedia enriched digital teaching materials that facilitate better understanding and students' motivation to study independently.

In order to address these challenges, this research focuses on the development of digital teaching materials in the form of digital pocket book specifically designed for cake decorating. Digital pocket book is a compact mobile access learning module. It offers accessible and flexible learning, resistance to damage, and require minimal storage space Khumaidi and Sucahyo (2018). The digital pocketbook integrates interactive motion elements that are tailored to accommodate the diverse characteristics and learning needs of students. Its cross-platform accessibility compatible with mobile devices ensures flexible and convenient usage across various contexts. This high level of accessibility enables students to review the instructional content and select movement forms most appropriate to their individual or collaborative learning environments Syafriyeti et al., (2024). Furthermore, research has demonstarted that the utilization of digital pocket books increases student motivation and learning outcomes which have been proven from class action research data which has increased starting from pre-action, cycle I, and cycle II Nurhayati (2019). These digital resources also enhance students' attentiveness, comprehension, and test performance Mikraj (2015).

Based on the background, this study aims to develop and evaluate the feasibility and practicality of a digital pocket book chapter focused on cake decorating materials for Grade XII vocational students in the Culinary Skills Program. The product is expected to fill the current instructional gap, promote student-centered learning, and support the overall quality of vocational education.

This development was limited to one vocational school with Android-based implementation only, which may affect the generalizability of the results. The study also focused solely on cake decorating within the culinary curriculum, without exploring its long-term impact on student performance. Future research could expand the scope to multiple institutions, incorporate iOS-based versions, and evaluate student learning outcomes over an extended period.

Method

This development research aims to produce a digital pocket book chapter product and measure the feasibility and practicality of the product using the four-D development model (Thiagarajan, 1976). The four-D development model consists of 4 steps, namely define, design, develop, and disseminate. The steps of the four- D development model are presented in Figure 1 below.

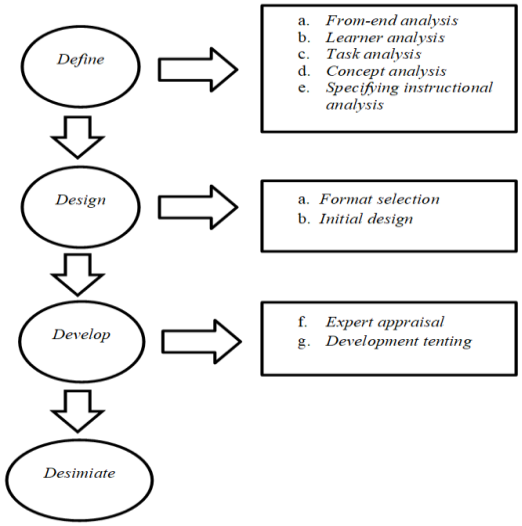

Fig 1: Steps of Four-D Development Model
(Source: Thiagarajan 1976)

The data used in the product development research of digital pocket book chapter of cake decorating material in the form of quantitative data and qualitative data. The subjects of the development research trials were material experts, media experts, linguists, information technology experts, and XII grade students majoring in catering at SMK State 1 Batu. Quantitative data is obtained through the results of scores collected from expert validation questionnaires and product trials. Meanwhile, qualitative data was obtained from suggestions and comments from experts and students. Quantitative data analysis is measured using a four-scale linkert scale Akbar (2022) with qualifications worthy, quite feasible, less feasible, and not feasible. The acquisition of quantitative

data scores uses the following formula.

$$Max\ score = \ total\ of\ respondents\ x\ total\ of\ question\ x\ \max\ value$$
$$Min\ score = \ total\ of\ respondents\ x\ total\ of\ question\ x\ \min\ value$$
$$Interval \ = \frac{maximal\ score \ - \ minimum\ score}{assessment\ category}$$

Source: Akbar (2022)

After the calculation, the scores obtained are matched with the qualifications determined in Table 1, Table 2, Table 3, Table 4, Table 5, Table 6, and Table 7.

Table 1. Qualification of Material Expert Validation Assessment

No	Achievement	Level Qualification	Description
1	> 130 – 160	Feasible	Can be used without revision
2	> 100 – 130	Feasible Enough	Can be used with revision
3	> 70 – 100	Less Feasible	Less usable and needs revision
4	40 - 70	Not Feasible	Cannot be used

Source: Modified from Akbar (2022)

Table 2. Qualification of Media Expert Validation Assessment

No	Achievement	Level Qualification	Description
1	> 91 - 112	Feasible	Can be used without revision
2	>70 - 91	Feasible Enough	Can be used with revision
3	> 49 - 70	Less Feasible	Less usable and needs revision
4	28 - 49	Not Feasible	Cannot be used

Source: Modified from Akbar (2022)

Table 3. Qualification of Language Expert Validation Assessment

No	Achievement	Level Qualification	Description
1	> 39 - 48	Feasible	Can be used without revision
2	> 30 - 39	Feasible Enough	Can be used with revision
3	> 21 - 30	Less Feasible	Less usable and needs revision
4	12 - 21	Not Feasible	Cannot be used

Source: Modified from Akbar (2022)

Table 4. Qualification of Information Technology Expert Validation Assessment

No	Achievement	Level Qualification	Description
1	> 61,75 - 76	Feasible	Can be used without revision
2	> 47,5 – 61,75	Feasible Enough	Can be used with revision
3	> 33,25 – 47,5	Less Feasible	Less usable and needs revision
4	19 – 33,25	Not Feasible	Cannot be used

Source: Modified from Akbar (2022)

Table 5. Qualification of Small scale Trial Assessment

No	Achievement	Level Qualification	Description
1	> 780 - 960	Feasible	Can be used without revision
2	> 600 - 780	Enough Feasible	Can be used with revision
3	> 420 - 600	Less Feasible	Less usable and needs revision
4	180 - 420	Not Feasible	Cannot be used

Source: Modified from (Akbar, 2022)

Table 6: Qualification of Large Scale Trial Assessment

No	Achievement	Level Qualification	Description
1	> 3.900 – 4.800	Feasible	Can be used without revision
2	> 3.000 – 3.900	Enough Feasible	Can be used with revision
3	> 2.100 – 3.000	Less Feasible	Less usable and needs revision
4	1.200 – 2.100	Not Feasible	Cannot be used

Table 7. Qualification of Practicality Test Assessment

No	Achievement	Level Qualificstion
1	> 780 - 960	Practical
2	> 600 - 780	Enough Practical
3	> 420 - 600	Less Practical
4	240 - 420	Not Practical

Source: Modified from Akbar (2022)

Result and Discussion

Result

The results of the development of digital pocket book chapter products as teaching materials for cake decorating for XII grade culinary vocational students. The results of the developed product aim to determine the level of feasibility and practicality. The initial stage of development is the define stage which consists of initial analysis, student analysis, task analysis, concept analysis, and formulation of learning objectives. In the initial analysis, it was found that students were still less enthusiastic in participating in learning the subject of Indonesian cake and pastry products even though they had received learning resources such as power points, package books and modules. The results of student analysis that the conditions of learning activities are quite boring and the learning resources used are less interesting and the content of the material is difficult to understand. After going through the initial analysis and student analysis stages, task analysis, concept analysis, and formulation of learning objectives were carried out. The results of the analysis were carried out to develop teaching materials to support more effective learning, namely digital pocket book chapters on cake decorating that are interesting and easy to understand material.

The second stage, the design stage, comprises the selection of the appropriate format and preliminary design activities. The instructional material for this stage was designed as an application (apk) based on the integration of Articulate Storyline 3 and Unity. This design choice maximized offline and online accessibility. The material was also designed as an Android application, which was compiled and converted using Unity. For the interactive instructional design, the packaged authoring tool was Articulate Storyline 3. The application was tested and confirmed to function with Android version 7.0 and later. During the preliminary implementation, there were no reports of technical difficulties since most students were using devices with the required operational specifications or better.

The preliminary design articulated as a storyboard and later designed in Articulate Storyline 3 and Unity included a design framework with a cover page, a main menu, content, practice exercise, and evaluation sections. This instructional design incorporated several multimedia elements, which included images, video, text, illustrations, and motivational affirmations to maintain learner interest and cater to various learning styles in Figure 2.

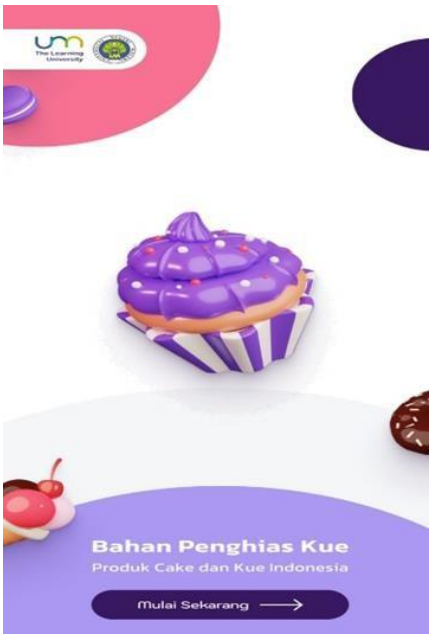

Fig 2: Main Page
(source: research data)

The main menu page consists of an exit button from the teaching material application, the author's biography page button, the usage instructions feature menu, the introduction feature menu, the material menu, the exercise problem menu, the evaluation menu, and the bibliography menu.

The teaching material development menu page is presented in Figure 3.

Fig 3: Main Menu
(source: research data)

The third stage is the development stage, this stage consists of the expert validation stage and product development trials. Expert validation aims to determine the qualifications of product feasibility before being tested on students as well as suggestions for product improvement. The validation test stage carried out by experts consists of material experts, media experts, linguists, and information technology experts. The product trial stage aims to determine the feasibility and practicality of products from users of teaching materials. The qualification of the feasibility and practicality of teaching material products is obtained from analyzing the scores obtained from the instruments given to validators and students as users, then interpreted according to the qualifications of feasibility and practicality.

Material validation consists of 19 statements covering aspects of self- instruction, self contained aspects, stand alone aspects, adaptive aspects, and user friendly aspects. The material validation results obtained a total score of 118 with a percentage of 78% in the qualification quite feasible. The results of material validation in Table 8.

Table 8. Results of Validation by Material Experts

No	Assessment Aspect	Total Answer	Ideal Score
1	*Self instruction*	74	96
2	*Self contained*	14	16
3	*Stand Alone*	6	8
4	*Adaptive*	12	16
5	*User friendly*	12	16
Total		118	152
Feasibility percentage		78%	
Feasibility category		Feasible enough	

The results of media validation obtained a total score of 109 with a percentage of 97% in decent qualifications. The media validation assessment contained 28 statements covering aspects of cover design, content design, content typography, material presentation techniques, and usefulness. The results of media validation are listed in Table 9.

Table 9. Results of Validation by Media Experts

No	Assessment Aspect	Total Answer	Ideal Score
1	Cover design	27	28
2	Content design	30	32
3	Content Typography	24	24
4	Material presentation technique	12	12
5	Usefulness	16	16
Total		109	112
Feasibility percentage		97%	
Feasibility category		Feasible	

Language validation obtained a score of 48 with a percentage of 100% in decent qualifications. The aspect assessed from language validation are straightforwardness, communicative, dialogical and interactive, conformity with Indonesian language rules, use of terms and symbols, and conciseness and cohesiveness of thought flow. The number statements for language validation are 12 statements. The result of language validation in Table 10.

Table 10. Results of Validation by Language Expert

No	Assessment Aspect	Total Asnwer	Ideal Score
1	Straightforwardness	12	12
2	Communicative	4	4
3	Dialogical and interactive	8	8
4	Conformity with language rules	8	8
5	Use of terms and symbols	8	8
6	The conciseness and cohesiveness of the train of thought	8	8
Total		48	48
Feasibility percentage		100%	
Feasibility category		Feasible	

The results of the information technology validation received a score of 70 with a percentage of 92% in decent qualifications. Information technology validation consists of 19 statements. The aspects assessed from the validation of information technology are display quality, software engineering, implementability, interface, resuable, maintanable, and compatibility.

The results of the informatics technology validation are in Table 11.

Table 10. Results of the informatics technology validation

No	Assessment Aspect	Total Asnwer	Ideal Score
1	Display quality	20	24
2	Software engineering	8	8
3	Applicability	8	8
4	*Interface*	14	16
5	*Resuable*	4	4
6	*Maintanable*	8	8
7	*Compatibility*	8	8
Total		70	76
Feasibility percentage		92%	
Feasibility category		Feasible	

The next phase is the trial phase, which aims to assess the design in terms of user experience delivred practicality of the product developed. This phase includes students as end users. The product feasibility testing was done in two stages, a small scale trial and a large scale trial. The small scale trial was implemented with 12 Grade XII culinary students from SMK Negeri 1 Batu in order to identify possible design and usability problems before going large scale. The small scale trial results were 790, giving a score of 82%, which corresponds to the qualified category of "feasible". This indicates that the product has satisfied the criteria to be feasible and it continued to the next development and testing stages. The complete results of the small scale trial are in Table 12.

Table 12: Small Scale Trial Results

No.	Assessment Aspect	Total Asnwer	Ideal Score
1.	Feasibility of content	204	240
2.	Usefulness	192	240
3.	Language	193	240
4.	Graphics	201	240
Total		790	960
Feasibility percentage		82%	
Qualification		Feasible	

Table 13: Large Scale Trial Results

No.	Assessment Aspect	Total Asnwer	Ideal Score
1.	Feasibility of content	1.041	1.200
2.	Usefulness	1.036	1.200
3.	Language	1.059	1.200
4.	Graphics	1.073	1.200
Total		4.209	4.800
Feasibility percentage		88%	
Qualification		Feasible	

At SMK Negeri 1 Batu, 60 culinary students from Grade XII were included in the large-scale trial, achieving an overall score of 4.209, or 88%. This indicates that the developed product fulfills the "feasible" qualification criteria. Table 13 presents the detailed results of the large-scale trial.

Table 13: Large Scale Trial Results

No.	Assessment Aspect	Total Asnwer	Ideal Score
1.	Feasibility of content	1.041	1.200
2.	Usefulness	1.036	1.200
3.	Language	1.059	1.200
4.	Graphics	1.073	1.200
Total		4.209	4.800
Feasibility percentage		88%	
Qualification		Feasible	

After completing the feasibility trials, the next step is to evaluate the ease of use, usability, and operational efficiency of the developed product from the students' perspective. Students involved in this phase of the feasibility trial are 30 Year 12 culinary students from SMK Negeri 1 Batu, who earlier took part in the large-scale feasibility test. This evaluation recorded a score of 795, placing it within the "feasible" qualification, which corresponds to 83%. This score suggests that the product is both functionally operational and practically useful in the learning activities of the classroom. The results from the practicality test are provided in detail in Table 14.

Table 14. Results of the Practicality Test

No.	Assessment Aspect	Total Score	Ideal Score
1.	Attractiveness	107	120
2.	Ease of use	494	600
3.	Learning experience	240	240
Total score		795	960
Feasibility percentage		83%	
Qualification		Practical	

The fourth stage is the dissemination stage. The dissemination stage was carried out at SMK Negeri 1 Batu to teachers of Indonesian cake and pastry products and class XII students majoring in catering. The process of distributing products by sending product links through the WhatsApp application to download digital pocket book chapter products for cake decorating materials.

Dissemination activities were conducted at SMK Negeri 1 Batu involving Indonesian cake and pastry product teachers as well as Grade XII catering students. Distribution of the Digital Pocket Book Chapter was carried out by sharing download links through the WhatsApp application, enabling easy access for both educators and learners. Implementation in this stage aimed to ensure that the developed product could be widely utilized in classroom learning activities, particularly in cake decorating instruction.

Assessment results of the dissemination implementation indicate that the developed product has a strong level of attractiveness, ease of use, and learning experience quality. Attractiveness aspect obtained a score of 107 out of 120, showing that the design and visual presentation are engaging for users. Ease of use reached a score of 494 out of 600, indicating that students and teachers can operate the application without significant difficulty. Learning experience aspect achieved a perfect score of 240 out of 240, reflecting highly positive user responses toward the effectiveness of the learning features.

Overall feasibility results demonstrate a total score of 795 out of 960 with a percentage of 83%, placing the product in the "practical" category. This outcome confirms that the Digital Pocket Book Chapter is suitable for implementation as a learning medium in vocational culinary education. Positive results from teachers and students during dissemination further strengthen its potential as an innovative instructional tool that supports independent learning and improves understanding of cake decorating materials.

Discussion

In development research has the aim of producing innovative teaching material products in the form of digital pocket book chapters based on android cake decorating material for class XII culinary vocational students that are feasible and practical. Developing teaching materials based on digital pocket book chapters due to several obstacles. The obstacle is the difficulty of getting teaching materials in accordance with technological developments that can attract students to read and study learning materials. The application of technology-based learning in cake decorating materials has not been maximally utilized. The utilization of technology in learning provides learning motivation, positive effects on learning outcomes and makes it easier for students to learn independently (Chairudin and Dewi, 2021; Lin et al., 2017).

Teaching materials used in learning activities are in the form of powerpoints, package books, and modules. The materials used are less able to attract students to read and study learning materials because of the presentation that is less interesting and monotonous, causing students to get bored easily. Teaching materials that are monotonous, not contextualized, or not in accordance with student needs result in students quickly feeling bored, resulting in poor understanding and unsatisfactory learning outcomes (Mutiara and Emilia, 2022; Safitri and Dewi, 2021). Olayinka's opinion (2016) developing teaching materials with attractive designs makes student performance better and improves effective learning. The innovation of teaching materials based on digital pocket

book chapters with an application format that is operated through an android system makes it easier for students to get learning materials anywhere and anytime so that the learning process is of higher quality according to the applicable curriculum requirements Wahyuni (2018).

The use of teaching materials in the form of digital pocket book chapters helps students learn cake decorating ingredients because they feel motivated. In accordance with the opinion of Chairudin & Dewi (2021); Nurmala, et al. (2019) that the results of using digital pocket books in learning can improve student understanding and affect student interest in learning because they are userfriendly. In addition, the use of digital pocket books is effective because it improves learning outcomes Rohman et al., (2023). The impact of delivering material with the help of an android-based digital pocket book becomes stronger because it is dominated by visual aspects so that learning is more varied and fun Larasati (2022).

The Digital Pocket Book Chapter is an interactive instructional material developed to present learning content through a combination of images, videos, and motivational affirmations. The affirmations included are quotations from several prominent figures, such as: "If you are not able to endure the fatigue of learning, then you must be prepared to endure the pain of ignorance" (Imam Syafi'i) and "Be sincere in learning. Even the most knowledgeable and wise among us continue to study diligently" (Mario Teguh). These motivational elements are designed to inspire students' persistence and enthusiasm for learning, particularly in mastering the topic of cake decoration materials. In alignment with previous research, the integration of multimedia elements, such as images, videos, and motivational affirmations has been shown to enhance students' learning motivation, comfort, and autonomy Wayan et al., (2017), improve comprehension of complex content Setyawati et al., (2022), and promote more effective and meaningful learning experiences Olayinka, (2016). Furthermore, presenting learning materials through video provides a practical strategy for transforming textual information into visual representations, thereby facilitating understanding and maintaining student engagement Nyiayu et al., (2021).

The quality of the development product if it meets the aspects of validity, practicality, and effectiveness Plomp and Niveen, (2017). Assessment of the feasibility of digital pocket book chapter products is carried out by validators then revisions are made before the product trial is applied. The explanation from Muhammad and Novitasari (2020) is that development products can be applied in trials after being declared feasible based on expert validation. The results of material validation obtained quite feasible qualifications so that there were improvements before the product trial was carried out. The explanation of Destriana et al. (2018) namely the acquisition of validation results

with sufficient qualifications can be continued trial if improvements have been made according to expert suggestions. The revised material from the material validator is the presentation of video material because the video that should be presented is a video of the developer's work not a video downloaded from YouTube. Making videos for learning materials adds skills to convey material visually in accordance with technological developments Wahyujati, (2021).

The results of the media feasibility assessment obtained a decent qualification with a percentage of 97%. Research conducted of Chairudin & Dewi (2021) explained the results of media feasibility obtaining decent qualifications at a percentage of 80% on the results of the development of teaching materials based on digital pocket books. Media validation on digital pocket book chapter material cake decorating materials there are suggestions for improvement in the typography aspect to increase the font size. In language validation, it obtained decent qualifications with the highest score of 100. This shows that the sentences and grammar used are easy to understand and spelling is in accordance with standard Indonesian language rules Sulistri et al., (2020). Obtaining decent qualifications from language validation there are suggestions on the bibliography because there is one bibliography not sorted alphabetically. Previous research on pocket book development by Prawita and Wulandari (2022) obtained very good qualifications despite improvements in the use of punctuation and some sentences could not be understood. While the validation of information technology obtained decent qualifications despite improvements in the interface aspect. Improvements in interface aspects include font size and logo placement consistency.

The results of the small group trial were in decent qualifications. Student responses regarding the use of digital pocket book chapters on cake decorating materials are that it makes it easier for students to understand the material, the presentation of the material is quite complete, and the presentation of questions that increase motivation to answer practice questions because there is a right or wrong feature after pressing the selected answer button. The practice question feature also has score results and a Back to quiz button if you get an unsatisfactory score. Practice questions presented in teaching materials help measure students' ability to understand the concept of the material Juita and Yulhendri, (2019).

The feasibility results of the large group trial received decent qualifications. The feasibility results on large-scale trials have increased from the results of small- scale trials with a score of 4,209 and a percentage result of 88%. This is in accordance with research conducted Reza (2017) Developing a digital pocket book application obtained feasible and effective results for use as a learning alternative through the user trial stage with a score of 1967. The results of the practicality

assessment indicate that the Digital Pocket Book Chapter on cake decorating materials reaches the "practical" qualifier level with a score of 83%. This means that the instructional material was noted as practical and useful. The accessibility of this digital pocket book, both online and offline, along with its ability to aid material understanding, and its motivational components inclusive of cake decorating affirmations and contextual knowledge, are some of its merits. Student feedback was, and is, also strong testimony to the practicality and motivational aspects of the product. One of them proclaimed, "The application is easy to use, and the design is not boring." Responses of this kind indicate that the expectations regarding functionality and engagement of the application are certainly met. However, some weaknesses are certainly present, as the application is only compatible with Android-based smartphones, and internet access is a prerequisite for accessing the embedded learning videos and evaluation exercises. This was to ensure that the device storage was not maxed out, and aligns with Sholeh et al. (2021), stating that for a digital pocket book to be considered feasible and valid, it must go through a thorough process of validation, revision, product testing, and practicality evaluation. Future development of the Digital Pocket Book Chapter should consider broader technological integration to enhance its usability and learning impact. Expansion to cross-platform compatibility, including iOS and web-based systems, would allow more students to access the learning materials regardless of device limitations. Improvement of system stability and optimization of offline features can also reduce dependency on internet access, ensuring more flexible learning in various classroom and home environments.

Integration of adaptive learning features may further strengthen the effectiveness of the product in supporting individual student needs. Personalised learning paths, automatic feedback systems, and performance tracking features can help students identify their strengths and weaknesses in cake decorating competencies. These improvements would support differentiated instruction and provide teachers with more accurate data to guide remedial or enrichment activities.

Collaboration between educators, instructional designers, and software developers is essential to continuously refine the quality of digital learning media. Systematic updates based on user feedback and classroom implementation results will ensure the product remains relevant to curriculum demands and technological advancements. Continuous innovation in instructional media development is expected to contribute significantly to improving vocational education outcomes, particularly in culinary skill mastery.

Conclusion

The conclusion of the research and development is to produce a product in the form of a digital

pocket book chapter as teaching material for cake decorating materials in the subject of Indonesian cake and cake products for class XII at the SMK vocational level of catering. For the Digital Pocket Book Chapter on cake decoration materials, the culmination of numerous validations—material, media, language, information technology, as well as small and large-scale trials—have all provided positive feedback on the feasibility of implementation. Additionally, the practicality assessment with the Grade XII culinary students shows that the product is practical and effective as a learning medium for the topic of cake decoration materials. From the Digital Pocket Book Chapter, it is possible for the research and development project to assist students and teachers during the teaching and learning process, especially when it comes to understanding theory and practical work on cake decoration. This digital learning innovation will, without a doubt, explain and expand students' practical competencies that cover areas of creativity, accuracy, problem solving, and other skills that are fundamental to the task at hand. This is achievable through purposeful digital instructional materials that are well documented, adaptable, and designed to meet the instructional objectives of the classroom and the learning environment.

While the digital pocket book chapter has demonstrated strong feasibility and practicality in the SMKN 1 Batu context, its use was limited to a single institution and Android devices. These constraints may affect the generalizability of the findings. Further research should explore implementation across multiple vocational schools and expand compatibility to iOS and other platforms to enhance the applicability and impact of the teaching material.

The development of this Digital Pocket Book Chapter aligns with the needs of 21st-century learning, where digital literacy and the integration of technology in education are essential competencies for both teachers and students. The interactive and portable nature of the product allows learners to access learning materials anytime and anywhere, thereby supporting more flexible and student-centered learning. This condition is expected to increase students' learning motivation and engagement in mastering cake decoration competencies.

The use of this digital learning media supports the shift from conventional teacher-centered instruction to a more active learning approach. Students are encouraged to explore learning content independently, practice problem-solving, and develop critical thinking skills through structured and contextual materials. This approach also helps teachers act as facilitators who guide learning rather than the sole source of knowledge.

It is recommended that future development focus on enriching multimedia features such as video demonstrations, interactive quizzes, and augmented reality elements to further enhance

learning experiences. Broader implementation and continuous improvement will strengthen the effectiveness of this digital pocket book as a sustainable instructional innovation in vocational culinary education.

References

AG. Gunawan. (2025). *Analysis of requirements for the creation of Edukiwari learning media applications for curriculum designing materials in culinary tourism vocational high schools*.

Akbar, S. (2017). *Instrumen perangkat pembelajaran*. Remaja Rosdakarya.

Anggraini, W., & Hudaidah. (2021). Reformasi pendidikan menghadapi tantangan abad 21. *Journal on Education, 3*(3), 208–215. https://doi.org/10.31004/joe.v3i3.363

Bajaj, M. (2024). The role of digital learning platforms in enhancing student. *Unified Visions: Collaborative Paths in Multidisciplinary Research, 1*. https://doi.org/10.25215/819818984X.01

Chairudin, M., & Dewi, R. M. (2021). Pengembangan bahan ajar buku saku digital berbasis problem based learning pada mata pelajaran ekonomi. *Edukatif: Jurnal Ilmu Pendidikan, 3*(3), 951–962. https://doi.org/10.31004/edukatif.v3i3.491

Crompton, H., & Burke, D. (2018). The use of mobile learning in higher education: A systematic review. *Computers and Education, 123*, 53–64. https://doi.org/10.1016/j.compedu.2018.04.007

Destriana, D., Destriani, D., & Yusfi, H. (2018). Pengembangan teknik pembelajaran pasing bawah permainan bola voli SMP kelas VII. *Sebatik, 22*(2), 172–175. https://doi.org/10.46984/sebatik.v22i2.324

Erlis Nurhayati. (2019). Penerapan buku saku dengan pendekatan saintifik untuk meningkatkan motivasi dan hasil belajar siswa pasca gempa bumi. *Jurnal Kependidikan, 5*(2), 94–99.

Greene, B. A. (2015). Measuring cognitive engagement with self-report scales: Reflections from over 20 years of research. *Educational Psychologist, 50*(1), 14–30. https://doi.org/10.1080/00461520.2014.989230

Gunawan, A. G., Surahman, E., Masyfa, F. H., & Joshua, Q. P. (2025). A systematic literature review on VR table manner innovation as an emerging learning media in culinary education. *Jurnal Inovasi Dan Teknologi Pembelajaran, 12*(2), 72–84. https://doi.org/10.17977/um031v12i22025p072

Gunawan, A. G., Yulia, C., & Joshua, Q. (2023). Development of a mobile menu book as a media for learning food service in tourism schools. *Journal of Vocational Education Studies, 6*(2), 214–225.

http://journal2.uad.ac.id/index.php/joves/article/view/8654

Hafizhasando, R., Saptono, S., Parmin, P., & Rahayuningsih, M. (2021). Pengembangan buku saku digital tentang jamur di Taman Nasional Gunung Merbabu sebagai pelengkap bahan ajar di sekolah menengah atas. *Jurnal Pendidikan Sains Inovatif, 10*(2), 117–123.

Johan, R. (2019). Pengaruh game online terhadap minat untuk belajar peserta didik kelas X di MA Al Hidayah Depok. *Research and Development Journal of Education, 5*(2), 12. https://doi.org/10.30998/rdje.v5i2.3748

Juita, F., & Yulhendri, Y. (2019). Pengaruh kemampuan numerik dan intensitas latihan soal terhadap hasil belajar aplikasi pengolah angka (spreadsheet). *Jurnal Ecogen, 2*(4), 832. https://doi.org/10.24036/jmpe.v2i4.7860

Khumaidi, A., & Sucahyo, I. (2018). Pengembangan mobile pocket book fisika sebagai media pembelajaran berbasis Android pada materi momentum dan impuls. *Inovasi Pendidikan Fisika, 7*(2), 154–158.

Larasati, D. E. (2022). Pengembangan buku saku digital berbasis Android mata pelajaran PPKn kelas VII SMP. *Jurnal Ilmiah Pendidikan Pancasila dan Kewarganegaraan, 7*(1), 139–148. https://doi.org/10.17977/um019v7i1p139-148

Lin, M. H., Chen, H. C., & Liu, K. S. (2017). A study of the effects of digital learning on learning motivation and learning outcome. *Eurasia Journal of Mathematics, Science and Technology Education, 13*(7), 3553–3564. https://doi.org/10.12973/eurasia.2017.00744a

Marsa, P. B., & Desnita. (2020). Analisis media, sumber belajar, dan bahan ajar yang digunakan guru fisika SMA materi gelombang di Sumatera Barat ditinjau dari kebutuhan belajar abad 21. *Jurnal Eksakta Pendidikan (JEP), 4*(1), 81. https://doi.org/10.24036/jep/vol4-iss1/422

Mikraj, A. D. (2015). Pengaruh buletin fisika berbentuk buku saku untuk meningkatkan hasil belajar siswa di MAN 2 Bima kelas X materi hukum Newton tahun pelajaran 2018/2019. *Orbita, 5*(2), 2–9. https://doi.org/10.31764/orbita.v5i1.894

Muhammad, A. F. N., & Novitasari, N. I. (2020). Pengembangan bahan ajar matematika berbasis etnomatematika untuk meningkatkan pemahaman matematik siswa kelas III sekolah dasar. *Jurnal Bidang Pendidikan Dasar (JBPD), 4*(1), 80–93. https://doi.org/10.21067/jbpd.v4i1.3877

Mutiara, E., & Emilia, E. (2022). Developing flipbook-based teaching-learning material in the culinary arts program of Unimed. *International Journal of Education in Mathematics, Science and Technology, 10*(3), 650–662. https://doi.org/10.46328/ijemst.2487

Nurmala, M. I., & A. M. (2019). Desain pengembangan buku saku digital matematika SMP berbasis Android sebagai media pembelajaran dalam meningkatkan minat belajar siswa. *Edukasia, 6*, 4–17.

Nyiayu Fahriza Fuadiah, Marhamah, M., Eka Fitri Puspa Sari, Jumroh, J., & Lusiana. (2021). Pelatihan pembuatan video pembelajaran bagi guru SMA Karya Ibu Palembang. *Jurnal Inovasi Penelitian dan Pengabdian Masyarakat, 1*(2), 152–160. https://doi.org/10.53621/jippmas.v1i2.54

Olayinka, A.-R. B. (2016). Effects of instructional materials on secondary schools students' academic achievement in social studies in Ekiti State, Nigeria. *World Journal of Education, 6*(1), 32–39. https://doi.org/10.5430/wje.v6n1p32

Plomp, T., & Nieveen, N. (2017). *Educational design research: An introduction*. Netherlands Institute for Curriculum Development (SLO).

Praditasari, E. L., Handayanto, A., & Wulandari, D. (2019). Penggunaan structural equation modeling (SEM) untuk mengetahui pengaruh kebiasaan mengakses media sosial terhadap minat belajar siswa. *Imajiner: Jurnal Matematika dan Pendidikan Matematika, 1*(6), 306–309. https://doi.org/10.26877/imajiner.v1i6.4858

Prawita, I. R. A. D., & Wulandari, S. S. (2022). Pengembangan buku saku berbasis explicit instruction pada mata kuliah hubungan masyarakat. *Jurnal Pendidikan Administrasi Perkantoran (JPAP), 10*(1), 31–47. https://doi.org/10.26740/jpap.v10n1.p31-47

Priscylio, G. (2019). Pengembangan bahan ajar fisika kontekstual berbasis inkuiri terbimbing pada materi rotasi. *Journal of Teaching and Learning Physics, 4*(1), 65–73. https://doi.org/10.15575/jotalp.v4i1.4094

Reza, M. F. A. (2017). Pengembangan media pembelajaran dalam bentuk buku saku digital berbasis Android materi ajar gerak dan gaya di SMK 1 Kedungwuni. *Edu Komputika Journal, 4*(2), 1–11.

Rinawati, B. R. W., & W. (2016). Pengembangan media pembelajaran dekorasi birthday cake dengan butter cream menggunakan blog internet pada siswa SMKN 6 Yogyakarta. *E-Journal Student Pendidikan Teknik Boga-S1*.

Rohman, F., Yusron, A., Mufti, A., Ikrimatus, M., & Ardiyanto, W. S. (2023). Pengembangan buku saku digital sejarah kebudayaan Islam untuk madrasah tsanawiyah. *Edukatif: Jurnal Ilmu Pendidikan, 5*(1), 605–617.

Safitri, A., & Dewi, R. (2021). Pengembangan bahan ajar berbasis kontekstual materi aritmetika sosial untuk meningkatkan kemampuan berpikir kritis matematis pada pembelajaran

preprospec berbantuan TIK. *PRISMA, Prosiding Seminar Nasional Matematika, 4*, 59–66. https://journal.unnes.ac.id/sju/index.php/prisma/

Setyawati, N. K., Japa, I. N. G., & Gading, I. K. (2022). Media video pembelajaran Tri Hita Karana untuk meningkatkan daya serap siswa kelas V sekolah dasar. *MIMBAR PGSD Undiksha, 10*(3), 490–501. https://doi.org/10.23887/jjpgsd.v10i3.52820

Sholeh, M., Supriadi, N., & Suherman, S. (2021). Etnomatematika pada buku saku digital berbasis Android materi segitiga dan segiempat MTs. *JKPM (Jurnal Kajian Pendidikan Matematika), 6*(2), 191. https://doi.org/10.30998/jkpm.v6i2.9184

Sulistri, E., Sunarsih, E., & Utama, E. G. (2020). Pengembangan buku saku digital berbasis etnosains di sekolah dasar Kota Singkawang. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran, 6*(3), 522. https://doi.org/10.33394/jk.v6i3.2842

Syafriyeti, R., Eriyanti, R. W., Rofiq, A., & Huda, A. M. (2024). Enhancing learning experience: A study of students' needs for pocket books in the digital era. *Tunas: Jurnal Pendidikan Guru Sekolah Dasar, 9*(2), 129–132. https://doi.org/10.33084/tunas.v9i2.6415

Thiagarajan, S. A. O. (1976). *Instructional development for training teachers of exceptional children: A sourcebook, 14*(1), 75. https://doi.org/10.1016/0022-4405(76)90066-2

Tia, U. (2019). Pengembangan media pembelajaran mobile learning dalam bentuk buku saku digital kompetensi dasar analisis hubungan pelanggan kelas X pemasaran di SMK Negeri 2 Buduran Sidoarjo. *Jurnal Pendidikan Tata Niaga (JPTN), 7*(3).

Tien, L. C., Lin, S. Y., Yin, H., & Chang, J. C. (2020). The impact of a flipped classroom on the creativity of students in a cake decorating art club. *Frontiers in Psychology, 11*, 1–13. https://doi.org/10.3389/fpsyg.2020.533187

Wahyujati, B. B. (2021). Peningkatan kemampuan guru sekolah dasar melalui pelatihan pembuatan media video pembelajaran interaktif menggunakan Ms Power Point. *ABDIMAS ALTRUIS: Jurnal Pengabdian Kepada Masyarakat, 4*(2), 94–99. https://doi.org/10.24071/aa.v4i2.3641

Wahyuni, H. (2018). Pengembangan bahan ajar berbasis Android. *CESS (Journal of Computer Engineering System and Science), 3*(1), 83–86.

Wayan, N., Santi, A., & Haryono, A. (2017). Pengembangan economic pocket book berbasis quantum learning. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan, 2*(1), 478–486. http://journal.um.ac.id/index.php/jptpp/

Zaharah, Z., & Susilowati, A. (2020). Meningkatkan motivasi belajar peserta didik dengan menggunakan media modul elektronik di era revolusi industri 4.0. *Biodik, 6*(2), 39–52. https://doi.org/10.22437/bio.v6i2.8950