

Development of an Android-Based E-Module for Basic Culinary Learning at SMK Istiqlal Delitua

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Article Info

Article history:

Received 2026-06-19

Revised 2026-07-17

Accepted 2026-07-20

Keywords:

Android-Based Learning Media
APK

Basic Culinary

E-Module

Research and Development

Vocational Education

ABSTRACT

The rapid advancement of digital technology has encouraged the integration of mobile-based learning media to enhance the quality of vocational education. However, previous studies have predominantly developed e-modules in PDF or web-based formats, which have not fully accommodated the practical learning needs of vocational education that require flexible access and integrated multimedia features. This study aimed to develop an Android Package (APK)-based e-module for the *Basic Culinary* course, focusing on Food Ingredients and Kitchen Equipment, for tenth-grade students in the Culinary Expertise Program at SMK Istiqlal Delitua. The study employed a Research and Development (R&D) approach using a modified Four-D (4-D) model comprising the define, design, and development stages, with the dissemination stage omitted. The product trial involved 34 tenth-grade culinary students. Data were collected through expert validation questionnaires, student response questionnaires, and learning achievement tests, and were analyzed using descriptive quantitative techniques. The results indicated that the developed e-module achieved media expert validation scores of 85.7% and material expert validation scores of 86.6%, both of which were categorized as *very good*. The practicality evaluation yielded an average score of 3.56, indicating a *very good* level of usability. Furthermore, students' mastery of learning improved from 64.7% in the first learning evaluation to 79.4% in the second learning evaluation after using the developed e-module. These findings suggest that the APK-based e-module demonstrates high validity and practicality and has the potential to support improved student learning outcomes within the context of this study. This research contributes to the development of digital learning media tailored to the characteristics of vocational education, particularly in Basic Culinary learning, and offers an alternative instructional resource to support smartphone-assisted independent learning.

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1. INTRODUCTION

The development of information and communication technology has brought about significant changes to various aspects of life, including the world of education. Digital transformation is driving a paradigm shift from teacher-centered to student-centered learning, positioning learners as active subjects in knowledge construction. This condition requires educators to utilise technology as part of the learning process to produce more effective, flexible learning experiences that align with the characteristics of the digital generation [1]. In this context, learning media play a strategic role because they not only serve as a means of delivering content but also as tools that can increase learning motivation, learner engagement, and the achievement of learning competencies [2], [3].

With the advancement of digital technology, mobile devices (mobile learning) are increasingly becoming a learning alternative that allows learners to study anytime, anywhere. One form of digital learning material that is widely developed is the *electronic module (e-module)*, an electronic learning resource systematically compiled and enriched with various multimedia features, thereby enhancing the learner's learning experience [4], [5]. In addition to presenting material more engagingly, e-modules also support independent learning by integrating text, images, video, animation, and interactive evaluations. On the other hand, the Android operating system, which dominates smartphone usage, offers a significant opportunity to develop learning media that are more practical, easily accessible, and aligned with current learner habits [6].

The utilisation of Android-based learning media is becoming increasingly important in vocational education because its learning characteristics emphasise a balance between mastering theory and practical skills. In the subject of Culinary Fundamentals, learners are required to understand basic competencies that form the foundation before learning more complex food preparation techniques. One of the core topics in the initial phase of learning is Food Ingredients and Kitchen Equipment, which includes understanding the characteristics of various food ingredients, the functions and classifications of kitchen equipment, the principles of proper equipment use, and the application of safety and sanitation principles. Mastery of this material is a crucial prerequisite for learners to carry out food preparation practices correctly, efficiently, and safely [7], [8]. Therefore, this material requires learning media that not only present concepts textually but also visualise them through images, demonstration videos, and interactive exercises, thereby making it easier for learners to understand the relationship between concepts and practice.

Various previous studies have consistently shown that the use of e-modules can improve learner motivation, independence, and learning outcomes. Generally, previous research has developed e-modules in digital PDF or web-based formats that are effective as electronic learning resources [5]. Some other studies have begun developing Android-based learning media. However, most remain simple material-delivery applications, practice-question applications, or learning media for general subjects, thus failing to integrate all learning components into a single application that supports the characteristics of vocational education. Furthermore, web-based media still requires a stable internet connection, whereas PDF-based e-modules generally only present material linearly with limited interactivity.

These findings indicate that although digital media development has advanced, there is still a need for Android-based learning media specifically designed for culinary vocational learning, integrating various forms of multimedia and interactive learning activities into a single application that can be used flexibly.[5]

Based on this review, two research gaps have not been extensively studied. Firstly, research on Android-based e-modules in vocational learning, particularly Culinary Fundamentals, is still relatively limited compared to the development of PDF or web-based e-modules. Secondly, previous research has generally not integrated material, images, demonstration videos, interactive exercises, and learning evaluations into a single Android Package (APK) that can be used independently on a smartphone without relying on printed learning materials. Thus, there is still a need to develop learning media that better align with the characteristics of SMK (Vocational High School) learners and the needs of practice-based learning.

Novelty of this research lies in the development of an Android Package (APK)-based e-module specifically designed for Food Ingredients and Kitchen Equipment material in Culinary Basics subjects. Unlike previous research, which generally used PDFs, web applications, or Android applications with limited features, the e-module developed in this research integrates learning materials, illustrative images, demonstration videos, interactive exercises, learning evaluations, and navigation, all designed to align with the characteristics of vocational learning. This application can be installed and used via a smartphone, providing higher learning flexibility for students.

Based on the above description, this research is directed towards answering several research questions as follows: (1) What is the validity level of the Android Package (APK) based e-module developed for the Culinary Fundamentals subject? (2) What is the practicality level of using the e-module according to teachers and students? Moreover, (3) What is the effectiveness of using the APK-based e-module in improving student learning outcomes for the 'Food Ingredients and Kitchen Equipment' material?

Based on these research questions, the objective of this research is to develop a valid, practical, and effective Android Package (APK) based e-module to improve student learning outcomes in the Culinary Fundamentals subject at SMK Istiqlal Delitua.

This research is expected to contribute both theoretically and practically. Theoretically, this research enriches the study of Android-based digital learning media development in vocational education, particularly in Culinary Fundamentals learning. In practice, the research results can serve as an alternative digital teaching resource for vocational school teachers to foster more interactive, student-centred learning, while also supporting independent learning through smartphones, which have become an integral part of students' daily lives.

2. METHOD

This research employs a Research and Development (R&D) method to develop and test the feasibility of a learning media in the form of an Android Package (APK)- based e-module for the Culinary Fundamentals subject. The development model used is the Four-D (4-D) model developed by Thiagarajan, Semmel, and Semmel, which includes four stages:

Define, Design, Development, and Disseminate [9]. However, this research modifies the Four-D model into three stages (Define–Design–Development) because it focuses solely on product development, validation, and trials, omitting the dissemination stage [9].

The research was conducted at SMK Istiqlal Delitua, Deli Serdang Regency, North Sumatra, in August–September 2024. The product developed is an Android Package (APK) based e-module for the Culinary Fundamentals subject, specifically for the 'Food Ingredients and Kitchen Equipment' material. The research subjects consist of 34 X-grade students in the Culinary Expertise Program and one Culinary Fundamentals subject teacher. The sampling technique used was total sampling, meaning all students in one class were used as trial subjects because the population comprised only one class targeted for product implementation.

The development procedure was carried out in three stages. In the Define stage, a needs analysis was conducted to identify learning problems, student characteristics, and the need for Android-based learning media. Data collection was conducted through interviews with subject teachers and the distribution of questionnaires to all students. The teacher needs analysis instrument consisted of 7 questions, while the student questionnaire consisted of 8 questions covering the use of learning media, learning difficulties, perceptions of the media used, and the need for Android-based e-module development. The analysis showed that teachers and students needed more interactive, engaging learning media that could be used independently on smartphones.

The Design stage began with the preparation of flowcharts and storyboards as guidelines for application development. Subsequently, the e-module was developed using Adobe Illustrator for interface design, Articulate for integrating content and multimedia, and APK Builder to produce an Android-based application. The resulting product includes learning outcomes, learning objectives, concept maps, learning materials, illustrative images, tutorial videos, summaries, interactive quizzes, usage instructions, and developer profiles. All materials were compiled in accordance with the learning outcomes for the Culinary Basics subject in the Kitchen Equipment and Ingredients competency.

The Development stage included expert validation, product revision, practicality testing, and effectiveness testing. Validation was carried out by three validators, consisting of one media expert with expertise in educational technology and learning media development, and two subject matter experts with educational backgrounds and experience in culinary education and teaching Culinary Basics. The media expert assessed aspects of display, navigation, graphics, interface consistency, and ease of use of the application, while the subject-matter experts evaluated the feasibility of the content, material presentation, curriculum alignment, and language. The product was then revised based on the validators' input before being implemented with the students.

The research data consisted of primary data obtained through questionnaires and learning outcome tests. The material validation instrument consisted of 12 statements covering three aspects: content feasibility (6 items), presentation (4 items), and language (2 items). The media validation instrument consisted of 17 statements covering presentation (10 items) and graphics (7 items). Both validation instruments used a five-level Likert Scale, with a score range of 1 (very poor) to 5 (very good). Product practicality was measured using

a student response questionnaire covering four assessment aspects: ease of use, attractiveness, helpfulness in learning, and ability to support problem-solving, as stated by Saputri et al. [10]. Product effectiveness was measured using two multiple-choice learning outcome tests, each consisting of [10] 10 questions compiled according to the material on Kitchen Equipment and Ingredients.

Before being used in field trials, all validation instruments and learning outcome tests underwent content validation (expert judgment) by subject-matter and media validators to ensure content suitability, clarity of indicators, and the relevance of each question to the learning outcomes. Feedback from the validators was used to refine the product before implementation with the students. Validity data were analysed descriptively and quantitatively by calculating the percentage of empirical scores against ideal scores using the formula:

$$\text{Empirical score} = \frac{\text{The number of points scored}}{\text{Total ideal score for all items}} \times 100 \%$$

Validity criteria refer to the five-level Likert Scale, namely 90–100% (very good), 70–89% (good), 50–69% (fair), 30–49% (poor), and 0–29% (very poor) [10]. The practicality of the product was analysed using the average value of the student response scores with the formula:

$$\bar{X} = \frac{\sum X}{n}$$

With ($\bar{X}$) being the total score obtained and (n) being the number of assessment items. The calculation results are then interpreted according to Widoyoko's criteria: 3.25–4.00 (very practical), 2.50–3.24 (practical), 1.75–2.49 (less practical), and 1.00–1.74 (impractical). Based on the analysis results, the e-module obtained an average practicality score of $\bar{X}$ 3,56, so it falls into the very practical category. The effectiveness of the product is analysed based on the percentage of completeness of student learning outcomes using the formula:

$$\text{Completeness} = \frac{\text{the number of students who finished}}{\text{number of students}} \times 100 \%$$

The minimum completeness criteria used in this study was 75. The effectiveness test was conducted through two evaluations: one after students studied the Kitchen Equipment material and another after studying the Food Ingredients material. The completeness percentage in the first evaluation was 64.7%, while in the second evaluation it increased to 79.4%. These results show that using an APK-based e-module can improve students' learning completeness. The effectiveness level is interpreted using criteria modified from Sulastry et al. [11], which are 76–100% (very effective), 56–75% (effective), 50–55% (less effective), and 0–49% (not effective).

This research has paid attention to the ethical aspects of research. Before the research was carried out, the researchers obtained permission from the Head of SMK Istiqlal Delitua

and the Culinary Fundamentals subject teacher. All students were informed of the research's purpose and participated voluntarily. The identities of the respondents were kept confidential, and all data obtained were only used for academic purposes and the development of learning media.

3. RESULTS AND DISCUSSION

This section presents the research results from the development of an Android Package (APK)-based e-module, including needs analysis, product development, expert validation results, practicality tests, and effectiveness tests. The results are presented according to the Four-D model's stages, modified into three stages (Define–Design–Development), directly addressing the research objective: to produce an e-module that is valid, practical, and effective in improving students' learning outcomes in the Basic Culinary course.

3.1. Needs Analysis

The Define stage begins with a needs analysis involving one Culinary Basics subject teacher and 34 Year 10 students from the Culinary Expertise Program at SMK Istiqlal Delitua, who are prospective product users. This analysis aims to identify learning conditions, media used, and the needs of teachers and students for digital learning media.

The interview results showed that teachers still use learning media like PowerPoint and Canva as the main tools in the teaching process. Although these two media can help deliver material, teachers said that they are not yet able to support independent learning and do not provide interactive features that can combine material, learning videos, and assessments on one platform. Therefore, teachers expressed the need for new learning media that are more engaging, practical, and suited to the students' characteristics.

The same findings were also obtained from the results of the student questionnaire. As many as 64.7% of students stated that learning requires new, more interesting media; 97.1% agreed with the use of an Android Package (APK)-based e-module; and 100% of students agreed that the media should be developed and used in learning. These percentages indicate that the majority of students are highly ready to use smartphone-based learning media for independent learning. This needs analysis also serves as the basis for developing an Android Package (APK)-based e-module tailored to the characteristics of Basic Culinary learning.

3.2. Development Results of an Android Package (APK) Based E-Module

Based on the needs analysis results, an Android Package (APK)-based e-module was developed with a file size of approximately 68 MB and a 16:9 aspect ratio, making it compatible with most Android smartphones. The product was developed using Adobe Illustrator, Articulate, and APK Builder in accordance with the flowchart and storyboard designed in the design phase.

The e-module consists of several main menus: main menu, usage instructions, Kitchen Equipment material, Food Ingredients material, learning videos, evaluation quiz, and developer profile. The material is presented in text, illustrative images, demonstration

videos, summaries, and interactive practice questions, enabling students to learn independently or in class with the teacher.



Figure 1. Main Menu Display of the Android Package (APK) Based E-Module

The main menu page is the first page displayed after the user enters the application. This page provides menus for Application Information, Material, Learning Videos, Quiz, and Developer Profile, allowing users to access all learning features directly. Figure 1 shows the main menu interface of the Android Package (APK) based e-module. In addition to the main menu, the product also has a material page.



Figure 2. Display of the Kitchen Equipment Material Menu



Figure 3. Display of the Food Ingredients Material Menu

The material pages present learning material in the form of text, illustrations, and visual examples arranged according to the learning outcomes. The material presentation is designed so that students can learn independently without relying on teacher explanations.



Figure 4. Quiz Score Display

After completing all the questions, the application automatically displays each student's score. This feature provides immediate feedback, allowing students to understand their mastery of the material. The evaluation results are designed with simple navigation, making it easy for users to access all learning features. The presentation of various multimedia components within a single application indicates that the e-module not only serves as digital teaching material but also as an interactive learning medium that supports practice-based learning.

3.3. Expert Validation Results

The product's feasibility was evaluated by one media expert and two material experts before implementation with students. The validation aimed to ensure that the e-module met the standards for content, presentation, language, and learning media quality. Media validation results showed that the media presentation aspect received a score of 91.4%, while the graphic aspect received a score of 80.0%. Overall, the average media validation reached 85.7% with a very good category. These results indicate that the application's interface design, navigation, layout, and visual display meet the criteria for a feasible learning medium.

Table 1. Validation Results of Android Package (APK) Based E-Module

Assessment Aspects	Percentage (%)	Criteria
Media Presentation	91,4	Very Good
Media Graphics	80,0	Very Good
Average Media Validation	85,7	Very Good
Content Suitability	86,6	Very Good
Content Suitability	80,0	Very Good
Linguistics	93,3	Very Good
Average Material Validation	86,6	Very Good

Meanwhile, material validation shows that the content feasibility aspect scored 86.6%, the material presentation aspect scored 80.0%, and the language aspect scored

93.3%. The overall average for material validation reached 86.6%, which also falls into the very good category. These scores indicate that the material aligns with the learning outcomes, is presented systematically, and uses language that students can understand.

Even though all aspects received a very good rating, the validators provided some suggestions for improvement before the product was implemented. The improvements included refining the user interface to make it more consistent, adjusting the layout of some components, improving the wording of the material to make it more communicative, and fixing some illustrations and app navigation. After all these inputs were accommodated, the validators stated that the e-module was suitable for use with some improvements, and then the product was revised to produce the final version ready for testing with students.

3.4. Practicality Test Results

The product's practicality was measured through a questionnaire administered to 34 students after they used the e-module during the learning process. The analysis showed that the e-module received an average score of 3.56, placing it in the very good category.

These results indicate that students found the e-module easy to use, visually appealing, helpful in understanding the learning material, and supportive of independent learning through smartphones. Thus, the high practicality suggests that the product is not only academically viable but also easy to apply in daily learning without significant issues.

3.5. Effectiveness Test Results

The effectiveness of the e-module is measured based on the percentage of students who achieve mastery after using the developed learning media. Testing was carried out in two evaluation stages, following the sequence of the materials studied. In the first evaluation, conducted after learning the Kitchen Equipment material, 22 of 34 students scored above the passing grade of 75, yielding a mastery rate of 64.7% and placing them in the effective category. Then, in the second evaluation after students completed the Food Ingredients material, the number of students reaching mastery increased to 27, with a mastery percentage of 79.4%, which falls into the very effective category.

Table 2. Results of the Practicality and Effectiveness Test

Indicator	Result	Criteria
Practicality	3,56	Very Good
Effectiveness of Evaluation I	64,7%	Effective
Effectiveness of Evaluation II	79,4%	Very Effective

The increase in mastery percentage from 64.7% to 79.4% shows that using an Android Package (APK)-based e-module improves students' learning outcomes in Basic Culinary materials. This finding suggests that integrating materials, images, learning videos, and interactive quizzes into a single application can help students better understand the material than conventional presentation media alone. Overall, the study results show that the Android Package (APK)-based e-module meets the three main indicators of product development quality: validity, practicality, and effectiveness. The high validity level

indicates that the product meets the standards of content and learning media. At the same time, the practicality score shows that the application is easy for students to use. Meanwhile, the improvement in learning achievement indicates that the e-module has the potential to support higher-quality learning in the Basic Culinary course.

3.7. Discussion

This research aims to develop an Android Package (APK)-based e-module that is valid, practical, and effective to support learning in the Basic Culinary subject at SMK Istiqlal Delitua. The results of the study show that the developed product achieved a media validity level of 85.7%, material validity of 86.6%, a practicality score of 3.56 in the very good category, and an improvement in students' learning mastery from 64.7% in the first evaluation to 79.4% in the second evaluation. These findings indicate that the APK-based e-module meets the required quality standards for use as a vocational learning medium, especially in the material on Food Ingredients and Kitchen Equipment. These results are in line with the research by Akmal, Putri, and Sutanti [12] who developed an Android-based e-module for the Food Services course. The study showed that the developed media received a very favorable rating from material experts, media experts, and users, indicating that it can improve material accessibility and support students' independent learning.

The high level of product validity indicates that the e-module developed meets the criteria of content feasibility, presentation, language, and graphics, making it suitable for the learning characteristics in Vocational High Schools (SMK). This feasibility demonstrates that the material aligns with the learning outcomes and indicates that presenting information through multimedia can create a more meaningful learning experience. The integration of text, images, videos, and interactive evaluations allows students to obtain information through various visual representations, helping them build a more complete conceptual understanding than simply presenting material in text form. These findings support the research by Lubis et al. [13], which developed an Android-based E-Module in Basic Culinary Arts for vocational high schools. The study reported that media designed using the 4-D model received a very high level of feasibility from both content and media experts, as it could present culinary practice material more systematically and was easier for students to understand.

The quality of the materials does not just influence the effectiveness of e-modules, but also the features provided in the app. Learning videos provide visual demonstrations of how to use kitchen tools and the characteristics of food ingredients, making it easier for learners to understand procedures that are hard to explain in writing. Illustrative images help learners more concretely recognize the shapes, types, and functions of various food ingredients and kitchen tools, which is particularly important in vocational learning that emphasizes observation and hands-on skills. On top of that, interactive quizzes let learners evaluate their own progress and receive instant feedback, encouraging them to review the material again if they have not fully mastered it yet. Meanwhile, using the Android Package (APK) format makes it easy to access on a smartphone without opening a web browser, making the learning process more flexible and available anytime according to learners' needs. These results are consistent with the research by Wahyudi et al. [14], who developed

an Android-based Room Service E-Module for hotel competency. The research showed that presenting videos, illustrations, and interactive evaluations in a single app can increase student engagement during both online and offline learning.

The findings of this study show that improvements in learning mastery are likely influenced not only by the presence of digital media itself, but also by the e-module's ability to integrate various learning resources into a single, easily accessible application. This ease of access allows students to review the material independently at their own pace, so the concept reinforcement process continues over time. That said, the increase in mastery from 64.7% to 79.4% should be understood as an indicator that the e-module has the potential to support better learning outcomes in the context of this study, not as definitive proof of a cause-and-effect relationship, since the study did not use a control group or inferential statistical analysis. This interpretation is supported by Nurhasmiati et al. [15], which emphasizes that the main advantage of Android-based e-modules lies in their ability to provide flexible access to learning, allowing learners to review material whenever needed and thereby strengthening self-directed learning, not just because of the use of Android devices themselves.

The results of this study also reinforce previous findings on the effectiveness of Android-based learning media. Wahyuni et al. [16] reported that the Android-based e-module achieved a material expert validity of 90%, categorized as very valid. Mahardika et al. [17] also reported that the Android-based e-module application received a practicality score of 3.73, which was categorized as very good. Similarly, Istighfarin et al. [18] reported a media feasibility of 88%, while Fatin et al. [19] reported a feasibility of 87%, both categorized as very good. These results are further supported by Aqilah et al. [20], who showed that the Android-based e-module can improve learning quality through more interactive multimedia presentations, easy access, and alignment with the characteristics of vocational learning in the culinary field.

Nevertheless, this study offers a different contribution compared to previous research. Most earlier studies developed Android-based e-modules for general subjects or digitized learning materials without accounting for vocational competency characteristics. This study specifically develops an e-module for the Fundamentals of Culinary course, especially in the competencies of Food Ingredients and Kitchen Tools, which require both conceptual understanding and practical readiness. This focus is important because the competency to recognize the characteristics of food ingredients, the functions of kitchen tools, and how to use them is the foundation for students to carry out food preparation practices.

Besides that, the novelty of this study is not only in using the Android Package (APK) format, but also in the learning design that integrates text, images, demonstration videos, and interactive evaluations into a single app that can be operated independently on a smartphone. This integration means that learners do not have to switch between different platforms to access materials, watch videos, or take evaluations. These results align with the research by Anugerah et al. [21], who developed an Android Studio-based e-module for the Continental Food course. Their study showed that integrating tutorial videos, simulations, and quizzes

into a single app can significantly improve students' understanding of continental sauce material compared to using digital media alone.

From the perspective of multimedia learning theory, this study's findings indicate that presenting information in multiple forms of representation can help learners build connections between verbal and visual concepts [22]. Materials on food types, kitchen tool characteristics, and their use become easier to understand when learners not only read the descriptions but also watch relevant images and demonstration videos. This condition aligns with the Cognitive Theory of Multimedia Learning, which explains that learning becomes more effective when information is presented through both verbal and visual channels in an integrated way, reducing cognitive load and enhancing the knowledge construction process [23]. This empirical finding is supported by Rahmat, Mappalotteng, and Mappedasse [24], who reported that Android-based multimedia learning on Food Ingredients Knowledge can boost both learning motivation and outcomes among vocational high school students by presenting material in a more interactive and contextual way.

This study also shows that easy access through Android devices gives students a greater chance to learn independently outside of class hours. This flexibility is really important in vocational education because students need the opportunity to review material before doing practical work in the lab or production kitchen. With materials, videos, and evaluations available in one app, learning does not depend on the teacher being in the classroom. These findings are supported by the research of Rani et al. [25] on the development of a Flip PDF Professional E-Module in the culinary field, which concluded that digital media that can be accessed independently can boost learning motivation and make it easier for students to understand practical material gradually.

Nevertheless, the results of this study need to be interpreted proportionally. The improvement in learning completeness indicates that the e-module has the potential to support better learning outcomes. However, it cannot yet be considered strong evidence of a cause-and-effect relationship because the study did not use a control group or inferential statistical analysis. In addition, the product implementation was still limited to a single school with a relatively small student population. Technically, the app can only be used on Android devices with a file size of around 68 MB, so compatibility across different operating system versions or devices with limited storage has not been fully evaluated. These limitations align with various studies on Android media development that emphasize the importance of cross-device testing before the media is widely deployed.

Practically, this study suggests that vocational high school teachers, especially in culinary fields, can use APK-based e-modules as a supporting learning tool for both classroom and self-directed learning. Integrating materials, videos, images, and evaluations into a single app allows teachers to reduce reliance on conventional presentation media while also improving students' readiness before practical sessions. For schools, developing similar media could be a strategy to strengthen the digital learning transformation in vocational education. Meanwhile, future research is recommended to develop apps that are lighter, compatible with more operating systems, and integrate online learning result storage (cloud-based learning analytics), and also use an experimental design that involves a control group

and pre-test–post-test data so that the effectiveness of the media on improving learning outcomes can be proven more comprehensively.

4. CONCLUSION

Based on this research, the goal was to develop an Android Package (APK)-based e-module as a learning medium for the Basic Culinary subject, covering Food Ingredients and Kitchen Equipment at SMK Istiqlal Delitua. The research results show that the e-module developed meets the criteria of validity, practicality, and effectiveness, making it suitable for supporting technology-based vocational learning. This study contributes to the development of digital learning media by integrating materials, images, educational videos, and interactive quizzes into a single Android app that supports self-learning and makes it easier for teachers to present materials that require visualization. The findings show that an APK-based e-module has the potential to be a relevant alternative learning medium for vocational education, especially in the culinary field. However, this study is still limited to a single school with 34 students, so the findings cannot yet be generalized. Therefore, future research is recommended to test the product on a larger scale, involving more schools and students, and using a stronger experimental design to demonstrate the e-module's effectiveness more comprehensively before widespread application.

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