Journal of Practice Learning and Educational Development
https://digitalpress.gaes-edu.com/index.php/jpled
E-ISSN: 2809-1205
Vol. 6, No. 1 (2026) 674-678
DOI: 10.58737/jpled.v6i1.935

Submitted: 25-10-2025
Revised: 24-02-2026
Accepted: 14-03-2026

Integrating Basic Job Skills, OHS, and Word Culture Learning with Android Technology in Building Design Programs

Aura Amina Putri[1], Laras Oktavia Andreas[2]
Department of Civil Engineering, Faculty of Engineering, Padang State University, Indonesia[1,2]
*E-mail: auraaminahputri27@gmail.com

Abstract

This research aims to develop Android-based learning media for the Basic Job Skills, Occupational Health and Safety (OHS), and Work Culture elements in the Building Design and Information Construction (DPIB) field at SMK Negeri 1 Pariaman. The development was driven by the need for interactive, attractive, and easily accessible learning innovations to support students in understanding vocational materials more contextually. This study used a Research and Development approach with the DDDE model, consisting of the decide, design, develop, and evaluate stages. Data were obtained using validation and practicality questionnaires assessed by media experts, material experts, teachers, and students. The validation results showed that the media achieved an Aiken's V score of 0.88 from media experts and 0.91 from material experts, indicating a very valid category. Practicality testing obtained 96 percent from teachers and 89 percent from students, which were categorized as very practical. Based on the findings, the developed Android-based learning media is suitable for use as an interactive, innovative, and effective learning resource to support the DPIB learning process in vocational schools.

Keywords: android-based media, basic job skills, OHS, work culture, vocational learning

Introduction

The development of science and technology has had a significant influence on the world of education, including Vocational High Schools (SMK) which are oriented towards the formation of competent and work-ready workforce (Setiawan, et al, 2017). Vocational education is designed to equip students with knowledge, skills, and professional work attitudes that are in accordance with industry needs through the implementation of a competency-based curriculum. The Building Information and Modeling Design (DPIB) expertise program is one of the fields that requires students to understand the business processes of modeling work, basic design work techniques, and the application of quality and work safety culture. Basic Job Skills, K3LH, and Work Culture elements are fundamental elements because they direct students to procedural knowledge that is directly related to the needs of the construction world.

However, observations at SMK Negeri 1 Pariaman indicate that learning is still dominated by lecture methods and the use of textbooks. This condition results in low student engagement and less than optimal understanding of the material. A mini-research conducted on 36 students showed that 83.3 percent of students preferred audio- and video-based learning, 86.1 percent found it easier to understand visual materials, and 88.9 percent were interested in app-based digital media. These findings emphasize the need for more interactive, engaging learning media that aligns with the characteristics of the digital generation. The use of mobile device technology, particularly Android, is a

potential solution due to its easy access, flexibility, and ability to contain interactive multimedia (Rahmiati et al., 2020; Abiyoga & Rahmiati, 2021). Smart Apps Creator enables developers to create learning apps without programming skills and supports the effective integration of text, images, videos, animations, and quizzes. Based on these needs, this study aims to develop Android-based learning media on the elements of Basic Job Skills, K3LH, and Work Culture for class X DPIB SMK Negeri 1 Pariaman, as well as measuring the level of validity and practicality of the media as an indicator of the feasibility of its use in learning.

Methods

This study uses the Research and Development (R&D) method with the DDDE model developed by Ivers and Barron, which consists of four stages, namely Decide, Design, Develop, and Evaluate (Ivers & Barron, 2002). This approach was chosen to produce Android-based learning media that are appropriate and appropriate to the needs of students in learning the elements of Basic Job Skills, K3LH and Work Culture.

a. Decide

This stage includes analyzing learning needs through observation and distributing questionnaires to grade 10 DPIB students at SMK Negeri 1 Pariaman. Additionally, a curriculum review was conducted to ensure the media aligned with learning outcomes and objectives. The analysis results were used as a basis for determining the focus of the material developed in the media.

b. Design

The design phase involved compiling materials according to the Learning Objectives Flow, as well as designing the application's appearance and navigation flow through flowcharts and storyboards. Research instruments, including expert validation sheets and user practicality questionnaires, were also prepared at this stage.

c. Develop

The learning media was developed using Smart Apps Creator software, which integrates text, images, videos, and interactive quizzes. After the media was completed, a validity test was conducted by three media experts and three content experts to obtain assessments and feedback for product refinement.

d. Evaluate

The evaluation was conducted in the form of a limited trial with two subject teachers and 31 grade X DPIB 1 students to determine the level of practicality and feasibility of using media in learning. The assessment was conducted using a practicality questionnaire that was analyzed descriptively with percentages.

e. Data Analysis Instruments and Techniques

The research instruments consist of:

Expert validation questionnaire, covering aspects of appearance, navigation, interactivity, and accuracy of the material.

Practicality questionnaire, aimed at teachers and students to assess ease of use, clarity of material, attractiveness, and usefulness of the media.

Media validity was analyzed using Aiken's V formula to determine the level of agreement between validators (Retnawati, 2016). Media was declared valid if the value was > 0.80.

Practicality was analyzed using a percentage formula categorized based on Riduwan's (2010) criteria:

Table 1.
Practicality Categories

Interval	Category
81 - 100	Very Practical
61 - 80	Practical
41 - 60	Quite Practical

21 - 40	Less practical
0 - 20	Impractical

Results and Discussions

1. Results

This research produced Android-based learning media for Basic Job Skills, K3LH, and Work Culture using Smart Apps Creator. The research results are presented based on the media's validity and practicality.

a. Media Validity

Validity assessment was conducted by three media experts and three material experts. Analysis using the Aiken's V formula (Retnawati, 2016) showed that all instrument items were valid and met the learning media feasibility standards. The media experts gave a value of 0.88, while the material experts gave a value of 0.91, both of which are categorized as very valid because they exceed the minimum feasibility value of 0.80. This indicates that the developed media is appropriate in terms of design, navigation, interactivity, material suitability, content accuracy, and the characteristics of vocational high school students.

b. Media Practicality

A practical test was administered to two teachers and 31 class X DPIB 1 students at SMK Negeri 1 Pariaman. The calculation results showed:

Table 2.
Analysis of Teacher and Student Practicality

Respondents	Results (%)	Information
Teacher	96	Very Practical
Student	89	Very Practical

The results of the practicality test show that the Android-based learning media has a very high level of practicality, with a score of 96% from teachers and 89% from students, both of which are in the very practical category. This proves that the developed media is easy to use in learning, helps teachers in delivering materials, and provides a more interesting, interactive learning experience, and makes it easier for students to understand the elements of Basic Job Skills, K3LH and Work Culture through the integration of visual displays, audio, video, and quizzes.

2. Discussions

The Android-based learning media developed in this study has proven to be suitable for use in learning the elements of Basic Job Skills, K3LH, and Work Culture at SMK Negeri 1 Pariaman. The media was developed using the DDDE (Decide, Design, Develop, Evaluate) model which allows for a directed development process starting from needs analysis to product evaluation. The presence of this media aims to help students understand the material more effectively through an attractive, interactive display, and easy access using Android devices that are already very familiar to vocational school students.

Media validity conducted by three media experts yielded an Aiken's V of 0.88, which is considered highly valid. This indicates that the media's appearance, navigation, color, and text readability meet the principles of good media design. Arsyad (2019) stated that learning media designed with an attractive and easy-to-use appearance will help increase students' attention to the material. Furthermore, Riyan (2021) also confirmed that the use of multimedia in Android media can increase the effectiveness of information delivery to students.

The validity of the material by three material experts also showed an Aiken's V value of 0.91 and was categorized as very valid. The content of the material in the media was in accordance with the Learning Objectives Flow (ATP) and the competency needs of students in the DPIB field,

including understanding construction business processes, quality culture, application of K3LH, project management, as well as basic design work techniques and the use of measuring tools. Prastowo's (2019) statement that teaching materials that are arranged systematically and contextually make it easier for students to understand concepts, supports this validity result. Similarly, the results of research by Pratama et al. (2024) prove that Android media that is appropriate to student characteristics has a positive impact on learning outcomes because it presents concepts visually and interactively.

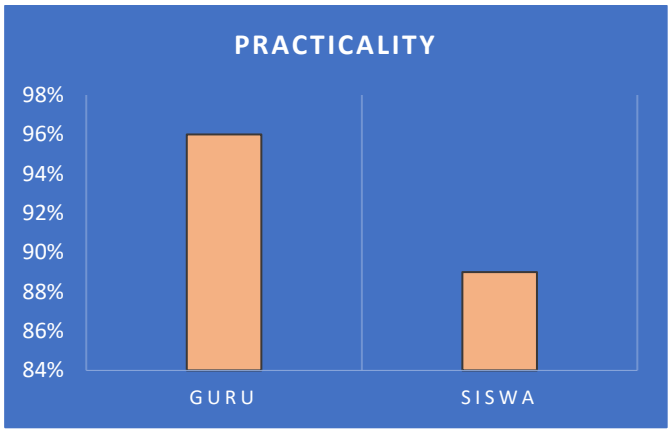

Figure 1. Percentage of Media Practicality

The results of the practicality test showed that the media received 96 percent approval from teachers and 89 percent from students, both of which were categorized as very practical. The media was easy to use, did not cause significant difficulties, and optimally supported the learning process. Nieveen (2010) stated that practicality indicates the ability of media to be used by users in real contexts and achieve learning objectives. This finding is reinforced by research by Haqiqi (2025) which showed that Android-based learning media can improve student motivation and learning outcomes due to the application's simple and easily accessible use. In addition, research by Andreas and Rizal (2023) also indicated that interactive digital media has a high level of validity and practicality, making it effective for use in vocational learning. Another finding from research by Yustisia et al. (2024) showed that the SIAKAMA application developed using the 4D R&D model method was declared valid (0.876), practical (78.67), and effective (81.22%), further confirming that the use of digital applications in vocational learning can improve coordination, monitoring, and assessment in industrial practice learning.

Conclusion

Based on the results of research conducted on the development of Android-based learning media on the elements of Basic Job Skills, K3LH and Work Culture at SMK Negeri 1 Pariaman, it can be concluded that the developed media has met the criteria for feasibility and usefulness for use in learning. The results of the validity test show an Aiken's V value of 0.88 from media experts and 0.91 from material experts, which is included in the very valid category, so that the media has met the feasibility criteria from the aspects of appearance, navigation, interactivity and suitability of content with the curriculum. In addition, the results of the practicality test obtained a percentage of 96%. from teachers and 89% from students, indicating the media is considered very practical. A high level of practicality indicates that the media is easy to use, engaging, and provides real benefits for both teachers and students in the learning process.

Overall, the Android-based learning media developed through the DDDE (Decide, Design, Develop, Evaluate) model was declared feasible and effective as a learning support tool. This media is able to help students understand the material on the Basic Job Skills, K3LH and Work Culture elements

in a more contextual, interactive, and in accordance with the characteristics of learning in the field of Building Modeling and Information Design (DPIB). Thus, this media is recommended for implementation in learning in vocational schools and can be further developed for other elements or materials to optimize its benefits.

References

Abiyoga, D., & Rahmiati. (2021). *Development of Android-Based Learning Media to Improve Student Learning Outcomes* . Journal of Education and Technology, 12(1), 45–53.

Andreas, LO, & Rizal, RN (2023). Creating Interactive Digital Module-Based Learning Media on Basic Elements of Building and Housing Construction. *CIVED* , *10* (1), 267-274.

Arsyad, A. (2019). *Learning Media.* Jakarta: Rajawali Pers .

Haqiqi, A. (2025). *Development of Android-Based Learning Media to Increase Learning Interest and Student Learning Outcomes.* Risâlah: Journal of Education and Studies.

Ivers, K. S., & Barron, A. E. (2002). *Multimedia projects in education: Designing, producing, and assessing* . Libraries Unlimited.

Nieveen, N. (2010). *Design Approaches and Tools in Education and Training.* Dordrecht: Springer.

Prastowo, A. (2019). *Creative Guide to Creating Innovative Teaching Materials.* Yogyakarta: Diva Press.

Pratama, DP, Rusimamto, PW, Kholis, N., & Zuhrie, MS (2024). *Development of learning media Android-based learning to improve student learning outcomes in the Electronic Control Systems subject.* Journal of Electrical Engineering Education, 13(3), 215–222.

Rahmiati, D., Putri, E., & Salmiati. (2020). *Android-Based Learning Media for Middle Schools Vocational* . Padang: Padang State University Press.

Retnawati, H. (2016). Quantitative Analysis of Research Instruments. Yogyakarta: Parama Publishing

Riduwan. (2010). Easy Learning of Research for Teachers, Employees, and Beginner Researchers. Bandung:
Alphabet.

Riyan, M. (2021). *The use of Android application-based learning media as a learning innovation. Indonesian in expository text material.* Diksi: Journal of Language, Literature, and Learning, 29(2).

Setiawan, M., Lumenta, AS, & Tulenan, V. (2017). Interactive Learning Application Based on Multimedia for Elementary Schools (Case Study: Bitung State Elementary School I, Grade VI). *Journal of Electrical and Computer Engineering* , *6* (4), 194-204.

Yustisia, H., Andreas, LO, Apdeni, R., Heriyadi, B., & Weriza, J. (2024). Coordination of The Industrial Apprenticeship Program with The Siakama Application. *JOIV: International Journal on Informatics Visualization* , *8* (1), 492-498.

Acknowledgment

The author would like to thank the supervisor, examiners, media and materials expert validators, and the teachers and students of SMK Negeri 1 Pariaman who participated in the research and testing of this learning media. The support and assistance from various parties were instrumental in the smooth running and completion of this research.