JVCE 8 (2) (2023) : 97-103

Journal of Vocational Career Education

https://journal.unnes.ac.id/nju/index.php/jvce

Development of an Android-Based E-Module to Enhance Solo Puteri Bridal Makeup Competence

Syarifah Mu'daim[1]✉, Dwi Widjanarko[2], Adhi Kusumastuti[2]

[1]AKS Ibu Kartini Semarang, Semarang, Central Java
[2]Pascasarjana, Universitas Negeri Semarang, Indonesia

Article Info

Article History :
Received
June 2023
Accepted
September 2023
Published
December 2023

Keywords:
e-module; Android application; facial makeup; Solo Puteri bridal

Abstract

Currently, the instructional videos on Solo Puteri bridal makeup, sourced by instructors from YouTube, only cover certain aspects of the curriculum for Solo Puteri bridal makeup courses. Educators often face time constraints when creating their own audiovisual learning materials. This study aims to (1) assess the feasibility of an Android-based e-module using App Inventor for Solo Puteri bridal makeup competence; (2) evaluate the effectiveness of the Android-based e-module using App Inventor for Solo Puteri bridal makeup competence; (3) determine the practicality of the Android-based e-module using App Inventor for Solo Puteri bridal makeup competence.

The research model utilized in this study is the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation). The development research subjects consist of 12 active students majoring in Makeup at AKS Ibu Kartini Semarang. Data analysis methods include the Content Validity Index (CVI) and Percentage of Agreement (PA) for feasibility testing, t-tests and N-gain for effectiveness testing, and reproducibility coefficient (Kr) and scalability coefficient (Ks) for practicality testing.

The study results are as follows: (1) The product developed is an e-module for Solo Puteri bridal makeup; (2) The product is deemed feasible based on a Content Validity Index (CVI) score of 1 from media experts, a Percentage of Agreement (PA) of 100%, and a CVI score of 1 and PA of 100% from material experts; (3) Product trials show an effectiveness level of 0.67, with an effectiveness percentage of 67.36%, indicating a moderate effect and that the e-module is reasonably effective; (4) The reproducibility coefficient (Kr) is 94% and the scalability coefficient (Ks) is 72%, suggesting that the e-module for Solo Puteri bridal makeup is practical.

✉ Correspondence:
Jl. Sultan Agung No.77, Gajahmungkur, Kec. Gajahmungkur, Kota Semarang, Jawa Tengah 50232, Indonesia
E-mail: syarifahmudaim28@students.unnes.ac.id

p-ISSN 2339-0344
e-ISSN 2503-2305

INTRODUCTION

Education plays a critical role in various aspects of social and national life. Improving the quality of education significantly impacts the development of superior and well-characterized human resources. Education fosters a young generation capable of acting as agents of change for national progress. With the advancements in information and communication technology, digital learning resources are increasingly accessible to support educational activities beyond the confines of a classroom. One such learning resource is the e-module. According to Irwansyah et al. (2017), e-modules are an effective development option; traditional printed modules lack interactivity, feature static images, and can appear monotonous. In contrast, e-modules present material interactively through multimedia elements like videos, animations, simulations, and instant feedback questions. Research by Islamadina et al. (2016) describes Android as an operating system based on Linux for mobile phones. The use of Android in teaching and learning processes is believed to offer several benefits, including access to multiple learning resources (with internet connectivity), flexible learning that can take place anywhere and anytime, and opportunities for instructors to develop digital-based teaching techniques, enhancing learning outcomes.

Based on an interview conducted on May 2, 2024, with Lecturer Kuswidyaningrum, who teaches the Solo Puteri bridal makeup course at AKS Ibu Kartini, the instructional materials primarily consist of textbooks on bridal makeup and traditional customs of Solo Puteri, authored by Nanik Saryoto, as well as YouTube video tutorials. However, the use of modules in the teaching-learning process has not been maximized. While the teaching of Solo Puteri bridal makeup is relatively effective, there is room for improvement to support independent learning and the integration of technology-based learning. Students need to have supportive learning tools and recognize that a flexible learning system can foster independence and motivation. The e-module developed by researchers can be utilized in various learning environments, which is seen as efficient and significantly facilitates student learning by encapsulating all required study materials. The selection of appropriate media greatly influences the success of a learning process.

Research by Nafilah and Okatini (2022) indicates that e-module development in facial makeup courses is highly effective and appropriate as instructional material for media development. Consequently, Android-based e-modules are considered valid tools to assist learning in facial makeup courses. It is hoped that the e-module can provide a positive contribution for students and instructors, making learning more varied and not solely reliant on existing instructional materials. This developmental research is expected to enhance Solo Puteri bridal makeup skills for makeup students at AKS Ibu Kartini. The e-module is intended for use by both makeup students and instructors. This study aims to assess the feasibility, effectiveness, and practicality of an Android-based e-module designed to enhance Solo Puteri bridal makeup competence.

RESEARCH METHOD

This study employs the Research and Development (R&D) methodology, which consists of a series of processes or steps aimed at developing a new product or refining an existing one to ensure its accountability (Sukmadinata, 2013: 164). Educational R&D involves procedures to develop and validate educational products. This research focuses on developing an Android-based e-learning module to enhance student learning outcomes in Solo Puteri bridal makeup courses. The development model adopted in this study is the ADDIE model, which includes the phases of Analysis, Design, Development, Implementation, and Evaluation (Karim and Savitri, 2020: 4).

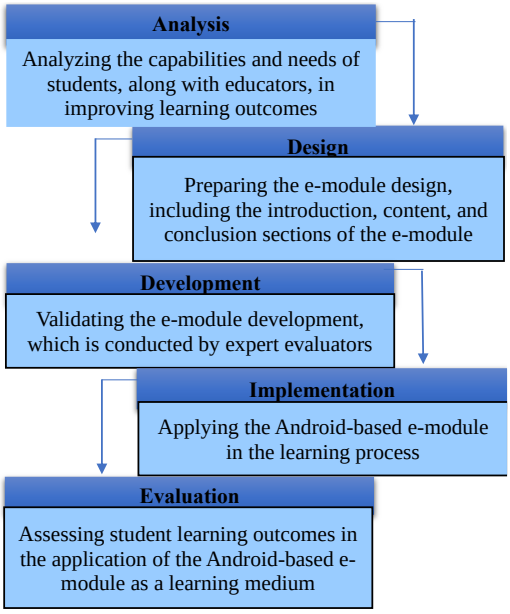


Figure 1. E-Module Development Stages using the ADDIE Model

RESULTS AND DISCUSSION

The implementation of the Android-based e-module development follows these steps:

1. Analysis Phase

Observations, interviews, and preliminary studies reveal the need for developing an e-learning module as follows: 1) The YouTube videos used as a learning reference do not meet certain expected indicators; 2) Issues faced by students affect their understanding of the Solo Puteri bridal makeup course, leading them to repeatedly ask for clarification on the steps involved; 3) Instructors face time constraints in creating Android-based e-modules, and some are not proficient in information technology, particularly in e-module creation. The developed learning media includes a structured sequence of materials and step-by-step videos on Solo Puteri bridal makeup to help students better grasp the course content. The goal of this media is to improve student learning outcomes.

2. Design Phase

The steps taken include:

a) Creating a Flowchart

The flowchart outlines the learning media's process, from start to finish, making planning for subsequent development steps easier. The following is the flowchart for the Android-based e-learning module:

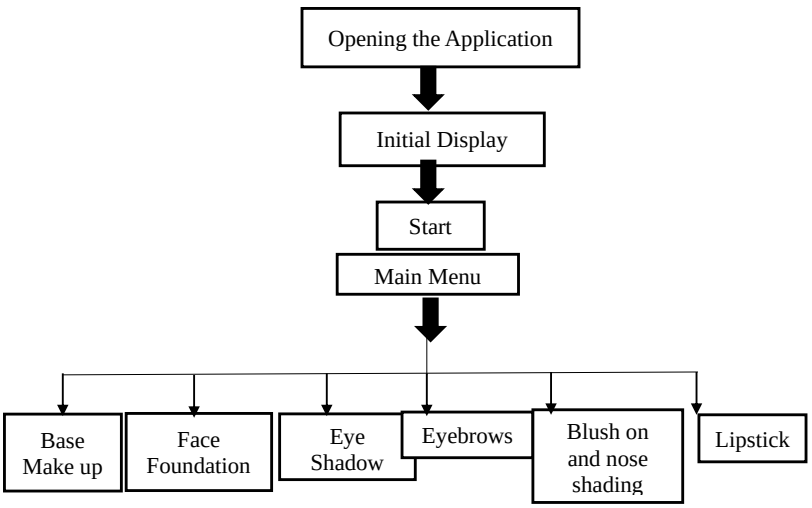


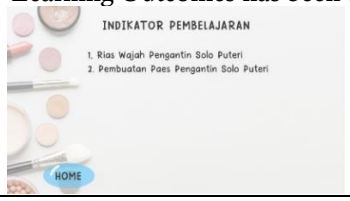
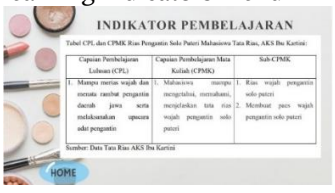
Figure 2. Flowchart of the Android-based E-Module.

3. Development Phase

This stage follows the design phase and includes: (1) Validation of the e-module by two media experts and two subject matter experts; (2) Revision of the e-module based on feedback received. A comparison of the Android-based e-module before and after revision is presented in the following table:

Revisions by Media and Subject Matter Experts

Table 1. Revisions by Media and Subject Matter Experts.

Before Revision	After Revision
1) In Module 1 and 2, the content was in PDF format, changed to flipbook 	1) The module pages have been changed to flipbook format. 
2) The video tutorial on makeup was initially divided into parts 1 to 6 without specific descriptions for each part. 	2) Descriptions have been added to each part of the video tutorial. 
3) The initial menu screen needed additional details such as the research location, author's name, and university affiliation. 	3) The initial menu screen now includes the research location, author's name, and university affiliation. 
4) Added new options to the main menu, specifically a practice question menu and a closing menu. 	4) Additional menus have been included in the main menu. 
5) In the learning indicators menu, a table for Graduate Learning Outcomes and Course Learning Outcomes has been created. 	5) A table for Graduate Learning Outcomes and Course Learning Outcomes has been added to the learning indicators menu 

6) A back button was added to the module pages. 	6) The module pages now include a back button. 

4. Implementation Phase

After media and subject matter experts validate the Android-based learning module and deem it appropriate using the Percentage of Agreement method, a limited trial was conducted with 12 fourth-semester students at AKS Ibu Kartini in July 2024. This trial included pretests and posttests to evaluate the effectiveness of the developed learning module. Before starting the course, students received verbal instructions on using the learning media. All students found it easy to use, as most were already familiar with smartphones. The learning module application was designed to be used on Android smartphones. Following the study from May, the implementation took place in July, with evaluations carried out using a test to measure learning outcomes. The test results were used to assess the effectiveness of the Android-based e-learning module.

5. Evaluation Phase

Every stage of the learning module development process was evaluated by the researcher, with guidance from a faculty advisor. Evaluations involved feedback and revisions at each development stage. After implementation, an evaluation was conducted to gather data by administering tests to students at AKS Ibu Kartini Semarang. The evaluation results showed that 100% of students achieved good scores.

Feasibility, Effectiveness, and Practicality of the Android-Based E-Module

1. Feasibility of the E-Module

The validation of the Solo Puteri bridal makeup e-module was conducted by two subject matter experts, using the Content Validity Ratio (CVR). Instrument reliability was calculated using the Percentage of Agreement analysis. Results showed that all assessed indicators had a CVR value of 1, and the overall Content Validity Index (CVI) was also 1. This indicates that all aspects evaluated by the media and subject matter experts were valid, as the CVR and CVI values exceeded 0.62. Consistency of valid CVR and CVI values was confirmed by a Percentage of Agreement score of 100%, higher than the 80% threshold, demonstrating that the media and content aspects of the Solo Puteri bridal makeup e-module are valid and reliable.

2. Effectiveness of the E-Module

The effectiveness of the developed e-module was tested through classroom implementation using a pretest-posttest one-group design. Pretests were administered before the treatment, followed by posttests after implementing the Android-based e-module.

T-Test Analysis

The statistical test used is the Paired Sample t-Test, which is a method for comparing two related samples. These paired samples refer to the same subjects who undergo different treatments. This type of comparative test is used to analyze the research model before and after an intervention. The test is conducted to determine the difference in outcomes between the posttest and pretest results. The Paired Sample t-Test calculations were performed using SPSS, yielding the following results:

Based on the paired samples statistics table above, it shows that the average pretest score for 12 students was 68.0, with a standard deviation of 12.29, whereas the posttest score was 88.50, with a standard deviation of 4.75. The paired samples correlations table indicates that the pretest and posttest results, conducted with 12 students, yielded a correlation of 0.640 with a significance level of 0.025. The paired samples t-test results show a mean difference of 20.50 with a standard

deviation of 9.94. The calculated t-value was 7.137, with a significance (2-tailed) of 0. The critical t-value at (df = 11; α = 5%) is 2.201. Since the calculated t-value is greater than the critical t-value, it can be concluded that there is a significant difference in student learning outcomes before and after the treatment using the Android-based learning module media featuring Solo Puteri bridal makeup techniques. This indicates an improvement in the pretest and posttest data.

N-Gain Test

The N-Gain test is used to evaluate the effectiveness of student learning in Solo Puteri bridal makeup. The purpose of this test is to measure the improvement in student learning outcomes after undergoing the treatment. The N-Gain score is calculated by comparing pretest results with posttest results. The N-Gain score calculations are presented in the following table. The N-Gain test analysis was conducted using Microsoft Excel.

Table 3. N-Gain Score Calculation Results

Respondent	Pretest	Posttest	N-Gain	%
1	72	88	0.571429	57.14%
2	72	88	0.571429	57.14%
3	80	92	0.6	60.00%
4	68	88	0.625	62.50%
5	68	92	0.75	75.00%
6	68	88	0.625	62.50%
7	64	92	0.777778	77.78%
8	64	88	0.666667	66.67%
9	36	80	0.6875	68.75%
10	68	88	0.625	62.50%
11	68	92	0.75	75.00%
12	76	96	0.833333	83.33%
Average N-Gain			0.673595	67.36%

Based on the N-Gain test results, an effectiveness score of 0.67 was obtained, with an effectiveness percentage of 67.36%. This score indicates that the method used has a moderate impact, with a fairly effective level of effectiveness. Therefore, the implementation of the e-module learning media with competencies in Solo Puteri bridal makeup for the Cosmetology program at AKS Ibu Kartini is considered effective in improving students learning outcomes.

3. Practicality of the E-Module

The practicality of the Android-based e-module for Solo Puteri bridal makeup was assessed using a response questionnaire filled out by 10 practitioners who are makeup artists (MUAs) or bridal makeup artists. The validity of the practitioners responses was evaluated using the Pearson Product Moment Correlation through the SPSS program, which showed that 25 items were considered valid since they obtained a Sig. (2-tailed) value > 0.05. Meanwhile, the reliability of the instrument was tested using Cronbach's Alpha analysis through SPSS, resulting in a value of 0.955. According to Nunnally (1994), a construct or variable is considered reliable if it yields a Cronbach's Alpha value > 0.70.

The practicality test of the media was determined by calculating the reproducibility coefficient (Kr) and scalability coefficient (Ks) based on predetermined scores. The practicality of the e-module for Solo Puteri bridal makeup was assessed using a practicality questionnaire. The data from the practicality assessment of the Android-based module can be seen in the following table.

Based on the calculations, the reproducibility coefficient (Kr) obtained a score of 0.94, while the scalability coefficient (Ks) obtained a score of 0.72. Thus, it can be

concluded that the Solo Puteri bridal makeup e-module falls into the category of "Practical."

CONCLUSION

The Android-based e-module learning media for Solo Puteri bridal makeup has been validated as both valid and reliable. The overall Content Validity Index (CVI) was determined to be 1. Thus, these results indicate that all aspects (indicators) for the media expert and material expert instruments for the Solo Puteri bridal makeup e-module are valid, given that both CVR and CVI values exceeded 0.62. Consequently, the material experts agreed that the instruments for the material expert assessment are valid and reliable.

The effectiveness of the e-module learning media was evaluated using a paired samples t-test, which yielded a t-value of 7.137 and a Sig. (2-tailed) value of 0.000 < 0.05. Since the t-value of 7.137 is greater than the t-table value of 2.201, it can be concluded that there is a significant difference in effectiveness between the pretest and posttest results. This finding implies that the formulated hypothesis is accepted (Ha is accepted while Ho is rejected). Therefore, it can be concluded that the use of the e-module media significantly enhances student learning outcomes. The N-Gain score was 0.67, with an effectiveness percentage of 67.36%. This indicates that the method provided has a moderate impact and is considered to be fairly effective.

The developed e-module learning media was also categorized as practical. An analysis using the reproducibility coefficient (Kr) yielded a score of 0.94, while the scalability coefficient (Ks) produced a score of 0.72. Therefore, it can be concluded that the Android-based e-module is feasible and appropriate to be used as a learning medium.

REFERENCES

Irwansyah, F. S., Lubab, I., Farida, I., & Ramdhani, M. A. (2017). Designing interactive electronic module in chemistry lessons. In *Journal of Physics: Conference Series* (Vol. 895, No. 1, p. 012009). IOP Publishing.

Islamadina, F., Haryono, T., & Ambarwati, R. (2016). Validitas, Kepraktisan, Dan Keefektifan Aplikasi Media Mobile Learning "Panduan Identifikasi Kupu-Kupu" Berbasis Android Untuk Siswa Kelas X SMA. *Jurnal BioEdu*, *5*(3), 352-360.

Nafilah, P. F.,& Okatini, M. (2022). Pengembangan Emodul Dalam Rias Karakter Luka Bakar Menggunakan Bahan Utama Kapas Lem Dan Kosmetika Masker Peel Off. *Jurnal Tata Rias*, *12*(1), 68-78.

Sugiyono. (2012). Metode Penelitian Kualitatif, Kuantitatif dan R&D. Bandung: Alfabeta.

Sukmadinata, N. (2013). Metode Penelitian Pendidikan. Bandung : PT. Remaja Rosdakarya.

Karim, A., & Savitri, D. (2020). Pengembangan media pembelajaran matematika berbasis android di kelas 4 sekolah dasar. *Jurnal Lebesgue: Jurnal Ilmiah Pendidikan Matematika, Matematika Dan Statistika*, *1*(2), 63-75.