
DEVELOPMENT OF ANDROID-BASED DIGITAL MODULES FOR LEARNING MUSIC HISTORY IN THE ERA OF THE COVID-19 PANDEMIC

Gusti Nyoman Pardomuan

Perguruan Tinggi Kristen Protestan Negeri Sentani

pardomuan@stakpnsentani.ac.id

Received: 01-06-2022

Accepted: 06-06-2022

Published: 15-06-2022

ABSTRACT

The current state of the COVID-19 pandemic has changed everything, one of which is in the education sector. Educational technology must also adapt to existing conditions. One of them is by developing digital modules for students to be able to carry out learning activities anywhere. The purpose of this research is to develop a learning media that is packaged in the form of an Android-based Digital Module for the History of Music course for second semester students of class A & B Department of Church Music at STAKPN Sentani which is one of the solution ideas to increase learning motivation and increase student learning experience towards digital learning resources. This research is a development research using the ADDIE model. The subjects in this study were content experts for the history of music, learning media experts, and individual student responses, small group students, and students in field trials on the products developed. The variables studied in this study are Android-based Digital Modules that are used during the current Covid 19 pandemic. Research data were collected using interview instruments and questionnaires. The research data were analyzed descriptively qualitatively, descriptively quantitatively and inferential statistics (t-test). The results of the study indicate that a Digital Module has been successfully developed which is packaged in the form of Android for Distance Learning activities and has been valid for use. The results of the inferential statistical analysis of the t-test showed that the product developed was able to increase student learning motivation.

Keyword: Digital Module, Learning Media, Development Research, ADDIE.

Corresponding Author: Gusti Nyoman Pardomuan

E-mail: pardomuan@stakpnsentani.ac.id



INTRODUCTION

Looking back at the current events that are happening, that the development of learning technology is adjusting to the emergence of something relatively new, namely the Corona Virus Disease 2019 (Covid-19) which is endemic in almost all corners of the world originating from Wuhan, China (Khatimah et al., 2021). This Covid-19 virus can spread very quickly to various circles, making it difficult to know and or detect people who have been exposed, because it is calculated that the incubation period of the Covid-19 virus is approximately 14 (fourteen) days which can increase the number of victims infected. Covid-19 virus.

Therefore, in accordance with current conditions, of course, learning activities that are still conventional and still involve face-to-face learning activities will gradually be rarely applied in teaching and learning activities (Pujiasih, 2020). In this case there is a government policy to take action for students to learn online (in a network) from home. These changes require us to be

prepared, respond with attitudes and actions as well as always learn things that are renewable (Maulidina & Bhakti, 2020).

Digital module development is the process of designing teaching materials independently and systematically in digital form to achieve online learning goals. Relevant Research and Development was carried out by (Cahyani, 2013) entitled "Development of Character Education-Based Basic Electronics Learning Module at SMK Piri 1 Yogyakarta". Research from Cahyani shows that the electronic learning module is very good and feasible to use with a value presentation of 82.25% according to media experts. States that the module is a teaching material that can be used by students to study independently so as to minimize assistance from others (Munadi, 2013). Furthermore, according to (Nasution, 2013) the module is a learning unit that is fully structured and consists of a series of well-designed learning activities to help students achieve appropriate learning objectives. States that the multimedia module makes the learning process more interesting, active, able to convey messages through pictures and videos, and provides student learning motivation through instruments so that learning materials are easily understood by students (Satriawati, 2015). According to (Baharuddin & Wahyuni, 2015), the module is one of the media that is able to provide opportunities for students to build the concept of independent learning in accordance with the abilities of each student, so that the use of the module is in accordance with the principles of implementing the curriculum in each university.

In the early stages, researchers conducted field observations and analysis of needs related to digital module products to be developed, in fact it was found that students often seek learning experiences through campus and face-to-face, so students cannot be said to be independent in improving their learning experience. In other words, students only depend on the lecturers and the facilities on campus. Moreover, the lack of lecturers in enriching digital learning resources causes students to be less motivated to take part in learning, especially learning music history.

One of the efforts that can be done is through initial needs analysis activities, namely designing and designing digital module development with the ADDIE development model. The module is a way of organizing subject matter that pays attention to the function of education. Through organizing teaching materials, students are expected to be able to master the subject matter in accordance with the established basic competencies. With the ADDIE development model, the products developed have been tested and proven to be right on target, so that students can use this digital module as a medium of learning both on campus and independently outside of college. The ADDIE model provides stages of developing digital modules in a systematic, structured and tested manner to be able to be applied by students. By involving the function of the visual senses for learning, of course students will understand more about the subject matter. Better understanding of the material will increase students' intellectual abilities so that they can achieve the core competencies and learning objectives specified.

Based on the gaps that occur above, a Digital Module is designed that is packaged in the form of Android to accommodate music history lectures at the Church Music Department STAKPN Sentani, this learning media is expected to be able to accommodate and facilitate the teaching and learning process of students independently in understanding music history course material at the Department of Education. STAKPN Sentani Church music is simple and easy for users to reach. The

tools needed during the use of this Learning Media only utilize mobile phones, smartphones or gadgets.

METHOD

This research is a research and development (R&D). The resulting product goes through a validation stage from several experts in their competent field and product trials. The research method used is the ADDIE development methodology (Analyze, Design, Development, Implement and Evaluate). The selection of this method is because the ADDIE development model methodology has a simple and easy-to-learn model. Its simple nature and systematic structure are very appropriate for the development of Digital Modules, so that the stages at each step can be well controlled.



Figure 1. ADDIE Model Stage Development Design

(source: Branch, 2009)

The type of research used is development research with data collection carried out by conducting interviews with experts and various sources who can provide advice in developing Android-based Digital Modules, as well as distributing questionnaires to respondents.

The next stage is to develop and design an Android-based Digital Module for the Music History course to become a complete digital learning medium and its validity has been tested by experts.

This study used three data collection methods, namely (1) document recording method, (2) questionnaire method and (3) test method. According to (Agung, 2014) "document recording method is a method of collecting data by collecting all kinds of documents and recording systematically". In this research, document recording is done by making a report on the development stages that have been carried out in developing an Android-based Digital Module product for the Music History course. In this study, the document recording method used a data collection

instrument in the form of an interview work agenda. The result of the work agenda is a product development report.

The questionnaire method is a way of obtaining or collecting data by sending a question. This questionnaire is used to measure the feasibility of the product that has been made either in the evaluation (Expert Judgment) from music history course experts, learning media experts and students during individual, group and group trials. field.

The written test method is a way to find out the knowledge, skills, intelligence, motivation or abilities possessed by students by using questions in the form of objective tests. This written test method is carried out by means of pre-test and post-test to measure students' knowledge before and after using the Digital Module by using multiple choice questions. The instruments used to collect data in this development research are (1) product development reports, (2) questionnaire sheets and (3) multiple choice test questions.

Document recording reports in the form or format of product development, are used to collect data about product development designs from the analysis to design stages. Questionnaire sheets (questionnaires) were used to collect evaluation data (expert judgment) from content experts in the field of music history, learning media experts, students during individual, group, and field trials.

Multiple choice test questions were used to collect data on the level of student motivation before and after using the developed Android-based Digital Module learning media. The purpose of collecting student score data is to find out the level of effectiveness of using Android-based Digital Module products to increase learning motivation by using a t-test for correlated samples.

In this development research, three data analysis techniques were used, namely (1) qualitative descriptive analysis techniques, (2) quantitative descriptive analysis techniques and (3) inferential statistical analysis techniques. Quantitative descriptive analysis was used to process the data obtained through a questionnaire in the form of a score. After the score of the validation results is presented, it is necessary to use a scale of values used to determine the final decision. The value scale that is used as a reference in determining the final decision is a scale of 5. The following table of achievement level conversion with a scale of 5 can be seen in Table 1 as follows.

Table 1. Guidelines for Conversion of Achievement Rates with a 5 . Scale

Achievement Rate (%)	Qualification	Information
85-100	Very good	No need to revise
75-84	Good	No need to revise
65-74	Enough	Revised
55-64	Not enough	Revised
1-54	Very less	Repeated product

Qualitative descriptive analysis was carried out by grouping information from qualitative data in the form of input, feedback, criticism and suggestions for improvement contained in the questionnaire. The results of this analysis are then used to revise the developed product.

Inferential statistical analysis was used to determine the level of product effectiveness on the learning motivation of second semester students of class A & B, STAKPN Sentani Church Music Department, before and after using the Android-based Digital Module development product. The target group's trial data were collected using pre-test and post-test on the subject matter being tested.

The results of the pre-test and post-test were then analyzed using the t-test to determine the difference between the results of the pre-test and post-test. Hypothesis testing used a correlation t-test with manual calculations using SPSS version 26 software. Before testing the hypothesis (correlated t-test) prerequisite tests (normality and homogeneity) were carried out.

RESULTS AND DISCUSSION

1. Digital Module Development Design

The design and development of Android-based Digital Module development is currently so easy with Microsoft Office PowerPoint software that utilizes the iSpring Suite version 10 plugin. Important features to support learning include assignments, quizzes, communication, collaboration, as well as the main features that can provide an illustrative picture related to the material. delivered in the form of visual images, the author uses the features provided by the iSpring application plugin which is integrated into PowerPoint. Educators are required to create an effective, innovative, and fun learning atmosphere. Educators act as motivators and facilitators in the learning process. The paradigm shift from instructional based learning to constructional based learning makes educators have to design learning that activates students to hone skills more with independent practice.

The development of learning media is carried out in two stages of development, namely the stage of content development according to the content of the courses being taught and the stage of developing the Digital Module which is packaged in Android form using the HTML to APK application. In accordance with the previous description, the model used in the development of this learning media is the ADDIE model which consists of five stages, namely Analyze (analysis), Design (design), Development (development), Implementation (implementation), and Evaluation (evaluation).

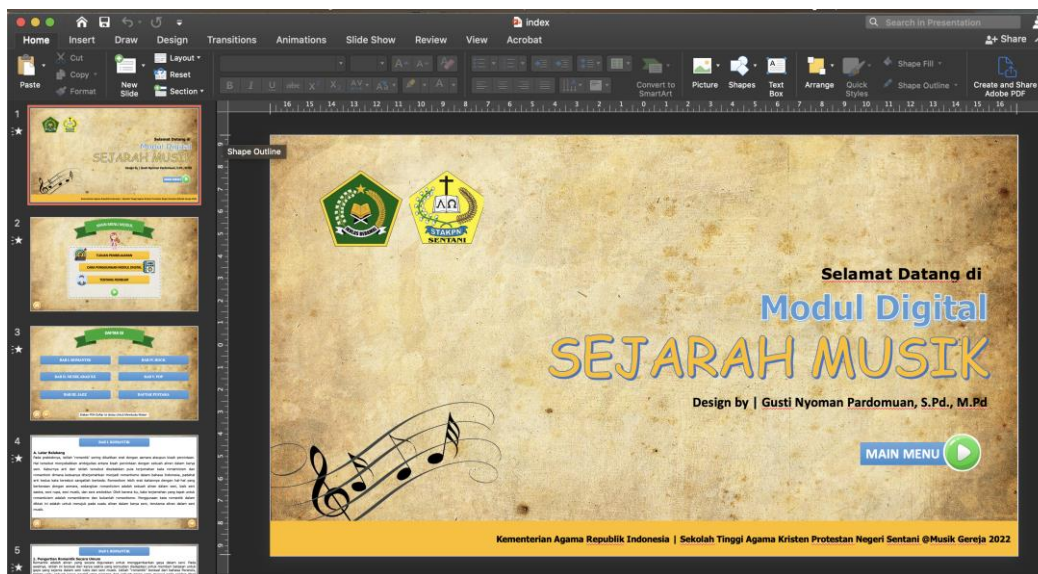


Figure 2. Design and Build a Digital Module Development Using PowerPoint

Phase 1 Analysis (Analyze), From the results of interviews with students of the Church Music Department STAKPN Sentani, which was conducted on May 9, 2022. It is known that learning is still conventional by using printed books as a reference in the teaching and learning process. Lack of student experience using integrated and interactive online learning media, low student motivation related to music history learning and the state of universities that are already equipped with adequate facilities for the development of Digital Modules packaged in the form of Android (mobile applications), namely WIFI facilities LAN, LCD and laptop in supporting the learning process using Digital Modules. Thus, students are more enthusiastic about participating in learning by using Digital Modules.

Stage 2 Design (Design), At this design stage create the initial display or main page of the Digital Module. This main page was created as an initial overview of the contents of the menu provided in the developed Digital Module. The following is an overview of the main menu display for the Android-based Digital Module that has been developed.



Figure 3. Display of the Android-Based Digital Module Initial Menu on Devices/Smartphones

Stage 3 Development (Development), Activities at this stage are the collection of materials (subject materials, supporting pictures, animation, typing, and others). This activity is the assembly of digital modules into a complete application. All materials such as subject matter, images, animations, text, were created with the help of PowerPoint and iSping 10 software, as well as HTML to APL software which is used to convert output HTML files from PowerPoint which are then packaged in the form of an Android application (APK) into Complete Digital Module. At the production stage, the developer also designs a user guide, in order to make it easier for students and lecturers to implement Android-based Digital Modules in Music History lectures. The following displays the documentation of the developed product.



Figure 4. Display of Main Menu Main Menu Digital Module on Device/Smartphone



Figure 5. Display of Material or Content Menu in Android-Based Digital Module Applications

In order for learning to use the Digital Module to be more interactive and to increase students' interest and motivation in learning, a quiz feature or learning evaluation is available which is used to measure the level of student understanding regarding the extent of understanding of the material presented by the developed Digital Module.



Figure 6. Display of Instructions for Working on Evaluation Questions

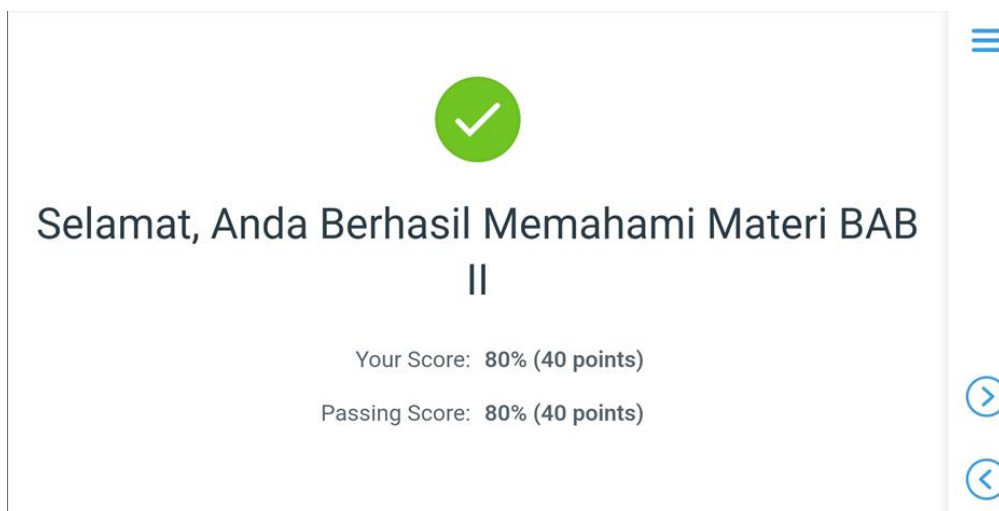


Figure 7. Display of Feedback Given If Students Successfully Reach A Certain Score

Stage 4 Implementation. At this stage, the Android-based Digital Module is applied to the second semester students of class A & B Church Music Department, STAKPN Sentani for product validation tests. At the implementation stage in this research is the stage to implement the product design that has been developed in real conditions in the classroom.

Stage 5 Evaluation, Evaluation is the last step of the ADDIE development design model. Evaluation is a process carried out to provide a feasibility value for the development of Digital Modules in learning. Evaluation is carried out in two forms, namely formative evaluation and summative evaluation. Formative evaluation is carried out at the end of each face-to-face (weekly) while summative evaluation is carried out after the activity ends as a whole (semester). Summative evaluation measures the final competence or learning objectives to be achieved. The evaluation results are used to provide feedback on the development of digital teaching materials. Then revisions are made according to the results of the evaluation or needs that have not been met by the objectives of developing teaching materials. Evaluation of the development of Digital Modules in learning aims to find out several things, namely: 1) Student attitudes towards learning activities as a whole, 2) Increasing student abilities which are the impact of participation in learning activities, 3) Benefits felt by universities due to increased student competence through the development of digital teaching materials in learning.

This product has passed the expert test stage, namely (1) the content expert test or the content of the music history course which obtained a score of 90% which was in very good qualification, (2) the learning media expert test which obtained a score of 95% which was in the very good qualification. .

After the product is revised according to suggestions and input from experts, the product can be tested on students. The trials carried out were field trials.

This Android-based Digital Module was broadcast to 30 students in the Church Music Department of STAKPN Sentani and immediately gave an assessment through the questionnaire

that had been provided. From the data obtained, the percentage level of achievement of the Digital Module during the field trial was 89.4% and was in very good qualification.

2. Development Validity

The validity of the product development that has been developed has been carried out using the test method. In this study, it was measured by giving multiple choice question sheets to 30 students of the Church Music Department of STAKPN Sentani through pretest and posttest. The average pretest value is 55.27% and the posttest average value is 86.72%. Based on the pretest and posttest scores of the 30 students, a t-test was performed for the correlated samples manually. Before testing the research hypothesis, the data distribution normality and variance homogeneity were first tested.

After doing the calculation manually, the result of t-count is 7.25. Then the calculated t value is compared with the t value in the table with $db=n_1+n_2-2=30+30-2=58$. The t-table value for db 58 and with a significance level of 5% ($\alpha = 0.05$) is 2,000. Thus, the value of t-count is greater than the price of t-table so that H_0 is rejected and H_1 is accepted. This indicates that there is a significant difference in student learning motivation between before and after using the Digital Module packaged in Android form to support online learning activities.

The application of the ADDIE model contains the realization of product design activities in this case is digital teaching media. The development stages in this research include activities to create and modify conventional teaching materials into digital teaching materials. In the design stage, a conceptual framework for the development of learning media has been prepared. In the development stage of the conceptual framework, it is realized in the form of learning media development products that are ready to be implemented according to the objectives. In carrying out the steps of developing learning media, there are two important goals that need to be achieved, including: 1) Produce or revise teaching materials that will be used to achieve the learning objectives that have been formulated, 2) Choose the best teaching materials that will be used to achieve learning objectives.

3. Development Results

The discussion in this development research will analyze the results of the development to answer questions in the development of an Android-based Digital Module. In general, there are 2 scientific questions that will be analyzed in this development research, namely. (1) How is the interface design for the Android-based Digital Module developed? (2) How is the validity of the Android-based Digital Module developed, including expert responses and student responses to the developed product?.

The first discussion, the Android-based Digital Module development design has been carried out using the document recording method. Based on the recording of the documents that have been done, produce a product development report. Product development reports are designed according to the stages of the ADDIE model. In this model, there is a section that explains the design for developing an Android-based Digital Module, namely designing the interface or main page (main menu). The development design was developed so as to produce learning media packaged in the form of an Android-based Digital Module according to the level of needs and competencies expected. The components of learning media are arranged

systematically, designed in an attractive form, so that in the end the Android-based Digital Module is able to increase students' motivation and understanding.

The second discussion, the validity of the results of the development of the Android-based Digital Module has been carried out using the questionnaire method. Based on the trials that have been carried out, the instruments produced are in the form of a questionnaire on the results of the evaluation of the content experts, the results of the evaluation of the learning media experts, and field trials. The results obtained during the content expert test through the instrument in the form of a questionnaire were 90% and were in very good qualification. The comments from content experts are based on the test results of the Android-based Digital Module product that is designed, it is very good and is considered to be able to increase student learning motivation in order to adapt to the adaptation of the IQF curriculum, especially mastery in the IT field.

The percentage of achievement level of learning media experts for Android-based Digital Modules scored 95% with very good qualifications. Media experts also provide suggestions for improvement as follows: (1) Instructions for use should be made as concise as possible so that they are easy to download and read on mobile/smartphone devices. The results of the field trial obtained a score of 89.4% and were in very good qualification.

Judging from the conversion of learning outcomes in class, the average posttest score of 86.72% of students is in the Very Good qualification, and is above the KKM score. Seeing the mean value or mean posttest which is greater than the mean value or mean pretest, it can be said that the development and application of Android-based Digital Modules can increase student learning motivation.

Based on student activity data, it shows that student activities do not experience problems in operating the Android-based Digital Module. It was also seen that students were active in using some of the quiz features in the module. Although the Android-based Digital Module learning media that has been developed has met the criteria of validity and practicality, this research still has limitations, namely in this study, product trials were only applied to two classes and 1 Department, namely the Department of Church Music at STAKPN Sentani, so that researchers suggesting for other researchers who are interested in researching the same thing, it is better to try out in more than one class and multidisciplinary so that the data obtained is more accurate. In addition, another limitation in this study is that the material provided on the media is only 1 material, namely material related to the discipline of music history.

The development of Android-based Digital Modules has the aim of helping students to more easily understand subject matter according to student characteristics, as well as adding digital learning resources, learning media, and is expected to increase learning motivation during the teaching and learning process in the classroom during the COVID-19 pandemic period. now. Based on the results of the initial observations made, it can be seen that students do not have media that are in accordance with competency standards so that the learning process is only guided by the delivery of material from teaching lecturers and the learning media used so far have not helped overcome the problem of low learning outcomes and student motivation. This has an impact on the low level of student motivation to learn.

Gusti Nyoman Pardomuan

Development of Android-Based Digital Modules for Learning Music History in the Era of the COVID-19 Pandemic

The Android-based Digital Module development design has been carried out using the document recording method. Document recording is done by noting the stages of development that have been carried out in accordance with the ADDIE development model.

CONCLUSION

From the results of this development research, the authors can conclude that the existence of an Android-Based Digital Module as part of one of the learning processes can make it easier for the lecturers and students involved as well, because its use is easy and can be used anytime where you have a mobile phone or smartphone device. Connected to the internet network (online) or not connected to the internet (offline). This learning media is also able to enrich the student's learning experience and become an additional supplement for students to support the independent learning process both within the campus environment and outside the STAKPN Sentani campus environment, especially during the current Covid 19 pandemic, students are required to be able to maximize ICT tools in every lecture activity. , so that from the results of this learning experience, the writer assumes that students are able to be motivated to be enthusiastic about learning, especially studying music history courses at the Church Music Department, STAKPN Sentani.

REFERENCES

- Agung, A. A. G. (2014). *Metodologi penelitian pendidikan*. Malang: Aditya Media Publishing.
- Baharuddin, B., & Wahyuni, E. N. (2015). *Teori belajar dan pembelajaran*. Yogyakarta: Ar-Ruzz Media.
- Cahyani, A. D. (2013). *Pengembangan Modul Pembelajaran Elektronika Dasar berbasis pendidikan karakter di SMK Piri 1 Yogyakarta*. Universitas Negeri Yogyakarta.
- Khatimah, K., Rahmawati, Y., & Halim, A. (2021). Pemanfaatan Media Pembelajaran, Inovasi di Masa Pandemi Covid-19. *Pemanfaatan Media Pembelajaran, Inovasi Di Masa Pandemi Covid-19*, 3(4), 2149–2158.
- Maulidina, S., & Bhakti, Y. B. (2020). Pengaruh media pembelajaran online dalam pemahaman dan minat belajar siswa pada konsep pelajaran fisika. *ORBITA: Jurnal Kajian, Inovasi Dan Aplikasi Pendidikan Fisika*, 6(2), 248–251. <https://doi.org/10.31764/orbita.v6i2.2592>.
- Munadi, Y. (2013). *Media Pembelajaran*. Jakarta: Referensi.
- Nasution, S. (2013). *Berbagai pendekatan dalam proses belajar dan mengajar*. Jakarta: Bumi Aksara.
- Pujiasih, E. (2020). Membangun generasi emas dengan variasi pembelajaran online di masa pandemi covid-19. *Ideguru: Jurnal Karya Ilmiah Guru*, 5(1), 42–48. <https://doi.org/10.51169/ideguru.v5i1.136>.
- Satriawati, H. (2015). *Pengembangan e-modul interaktif sebagai sumber belajar elektronika dasar kelas X SMKN 3 yogyakarta*. Universitas Negeri Yogyakarta.



© 2022 by the authors. Submitted for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>).