

DEVELOPMENT OF DIGITAL LEARNING RESOURCES USING SMART APPS CREATOR IN CLASS VIII SCIENCE SUBJECTS

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Abstract

This article aims to develop Android-based digital learning resources using smart apps creators for science subjects for class VIII. The type of development model used in this development research is the Lee Owens model with the following stages; (1) analysis consisting of needs assessment and front-end analysis (2) design, (3) development, (4) implementation, and (5) evaluation. The resulting product development shows that 25% consider it very easy to use, 47% easy, and 19.6% quite easy. While the percentage shows that 51% of students are very enthusiastic about learning to use this product. Then as much as 23.5% assess the number of students' interest in using android applications for learning is at a sufficient level. Meanwhile, 17.6% of students' interest in using android applications for learning is at a sufficient level.

Keywords: Digital Learning Resources Development, Smart App Creator, Sciences

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INTRODUCTION

The Covid-19 pandemic that has occurred in many parts of the world has had a major impact on various sectors, ranging from the economy, health, and education. In the world of education, there is a shift from face-to-face learning to online and independent learning processes. From the shift in the learning process, teaching staff must also adjust to what is the direction of learning in order to develop learning skills. One of the learning skills that must be mastered by teachers is to develop a learning system that can be used anytime and anywhere by utilizing the devices owned by students, especially in literacy and numeracy activities.

Students learning activities in terms of literacy and numeracy can be well organized if independent learning routines can be combined with student activities at home. However, not many students can use electronic devices (smartphones) properly, such as using smartphones to improve learning competencies (Alhady et al., 2018). The reluctance of students to use these devices in the field of learning cannot be separated from the lack of interactive and fun learning resources and [Click or tap here to enter text.media](#) (Badruzzaman et al., 2020; Feri & Zulherman, 2021). It is the job of teachers to create a source and learning media by utilizing smartphones which incidentally are mobile devices. However, many think that developing an Android-based application requires special skills, especially in terms of programming or coding languages.

One of the software that can be used for making applications based without coding is Smart Apps Creator (SAC). SAC is a digital-based interactive media that can be used in developing multimedia for mobile devices with an attractive interface, easy interactivity, and attractive design (Smart Apps Creator, 2018). SAC has several advantages, including; 1) does not use a programming language in its use 2) a user-friendly display, 3) produces application output with extensions such as APK, IOS, Exe, and HTML 5, but we limit it to android application development (APK extension), 4) does not require laptops/PCs specialized in application development do not require laptops/desktops with special specifications, and 5) produce interactive and interesting media.

Based on the problems above, it is very necessary to have sources or learning media that are interactive, fun, and can be used anytime and anywhere and that support platforms that in quantity have been used in general because of the large number of smartphone users who reach 167 million people or 89% of the total population of Indonesia (Hanum, 2021), as well as the number of users of devices with the Android operating system in Indonesia reaching 90.56% of the total smartphone and tablet users (Statcounter, 2022).

To improve the quality of learning related to the problems, especially in science studies, it is necessary to prepare learning resources and media that utilize information and communication technology that attracts students' interest in learning, especially at the junior high school level in the south Jember region that can be used anywhere and anytime.

RESEARCH METHODS

The type of development model in this research is the William W. Lee & Diana L. Owens’ model. In this development model, some stages are carried out to achieve the expected product development results. The stages include; (1) analysis consisting of needs assessment and front-end analysis (2) design, (3) development, (4) implementation, and (5) evaluation.

The reasons for choosing the Lee & Owens design are: (1) the Lee & Owens design is specifically designed to develop multimedia-based learning designs (2) the development flow of the Lee & Owens model is very complete and systematic, starting from the very complex analysis stage, design, development and implementation, and evaluation, (3) in the Lee & Owens model there is a very complete analysis component so that the product development will be optimal and accurate (Lee & Owens, 2012).

The multimedia development design process from Lee & Owens can be illustrated in the following figure 1:

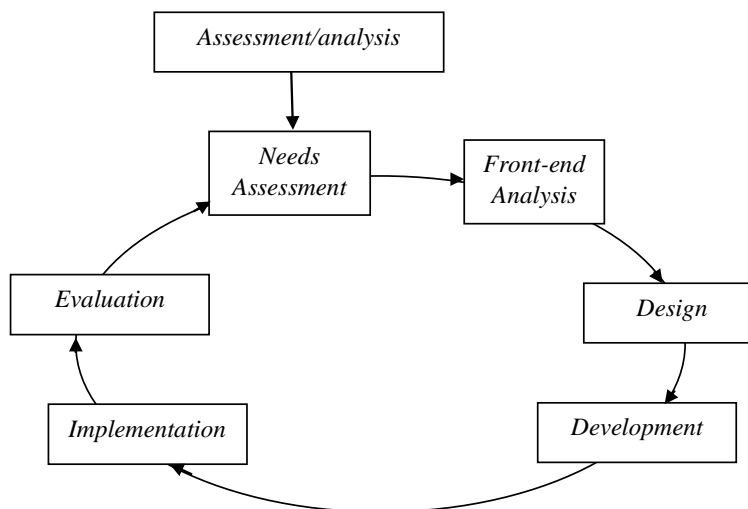


Figure 1. The Flow of Teaching Materials Development Design

Data Collection Technique

The data collection technique used in this study was using questionnaires, observations, and online interviews with 90 teachers of Science Teacher Forums (MGMP IPA) in the south Jember region.

Data Analysis Technique

Quantitative descriptive analysis is used to present the data so that the conclusion of the study is reached by quantitative descriptive analysis. The formula used for data analysis is as follows: (Arikunto, 2006)

$$P = \frac{\sum x}{\sum x_i} \times 100$$

Description :

P : Percentage

X : The value of respondents' answers in all items

X_i : The ideal score in one item

100 : Constant

While the interpretation of the results of the analysis for each instrument is:

Table 1. Table of Eligibility Criteria

No	Percentage	Eligibility Level
1	81.00% - 100.00%	Very decent, or can be used without revision
2	61.00% - 80.00 %	Decent, or usable but needs minor revision
3	41.00% - 60.00%	Not feasible, it is recommended not to use it because it needs a major revision
4	21.00% - 40.00%	Inappropriate, or should not be used
5	00.00% - 20.00%	Very inappropriate, or should not be used

Source: (Akbar, 2013)

Qualitative Descriptive Analysis

Qualitative descriptive analysis techniques are used to process data from user satisfaction results. This data analysis technique is carried out by grouping information from qualitative data in the form of inputs, responses, criticisms, and suggestions for improvement that have been provided in the questionnaire. The results of the analysis are used as a guide for revising the product development of teaching materials using Smart Apps Creator in science subjects for class VIII.

RESEARCH RESULTS AND DISCUSSION

Need Assessment

Based on the results of the need assessment in the field, it was found that during online learning, many students had difficulties in using these tools in the field of learning, it could not be separated from the lack of interactive and fun learning resources and media that were appropriate to the subject and level.

Front-End Analysis

At the Front-end Analysis stage obtain various detailed information about the product/media being developed. This stage is audience analysis, technology analysis, situation analysis, task analysis, critical analysis, objective analysis, issue analysis, media analysis, extant-data analysis, and cost analysis which aims to illustrate the implementation of the next step. Learning objectives can be formulated and minimize obstacles when implementing products/media.

Based on the results we obtained that 97% of students have used mobile devices both personal and family-owned and the ability to use mobile and tablet devices that tend to vary, such as the use of mobile devices which are only limited to use on social media, telephone, chat and still a little. who use it for learning purposes.









Design

This stage is the entire media development which consists of planning the schedule, determining media specifications, and configuration control, as shown in the following tables 2 and 3:

Table 2. Specifications

Operation System	Android Kitkat - Nuggat
Color	White, Orange, Blue
Theme/Background	
Button	Navigation
Text	SWZ (<i>text layout flash</i>)
Font	a. Chapter: Arial, Calibri b. Content: Multicolore, Hurtmold Size: The font size can change according to the user's screen size
Picture	.png
Video	Mp4, AVI (<i>Youtube Content</i>)
Animation	Flash

Table 3. Configuration Control

Button	Function
 Home	Access to the main menu
 Materi	Access to the material menu
 Glosarium	Access to important glossary
 Menu	Access the menu in the material chapter
 Next	Go to the next page
 Prev	Go to the previous page
 Close	Close the window
 Submit	To check the answer to the task

The pre-production stage is the stage of making flowcharts which aims to build an initial structure in application development. The flowchart design of this mobile learning development product can be described through the image below:

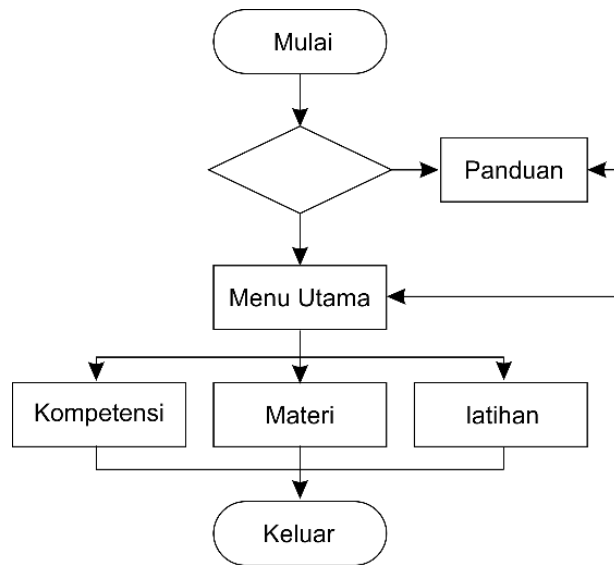


Figure 2. Flowchart of Application

Development and Implementation

This stage is the stage for distributing products using Bluetooth facilities or by publishing them to Google Drive cloud storage so that they can be used by students taking science lessons. The results of research that have been developed produce learning products using Smart Apps Creator in science subjects for class VIII by applying the Lee Owens development model to produce applications that can be installed on Android, or can be opened on a computer. The user interface that can be used following figure 3.



Figure 3. Example of product display for Smart Apps Creator Training participants

After the application has been successfully developed, the next step is the implementation to users where they give their opinion about the ease of operation of the Smart Apps Creator 3 application in the preparation of Android-based learning media. This is stated in the following Figure 4.

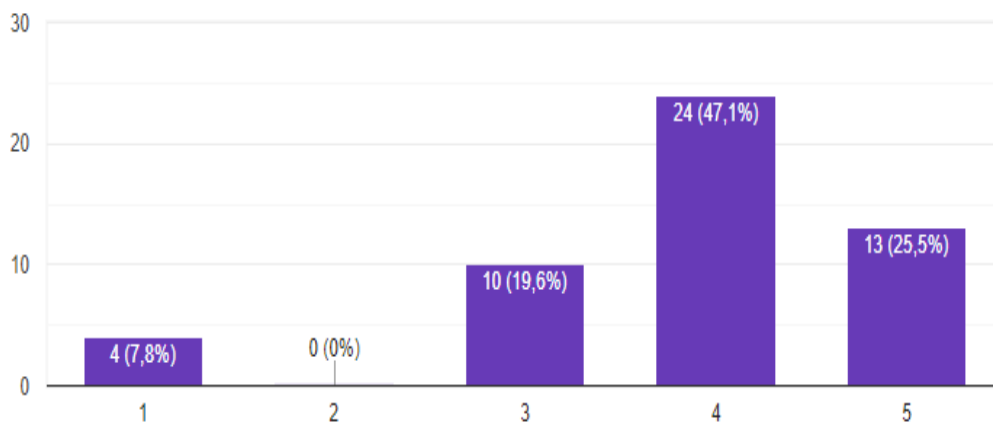


Figure 4. Graph of Participant Responses about the Ease of Using Smart Apps Creator 3

The graph above shows that 19.6% of teachers stated that it was quite easy, 47% of participants considered it easy, and 25.5% of teachers considered it very easy. So that a total of 72.5% of participants stated that it was easy to create learning media using Smart Apps Creator 3. These results indicate that the development of android-based learning media is not difficult to do. This is by the results of the questionnaire from Sutejo's service activities which stated that 92% of the participants stated that teaching media were easy to prepare using the Smart App Creator (Sutejo & Yogi Ersan Fadrial, 2021). Training activities like this can open up insight to teachers that now there are many applications or software provided for the community, especially teachers to facilitate the learning process. So that the role of education practitioners, including lecturers, in helping introduce and improve digital literacy for teachers is very necessary. This was also conveyed that the increase in digital literacy will certainly have an impact on the quality of the learning carried out, so that the better the quality of the learning carried out, the better the indicators of learning comfort during the pandemic (Syahroni et al., 2020).

Each application is created to simplify product work and package it in a more attractive appearance. Android-based learning media is also a means for teachers to deliver their teaching materials. The teacher's response to the ease of delivering material using android-based media is shown in the following figure 5.

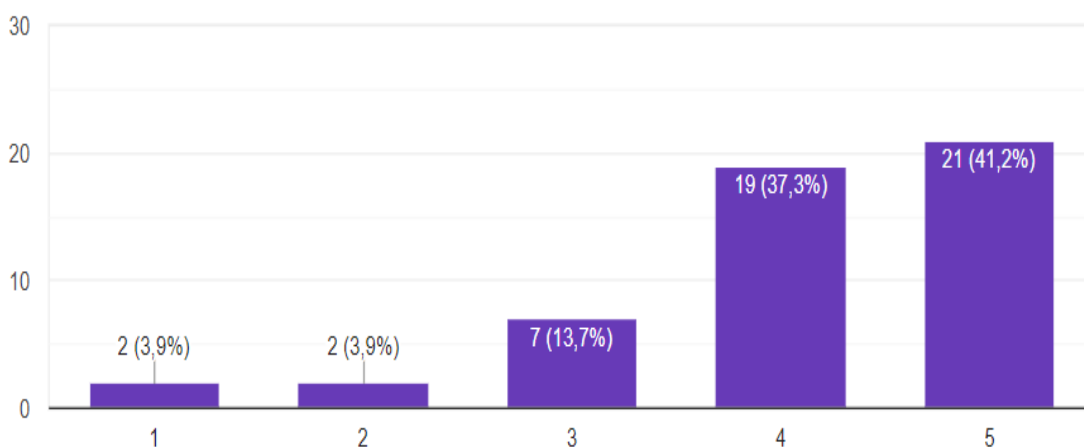


Figure 5. Graph of Participant Responses about the Ease of Use of Applications in Delivering Learning Materials

The teacher's response to the ease of delivering material using an android-based application shows positive results. Teachers who stated that android-based teaching media in learning simply made it easy as much as 13.7%, then 37.3% stated that teaching materials were easy to deliver using an android application, even 41.2% stated that it was very easy. So that a total of 88.5% of the training participants agreed that with android-based learning media, teaching materials were easier to convey to students.

Experienced teachers certainly know what forms of learning can make students interested or motivated to learn. Teachers can also assess students' attitudes when given Android-based teaching materials that can be

easily read on their smartphones. In teacher training activities using Smart Apps Creator, it was stated that 78.33% of students showed good responses when given material using interactive multimedia learning (Juniarti & Ramadan, 2021). In this training, the teacher's assessment of the student's attitude has been presented in figure 6 below.

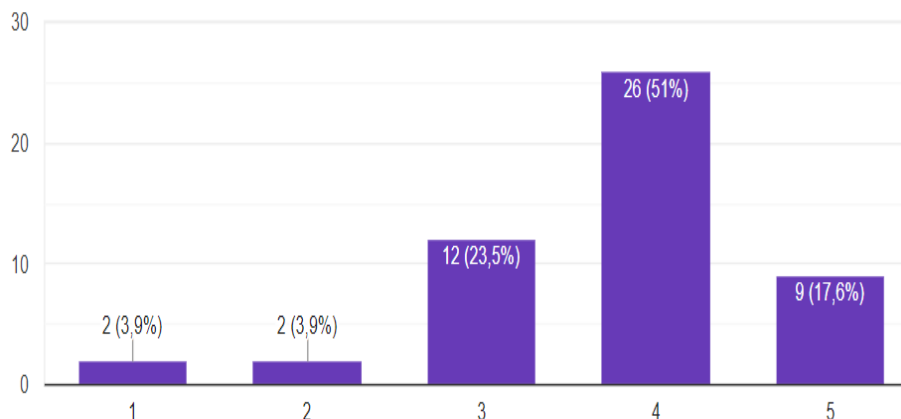


Figure 6. Graph of Participant Responses about the Assumption of Student Interest in Learning Using Android-Based Teaching Media

The graph above shows that according to the teacher, students will have a good interest in learning when using android-based learning media. This is known from the percentage on the graph which shows that the teacher who has 4 points, namely interested, is 51%. Then as much as 23.5% assess the number of students' interest in using android applications for learning is at a sufficient level. Meanwhile, teachers who think their students will be very interested if the teaching material is in the form of an android application is 17.6%. So that a total of 68.6% of participants assessed that students would have a great interest in android-based learning media. The use of interactive learning media will increase student interest in learning which has an impact on learning outcomes. Soimah stated that the results of his research on science learning outcomes for class VII junior high school students between those using computer-based media and direct learning models had very significant differences (Soimah, 2018). Based on these results, it can be assumed that students' interest in this android-based learning media training product can provide good learning outcomes for students. This is in line with research that concludes that learning using Smart Apps Creator 3 during a pandemic can improve student learning outcomes (Khoirudin et al., 2021).

The results of several responses above are not without negative ratings or less from the teacher. On each indicator, there is an unsatisfactory assessment. It seems that the response regarding the relevance of the training topic to current learning conditions shows that 7.8% of teachers stated that it was not appropriate. In addition, with the same percentage of teachers assessing it is very difficult to create and use learning media using Smart Apps Creator 3 and assume students will not be interested in the learning process. This can happen because there are teachers who are not accustomed to using ICT-based learning and the age factor that makes the teacher's interest in improving TPACK competencies very lacking. This has been revealed that there have been many obstacles in the application of ICT-based learning that was put forward by several previous researchers, such as the lack of time that teachers have (time spent on the education and teaching process), lack of ICT training, lack of opportunity to develop self and so on (Bastudin, 2021). Therefore, community service in the form of ICT/TPACK training for educators is still very much needed to improve the competence of Indonesia's future teachers.

CONCLUSIONS AND SUGGESTIONS

A. Conclusion

Based on the results of the research that has been carried out, it can be concluded that the product of developing science digital learning resources in class VIII shows worthy results to be used as an alternative learning resource that can be used anytime and anywhere. The limitations in this research are the limitations in its distribution because this learning media is not distributed through the app store but only distribute through a link that can be downloaded personally.

B. Suggestion

This teaching material development product is designed by using navigation buttons to continue to the next page. Therefore, further developers are advised to develop applications that use scroll or swipe to proceed to the next page.

REFERENCES

- Akbar, S. (2013). *Instrumen Perangkat Pembelajaran*. Remaja Rosda Karya.
- Alhady, N. C., Salsabila, A. F., & Azizah, N. N. (2018). Penggunaan Smartphone pada Konstruksi Belajar Siswa MTs Negeri 7 Model Jakarta. *Al-Izzah: Jurnal Hasil-Hasil Penelitian*, 13(2). <https://doi.org/10.31332/ai.v13i2.975>
- Arikunto, S. (2006). *Prosedur Penelitian (Suatu Pendidikan Praktik)*. Rineka Cipta.
- Badruzzaman, M., Aribowo, D. A., & Desmira, D. (2020). Game Edukasi pada Mata Pelajaran Dasar Listrik dan Elektronika Berbasis Android. *PRotek: Jurnal Ilmiah Teknik Elektro*, 7(2). <https://doi.org/10.33387/protk.v7i2.1908>
- Bastudin. (2021). HAMBATAN UTAMA PENGGUNAAN TIK DALAM PEMBELAJARAN DAN STRATEGI MENGATASINYA. *Lpmp Sumsel*.
- Feri, A., & Zulherman, Z. (2021). Development of nearpod-based e module on science material “energy and its changes” to improve elementary school student learning achievement. *International Journal of Education and Learning*, 3(2). <https://doi.org/10.31763/ijele.v3i2.400>
- Hanum, Z. (2021, March 7). *Kemenkominfo: 89% Penduduk Indonesia Gunakan Smartphone Sumber: https://mediaindonesia.com/humaniora/389057/kemenkominfo-89-penduduk-indonesia-gunakan-smartphone. https://mediaindonesia.com/humaniora/389057/kemenkominfo-89-penduduk-indonesia-gunakan-smartphone*
- Juniarti, Y., & Ramadan, G. (2021). Pelatihan Pembuatan dan Penerapan Multimedia media Pembelajaran Interaktif Menggunakan Aplikasi Smart Apps Creator (SAC) di TK Kabupaten Limboto. *Jurnal Sibermas (Sinergi Pemberdayaan Masyarakat)*, 10(3). <https://doi.org/10.37905/sibermas.v10i3.13461>
- Khoirudin, R., Ashadi, A., & Masykuri, M. (2021). Smart Apps Creator 3 to improve student learning outcomes during the pandemic of COVID-19. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 7(1). <https://doi.org/10.22219/jpbi.v7i1.13993>
- Lee, W. W., & Owens, D. L. (2012). Multimedia-Based Instructional Design. In *Pfeiffer: Vol. XXXIII* (Issue 2).
- Smart Apps Creator. (2018). *Best Content App Builder and Publisher Announcing The Interactive Multimedia Technology*. <https://smartappscreator.com/index.php?m=Wapps&a=index>
- Soimah, I. (2018). PENGARUH MEDIA PEMBELAJARAN BERBASIS KOMPUTER TERHADAP HASIL BELAJAR IPA DITINJAU DARI MOTIVASI BELAJAR SISWA. *Natural: Jurnal Ilmiah Pendidikan IPA*, 5(1). <https://doi.org/10.30738/natural.v5i1.2559>
- Statcounter. (2022). *Mobile Operating System Market Share Indonesia*. <https://Gs.Statcounter.Com/Os-Market-Share/Mobile/Indonesia>.
- Sutejo, & Yogi Ersan Fadrial. (2021). PELATIHAN PEMBUATAN MEDIA PEMBELAJARAN MENGGUNAKAN APLIKASI SMART APPS CREATOR DI SMK NEGERI 2 PINGGIR. *J-COSCIS: Journal of Computer Science Community Service*, 1(2). <https://doi.org/10.31849/jcscis.v1i2.7215>
- Syahroni, M., Dianastiti, F. E., & Firmadani, F. (2020). Pelatihan Media Pembelajaran Berbasis Teknologi Informasi untuk Meningkatkan Keterampilan Guru dalam Pembelajaran Jarak Jauh. *International Journal of Community Service Learning*, 4(3).