

## Development of Android Learning Application Based on Smart Apps Creator “BIMA” (Belajar Ingat Malaikat Allah) in Learning Pai Grade 2 Elementary School

Sarah Mutiara Hidayat<sup>1\*</sup>, Layli Nova Shoyama<sup>2</sup>, Alaina Fajriah<sup>3</sup> Ani Nur Aeni<sup>4</sup>

Universitas Pendidikan Indonesia\*<sup>1, 2, 3, 4</sup>

<sup>1</sup>email: [sarahmutiara24@upi.edu](mailto:sarahmutiara24@upi.edu)

<sup>2</sup>email: [layliinov14@upi.edu](mailto:layliinov14@upi.edu)

<sup>3</sup>email: [alaina1623@upi.edu](mailto:alaina1623@upi.edu)

<sup>4</sup>email: [aninuraeni@upi.edu](mailto:aninuraeni@upi.edu)

### *Abstract*

This research aims to provide learning media that is effective and efficient for teachers and students in accessing it. The research method chosen is the D&D Model or Design and Development, The main problem of developing this android learning application is based on the fact that we often encounter that many children are not interested in learning in class and teachers only rely on conventional learning models, therefore with the aim of creating an innovative and creative new product, learning media becomes one of the tools to support student learning so that the delivery of material delivered by the teacher can be received by students optimally. Media that is in accordance with current learning is technology-based media. One example of a solution that researchers offer is the development of an android learning application that can be accessed by students with the aim that students can learn wherever and whenever they are. The results of the use of the BIMA android learning application can be well received by students and teachers at school, this is evidenced in the validation of media experts and material experts as well as the results of the android application trial conducted at elementary school grade 2 phase A. Which shows good results and is feasible for elementary school grade 2 phase A. Which shows good results and is suitable for use.

**Keywords:** Technology; Development; Application; Android; Media; Learning.

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### *Abstrak*

Penelitian ini bertujuan untuk menyediakan media pembelajaran yang efektif serta efisien bagi guru maupun peserta didik dalam

mengaksesnya. Metode penelitian yang dipilih adalah Model D&D atau *Design and Development*, Masalah pokok pengembangan aplikasi pembelajaran *android* ini didasari karena pada kenyataannya yang sering kita temui bahwasanya banyak anak yang tidak tertarik dengan pembelajaran di kelas dan guru hanya mengandalkan model pembelajaran yang konvensional, maka dari itu dengan tujuan menciptakan suatu produk baru yang inovatif dan kreatif, media pembelajaran menjadi salah satu alat penunjang pembelajaran peserta didik supaya *delivery* materi yang disampaikan guru dapat diterima peserta didik secara maksimal. Media yang sesuai dengan pembelajaran saat ini adalah media yang berbasis teknologi. Salah satu contoh solusi yang peneliti tawarkan adalah dengan pengembangan aplikasi pembelajaran *android* yang bisa di akses oleh peserta didik dengan tujuan agar peserta didik dapat belajar dimanapun dan kapanpun ia berada. Hasil dari penggunaan aplikasi pembelajaran *android* BIMA dapat diterima dengan baik oleh peserta didik dan guru di sekolah, hal ini dibuktikan pada validasi dari ahli media dan ahli materi serta hasil uji coba aplikasi *android* yang dilaksanakan di sekolah dasar kelas 2 fase A. Yang menunjukkan hasil yang baik dan layak untuk digunakan.

**Kata Kunci:** Pengembanngan; Teknologi; Aplikasi; Android; Media; Pembelajaran.

## A. Introduction

As time goes by, the development of technology is increasingly rapid and greatly affects life in the world. In the world of education, technology also plays an important role, especially in making technology-based learning media.

At this time, education personnel have begun to utilize technology to create learning media such as; making Power

Point, Google Site, learning applications, and explainer videos.

In the discussion about learning apps, there are some teachers who have started making them using an application called Smart Apps Creature (SAC). In SAC, making applications for the benefit of learning media is made through an applications called Canva first and continued by using SAC which can then be exported into an applications.

Based on what we found, the SAC application is one of the right choices to create interesting interactive learning media for students in elementary school. The steps of making design and application innovation are considered easy to understand by ordinary people (Howatt & Smith, 2014).

In previous studies, the use of SAC-based android application learning media obtained good results, this was seen from the results of evaluations conducted by providing an assessment of the benefits of the product. That the product is feasible for students to apply in elementary schools (Khoirunisa et al., 2023).

This proves that the use of the SAC applications for making learning media is highly recommended for teachers and for students who want to develop learning media products for learning purposes.

On this basis, in the end, it became the basis for the researcher's decision to develop an android application using the SAC application. We consider that the android application we developed will be useful for achieving learning objectives in the classroom. The learning material brought is about the Angel of God in phase A class 2 which is packaged

attractively in the SAC-based android application which we name "BIMA" (Learn to Remember the Angel of God)". Researchers hope to get good results and welcome the learning media products that researchers launch. Although previously there have been those who use the SAC application for making learning media, but here researchers want to further develop learning activities which were initially passive on the grounds that students did not like the material presented, to be interesting and interactive for students who learn.

## **B. Research Methods**

This research uses the D&D research model or Design and Development. In Indonesian it is often known as the development design model. The D&D model was chosen with the aim of examining the design, development and evaluation process with the aim of creating an innovative and creative new product for a purpose. (Aeni, Khulqi, et al., 2022)

The research model used in the D&D or Design and Development stage is the ADDIE model (analysis, design, development, implementation evaluation). Implementation of the

ADDIE model in developing systematic learning media in order to produce effective and efficient products. (Aeni, Handari, et al., 2022)

## C. Result and Discussion

### 1. Problem Identification

As we know that learning media is one of the tools to support student learning so that the delivery of material delivered by the teacher can be received by students optimally. Learning Media as an intermediary to convey information in this case learning material from the teacher who act as a sender to the student receiver, so that the learning process runs effectively. (Abdurrochim et al., 2022). Good learning media is one that can influence student learning activities to increase compared to before, which is assessed from student involvement in the learning process until the learning objectives are achieved.

Media that is in accordance with current learning is technology-based media. (Aeni, Nur, et al., 2023). The technology closest to learners today is a cellphone or smartphone, the intensity of time spent by students playing cellphones is increasing along with the features presented. It is the responsibility of

parents and teachers so that students' cellphone playing activities can be an activity whose results are positive for the individual development of each learner (Meifeng et al., 2023).

As time goes by we live in an era where it is difficult to separate life from technology, almost all aspects of our lives depend on technology, one of which is a cellphone. Want to learn about something new, we can get it with the use of search applications on personal cellphones, our curiosity about a new thing can be satisfied with the cellphone.

One example of a solution that researchers offer is the development of an android learning application that can be accessed by students with the aim that students can learn wherever and whenever they are. However, the learning media created must be learning media that makes students happy in the learning process. (Aeni, Khulqi, et al., 2022)

The development of this android learning application is based on the fact that we often encounter that children are not interested in learning and teachers only rely on conventional learning models, not that the learning model is bad, but it is necessary to realize that

times have changed, the learning situation cannot just be done like that, innovation is needed in the world of education that supports students' learning activities towards 21st century competencies.

The era of globalization in the 21st century requires learning media to always keep up with the times. (Aeni, Puspitasari, et al., 2023) For this reason, the role of creative and innovative teachers in making learning media is needed. The teacher's ability to master technology is used for the benefit of learning media, if the teacher is able to do this then the teacher's competence is fulfilled. (Aeni, Nur, et al., 2023)

However, the fact is that teachers who have used the utilization of learning media have also not been able to implement the media optimally (Dao et al., 2023). Especially in Islamic Religious Education (PAI) learning subjects. Not a few teachers only focus on learning media such as textbooks provided by the government and add educational videos that can be watched by students, but do not reorient students' involvement in the learning media used. So that the role of the teacher as someone who can transfer knowledge here is lost and the learning

media presented does not function optimally. (Aeni, Puspitasari, et al., 2023)

## 2. Research Objectives

Researchers argue, therefore the task of teachers as adults who understand the situation of students, so they can adjust the right learning media. One of them is by creating interesting learning applications so that the use of cellphones accessed by students can bring positive output or results for the development of students in the field of education.

Interactive learning media is one of the factors that influence learning outcomes, that selection and utilization of appropriate learning media and accordance with the characteristics of all students, goals, learning and the times. (Abdurrochim et al., 2022)

Researchers provide solutions for PAI subject teachers who are still constrained by interactive learning media that are difficult to access. With the presence of the "BIMA" Application, we hope to be a solution to increasing students' interest in learning. And purpose of researchers developing this application is to provide creative and innovative learning media so that effective and efficient learning can be

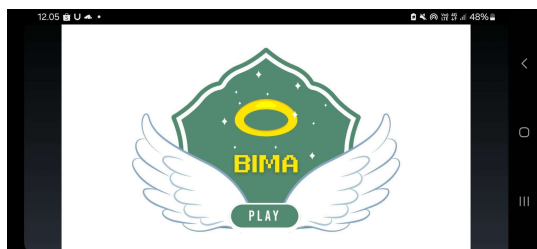
created for teachers and students in applying it. (Aeni et al., 2023)

### 3. Product Development

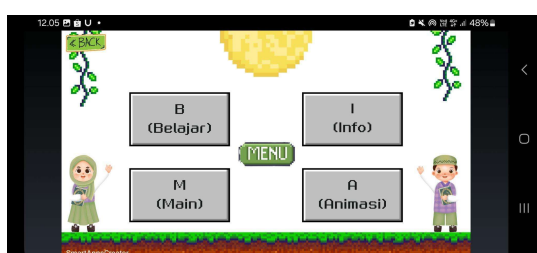
Steps in making the BIMA android learning application:

- a. The first thing in making BIMA products, namely determining the material, design and concept of the product. Researchers took material from the childrens Islamic learning book “Aku Anak Sholeh” by Ustadz Hambali and decided to make an application design using the canva application first.
- b. Creating the initial design of the application in the canva application, starting from choosing a design template to downloading it into png.
- c. Entering the design results from canva into the Smart Apss Creator (SAC) application. This part is done one by one based on the order of the product pages/slides.
- d. Adding hotspots to the product design in the SAC application. Hotspot is a feature in SAC to connect one page to another.
- e. Connecting each hotspot button with the destination page.
- f. Adding sound effects (button sounds, learning materials, Quran verses) that match the material. For the sound of the button, researchers take a lot of references from YouTube, but for learning materials and Al - Quran verses, researchers record their own audio using the Voice Changer application available in Playstore.
- g. Connecting the sound effect with the hotspot so that it matches when the button on the application is pressed. This is the most difficult part for researchers and takes up a lot of time, because it is done one by one and must be interconnected between the sound, hotspot and the destination page.
- h. Revising each page of the product so that the final result is as good as possible.
- i. The product is downloaded through the SAC application and the final result is an apk file that can be applied to an android cellphone.
- j. Finally, we test the product that has been produced on 2 experts. Namely material experts and also media experts.

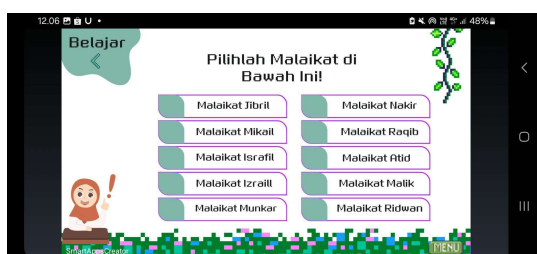




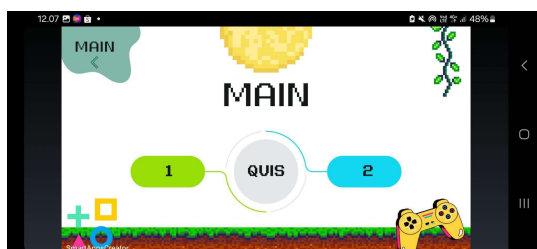
**Image 1. BIMA App Home View**



**Image 2. BIMA Application Menu View**



**Image 3. BIMA App Angel Menu Display**



**Image 4. BIMA App Quiz View**

This BIMA application can be downloaded on android phones. With this application, researchers hope to help students' learning activities. Of course the teaching and learning process in the classroom will also be more enjoyable, students can have direct experience learning by utilizing technology.

This application contains PAI learning material on the Angels of God Phase A Class 2. So that the adjustment of the components in the product is also adjusted to the characteristics of students at that level. By going through several phases of revision from experts and direct trials to students, researchers received satisfactory responses to the Android learning application Learning to Remember Allah's Angels (BIMA) based on Smart Apps Creator (SAC).

#### 4. Expert Validation Results

This SAC Application-based learning media has been validated by 2 experts in accordance with their fields, namely material experts and media experts. This expert validation is carried out to get an assessment, as well as input and criticism which will later be used as a reference for improvement in the development of the products we make

(Damnjanovic et al., 2015). With this activity, we hope that the products we make can be developed according to interests and needs and can be applied to students in elementary schools.

In this activity, we provide a validation instrument which is divided into several aspects tailored to the needs of the assessment of material experts and media experts. The material validation assessment consists of 2 aspects and 8 indicators. Meanwhile, the media expert assessment consists of 3 aspects and 14 indicators.

**Table.1 Material Expert Validation Results**

Validation Result		
Assesment Aspect	Category	Value (1-5)
Product display aspect	The colors used are attractive and appropriate for elementary school students	4
	The appearance of the application used is attractive	5
	The question links or quizzes presented are interesting for	5

	elementary school learners	
	The elements used are interesting for elementary school leanness	4
Writing display aspect	The writing used is interesting for elementary school students	4
	The type of writing used is easy to read	5
	The type of writing used does not confuse learners	5
	Appropriate font size	5

Total maximum score = 8 x 5 = 40

Value =  $\frac{\square \text{number of scores obtained}}{\text{number of aspects}}$

$$= \frac{37}{8} = 4,6$$

Notes: App is very attractive. The color of the elements and text could be improved. The rest is very good no need for improvement.

**Table.2 Media Expert Validation Results**

Validation result		
Assesment Aspect	Category	Value (1-5)



Usability Aspect	BIMA (Belajar Malaikat Allah) application can facilitate the learning process.	5
	The BIMA (Belajar Malaikat Allah) application helps provide clarity about the material in a concrete manner.	4
	The BIMA (Belajar Malaikat Allah) application can be used practically	5
	The BIMA (Belajar Malaikat Allah) application is easy to use and access	5
Display aspect	The appearance and design of the BIMA (Belajar Malaikat Allah) Application is attractive when used	4
	Appropriateness of colors, text, and images on the media	4
	The images presented are in accordance with the material	4

	Suitability of the order of presentation of material with media	5
	Clarity of the images presented	5
	Suitability of learning objectives with media	4
Language aspects	Using Indonesian language that is in accordance with refined spelling (EYD)	5
	Language does not cause double meanings	5
	Clarity of language use and easy to understand	5
	Consistent use of scientific terms and names	5

Total maximum score = 14 x 5 = 70

$$\text{Value} = \frac{\text{number of scores obtained}}{\text{number of aspects}}$$

$$= \frac{65}{14} = 4,6$$

(Source of calculation from the questionnaire results)

Based on the assessment table above, it can be concluded that the

assessment results from material experts and media experts get a score of 4.6 each which is the ideal score and can be said to be very feasible.

### 5. Student Response to the Product

In the trial that we have done on March 8, 2024. The response of students stated that almost 82% stated that it was very feasible. These results were obtained by giving a questionnaire to students, which later students will be guided on how to fill in the format regarding the feasibility of the product that has been demonstrated.

18% found the BIMA app feasible, 82% voted that it was very feasible and interesting to them. The enthusiasm given by the learners was very positive. The researcher tested the BIMA app on the learners with a few simple steps.

First of all, students are introduced to what the BIMA application is, then demonstrate how to use the BIMA application. Researchers use cellphones or smartphones as the main supporting tool for demonstrations, then researchers provide opportunities for students who want to try this application. The trial process went very smoothly and unexpectedly the response of the learners

was very curious and cheerful when the application was displayed.

Learners tend to have high curiosity and willingness to try new things. So, we finally asked each learner to line up to try the BIMA application in order so that all learners can have experience in feeling and accessing the BIMA Application that we launched.

**Table 3. Feasibility of BIMA According to Learners**

Category	Frequency	Percentage score
Very Feasible	19 learners	82%
Feasible	4 learners	18%
Less Feasible	0 learners	0%
Not Feasible	0 learners	0%

After students try and explore the BIMA application. Then students must also fill in the learning evaluation in the form of LKPD from the material of the Angel of God Phase A Class 2 listed on the learning application product that we have provided. LKPD totals 10 questions with 10 points each if correct. However, if it is wrong, students get 0 points.

The evaluation results show that although students have not fully understood the material due to factors that are not conducive and the crowded classroom atmosphere, but students can capture the main points of learning delivered. Learners can work on problems whose answers are in the material included in the BIMA application and their response to learning is also very enthusiastic as evidenced by students who are not ashamed to ask where their mistakes are during the LKPD correction process.

For this reason, the evaluation objectives that researchers hope to measure the ability and understanding of students regarding the material presented by the BIMA application can be realized, and obtain satisfactory results on learning activities in the classroom.

**Tabel 4. Learner Evaluation Results**

Category	Range of Value	Frequency	Percentage Score
Very Understand	100-90	11 learners	47,82%
Understand	80-70	7 learners	30,43%

Less Understand	60-50	5 learners	21,73%
Not Understood	50-40	0 learners	0%

#### D. Conclusion

Departing from the anxiety about the utilization of learning media that is less effective, researchers want to help develop the use of learning media to be more interactive for students. With the presence of the BIMA Application, researchers hope to be a solution to increase students' interest in learning. Through innovative and creative learning media, this BIMA application can be downloaded on android phones so that it is easy to access anytime and anywhere.

The stages of making this application product consist of stages 1) Determining the concept, material and design, 2) Creating an initial design in the canva application, 3) Entering the design results from canva into the SAC application, 4) Adding hotspots to the product design in the SAC application, 5) Connecting each hotspot button with the destination page, 6) Adding sound effects that match the material, 7) Connecting the

sound effect with the hotspot so that it matches when the application button is pressed, 8) Revising and reviewing each page of the product, 9) The product is downloaded with the final result in the form of on apk file, 10) Testing the product and asking for expert advice.

This product obtained assessment results from material experts and media experts getting a score of 4.6 each which is the ideal score and can be said to be very much.

Based on the vulnerable values or results that researchers have received, the results of students are quite good, these results are above the average that researchers determine. With a percentage score of 82% very feasible, and 18% feasible.

With score range of 100-90 getting a percentage of 47.82%, a score range of 80-70 getting a percentage of 30.43%, and a score range of 60-50 getting a percentage of 21.73%.

It does not rule out that this BIMA Application has many shortcomings, researchers realize that there are many things that need to be developed and improved again both in the manufacturing process and the trials

carried out. The final results of this application may not be perfect, one of the shortcomings is that it is not yet available in PlayStore so it cannot be downloaded freely. However, this application is obtained through soft files that researchers can share at any time for anyone who needs this application as a learning medium, according to the purpose of creating this application. For this reason, researchers hope to develop with criticism and suggestion from readers, so that both teachers and students can get learning media that is feasible and beneficial for the continuity of learning.

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