Flipped Classroom Learning Based on Android Smart Apps Creator (SAC) in Elementary Schools

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Abstract. The thematic interactive learning model of flipped classroom based on smart apps creator is useful for improving the quality of learning. The use of the flipped classroom model based on Andoid Smart Apps Creator (SAC) in learning can increase student motivation creativity, activity, and learning outcomes. Problem formulation How the design and implement of SAC-based flipped classroom learning model in elementary schools. Is the research objective is to analyze the design and implementation of Android-based flipped classroom learning in elementary schools. This research uses literature study method, field survey, and descriptive analysis. The results of the literature study and field survey state that teachers in Kudus have used the flipped classroom model but have not used the smart apps creator. Therefore, it is necessary to develop a flipped classroom model using Android based using SAC software to improve the quality of learning in elementary schools.

1. Introduction
The fliped classroom learning model has often been used by teachers to improve the quality of learning. The teachers have innovated the development of flipped classrooms through strategies, media, and a combination of other models. However, based on field surveys conducted by the researchers, the efforts of most teachers have not achieved satisfactory results. It can be seen that there are only 21% of teacher responses that are satisfied and 24% of students give positive responses.

Based on the results of the field survey, researchers are looking for solutions to optimize the flipped classroom in elementary school learning. The solution is carried out in the development of a flipped classroom using an android basis. Android as medium for learning messages has been choosed by the researchers to complement the flipped classroom learning as currently android is very popular with all circles. Elementary school aged children are very fond of android. Even during the Covid 19 pandemic today, the government also recommends learning from home using Android.

Many softwares can be used to create paid and unpaid android-based media. Some of these softwares are simple and some are complicated. Among many softwares available, the researchers chose the smart apps creator (SAC) software as an Android-based learning medium to support learning Flipped classroom in elementary school. The reason for choosing smart apps creator is because smart apps creator software is free and easy to create. In addition, smart apps creator is very compatible when made on a laptop or computer to become an APK (application that can be applied on Android). Students as Android users simply install the APK file applied by the teacher without experiencing difficulty so that it is easy to use in learning wherever and wherever students are. Smart Apps creator can be used offline so it doesn't require expensive quota.

The advantages of the flipped classroom learning model based on Android Smart AppsCreators: (1) developers can make applications easily and cheaply, (2) users can use the application offline without
paying for internet quota, (3) can be used wherever and whenever they are, (4) the application can be used. The download is free and there is no time limit so it's true throughout the masses.

The Flipped Classroom learning model or inverted class is a learning model unlike in general. Before accepting learning at school, students watch learning videos at home. The student come to class to carry out activities, do assignments and discuss the material or difficulties experienced by students. Educational theory has been developed to help improve learning models. Many traditional institutions have developed their capacity in online learning but on the other hand retain important elements of traditional face to face.

There are several types of Flipped Classroom learning models, including the Traditional Flipped Classroom and Peer Instruction [1]. Syntax of traditional flipped classroom learning model: 1) students watch learning videos at home, 2) students come to class to do activities and do assignments, 3) In class students apply skills in projects and these activities are guided by the teacher. 4) Measuring the understanding made by student at the end of the lesson material chapter. Traditional learning steps of Flipped classroom according to Steele. It is represented in figure 1.

**Figure 1. Traditional Flipped Learning Steps**

Learning Syntax Flipped classroom Peer Instructional: 1) students watch videos at home, 2) the teacher gives the first test questions individually, 3) students argue with each other regarding their answers and emphasize the application of the concept, 4) the teacher gives the second test questions and so on, 5) At the end of the lesson the teacher gives a quiz to measure student understanding.
The development of digital technology at this time has provided many advantages for anyone in accessing various information and connecting without crossing borders, without being limited by space and time. With the existence of this digital media, the learning process does not only occur in the classroom, but also outside the classroom or anywhere students are with only a device and internet access. Lots of free study materials are available on various Web sites for study reference. Smart Apps Creator is a desktop application for creating android and iOS mobile applications without programming code, and can produce HTML5 and .exe formats. Smart Apps Creator is an application that is easy to use by schoolchildren, you only have to install the application in each software, and it is suitable to support learning methods during a pandemic. Students can learn from this digital source anywhere and anytime[2]. The development of information technology has changed the teaching and learning style from passive learning to active learning and from traditional classroom models to digital-based innovative classroom models [3]. In the midst of the Covid-19 pandemic, face-to-face learning has been avoided for safety both for students and for teachers. Educators are required to be active and creative in carrying out the theme of online learning. In this study, the learning of flipped classroom based on the Android Smart Apps creator will be applied in elementary schools.

The root word for flipped classroom is to reverse class. Flipped classroom learning comes from two words, namely flipped and classroom. The flipped classroom learning model basically reverses the learning process with the aim of effectiveness and efficiency. Meanwhile in their research revealed that there was a big influence on the high learning independence of students by learning using the Flipped classroom model [4]. Because basically the concept of the Flipped classroom model is learning that is carried out in class but is carried out by participants at home so that students can learn more independently.

Flipped classroom is a learning strategy that uses IT in learning. In addition, flipped classrooms are also proven effective for large classes, are able to generate positive perceptions of students towards the learning process, and can improve learning outcomes.

The purpose of which will be examined in this paper is to analyze the learning design of Flipped classroom based on Android SAC on learning outcomes in elementary schools. The use of innovative media is expected to increase student learning outcomes.

Based on the description, it can be concluded that flipped classroom learning is a teaching and learning approach to prepare students before learning. By having the initial knowledge and abilities (cognitive entry behavior) they are expected to be more prepared and more interactive in learning. The role of the teacher as a conveyor of information (transfer of knowledge) is decreasing and shifting to become a facilitator of learning through challenging assignments and activity plans. Not all material has to be explained verbally. Students have studied at home through various sources and learning media that the teacher has prepared.

The flipped classroom learning model presents material in the form of text, images, audio, video, animation, and combines links and tools that allow students to interact with these teaching materials. Media is defined namely learning where the learner faces and interacts directly with [3] that allow students to choose the material presented. This flipped classroom interactive learning model is expected to provide a solution for each material to be presented more attractively, effectively, and efficiently. The use of flipped classrooms as an interactive learning model can also be done as a learning companion while students are at home or outside school activities.

The Smart Apps Creator 3 application is a desktop-based application that can be used to create interactive multimedia content for mobile devices. This application features an intuitive interface, but with a simple design that is easy to use. Beside being used to create applications for the mobile devices, the end result of this application can also be used to create applications with HTML5 and .exe extensions so that they can be used and compatible for various devices, be it computers or laptops.
2. Research Methods
This research uses literature study method, field survey and descriptive analysis. Field data collection techniques were carried out by questionnaires and interviews. Analytical approach and literature study which is an analysis that aims to describe the content based on the collection of information obtained [9]. The information referred to is sourced from various scientific articles available from national journals and international journals relating to the implementation of the previous flipped classroom learning model and the use of technology-based media. The data and information obtained were then collected, analyzed, and concluded to get a recommendation as a literature study.

3. Results and Discussion
The result of the field survey of the flipped classroom learning model showed that 21% of teacher responses and 24% of student responses were positive. This can be seen from the diagram below.

![Teacher and student response diagram](image)

**Figure 3.** Teacher and student response diagram

The previous studies reported that the positive results of the classroom learning model were reversed. The results obtained from this study were the results of the students' problem solving abilities in class VIII using the Traditional Flipped and Peer Instruction Flipped models can achieve classical KKM and the average score of test results of class students' problem solving abilities. VIII with the Peer Instruction Flipped model is higher than the average score of the results of the test results of the students' problem solving abilities in Class VIII using the Traditional Flipped model [4]. The use of inverted classes, especially with video as a tool to assimilate knowledge, increases the effectiveness and learning outcomes [5]. The teacher as a facilitator [6]. Using the Flipped Classroom concept improves students' ability to apply the concept of knowledge developing [7].

The interactive learning media is considered capable of providing and directing learning experiences from abstract to concrete, and able to stimulate students to love learning so that learning outcomes increase. Smart Apps creator is one of the media that supports the learning process. The use of innovative media are expected to provide solutions to the problems that occur. Smart Apps Creator displays interesting learning applications for students so that students are enthusiastic about learning and it is hoped that it will have an impact on increasing the value of learning.

The research was conducted by interviewing several elementary school teachers. The development model used in this interactive learning media in an Android based development model [8]. The development steps are as follows:
3.1. Conduct preliminary research which includes
   3.1.1. Identify learning needs and determine subject competency standards
   3.1.2. Perform learning analysis
   3.1.3. Develop a learning strategy that consists of:
       • An explanation of the material to be studied by students
       • Formative tests and feedback

3.2. Making software design, which include:
   3.2.1. Storyboarding
   3.2.2. Flowchart View Creation
   3.2.3. Collection of material, which includes:
       • Making and collecting images and animations
       • Audio recording and gathering
       • Develop and create interactive learning media
       • Review and test product
       • Test the effectiveness of the product

This application has a display interface like MS Office and does not require programming language skills to use it. Every level of users, be it beginners, intermediate or advanced ones, can use this application to produce the desired variety of applications. How to use the Smart Apps Creator application is:
   • Installing the program, then follow the instructions like installing any other application.
   • Run the program, open the application via your desktop and click the "Smart App Creator" icon, then a candle will appear for activation.
   • Get to know the Smart App Creator interface:
     a) After the activation is done will appear.

b) Then we can create an application by selecting the kinds of the type.
c) Animating multiple object.

d) Multiple slide show.

e) The font page of the work flied which is where the application starts.

Smart Apps Creator is a desktop application for creating android and iOS mobile applications without programming code, and can produce HTML5 and .exe formats. Smart Apps Creator is an application that is easy to use by students, you just need to install the application in each software. the advantages of smart apps creator are:

- Can make applications without programming knowledge.
- Can export the html5 project besides that creator smart apps can also move to html5.
- Display that is easy to understand for those of you who often use Photoshop
- Does not take up much ram

Based on the background, the identification and the limitation of the problem, the formulation of the problem in the research is as follows: What is the condition of the previous flipped classroom learning model, and how is the flipped classroom-based learning design based on android SAC (Smart Apps Creator), How to find the final model of flipped classroom-based learning based on android SAC (Smart Apps Creator).
4. Conclusion

Based on data analysis, the Flipped Classroom learning model has very good criteria. These criteria indicate the level of suitability of the implementation of learning. The introduction of the character of students with the environment so that it has an impact on the better activities of teachers in teaching. Flipped classroom learning model can improve students' abilities. However, in the next activity, the level of student activity in participating in learning is reduced because they do not understand the learning video or the material is less interesting.

With the SAC-based flipped classroom learning model, students are more active and enthusiastic in participating in learning. In SAC students learn with interesting content, so that they don't feel bored. This application contains subject matter and evaluation questions in the form of games.

SAC-based flipped classroom learning model is recommended for use in elementary school students. SAC-based flipped classroom learning atmosphere. So that activity and student learning outcomes increase.

Teachers must always innovate and be creative to improve the quality of learning so that the class becomes active. The challenges of flipped classroom are the use and the management of the technology.

References

[1] N. Hadi, S. Su’ad, S. Utaminingsih, and S. Santoso, “Developing Theme Based Learning Through Powerspring Html 5 of Android to Deradicalize The Attitude of Primary School Students,” 2019, doi: 10.4108/eai.20-8-2019.2288080.

[2] K. Dwiningsih, Nf. Sukarmin, Nf. Muchlis, and P. T. Rahma, “Pengembangan Media Pembelajaran Kimia Menggunakan Media Laboratorium Virtual Berdasarkan Paradigma Pembelajaran Di Era Global,” Kwangsan J. Teknol. Pendidik., vol. 6, no. 2, pp. 156–176, 2018, doi: 10.31800/jtp.kw.v6n2.p156--176.

[3] J. E. McLaughlin et al., “The flipped classroom: A course redesign to foster learning and engagement in a health professions school,” Acad. Med., vol. 89, no. 2, pp. 236–243, 2014, doi: 10.1097/ACM.0000000000000086.

[4] E. N. Adhitiya, “Studi Komparasi Model Pembelajaran Traditional Flipped Dengan Peer Instruction Flipped Terhadap Kemampuan Pemecahan Masalah,” Unnes J. Math. Educ., vol. 4, no. 2, 2015, doi: 10.15294/ujme.v4i2.7451.

[5] N. Asfar and Z. Zainuddin, “Secondary Students’ Perceptions of Information, Communication and Technology (Ict) Use in Promoting Self- Directed Learning in Malaysia,” vol. 3, no. 4, pp. 67–82, 2015.

[6] A. Agustiningsrum, “Penerapan Model Pembelajaran Flipped Classroom Dan Course Review Horay Berbasis Lesson Study Untuk Meningkatkan Aktivitas Dan Hasil Belajar Siswa Pada Mata Pelajaran Ekonomi Di Kelas Xi Ips 2 Man Kota Batu,” J. Pendidik. Ekon., vol. 10, no. 2, pp. 126–139, 2017, doi: 10.17977/um014v10i22017p126.

[7] I. Rindaningsih, W. D. Hastuti, and Y. Findawati, “Desain Lingkungan Belajar yang Menyenangkan Berbasis Flipped Classroom di Sekolah Dasar,” Proc. ICECRS, vol. 2, no. 1, p. 41, 2019, doi: 10.21070/piececrs.v2i1.2452.

[8] H. N. Damayanti and S. Sutama, “Efektivitas Flipped Classroom Terhadap Sikap Dan Ketrampilan Belajar Matematika Di Smk,” Manaj. Pendidik., vol. 11, no. 1, p. 2, 2016, doi: 10.23917/jmp.v11i1.1799.