



## Analysis of Android-Based Learning Media Needs in Information and Communication Technology Subjects

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### Abstrak

Tujuan dari penelitian ini adalah untuk menganalisis kebutuhan siswa terhadap media pembelajaran berbasis Android, khususnya untuk dasar-dasar pengoperasian komputer. Metode yang digunakan dalam penelitian ini adalah metode kualitatif dengan menggunakan topik penelitian siswa kelas VII SMP N 8 Jangkang. Penelitian ini menggunakan model desain pembelajaran ADDIE, ADDIE sendiri merupakan Analysis (Analisis), Design (Perancangan), Development (Pengembangan) & Implementation (Implementasi), dan Evaluation (Evaluasi). Hanya saja tahap yang digunakan pada penelitian ini hanya terbatas pada tahap analisis. Instrumen yang digunakan berupa angket kebutuhan siswa dan angket kebutuhan guru. Data yang diperoleh dalam penelitian kemudian dianalisis dengan menggunakan rumus persentase. Adapun hasil analisis menunjukkan bahwa 68% materi Dasar-dasar Pengoperasian Komputer merupakan mata pelajaran yang bersifat terapan, sehingga dalam proses pembelajarannya tidak hanya menggunakan konsep teoritis tetapi juga disertai dengan praktik yang mengharuskan siswa bisa lebih mandiri sehingga dibutuhkan media pembelajaran agar dapat dipelajari baik dalam bentuk e-modul (video, audio) agar dapat dipelajari dimana saja menggunakan android. Hasil analisis kebutuhan 1 guru Teknologi Informasi dan Komunikasi dan 32 siswa kelas VII menunjukkan bahwa 90% siswa kesulitan memahami materi. Berdasarkan hasil penelitian dapat disimpulkan bahwa perlu adanya pengembangan media pembelajaran interaktif berbasis android pada materi Dasar-dasar Pengoperasian Komputer.

**Kata Kunci:** *Android, Dasar-dasar Pengoperasian Komputer, Media Pembelajaran, ADDIE.*

### Abstract

*The purpose of this study is to analyze students' needs for Android-based learning media, especially for the basics of operating a computer. The method used in this research is a qualitative method using the research topic of class VII students of SMP N 8 Jangkang. This study uses the ADDIE learning design model, ADDIE itself is an Analysis, Design, Development & Implementation, and Evaluation. It's just that the stages used in this study are only limited to the analysis stage. The instrument used was a student needs questionnaire and a teacher needs questionnaire. The data obtained in the study were then analyzed using the percentage formula. The results of the analysis show that 68% of the Basics of Computer Operation material is an applied subject, so that in the learning process it does not only use theoretical concepts but is also accompanied by practices that require students to be more independent so that learning media is needed so that they can be studied both in the form of e-modules (video, audio) so that they can be studied anywhere using Android. The results of the analysis of the needs of 1 Information and Communication Technology teacher and 32 class VII students showed that 90% of students had difficulty understanding the material. Based on the results of the study it can be concluded that it is necessary to develop interactive learning media based on Android on the Basics of Computer Operation.*

**Keywords:** *Android, Basics of Computer Operation, Learning Media, ADDIE.*

### Introduction

Learning is a process of transforming the behavior and attitudes of a person or group. Learning fundamentally describes the process of receiving and sharing information with others. So that the learning process can run according to expectations until the development of various methods in learning is needed.

The development of this education must be in line with the growth of the era. In this modern century, we understand the very rapid development of technology. Various findings in the field of technology are very well known and successful and able to solve various cases in this modern era. The growth of technology affects the development of such learning. The use of

modern technology can be used as a simple learning medium and can meet various needs of conveying information in learning. However, there are still many teachers at SMPN 8 Jangkang who have difficulty in utilizing learning media or developing technology in the learning process, especially Information and Communication Technology class VII teachers at SMPN 8 Jangkang considering that the material on Basics of Computer Operation is applied material, so that in the learning process it not only uses theoretical concepts but is also accompanied by practice. The limitations of teachers in the use of technology are fatal for students in receiving information or learning considering that most students are already familiar with technology so that learning with conventional methods will make students not easy to understand learning and not free in expressing themselves in the learning process. (Pane., et al 2017) (Nur et al., 2019)(Hanifah Salsabila et al., 2020)(Priangga, 2021)(Stefany, 2015)(Yuliawati et al., 2020)

Learning media is a set of auxiliary equipment that can be used for learning resources by teachers in delivering material to students or student participants. There are many kinds of learning media, there are print media, audio media and audio-visual media. By utilizing media, interaction between teachers and students is no longer only done through face-to-face bonding. Teachers can share services without being obliged to go head-to-head with students. Similarly, students can get information in a wide scope from various sources through cyber space or cyberspace using a computer, android or the internet. A very sophisticated subject is the development of what is called cyber teaching or virtual teaching, is a teaching process that is carried out by utilizing the internet. Another term that is increasingly popular at this time, namely e-learning, is a learning model by utilizing communication and information technology media, especially the internet. (Purnamasari, 2019)(Adam et al., 2015)(Nunu et al., n.d.)(Darimi, 2017)

The current learning environment is not limited to the use of software on a computer or laptop, but the learning environment can be combined with the use of Internet technologies, the field of education is moving dynamically, mainly to create more interactive and inclusive teaching resources, methods and materials. Popular media available include books, magazines, newspapers, newspapers and tabloids for offline media, while mass media include radio, television and the internet. Using the Internet or applications in media studies has the potential to be implemented in the world of Education .(Listyanto., 2013)(Jonah & Fransisca, 2020)

Previous research discussing the analysis of the need for the development of Ethnomathematics-based E-Modules explained that the results of literature studies and field studies showed that it was necessary to develop ethnomathematics-based e-module teaching materials for central Javanese cultural products. Another article that discusses the development of android-based e-modules on dynamic electrical materials. Electronic modules are written in a communicative language, equipped with images, animations, simulations and videos. This electronic module includes learning activities with problem learning syntax. The validation test assessment is in the form of a likert scale questionnaire with expert surveys (media, materials and learning) and a reading test with teacher and student surveys. The results of this study are in the form of an Android-based electronic module that is validated and tested for readability. Based on the results of preliminary studies, the developed e-modules are suitable as a self-learning environment for students . (Yudi Purwoko et al., 2020)(Sulthon et al., 2020)

The next article with the title The Need for Android-Based Learning Media Development on Hydrocarbon Materials using the ADDIE model. The results of the analysis of the needs of 8 chemistry teachers and 135 class X students showed that 83% of students had difficulty understanding hydrocarbon material and 60% of students thought that listening to the teacher's explanation alone was not enough (9.6%). Teachers and 99% of students consider the use of interactive educational environments indispensable in educational activities. All teachers and 98% of students show interest and want to use the educational environment in educational activities. From the results of the study, it can be concluded that it is necessary to develop an interactive educational environment based on Android on Hydrocarbon Materials.(Sepdyana Kartini et al., 2022)

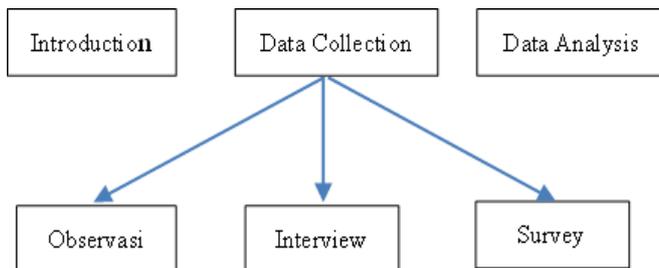
Based on several research results, it can be concluded that android-based learning media is a suitable tool for teachers and students to teach and develop learning methods/systems. This research focuses on analyzing the needs of Android-based interactive learning media on the material Basics of Computing.

## **Method**

The research entitled Android-Based Learning Media Needs Analysis on the material Basics of Computer Operation was applied to grade VII students of SMPN 8 Jangkang. The main target of this study was Information and Communication Technology teachers and class VII students with a total

of 1 teacher and 32 students. This research is included in the research and development model developed with the ADDIE model. The ADDIE development model consists of 5 phases, namely analysis, design, development, implementation, evaluation (Adelina & Darman, 2022). It's just that the research process in this study is only based on the needs analysis stage for the design and development of Android interactive learning media. The research flow chart is shown in Figure 1.

Figure 1. Research Flowchart  
Data collection in this study was carried out



with literature studies and field surveys. The literature survey was conducted by collecting relevant research findings and sources and reviewing the material concepts of Basics of Computer Operation that underlie the development of Android-based interactive media. There needs to be an interactive learning medium. The Student Needs Questionnaire and Teacher Needs Questionnaire serve as survey instruments. The data obtained from this questionnaire will be used as material for developing android-based interactive learning media on the Basics of Computer Operation. The grid of questionnaires for the needs of teachers and students is shown in Tables 1 and 2.

Table 1. Teacher Needs questionnaire grid

No	Question
1	Have teachers ever used learning media in the learning process?
2	Does the teacher have an android smartphone?
3	Can teachers run smartphone hardware with android operating system?
4	Do teachers need to use android-based interactive media in the learning process

Table 2. Student Needs Questionnaire Grids

No	Question
1	Have students ever used learning media in the learning process?
2	Do students have android smartphones?
3	Can students run smartphone hardware with android operating system?

4	For what purposes do students often use android smartphones
5	Do teachers need to use android-based interactive media in the learning process
6	Is the material Basics of Operating a Computer difficult to understand?
7	Do students need to use android-based interactive learning media to understand the material Basics of Computer Operation

The data obtained in this study were analyzed using the Miles and Huberman model. Questionnaire data processing for analysis of the needs of designing and developing interactive learning media with teacher respondents and students with a percentage formula.

### Result and Discussion

Needs analysis is the first step before developing Android-based learning media. Needs analysis is also the basis for the development of Android-based interactive learning media. Analyzing the needs of teachers and students is to study and analyze concepts about subjects that will be published on android-based interactive learning media. The results of several studies of the Interactive Learning Media Literature Survey show that media is part of the learning resources that can stimulate students to learn, the use of media in teaching and learning activities improves learning outcomes, supports and understands abstract concepts, students are attentive and can make learning more interesting. The use of interactive media in the learning process can give students different perspectives to understand the concept of learning. (Yanto., 2019)

Learning media can also be combined with new things to achieve the desired goals. Learning with Android-based mobile technology increases students' motivation and critical thinking. Based on previous research the use of interactive media is highly recommended for learning because it is very effective and can also motivate students to learn by displaying audio files and animated images. Based on the results of literature study research on books or study guides on the material Basics of Computer Operation class VII, basic competencies were obtained in the material Basics of Computer Operation semester 1, namely (Agustina Dwi Astuti et al., 2017)(Novita et al., 2019) Knowing computer components, Procedures for turning on and off computers, computer software, and Running application programs. The material Basics of Computer Operation was analyzed using the method developed by Herron. The calcification of concepts according to Herron includes concrete

concepts, abstract concepts, concepts containing principles.

Based on these results, the basis for developing Android-based interactive learning media is needs analysis, so it can be concluded that the basic concept material of computing contains three types of concepts, namely 10% of concrete concepts, 34% of concepts containing principles, 56% of intangible concepts. The informal concept has the largest with a total of 56%. The next step is an analysis of the needs of teachers and students regarding the use of media in teaching and learning activities. At this point, a needs analysis is carried out through a questionnaire, in which the state of learning opportunities of classes, teachers and students as well as the need for the use of interactive learning media in the teaching and learning process are recorded. In addition to the literature study, a field study was also carried out which examined the need to develop Android-based interactive learning media on the Basics of Computer Use material with a survey of media needs for teachers and students of SMPN 8 Jangkang. Data from the analysis of teacher and student needs for Android-based interactive learning media are presented in Tables 3 and 4.

Table 3. Data from Teacher Needs Analysis

No	Question	Response	Percentage (%)
1	Have teachers ever used learning media in the learning process?	Ever	0
		Not yet	100
2	Does the teacher have an android smartphone?	Have	100
		Not	0
3	Can teachers run smartphone hardware with android operating system?	Can	80
		Not	20
4	Do teachers need to use android-based	Necessary	100
		Not	0

No	Question	Response	Percentage (%)
	interactive media in the learning process		

Table 4. Student Needs Analysis Results Data

No	Question	Response	Percentage (%)
1	Have students ever used learning media in the learning process?	Ever	0
		Not yet	100
2	Do students have android smartphones?	Have	97
		Not	3
3	Can students run smartphone hardware with android operating system?	Can	70
		Not	30
4	For what purposes do students often use android smartphones	Learn Social Media and More	3 97
5	Do students need to use android-based interactive media in the learning process	Necessary	100
		Not	0
6	Is the material Basics of Operating a Computer difficult to understand?	Yes	90
		Not	10
7	Do students need to use android-based interactive learning media to understand the material Basics of Computer Operation	Necessary	100
		Not	0

100% of teachers have never used Android-based interactive learning media in teaching and

learning activities, based on the results of an analysis of the distribution of teacher needs to the Android-based learning environment. An IT teacher involved in this research said that 100% of teachers consider the importance of interactive learning media in teaching and learning activities. The results of the analysis of the needs of 32 class VII students majoring in ICT showed that 100% of students had smartphones, of which 97% had Android phones. The survey found that 100% of students have never used interactive media in teaching and learning activities, 90% of students say that the basics of computing are difficult to understand, so 100% of students feel the need to use interactive teaching materials to understand the concepts of basic computer operation materials. After explaining the concept of Android-based interactive learning media to students, 100% of students are interested in learning how to use Android-based interactive learning media for basic computer operation.

## **Discussion**

The results of data analysis show that 100 percent of teachers and students have never used learning media in the teaching and learning process. As a result, many students have difficulty understanding the material. The ability to analyze students in understanding the material becomes an internal factor that poses difficulties for students in learning the basics of using computers. In addition to internal factors, external factors also influence low learning outcomes. Inadequate learning support facilities and teaching methods used by teachers continue to use the lecture method, not yet arousing students' interest and motivation to learn. Based on this, the solution to overcome this problem is that students need help to facilitate the understanding of concepts that are classified as abstract through Android-based interactive learning media on Basic Computing material. Media is designed according to the needs of students and teachers so that student learning motivation increases and student learning outcomes also improve. Based on the results of the analysis of teacher needs for Android-based interactive learning media, it was found that teachers had never used learning materials packaged in the form of an Android-based smartphone application. Methods that are still often used by teachers in learning are the lecture and assignment methods. The presence of media capable of presenting material, practice questions and quizzes, directs students' boredom to study and makes them more interested in learning the material independently. (Nabillah & Immortal, 2019)

There are many ways that teachers can get learning media, both downloaded from the internet and those already provided by schools. However, more and more teachers are downloading media from the internet because it is easier and takes less time. Android-based interactive learning media can support the learning process in such a way that it can improve the quality of teaching, increase teacher creativity and save teachers time in designing learning media. Interesting media are those that can increase student learning motivation. One strategy to increase learning motivation is the use of interesting learning media. The results of the analysis of a teacher at SMP N (Hamidah et al., 2021)(Yanto., 2019)8 Jangkang said that the android-based interactive learning environment is very interesting, and the teachers need and approve the use of an android-based interactive learning environment on the "Basic Computing" material. Learning media developed through smartphones makes learning very flexible because it can be used anywhere and anytime. When teachers understood the android-based interactive media to be developed, all respondents expressed interest and wanted to use the media in teaching and learning activities. In addition, in the needs analysis 90% of students stated that the material Basics of Computer Use is difficult to understand and 100% of students consider the student interested in learning how to use Android interactive learning resources and learning the basics of using a computer. The learning media presented includes audio and visual elements that can facilitate the absorption of knowledge by students as well as different learning styles. The advantages of Android-based learning media developed, students can choose learning materials. This gives students a high degree of learning flexibility. This situation can also bring students more pleasure in learning because students can learn according to their wishes. (Kartini & Son, 2020)(Handayani & Rahayu, 2020)

The results obtained in this study are in line with the results of previous studies which also show that teachers and students need Android-based media to create a pleasant learning atmosphere, because it can be used anywhere and anytime. Other findings also claim that the introduction of android-based learning media can help students who have learning difficulties because android-based media is equipped with conversational questions. Based on several research results, it can be said that teachers and students need an Android-based learning environment to increase learning effectiveness. (Fadli et al., 2020)(Hapsari, et al., 2021)

## Conclusion

Based on the results of data analysis and discussion, it can be concluded that teachers have never used android-based learning media in learning information and communication technology. Therefore, in the learning process, android-based interactive media is needed to improve students' understanding, especially on the material "Basics of Computer Operation".

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