

# Can Mobile-Based Learning Media for Science Materials Influence Junior High School Students' Interest in Learning?

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**Abstract:** Mobile-based learning media is one of the tools that can improve the effectiveness and efficiency of teaching and learning activities. The purpose of this study is to examine the effect of using mobile-based media on junior high school students' interest in learning science subjects. Data were collected through related journals to be reviewed. The method used in this research is the SLR (Systematic Literature Review) method. This research analyzes search results from the Google Scholar database, publish or perish and semantic scholar with a time span of the last 5 years, 2018-2023. Based on the search results, 40 relevant articles were obtained which were then filtered based on the inclusion criteria, 11 accredited national journal articles on SINTA 1 to SINTA 4 were used as primary studies. The results showed that the use of mobile-based media in science learning is very influential to arouse student interest and have an impact on student learning outcomes.

**Keywords:** Interest in learning; Mobile based learning; Science

## Introduction

Natural Science (IPA) is an important discipline for junior high school students, because it aims to educate and understand about nature and its conditions (Rusyadi, 2016). Science teaches about the surrounding environment as a direct learning object (Fahmi et al., 2021). Science learning is important to improve the ability and quality of students as human resources (Wisudawati & Sulistyowati, 2022). Science learning has elements and characteristics. In essence, it has four elements, namely curiosity; problem solving; products containing facts, principles, theories, and laws; and also, science that cannot be separated from one another. The four elements are expected to appear in the learning process so that students experience learning as a whole.

The characteristics of science learning include three dimensions, namely the product dimension, the attitude dimension, and the scientific dimension. The three characteristics explain that science learning is not just formulas and theories, but a scientific process and

attitude to get concepts about the universe. Scientific processes and attitudes are expected to be formed from basic education so that students are familiar with scientific problems and are able to process these problems. Based on the elements and characteristics of science, learning IPA really requires the use of learning media.

Science learning media is important because science is abstract, so to adjust to the cognitive capacity of students is still operational-concrete (Nuryati & Darsinah, 2021). Learning media is a set of tools used by educators as a learning resource for students. Learning media can make it easier for students to concretize abstractions so that they can be understood. Educators are required to be creative and innovative in developing their learning (Setyadi & Qohar, 2017). According to Rauf (2022) learning media is one of the intermediary tools that is quite important for the learning process with the media will help the learning process to be more interesting and not monotonous. In addition, the media can increase student interest in the learning process.

## How to Cite:

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Interest is a permanent mental tendency to pay attention and remember some activities or activities of someone who is interested in an activity and pay attention to it consistently with pleasure, interest is a high inclination towards something that arises because of a felt need or desire for certain things. In education, interest plays an important role in the learning process. Because this interest is a motivational force that causes a person to focus attention on a person, an object, and certain activities (Rusdi, 2017). The use of interesting learning media will increase students' motivation and interest in learning which in turn will make students successfully understand the material provided (Setyadi & Qohar, 2017).

Recent advances in technology and information have an impact on the importance of supporting factors in learning. Learning media is one of the supporting factors of technological advances and information (Novelza & Handican, 2023). The utilization of attractive media, namely technology in the field of education, can accommodate educators to improve the quality of education. The development of information and communication technology has made one type of mobile device-based learning media called Mobile Learning, both in the form of E-Modules, Interactive Games, Learning Videos, and others (Husaen & Yuliani, 2023).

Mobile Learning (m-learning) is a type of learning offered to learners in order to access educational materials without being bound by space and time by utilizing information and communication technology media (Setiawati et al., 2012; Hidayat & Utomo, 2014; Supardi, 2017; Bagus, 2022). In education, mobile device technology can increase attention to learning materials, make learning persuasive, and encourage motivation (Yuniati, 2011). Mobile-based learning media encourages self-confidence and reduces learner anxiety, implying that regular use of technology increases the level of comfort and satisfaction of learners in using technology (Jabbour, 2014). The rapid development of mobile device technology provides opportunities in the development of mobile learning media (Surahman & Surjono, 2017). Based on this, material that is difficult for students can be understood easily, especially in science material.

The use of mobile-based learning media certainly has an influence on students. Through mobile-based learning media, students are faced directly with real-world situations that are relevant to what they are learning so that learning is also more interesting, meaningful and varied so as to avoid monotonous learning and boredom for students.

The novelty in this research is whether mobile learning-based learning media has an influence in increasing junior high school students' interest in science materials. In this research, we will explore various

related journals that have been conducted previously, and analyze the suitability of using mobile learning in science learning for junior high school students. Through this SLR, it is expected to find empirical evidence that supports mobile-based learning media as an effective tool in increasing junior high school students' interest in science materials.

## Method

The method used in this research is the SLR (Systematic Literature Review) method. This SLR method is carried out in 3 stages so as to obtain a combination of appropriate and accurate literature studies on the research issues to be raised. The stages carried out are planning, implementation, and reporting. Literature sources are selected and adjusted to the required research keywords, then review and identify the selected journals in a structured manner according to the steps set out in the systematic literature review (SLR) method.

### *Planning*

In preparing the research protocol using the systematic literature review model, the initial stage is planning. This stage involves determining the research topic, which is about mobile-based learning media for junior high school science materials and increasing student interest. Then the research question is determined. Furthermore, article search criteria were determined based on publish or perish, semantic scholar, and google scholar sources from 2018 to 2023. The keywords used in this research include mobile-based learning media for junior high school science materials.

### *Conducting*

The conducting stage is the implementation stage in SLR research. At this stage, the search for articles according to the criteria and suitability with keywords began. After selecting according to the inclusion and exclusion criteria from the existing population, 11 articles were selected. The inclusion criteria applied in this study are journals with clear SINTA and academic proceedings, journal publications in the last 5 years, experimental, qualitative, PTK, and development research types. Exclusion criteria included irrelevant titles, missing full text, irrelevant abstracts, and unclear research conclusions.

### *Reporting*

In this last stage, the researcher writes the results of the analysis and evaluation of the review of journals into writing based on a predetermined format.

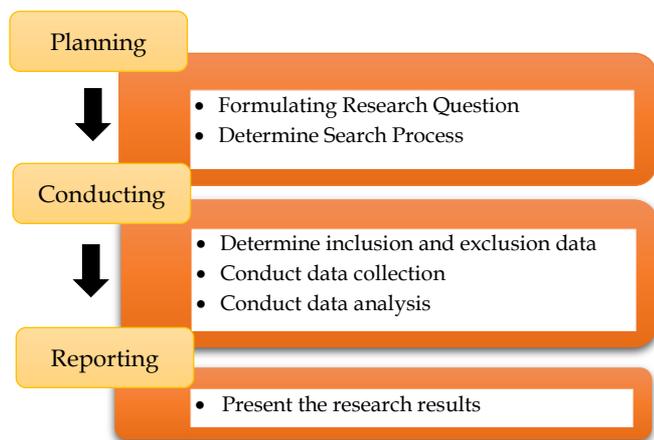


Figure 1. Chart of method

Research Questions

At this stage the researcher determines the questions that are in accordance with the research topic. The following are research questions in this study.  
 QR1: Can mobile learning media increase junior high school students' interest in science materials?  
 QR2: How can mobile learning media increase junior high school students' interest in science?

Result and Discussion

The results of the data search were 11 articles that were taken in accordance with the inclusion and exclusion criteria and had a discussion related to "mobile-based media development of IPA material in increasing the interest of SMP students". Then proceed to the next stage, namely data extraction. Data extraction is done by analyzing information according to the title, media feasibility and research results.

Table 1. Data extraction results

Researcher (Year)	Journal	Research Results
Risnani & Adita (2019)	Prosiding University Research Colloquium	Digital educational games that are compiled are suitable for use as a medium for learning science in junior high school, the implementation of digital educational games can also increase students' interest in learning science both in private and public junior high schools.
Fitriani & Negara (2021)	Mimbar PGSD Undiksha	Science learning applications are declared valid. The implications of the results of this study are to increase students' enthusiasm and motivation to learn, open teachers' insights, and add to the

Hamka (2022)	JATISI (Jurnal Teknik Informatika dan Sistem Informasi)	collection of learning media at school. The aspect of system acceptance for users is presented at 91% with a very good scale and helps increase student learning motivation and can help students more quickly understand lessons and can learn anywhere and anytime.
Hardiansyah et al. (2022a)	Jurnal Basicedu	There is an increase in interest and learning outcomes experienced by students, after participating in learning with mobile learning-based teaching materials.
Masri et al. (2023)	Jurnal Penelitian, Pendidikan dan Pengajaran: JPPP	Assembler Edu Augmented Reality Media has a significant positive impact on student learning interest.
Islamian (2023)	Jurnal Penelitian Pendidikan Matematika dan Sains	The results showed that the majority of students' interest and motivation were positive towards the developed media. The results of this small-scale trial indicate that the science learning media made with the Glide platform is good from the aspect of stimulating students' interest and motivation in science learning.
Widiana (2022)	Jurnal Edutech Undiksha	There is a difference in students' interest in learning and concept understanding between the group of students who apply game-based learning and the group of students who follow conventional learning. It is concluded that the application of game-based learning can increase students' interest in learning and understanding of concepts.
Adn & Rahmadhani (2022)	Jurnal Penelitian Pendidikan Matematika dan Sains	The developed digital learning media prototype is able to attract students' interest and motivation to learn.
Antika et al. (2022)	OPTIKA: Jurnal	There is a significant difference in the average HOTS scores of students in

	Pendidikan Fisika	the experimental and control classes, and the results of the analysis of learning interest obtained a Sig. (2-tailed) value of 0.001 < 0.05 so that H0 is rejected and Ha is accepted, which means that there is a significant difference in the average student interest in learning in the experimental and control classes.
Pramudita et al. (2023)	JUSTEK: Jurnal Sains dan Teknologi	The research shows that there is a difference in Pre-Test results and Post-Test results and an increase in student interest in learning the material of heat, temperature, and expansion.
Hardiansyah et al. (2022b)	DWIJA CENDEKIA: Jurnal Riset Pedagogik	This learning media has an attractive appearance and is easy to apply, so that students do not feel bored when learning. Therefore, it can be concluded that mobile learning media is an alternative that can be used to improve learning outcomes as well as students' interest and motivation to learn after the COVID-19 pandemic.

Based on the results of data extraction, several relevant results were found related to mobile-based learning media can increase the interest of junior high school students in science materials. The application of learning using Mobile Learning devices can make it easier for students to learn because all information can be accessed easily, students are also encouraged to be more innovative and creative in learning and using learning media. The results showed that Mobile-based learning media involves active learners in learning. Various interactive features, such as quizzes, simulations, and learning videos, can increase learners' interest and motivation in learning science concepts. Mobile devices include a range of multimedia features that facilitate interactive learning experiences, including movies, quizzes, games and simulations. These features can encourage engagement and increase information retention. Mobile learning is used to support enjoyable learning, so that students' enjoyment can support the balance between learning methods and appropriate learning media, and can increase student activeness and student motivation during learning activities (Widiana, 2022).

Mobile learning has great potential in improving the accessibility of science learning at junior high school level in Indonesia. Through the use of mobile devices, students can access learning materials anytime and anywhere. Reinforced by research of Purnama et al. (2023). The application of learning using Mobile Learning devices can make it easier for students to learn because all information can be accessed easily, students are also encouraged to be more innovative and creative in learning and using learning media (Pramudita et al., 2023).

Mobile learning allows learners to repeat difficult material on their own, or deepen their understanding through additional resources available. Learning is flexible and adaptive according to the needs of junior high school students. Mobile learning such as educational games is one of the effective learning aids that aims to provoke students' interest in understanding learning materials so that feelings of pleasure, happiness and not boring appear (Hamka, 2022).

Mobile learning features can also facilitate collaboration between learners and educators. For example, online discussion forums, virtual study groups, and information exchange can enhance interaction and knowledge exchange between learners and educators. Mobile devices include a range of multimedia features that facilitate interactive learning experiences, including movies, quizzes, games and simulations. These features can encourage engagement and increase information retention. In accordance with research by Yustitia et al. (2024) which states that mobile learning systems often allow learners to engage in collaboration through the use of discussion boards, group projects and social learning elements.

## Conclusion

The results of the analysis based on the study with SLR concluded the findings that mobile learning media is feasible to use as a learning support to increase students' interest. The advantages of interactivity, accessibility, flexibility, and collaboration offered by mobile learning media can increase junior high school students' interest in science subjects.

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## Author Contributions

Conceptualization, methodology, formal analysis, investigation, resources, data curation, and writing – original draft preparation, W.; writing – review and editing, validation, and visualization, I.W. All authors have read and agreed to the published version of the manuscript.

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**Conflicts of Interest**

The author declares no conflict of interest.

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