# Representation of the use of Media and Teaching Materials in Science Learning for Junior High School Students

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**Abstract:** Media and teaching materials that suit learning needs can improve the quality of learning. The research aims to describe the use of media and teaching materials in science learning. The type of research is a survey. Research in June-September 2023 at Middle Schools in the Greater Malang Region. The research population was junior high school students and teachers in the Greater Malang area. The research sample was 584 students and 18 teachers. The data collection technique uses a media and learning material needs analysis questionnaire. The research instrument is a needs analysis questionnaire sheet. Data was analyzed descriptively, quantitatively, and qualitatively. The research results show that the media and teaching materials used by teachers are quite good, but teachers rarely use a variety of media and teaching materials. The learning media that teachers often use are learning videos and the teaching materials that are often used are textbooks. Science learning still requires supporting media and teaching materials, one of which is expected to be an e-module.

**Keywords:** Electronic Media; Learning Resources; Needs Analysis; Non-electronic media

## Introduction

The need for teaching materials and learning media is very important to determine students' needs in the learning process (Syamsussabri et al., 2018). Media and teaching materials that suit learning needs can advance the class, thereby fostering student learning engagement (Puspitarini & Hanif, 2019). Learning media that is used appropriately in the learning process will be a more effective and efficient supporting tool in achieving learning goals. In line with the opinion Sondakh et al. (2021) that good media is media that can make learning more interesting and create a comfortable and enjoyable learning atmosphere so that the learning process becomes effective, both in the classroom and outside the classroom or outside the school environment.

Learning media is a tool or equipment to carry out processes that enable educators and students to carry out learning activities (Widodo & Wahyudin, 2018). In

general, media provides a tool that can be used as an effort to achieve learning goals (Kounlaxay et al., 2021). The benefits of using learning media include using learning media, the learning process being smoother and more interesting, clarifying learning material to achieve learning goals, and making the learning process more varied (Puspitarini & Hanif, 2019). The results of research conducted by Evryanti et al. (2019; Marini et al. (2022) the learning process with the help of learning media can improve the quality of student learning, compared to the learning process without learning media.

Media and teaching materials are an important component of learning because they make it easier for students to gain understanding. This cannot be separated from the role of media and teaching materials in science learning. Science learning is known as a branch of science that contains abstract concepts. To enrich students' learning environments, it is important

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to strengthen students' visual and intellectual engagement through the use of media and teaching materials, especially when explaining abstract and difficult concepts (Sahin & Yilmaz, 2020). Learning media is really needed for students so that they can learn abstract and microscopic concepts so that theoretical learning can be more realistic (Rizanti et al., 2023).

Apart from the importance of media and teaching materials in the science learning process. The integrated science teaching materials used by teachers are still not optimal because more teachers lecture in delivering the material (Sarmi et al., 2019). The results of research conducted by Irawan & Putra (2022). The use of technology-based learning media by teachers in Bima City is still in the poor category. Studies conducted in Jambi City also show that the use of technology-based learning media at the tertiary level is also lacking and this is one of the factors inhibiting the learning process because media is an integral part of learning (Fauzan, 2022). Results from research Shafira et al. (2022) reveal that more than 63% of students feel bored and less motivated to use the available science teaching materials, this is due to the lack of variety in learning media and students need diverse and interesting learning media.

The use of media and teaching materials in learning activities is expected to facilitate understanding of the content or concepts set by the teacher. There are still several uses of media and teaching materials that are not for students' needs. Meanwhile, learning media is one component of the learning process. Learning media is a tool that can help teachers to convey learning material so that children can have interest and interest in the learning material presented (Wulandari et al., 2023). Several previous studies have discussed the development or use of media and teaching materials. Through this research, we will explore further the use of media and teaching materials from the perspective of teachers and students in junior high school science learning and explore in detail the need for media and teaching materials from both learning practitioners' perspectives. The results of this research can later be used as a benchmark for presenting media and teaching materials according to learning needs. The aim of this research is to represent the use of media and teaching materials in the science learning process of junior high school students along with the students' needs for media and teaching materials.

## Method

This research method is descriptive survey research. The research was carried out from June to September 2023. The research locations were public and private junior high schools in Malang City, Malang Regency, and Batu City. The population of this research is students and teachers of public and private junior high schools in Malang City, Malang Regency, and Batu City. The sampling technique used in this research is non-probability sampling in the form of accidental sampling. Accidental sampling is a method of determining samples by taking respondents who happen to be present or available in a place according to the research context. The sample for this research was 584 students and 18 teachers from public and private junior high schools in the Greater Malang area. This area includes Malang City, Malang Regency, and Batu City.

The data collection technique uses a media and learning material needs analysis questionnaire. The instrument of this research is a questionnaire sheet for media needs and learning materials for teachers and students. The instruments used were constructed by the author. Validation of research instruments is carried out based on the considerations of experts in the field. There are several aspects of assessment that are assessed by experts. In the questionnaire instrument for media and teaching material needs by students and teachers, there are 3 assessment aspects, namely format, content, and language aspects.
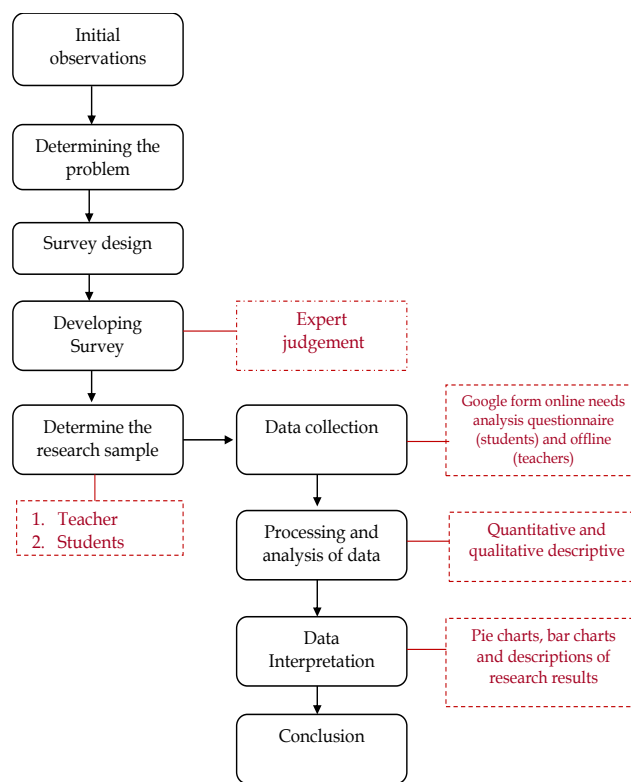


**Figure 1.** Survey Research Flow

The results of the expert assessment on the student questionnaire sheet on the format aspect got an average of 4.75, the content aspect was 4 and the language aspect was 4, or the instrument was declared very valid (Setyo et al., 2020). Meanwhile, the results of the assessment on the teacher needs questionnaire sheet for the format

aspect obtained an average of 4.5, the content aspect an average of 4 and the language aspect an average of 4 or the instrument was declared very valid (Setyo et al., 2020). The research data was analysed descriptively, quantitatively, and qualitatively. Quantitative data is presented in the form of a pie chart and qualitative data as a description of the strengthening of the research results.

**Table 1.** Student Respondent Demographics

| School | Number of Students |
| --- | --- |
| Malang City State Middle School and Private Middle School | 159 |
| Malang Regency State Middle School and Private Middle School | 367 |
| Batu City State Middle School and Private Middle School | 58 |
| Total | 584 |

**Table 2.** Teacher Respondent Demographics

| School | Number of Teacher |
| --- | --- |
| Malang City State Middle School and Private Middle School | 13 |
| Malang Regency State Middle School and Private Middle School | 3 |
| Batu City State Middle School and Private Middle School | 2 |
| Total | 18 |

## Result and Discussion

*Result*
*Use of Media and Teaching Materials in Science Learning*
    The results of research on the use of media and teaching materials in junior high school science learning in the Malang area show that the media and teaching materials used are quite good for 60% of the 584 research respondents (Figure 2). The results of the analysis show that students feel that the media and teaching materials used are sufficient and very good because teachers use videos, power points, and practical materials as learning media so that students do not feel bored doing learning activities (not just theory). Good learning media is media that can adapt various student learning styles which is useful for achieving learning goals (Afwan et al., 2020). Apart from that, the media and teaching materials used by teachers can help students' understanding (Anggraini & Lestari, 2020), especially on material that is difficult to understand without the help of learning media. This is in line with the research results Doyan et al. (2020) that the use of media and teaching materials can help students improve their understanding of concepts in science subjects. The use of teaching media in the teaching and learning process can increase students' interest and motivation in the process of teaching and learning activities (Wahyuningtyas & Sulasmono, 2020), and one solution to various problems related to learning effectiveness (Anggraini & Lestari, 2020).



**Figure 2.** Teacher Media and Teaching Materials

    The results of research on student responses to the use of learning media can be used as an evaluation and consideration for researchers or educators to follow up on students' needs in using media and teaching materials in science learning. Apart from that, the results of research regarding the frequency of use of media and teaching materials by teachers show that in science learning teachers still rarely use media and teaching materials that vary from the student's point of view or 60% of the 584 respondents who filled out the questionnaire (Figure 3). These results are in line with the results of the teacher needs questionnaire, that teachers experience problems using media and teaching materials. The teacher said that the obstacles in using media and teaching materials lie in the availability of tools, materials, ideas, and innovation and the demands of teachers who not only teach but also have good administration must be fulfilled. Therefore, this is one of the reasons why teachers rarely innovate in the use of media and teaching materials.

*Forms of Media and Teaching Materials in Science Learning*
    The forms of media and teaching materials used by teachers in the science learning process are generally non-electronic for 66% of the 584 respondents (Figure 3). However, in the use of electronic media and teaching materials is 34% of the 584 respondents (Figure 3), the frequency of use of electronic media and teaching materials is in the rare category, in 68% of the 584 research respondents the frequency of use of electronic media and teaching materials. Teachers and students rarely use electronic media and teaching materials, influenced by several things, such as students rarely bringing smartphones to school (58%), not all schools having adequate wifi facilities (46%), inadequate classroom facilities and infrastructure (LCD, projector) and limitations in creating electronic media.
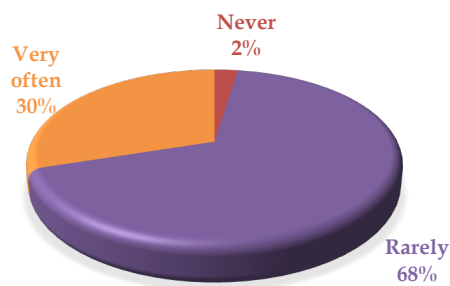
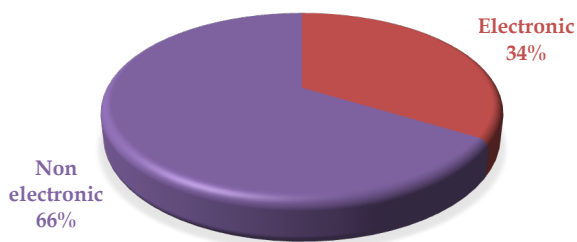**Figure 3.** Frequency of Use of Media and Science Teaching Materials



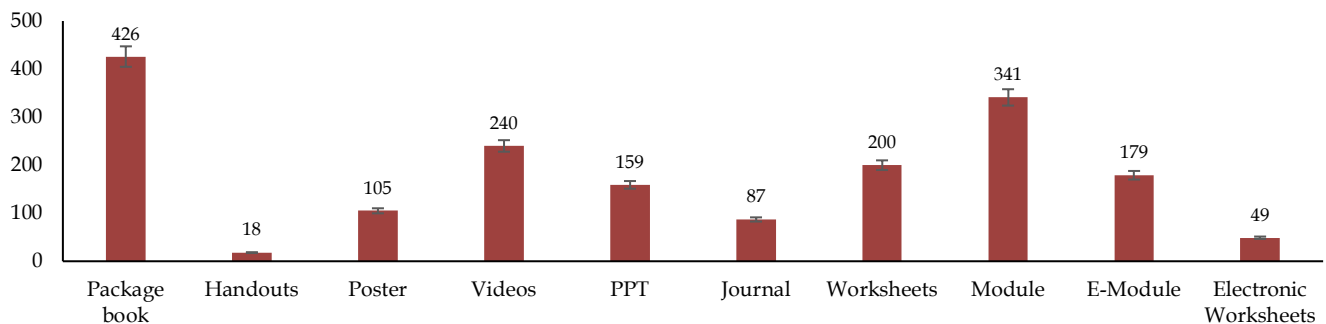**Figure 4**. Forms of Media and Teaching Materials for Science Learning

Apart from form, the types of media and teaching materials that are often used by teachers and students in the science learning process generally use textbooks, handouts, posters, videos, ppt, journals, worksheets, modules, e-modules and electronic worksheets (Figure 5). Of the several media and teaching materials used by teachers, textbooks are the media and teaching materials most used by teachers in learning, 23% and modules 19% of the 584 respondents.

*Student and Teacher Expectations in Procuring Media and Teaching Materials for Science Learning*

Lastly are the expectations of teachers and students regarding the use of media and teaching materials in science learning. Teachers and students already use media and teaching materials in every lesson, in fact, the survey results of teachers in the Malang area still need media and supporting teaching materials (100%). The research results in Figure 5 show that 78% of 584 students are interested in using e-modules in science learning. Apart from that, 92% of 584 students as respondents also responded that e-modules helped students in the learning process and 96% of 584 students agreed that e-modules were used as additional learning media and resources besides existing materials.



**Figure 5.** Types of Media and Teaching Materials for Science Learning
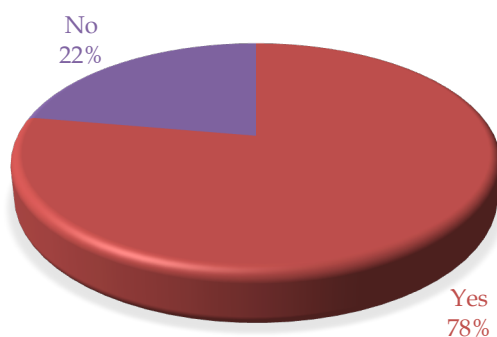


**Figure 6**. Student Responses to Using E-Modules



**Figure 7**. Research Documentation with Teachers

*Discussion*

Media and teaching materials can improve the quality of learning (Fauzi & Sastra Khusuma, 2020), innovation and appropriate use of media and teaching materials is one of the pedagogical competencies and professionalism of a teacher (Arfandi, 2020). Apart from these reasons, learning media is a factor that plays an important role in the learning and teaching process. A teacher usually uses learning media as an intermediary in conveying material so that it can be understood by students (Wulandari et al., 2023). Risnawati et al. (2018) conveyed that the media plays a role in the learning process, because the ambiguity of the material presented can be helped by presenting the media as an intermediary. The use of learning media really helps increase students' concentration and focus (Zaini & Dewi, 2017), increasing the effectiveness of the learning process, conveying messages and lesson content, stimulating thoughts, feelings, attention, and interest in learning (Sapriyah, 2019). All types or forms of media and teaching materials can support learning process activities. The very important thing to pay attention to is the goals and objectives of the material to be taught, not only looking at its sophistication but also the suitability of media selection for learning materials (Arfandi, 2020).

Learning media must be appropriate to the individual characteristics of students (Audie, 2019). The research results show that the media and teaching materials used in the learning process are quite good (Figure 2), however, the frequency of use of varied media and teaching materials is still rarely done by teachers (Figure 3). The use of media and teaching materials that teachers use is still dominated by the same media and teaching materials, namely learning videos (Figure 5) and textbooks (Figure 5). Research results Yunianto (2021) that the commonly used teaching materials are visual (printed) teaching materials in the form of textbooks. In line with the research results Kustandi & Ibrahim (2021) that there is still minimal use of technology in learning. The results of similar research were also carried out by Mella et al. (2022) that teachers still have difficulty developing varied teaching materials for the learning process, especially teaching materials that are integrated with technology.

In fact, in developing learning media, it is necessary to pay attention to the principles of developing learning media, including the presence of images, conveying messages through clear writing, adapting to student characteristics, and learning objectives based on the content of the material. Thus, the learning media developed can help students achieve learning goals (Afandi, 2015). The use of learning media must be adjusted to the analysis of student needs and learning characteristics, learning objectives, and student learning development (Fatmawati & Hasibuan, 2021). Learning media can be used to build understanding and mastery of educational objects (Risnawati et al., 2018).

Research result Evryanti et al. (2019) that the learning process with the help of learning media can improve students' teaching and learning activities so that the results obtained will also be better if the teacher does not use learning media in the learning process. Media functions to arouse new desires and interests, arouse learning motivation, and stimulate teaching and learning process activities. The use of media will greatly help the effectiveness of the learning process, delivery of messages, and lesson content at that time and can help increase understanding, present data in an interesting way, facilitate data interpretation, and condense information (Freddy & Olifia, 2019). Apart from that, the use of learning media has a psychological effect on students (Harahap, 2022) and improve student learning outcomes (Batubara et al., 2022). Using multimedia-based learning media, students gain a lot of knowledge and obtain information more quickly (Agustina, 2018).

Finally, teachers and students hope that media and teaching materials can create student learning independence, one of which is the use of e-modules (Figure 6). E-modules are a medium for obtaining material effectively because students can learn according to their ability to understand the material independently (not always relying on teacher orders) and it is presented in the form of electronic or digital presentation. Through the e-module, the presenter combines two or more media (audio, text, graphics, images, animation, and video) which are presented in the form of a compact disk and interaction occurs between the media and the user (Sidiq et al., 2021). Digital or technology-based learning is a learning method that is believed to suit the characteristics of millennial students (Helsa & Kenedi, 2019; Henderson et al., 2017). Through the use of e-modules in learning, teachers can control the student learning process digitally and can do it when and where (Ramadhani & Fitri, 2021). Apart from that, the use of e-modules that combine technology development and learning provides new learning experiences and builds student knowledge (Astuti et al., 2017; Jaenudin & Murwaningsih, 2017).

## Conclusion

The use of media and teaching materials in science learning in the Greater Malang area and its surroundings shows that the media and teaching materials used by teachers are quite good, but teachers rarely use media and teaching materials in class. Teaching materials are often used as textbooks, while the media used are learning videos. Teachers and students still need supporting media and teaching materials for science learning, one of the expected media and teaching

materials is e-modules. The results of this research can be used as consideration for researchers or educators to follow up on students' needs, especially in terms of the use of media and teaching materials in science learning.

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Creating concept of article based upon research findings and supervising all activities, from manuscript writing to publication, Y.P.; Analyzing research data, F.H.; Editing manuscript and review, A.; Converting design and concept of article into manuscript, E.N.; Designing article and writing manuscript based on fixed design and concept, T.N.I.S. All authors have read and agreed to the published version of the manuscript

**Conflicts of Interest**
No Conflicts of interest.

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