



Profile of The Biology Learning Media Use in Senior High School Tapa, Bonebolango, Gorontalo, Indonesia

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Abstract. Learning media is a tool used to deliver the concepts in learning material. Learning media is able to stimulate students' attention so that learning objectives can be achieved. The aims of this study to describe the profile biology learning media. in Class X and Class XI at SMA Negeri 1 Tapa. This study used qualitative descriptive methods and the data collection used observation techniques, interviews, and collecting various documents. The data analysis technique uses Miles and Huberman data analysis which consists of four stages, namely data collection, data reduction, data presentation, conclusion. Based on the results observation and direct interviews with Biology Teachers and Students at SMA Negeri 1 Tapa revealed that the media used by teachers were PowerPoint and learning videos. There are two learning media are very effective for use in the classroom because they are able to concretize abstract material through image visualization, moving images and videos. Biology teachers at SMA Negeri 1 Tapa have also utilized electronic media in using learning media. The tools used are laptops, LCDs and smartphones. This learning aid can support the use of Power Point learning media and learning videos.

Keywords: learning media, senior high school, biology

1 Introduction

Learning is a process involving someone to acquire knowledge and skills by utilizing various sources for learning [1]. Implementation of learning can be carried out inside the classroom (formal) or outside the classroom (non-formal). Formal education is usually carried out by official institutions where teachers and students are required to be more creative in order to achieve learning goals [2]. Learning objectives can be achieved if all learning components can be used and are interconnected well. The learning components that need to be present in the learning process are learning tools (syllabus, learning implementation plan, learning materials, student assessment sheets, and evaluation tools), learning

strategies, media, methods, class organization, and reflection on the learning process [3].

One of the learning components that supports the learning process in class is the existence of learning media. Learning media are tools used to convey information or concepts of learning material. This media is able to attract students' attention so that learning objectives can be achieved [3]. Another definition states that learning media are tools used to convey information, clarify concepts, focus attention, or facilitate students' understanding of the material being studied to achieve learning goals [4]. Learning media is used in conveying information between teachers and students in class. For this reason, teachers need to pay attention to learning technology, which can have an impact on the use of various learning media. This aims to create a conducive learning environment, ensure effective delivery of learning material, and achieve learning objectives well [5]. The use of interesting learning media can increase students' motivation to learn enthusiastically in the classroom. Use of learning media in class and gaining knowledge about things to do can help raise new needs and pursuits in students [6].

In selecting learning media, there are several things that need to be considered, namely that they must be effective and efficient and in accordance with learning objectives and students' conditions [7]. Learning media is categorized into two, namely learning media based on the latest technology and conventional. Conventional learning media consists of image/visual media, audiovisual media, nuaya media, print media. Meanwhile, media is based on the latest technology. With the times and the changing needs of students, innovation in various learning media continues to be carried out to support the teaching and learning process [8].

Maximum use of learning media can make it easier for students to understand the lesson material. However, not all types of learning media can be an optimal solution for increasing the effectiveness of the learning process. Teachers have a role in being able to choose learning media that is appropriate to the characteristics of the learning material being taught so that learning on the material being taught can achieve the expected learning goals or indicators for that competency [9]. The criteria for selecting learning media are that teachers must be able to 1) analyze student needs and characteristics, 2) formulate instructional objectives, 3) Formulating detailed material points that support achieving goals, 4) developing success measuring tools, and 5) writing media [9]. Therefore, teachers need to show more creativity in developing learning media and become more innovative [10].

Optimizing the use of learning media is supported by the use of electronic media. Common electronic media are Liquid Crystal Displays (LCD), computers or laptops. LCD is a type of projector used to display videos, images or data from a computer onto a screen or other flat surface such as a wall, etc. [11]. LCD has an important function to display information and help display presentation materials. Apart from that, there are also computers or laptops which function as tools that can make students actively involved in learning [12].

Learning media is useful for clarifying the delivery of messages so that they are not only in the form of written or spoken words that are difficult to understand but in the form of images or visualizations that are easier to understand. This media is able to overcome the limitations of space, time, and sensory abilities, for example, by replacing large objects, pictures, films, or models. Using appropriate and varied educational media can make students active in the classroom [13]. One of the advantages of using learning media is that it is able to construct abstract material because learning media has an attentional function in learning [1].

Some subjects have abstract material, one of which is Biology. Biology subjects have complex and abstract material content. The material in biology subjects involves scientific facts in the form of natural phenomena that are concrete and real; apart from that, biology material also relates to abstract objects such as chemical metabolic processes in the body, hormonal systems, coordination systems, digestive systems, and various other organ systems [14]. Therefore, in delivering learning material in Biology subjects, learning media support tools are needed that give students the opportunity to gain and enrich knowledge directly [10]. One of the schools in Gorontalo that has implemented the use of learning media in Biology subjects is SMA Negeri 1 Tapa. Based on the various types and benefits of learning media, the author wants to know the profile of the use of Biology learning media at SMA Negeri 1 Tapa which can support the implementation of learning in the classroom.

2 Method

The research was carried out at SMA Negeri 1 Tapa, West Bulotalangi, East Bolango District, Bone Bolango Regency, Gorontalo. The research was carried out in November 2023. Respondents in this research were Biology Teachers for class X, XI and students of SMA Negeri 1 Tapa. This research uses a qualitative research approach.

The type of research used is descriptive qualitative which aims to determine the profile of the use of biology learning media in classes X and XI at SMA Negeri 1 Tapa. The research instrument in this qualitative research is the researcher himself. Apart from that, there are also other instruments, namely questionnaires, interview guides and documents.

The data collection techniques used in this research are; direct observation, this stage the researcher made direct observations of the learning process in the classroom by looking at the use of learning media in the classroom. The next is live interview. Live interview is researchers conducted direct interviews with respondents. Interviews were conducted in a structured manner. Researchers have prepared a question instrument to ask respondents. And the last data collection techniques is documents. Researchers collect data by collecting information from existing documents. The data analysis technique used in this research uses the Miles and Huberman (1984) model. The process of data analysis in qualitative research occurs both during and after data collection over a specified period.

According to Miles and Huberman, qualitative data analysis involves interactive activities that continue until the data is fully saturated. The components of data analysis in the Miles and Huberman model include data collection. Data collection activities in this research are observation, structured interviews, and documents. This data collection was carried out for approximately one month. The next step is data reduction. Data reduction activities in this research were carried out by summarizing, selecting and sorting information related to the use of Biology learning media at SMA Negeri 1 Tapa. The next is data presentation. After data reduction, the researcher then presented the data. Data presentation is carried out by creating narrative text descriptions. The last step is conclusion. After presenting the data, the researcher then made conclusions based on the findings obtained from the field. The researcher wrote it down and explained in detail the results of his findings.

In general, the data analysis stages of the Miles and Huberman model can be seen in Figure 1.

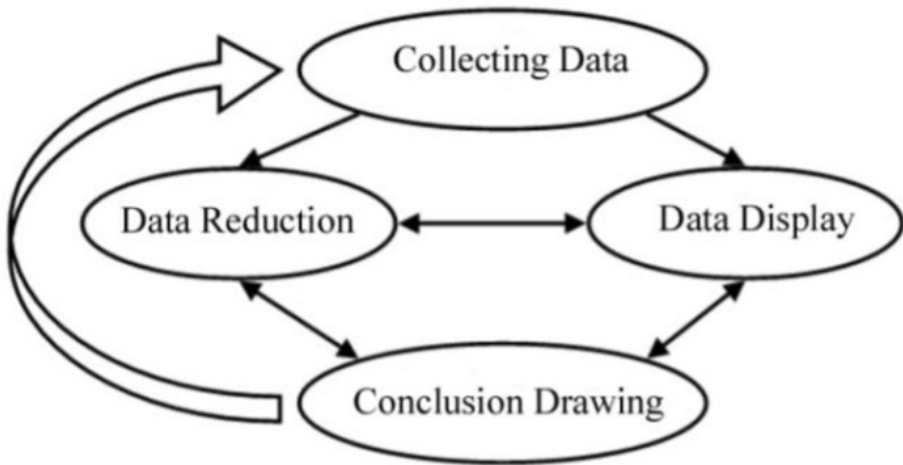


Fig. 1. Students’ knowing about open-source software based on semester

At this stage, the validity of the data is checked using triangulation. Triangulation is a testing technique that can determine whether the teacher provides the same data or not. If the teacher provides different data then the data cannot be trusted. The purpose of this triangulation is not to find the truth about a phenomenon but to further increase the researcher’s understanding of what is found.

The data collection process in this research was also carried out through an observation process in the classroom. Researchers made direct observations of the learning process in the classroom. Observations were carried out in classes X and XI Science at SMAN 1 Tapa. The observation process is carried out by

observing the learning process from the introductory stage, core stage and closing stage. After observing the information obtained is biology subject teachers have used learning media that make students active in learning. The use of learning media in the learning process makes students more focused and pay attention to the material presented by the teacher.

Apart from that, researchers also observed the suitability of the use of learning media with the basic competencies to be achieved. When carrying out observations, teachers use learning media by matching basic competencies, indicators and learning objectives to be achieved in that day's learning. The teacher delivers material with the help of learning media. Furthermore, the teacher has used effective learning media. Effective learning media in question is the use of media that is in accordance with the material characteristics and material indicators to be achieved. The learning media used are PowerPoint and learning videos. During observations, researchers observed that Biology subject teachers had also used learning media efficiently.

Researchers then observed student participation in the learning process. Teachers have emphasized the importance of student involvement in the use of learning media. This is proven by a teacher who prioritizes student participation in the use of learning media and ensures that the media used is appropriate to the material and students' needs. They create engaging and relevant content, use interactive technology, facilitate discussion and reflection, provide opportunities for participation, adapt learning to students' learning styles, and continuously measure student understanding. With this approach, teachers create an interactive, dynamic and effective learning environment for students.

3 Results and Discussion

Based on the results of observations carried out in classes X and the learning media used by teachers is adjusted to the indicators and learning objectives to be achieved so that learning takes place effectively, efficiently and prioritizes student involvement in the use of the media used.

The results of interviews with biology teachers at SMA Negeri 1 Tapa revealed that the learning media most frequently used by class X biology teachers were laptops, LCDs, and the internet. The use of this media helps teachers convey information about the material being taught, making it easier for students to understand the material. Apart from that, the use of learning media can also attract students' attention. In detail, the results of interviews between researchers and teachers can be seen in Table 1.

Table 1: Triangulation Table of Interview Sources with Class X and XI Biology Teachers at SMAN 1 Tapa

Question	Respondent 1	Respondent 2	Interpretation
Do you use learning media in the learning process?	Yes, I have used learning media and also the used printed book learning resources from the government.	Yes, I often use learning media.	Both respondents have utilized learning media in their learning process, where the respondent combines it with learning resources from government printed books.
What learning media do you often use?	The media use are PowerPoint, learning videos which I usually download from YouTube. The use of this media is supported by the presence of LCDs in schools.	The media I use are PowerPoint, learning videos design via Canva.	Both respondents used digital learning media such as PowerPoint and learning videos from YouTube. One respondent also involved students in the learning process by designing via Canva. The use of this learning media shows the adoption of technology in learning at their school.
When implementing learning media, do you use electronic media to support learning process in class?	Yes, the learning process uses electronic media such as cellphones, laptops, and the internet. I do this to direct students to access the material or learning videos that provide using YouTube.	I use cellphones, laptops, and the internet. Apart from that, there is no use of other media like those used by other teachers, namely Kahoot or Quizizz.	Both respondents used various electronic devices such as cellphones, laptops, and the internet to support learning in class. They adopt technology in an effort to facilitate student access to learning materials and present content through electronic media. Even though the second respondent stated that there was no use of other media such as Kahoot or Quizizz, both of them showed involvement in utilizing technology in the learning process.

Question	Respondent 1	Respondent 2	Interpretation
<p>In what ways do you assist your students in conveying lesson material messages to them? What are the benefits of learning media for students? How do you understand the relationship between learning media and the material being taught? Is it interesting and enjoyable?</p>	<p>Assist teachers in conveying lesson material messages to students, learning media is useful for avoiding misunderstandings between students and the material being taught. It helps in visualizing abstract materials like viruses and biodiversity in Indonesia.</p>	<p>Apart from helping teachers in conveying lesson material messages to students, learning media also helps in overcoming difficulties in students' understanding of abstract material by providing clearer and deeper visualizations.</p>	<p>Both respondents agreed that the main benefit of learning media is that it facilitates the learning process by making the material easier to understand, interesting, and fun for students. Apart from that, learning media also helps in overcoming difficulties in students' understanding of abstract material by providing clearer and deeper visualizations.</p>
<p>What kind of learning media is needed in class?</p>	<p>The media I need is interactive video according to the independent curriculum. Students like cell phones with interaction between teachers and students.</p>	<p>The media I need is multimedia that encourages more active student interaction. Apart from that, we need teaching materials such as E-modules that students can learn via cell phones without having to print textbooks.</p>	<p>Both respondents wanted learning media that could facilitate interaction between teachers and students and make learning more interesting and accessible. Apart from that, they also prioritize the use of media that suits the needs of the existing curriculum.</p>
<p>What causes you to be limited in using learning media?</p>	<p>Cost factors and the need for innovation in the development of sustainable learning media.</p>	<p>The cost factor because students often complain about data availability and large data usage. Apart from that, there are limitations and a need for the latest innovations regarding interactive multimedia, whether in the form of teaching materials, interactive learning videos, or comics.</p>	<p>Both respondents identified the cost factor as the main obstacle in using learning media. Apart from that, they also recognize the need for the latest innovations in the development of learning media, both to improve existing limitations and improve interaction and overall learning quality.</p>

Based on the research results, it shows that in the learning process, Class X and XI Biology teachers at SMA Negeri 1 Tapa have used learning media. The results of interviews between teachers and researchers show that learning media has the function of helping teachers convey lesson material messages to

their students. So that the message is easy to understand, understood and of course more interesting and enjoyable for students. Apart from that, learning media is useful for avoiding misperceptions of the material being taught. Because in studying biology there is a lot of abstract material which is of course difficult to reach. For example, viruses and forms of diversity in Indonesia require concrete visualization. Learning media can display information through sound, images, movement and color, both naturally and manipulated [15]. Lesson material packaged through media programs will be clearer, more complete, and attract students' interest. With media, even the material presented can arouse students' curiosity, stimulate students to react both physically and emotionally.

Learning media is anything that can be used to convey messages or information in the teaching and learning process so that it can stimulate students' attention and interest in learning. In order for a learning process to be successful, students should be encouraged to utilize all their senses. The teacher tries to display stimuli that can be processed with various senses. Learning media in education and in the teaching and learning process is very much needed and plays an important role in the development of students at school so that the knowledge and material they get from a teacher can be absorbed well [13].

There are two patterns of using learning media, namely the direct learning pattern and the independent learning pattern. Direct learning pattern where the teacher uses media in direct learning and interacts with students. Meanwhile, students' independent learning patterns deal directly or interact with the media itself as a learning resource [16]. In this research, the Biology teacher at SMA Negeri 1 Tapa used a pattern of direct use of learning media, this is because this pattern of use of media was used by directly involving the media when teaching students.

In selecting learning media, Biology teachers at SMA Negeri 1 Tapa have adjusted to the media selection criteria. One of the media selection criteria is the suitability of the learning media to the learning objectives to be achieved. A teacher must know the criteria for choosing learning media, such as 1) its accuracy with the teaching objectives, meaning that the teaching media is chosen on the basis of predetermined instructional objectives, 2) Support for the content of learning materials, meaning the nature of learning materials. facts, principles, concepts and generalizations really need the help of media so that they are more easily understood by students, 3) Ease of obtaining media, meaning that the required media is easy to obtain, at least easy for the teacher to make during teaching, 4) Teacher skills in using any type of media The main requirement is that the teacher can use it in the teaching process, 5) There is time to use it, so that the media can be useful for students during teaching [17].

The results of interviews and observations show that the learning media most often used by teachers is PowerPoint. Power point was chosen by the teacher because Power point media has many features that can be displayed, such as images, videos and animations. Apart from that, PowerPoint is also where teachers can make material points that are too complex. PowerPoint is equipped with quite complete and interesting features, such as the ability to process text, in-

sert images, audio, animation, video, and there are effects that can be adjusted as desired, so that the appearance becomes more attractive [18]. The PowerPoint application is easier to access and more practical, you can access it directly without needing to be connected to an internet connection and the file size is also relatively smaller. The use of PowerPoint in class can involve students directly in the learning process and the learning material is linked to the real world of students in their daily lives so that students are able to think critically and actively, of course this makes it easier for students to accept learning material. The impact obtained by students in implementing PowerPoint-based learning media is very influential, students who were initially inactive in learning now appear active, this can be seen from the increase in student learning outcomes [18].

Apart from powerpoint media, Biology teachers at SMA Negeri 1 Tapa also use learning video media. Teachers choose learning media because learning videos can attract students' attention when learning. Apart from that, it can increase students' enthusiasm and concentration in learning. The use of learning videos can attract students' attention, foster student interest, stimulate students to learn more about the material and make it easier for students to understand the material presented by the teacher [19]. The use of learning videos is very suitable for Biology subjects because this subject has a lot of abstract material content. This is in accordance with the opinion of [20] that learning videos are very appropriate if used in science learning, especially in biology subjects, because teachers cannot possibly depict complex mechanical processes in the body in real terms. Therefore, teachers need media or tools to be able to explain it to students, so that students can easily understand Biology material.

Video media is audio-visual media that displays images and sound. The messages presented can be factual (events, important events, news) or fictitious, informative, educational or instructional [19]. Video is the most appropriate learning media in conveying messages or information and helping students' understanding [21]. Apart from that, good learning media is learning media that can foster student enthusiasm and motivation for learning, so that the material studied is easy to understand and student learning outcomes are more satisfying [22].

Biology teachers at SMA Negeri 1 Tapa have also utilized electronic media in using learning media. The tools used are laptops, LCDs and smartphones. This learning aid can support the use of PowerPoint learning media and learning videos. This is because these two learning media must use electronic tools. Electronic media allows teachers to present learning material in a clearer and more attractive visual form [3]. This helps students understand abstract or complex concepts better. Apart from that, by using electronic media, teachers can easily access the latest and relevant content to present to students. This ensures that learning materials remain up-to-date and in accordance with the latest developments in the field of study being taught.

In choosing learning media in the Biology class, the Biology Teacher at SMA Negeri 1 Tapa has adjusted the principles and considerations for choosing learning media. One of the principles applied is the suitability of the media to the

learning objectives to be achieved and availability facilities and infrastructure in the school. Several criteria in choosing learning media are 1) learning objectives, 2) effectiveness, 3) Participant education, 4) Availability, 5) Technical quality, 6) Procurement costs, 7) Flexibility and convenience of the media, 8) people's ability to use it, and 9) time allocation [23]. By knowing the media selection criteria, teachers can ensure that the media chosen has the ability to achieve learning objectives effectively. This means choosing media that is able to convey information clearly and is easily understood by students.

4 Conclusion

Learning media, particularly PowerPoint presentations and videos, have emerged as the most frequently utilized tools by Biology teachers of Class X and Class XI at SMA Negeri 1 Tapa. This trend indicates the successful acceptance and implementation of a multimedia approach in the educational system. The study conducted provides insights into the teachers' endeavors to enhance learning quality through the use of technology. It is anticipated that this approach will enrich the learning experience for students and aid in a more visual and interactive understanding of biological concepts.

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