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Utilization of Social Media-Based Learning Videos to Improve Students' Science Literacy in Biology

Nely Sa'adaniyah[1*], Kartika Ratna Pertiwi[1], Anggi Tias Pratama[1]

[1] Biology Education Master Program, Faculty of Mathematics and Natural Sciences, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia.

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Corresponding Author:
Nely Sa'adaniyah
nelysadaniyah@gmail.com

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Abstract: The writing of this article aims to present the results of the analysis in the form of a literature review on the results of research on the utilization of social media-based learning videos to improve students' science literacy. The literature review was conducted on 10 articles published in various journals from 2020 to 2023. The literature review was carried out with 4 steps, namely searching and selecting articles related to the specified topic, analyzing and synthesizing the literature, and organizing the writing. The results of the literature review and analysis show that: 1) the types of research used are development research, experimental research and class action research.2) In general, the use of social media-based learning videos in research has a positive and significant impact on students' science literacy skills.

Keywords: Learning video; Literacy; Biology; Science; Social media

Introduction

The rapid development of technology in the current era of globalization has affected the world of education. The world of education is required to improve the quality learning process collaborated with technology that can be utilized (Tramonti et al., 2023). In the world of education, the use of technology is not only for administrative activities in schools, but also used in improving the quality of learning (Rasmawan, 2020). This condition is strengthened by the character of students who really like and easily adapt to the development of information technology (Ivala et al., 2016). Utilizing technology in learning can increase effectiveness, efficiency, increase student interest in learning, motivate students to improve the quality of education (Andri, 2017; Stefanovic et al., 2021; Yu, 2022). According to Ahmed et al. (2022), although now technology is often used, it will not take over the duties and functions of the teacher as an educator because the teacher is the most important part in providing direction and assistance to students.

The era of globalization requires every individual to have competence in science and technology (Jamaluddin et al., 2024). Biology is one of the branches of science that always develops in accordance with the dynamics of the times, both the content of the material and its use. Scientific knowledge is characterized by the emergence of scientific methods that are realized through a series of scientific work, as well as scientific values and attitudes (Luzyawati et al., 2023; Nursakinah et al., 2023; Rosaria et al., 2023). Science literacy is an important part that must be achieved in learning biology. Science literacy has become the main goal in learning biology. This is because science literacy will make students not only understand concepts in terms of knowledge (Aris et al., 2024; Nurhayati et al., 2023; Susilawati et al., 2022). More than that, science literacy makes students have science competencies and science attitudes that can be applied in real life (Al Sultan et al., 2021; Dibyantini et al., 2023; Kalkan et al., 2020; Kim et al., 2021; Winarni et al., 2020). In addition to having an impact on students, science literacy also has an impact on the overall biology learning process (Suwarto et al., 2021).

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Social media has become a part of people's lives around the world, especially in Indonesia. Due to the current digital growth and innovation, the use of social media is increasing day by day. Social media is one of the basic needs of the digital society in Indonesia. One of the subjects affected by the use of social media is students. Currently, many students are already using WhatsApp, Instagram, Facebook, Youtube, and others. The use of social media by these students is only limited to communicating with their other friends.

Teachers find it difficult to deliver learning materials, especially biology learning that is complex, concrete and can be well received by students. Therefore, a technological innovation is needed in the subject of biology that is structured for online and offline learning that can facilitate teachers in delivering science material in accordance with the objectives of biology learning and facilitate students during learning. Learning media innovations that can be utilized during online learning are video innovations on social media that can deliver biology material to teach students actively, fun, easy to understand and can explore knowledge scientifically in biology subjects. The utilization of social media as a form of learning media can improve students' science literacy skills. Research that has made video media as a learning media research from Khotimah et al. (2023), Pratama et al. (2024), Fuadi et al. (2020), Ramdani et al. (2023), Febryana et al. (2021), Juniawan et al. (2023), Triyani et al. (2021), Istighfarini et al. (2022), Sidabutar et al. (2023), and Damayanti et al. (2023).

Method

Literature review or literature review is used in writing this article with 4 steps of literature review, namely selecting the topic to be reviewed, searching and selecting articles related to the topic that has been determined, analyzing and synthesizing the literature, and organizing the writing. Based on these 4 steps, conclusions will be drawn which are the focus of the chosen topic. The discussion in this article focuses on the literature review on research articles on computer-based media used in science learning and the impact resulting from the use of these media. The main articles that became the material for the literature review consisted of 10 articles published from 2015 to 2020. The articles were published in various national journals indexed by Sinta. The final result of this literature review will produce an overview of the forms and characteristics of computer-based media that can be used in learning biology to improve students' science literacy.

Result and Discussion

This section presents the results and discussion of the results of the literature review on the utilization of social media-based learning videos used to improve students' science literacy. The discussion consists of two main parts, namely the first part contains a discussion of the utilization of social media-based learning videos. The second part contains a discussion of the results of the literature review on the impact of the use of social media-based video media in improving students' science literacy.

Utilization of Social Media-Based Learning Videos

Based on a literature review on 10 articles that have been determined according to the topic, the results of the research have diversity. So that each of these studies has characteristics and results that are not the same. The following table 1 will describe the results of the study.

Table 1. Results of Literature Review on Social Media-Based Video Utilization

Researcher Name/Year	Type of Research	Research Results
Pebriliana Husnul Khotimah, Khaerunnisa/2023	Type of research Classroom Action Research (PTK)	The research results obtained show an increase in literacy. This increase is because students are easier and more comfortable using digital literacy on social media, one of which is Google Chrome.
Dina Pratama, Widdy Sukma Nugraha, Ejen Jenal Mutaqin/2023	The type of research used is Quasi Experiment with *Nonequivalent Control Group Design*	The application of animated video-based media can affect the science literacy skills of grade IV students in science subjects.
Annisa Zikri Robbia and Husnul Fuadi/2020	The type of research used is a literature study by conducting a study of books, articles, notes, and reports and other related sources of information related.	The existence of science literacy in learning, it is expected that students have the ability to know and understand scientific concepts understanding of scientific concepts, the ability to find or determine the answers to questions that come from curiosity from everyday experiences, have the ability to explain existing phenomena, can identify scientific problems and information technology, have the ability to explain existing phenomena, can identify scientific problems and information technology. An educator in developing the science literacy of their students to improve: 1) knowledge and investigation of natural science, 2)

Researcher Name/Year	Type of Research	Research Results
		oral and written vocabulary needed to understand and communicate science and, 3) the relationship between science, technology and society.
Agus Ramdani, A. Wahab Jufri, Jamaluddin/2023	This research uses the *Four D* model procedure.	The results of the feasibility study of android-based learning products showed a validity of 84% with very valid criteria. The results of the media feasibility study obtained an average score of 88%, the syllabus obtained an average score of 83%, the lesson plan obtained an average score of 82%, and the science literacy instrument obtained an average score of 83%. In conclusion, android-based media products on science materials are feasible to be implemented in learning, especially during the covid-19 pandemic.
Noor Eka Febryana, Nurul Septiana, Mukhlis Rohmadi/2021	This research method is a pseudo-experiment with the design *Nonequivalent control group design.*	The results of this study can state that there is a significant difference in the influence on the science literacy skills of class IX MTs Muslimat NU Palangka Raya students after the implementation of *eXe Learning-based* learning media on inheritance of traits because the tcount> ttable value is obtained, namely the tcount value of 5.147 and the ttable value of 1.665.
Eko Rahmad Juniawan, Vira Hanisa Salsabila, Agung Tri Prasetya, Wara Dyah Pita Rengga /2023	*Systematic Literature Review with Preferred Reporting Items for Systematic Review and Meta-Analysis*	The results of the research or study show that the accessibility of learning media is very important to improve science literacy, especially in elementary schools. Learning media is very important to improve science literacy, especially in elementary schools. Video Animation Media, ICT Media, Audio Visual Media, Linktree Media, Pop Up Books, Apollo and Comet Media, Air Fence Media, Learning Media Using Ispring Suite 9 Software, Digital Books, and Know Me Media Circuit are examples of high-level learning media that can improve science literacy.
Triyani, Lukman Nulhakim, Liska Berlian/2022	The method used is research and development (Research and Development) which is adapted from the development model according to Thiagarajan.	The results of this study indicate that the level of validity of Sparkol Videoscribe-based learning media on the theme of green growth oriented to science literacy obtained an average value of 79.91% with a valid category. Based on the results of expert validation of Sparkol Videoscribe-based learning media development of the green growth theme oriented to science literacy is valid for use in the learning process.
Mela Dwi Istighfarini, Supeno, Zainur Rashid Ridlo/2022	The research type and design is quasi experiment, *post test only control group design.*	It is concluded that android-based application media has a significant effect on science literacy and student learning outcomes. This shows that the use of application media that utilizes Microsoft Power Point and Website 2 Apk Builder can be used as an alternative media in science teaching.
Hudson Sidabutar, Dandi Sembiring/2023	The ADDIE model is used as development framework	These findings suggest that the use of web-based interactive multimedia interactive web-based multimedia for respiratory system materials is a very feasible and productive approach to feasible and productive approach to improve grade 11 students' science literacy.
Ni Putu Riska Damayanti, I Made Citra Wibawa/2023	Type of development research using the ADDIE model	The use of *storytelling-based* animated video media in the learning process can be declared effective in improving students' science literacy.

On Table 1, in general, the results obtained are that all studies were able to improve students' science literacy skills. The types of research used are different. Starting from the type of development research, experimental research to classroom action research. Research by Khotimah et al. (2023) with the type of class action research (PTK), research by Pratama et al. (2024) the type of research used is quasi experiment. Fuadi et al. (2020), the type of research conducted was a literature study, Ramdani et al. (2023), with the type of research using the Four D model procedure. Febryana et al. (2021) with a type of pseudo-experimental research with a Nonequivalent control group design. Juniawan et al. (2023) the type of research used is literature study, Triyani et al. (2021) with the type of development research. Istighfarini et al. (2022) with a quasi-experimental type of research, Sidabutar et al. (2023) the type of research is development with the ADDIE Model,

and Damayanti et al. (2023) with a type of development research using the ADDIE model. While the video media used are also different, ranging from social media with Google Chrome, animated videos, Video scribe and Storytelling-based animated videos.

The utilization of video media in improving students' science literacy skills has various impacts in research. Research from Khotimah et al. (2023) had a significant impact in improving students' science literacy. The increase was due to students being easier and more comfortable using social media. Research from Pratama et al. (2024), animated video-based media used has a positive impact on students' science literacy skills. Research from Triyani et al. (2021), the development of scrib video media has a positive and significant impact on improving students' science literacy. Research from Istighfarini et al. (2022), the use of android-based application media can significantly affect students' science literacy skills. The development of web-based interactive multimedia in the research of Sidabutar et al. (2023), can improve students' science literacy skills. The use of storytelling-based animated video media in the research of Damayanti et al. (2023) can significantly improve students' science literacy skills.

Conclusion

The results of the literature review on 10 articles show that the utilization of social media-based learning videos to improve students' science literacy consists of various types of research, namely development research, experimental research and classroom action research. In general, the utilization of social media-based learning videos in research has a positive and significant impact on students' science literacy skills.

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Conflicts of Interest
The authors declare that there is no conflict of interest regarding the publication of this paper.

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