

Learning Through Youtube: Is it Effective for Improving Student Learning Outcomes?

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YouTube is an interesting learning media that many people, especially students, favor. This study aims to analyze the feasibility of using YouTube as a learning medium, understand the effect media has on learning outcomes, and describe student's responses. The learning videos uploaded on YouTube were first reviewed by experts using an assessment form distributed online using Google Form. This study is a mixed methods research. This study was conducted at a private high school in Surakarta City. The assessment data obtained from experts was analyzed using standard eligibility criteria, while the YouTube effectiveness test was by comparing the pretest and posttest. The results showed that YouTube media based on the assessment of media experts, material experts, and students, positively responded to learning using YouTube.

Keywords: learning media, video, YouTube channel

INTRODUCTION

YouTube is a learning tool that proved effective during the Covid-19 pandemic when online learning peaked (Breslyn & Green, 2022; Setyaningrum, 2021). YouTube supports information in various forms, such as text, graphics, audio, and video; therefore, it is unsurprising that it is one of the most interesting learning media platforms (Laura & Sujana, 2022; Rahim & Rahim, 2020). YouTube is the largest learning platform for video sharing and is easy to access and use. Therefore, YouTube is one of the most suitable media learning platforms (Anisa, 2022; Nurbaiti & Arcana, 2019). The advantage of using YouTube in learning is that it can be accessed online regardless of location and time and can be accessed for free (Snelson, 2011).

YouTube can be accessed through cell phones, laptops/computers, tablets, and other devices that can connect to the internet (Deviananda & Mawardi, 2022). Currently, online learning can be used as an alternative for schools that implement face-to-face learning, and it can be combined with blended learning (Sabani, 2021; Tutiasri et al., 2020). For example, when teachers cannot teach face-to-face, they can upload learning materials online through YouTube for students to watch in class or at home (Pambudi et al., 2021).

If well-designed, online learning has all the benefits of face-to-face learning (Belawati, 2019; Saputra & Rudi Cahyono, 2022).

Effective learning is when the teacher achieves the desired learning objectives (Punaji, 2014; Sujana & Krisnayanti, 2022). One of the learning objectives at school is to achieve optimal learning outcomes. Learning outcomes are optimal if students obtain a minimum score according to the minimum criteria of achievement set by each school. Unfortunately, the learning outcomes for science are low because many students score below the minimum criteria of achievement (Masruroh, 2019; Moravec et al., 2010). This directly affects biology (Rahmi, 2019) because it is a branch of science in education. College entrance exams include biology questions; therefore, understanding biology is essential for the success of students preparing for college.

The low learning outcomes of biology also happened in one of the high schools in Surakarta Regency. The results of the Midterm Examination for the Academic Year for 2021/2022 of one of the high schools in Surakarta Regency. The exam results are obtained from 121 students obtaining an average score is 68. The number of students who have not reached the minimum criteria of achievement is 81 students and 40 students have met the minimum criteria of achievement. The figure if percented, there are 67% of students have not reached the minimum criteria of achievement and 33% of students have reached the minimum criteria of achievement. The current minimum criteria of achievement determined at school is 75. The overall average score still does not reach the minimum criteria of achievement. Therefore, it is necessary to find an alternative so that learning outcomes in biology subjects become better.

Low biology learning outcomes are due to the learning media being used by teachers being monotonous and non-innovative (Aryanti & Rusnilawati, 2022; Pratama et al., 2022). The interview results with biology teachers highlight that simple slide media, textbooks, and blackboards are commonly used in learning. In addition, the cause of low learning outcomes is that some of the learning material was not taught to the class due to the Covid-19 pandemic and reduced learning time. This specific material is a prerequisite for mastering and understanding the material in a higher class.

The use of exciting and innovative learning media such as YouTube (Arimbawa, 2020) may be effective in improving the learning outcomes for biology. Some research results have proven that YouTube can improve learning outcomes (Kholifah et al., 2018; Nurbaiti & Arcana, 2019; Rahim & Rahim, 2020). In addition, from the perception of students who have learned through YouTube, it can eliminate boredom due to the audio features, such as music, the lessons are fun, and the material presented through YouTube is easier to understand (Pardimin, 2019; Salutri et al., 2022). Students also stated that video learning can achieve the desired learning objectives (Yustini et al., 2021).

According to the research findings presented, it is clear that YouTube can successfully improve students' learning outcomes. However, this research was conducted using only one qualitative or quantitative method, and not a combination of the two. In addition, previous YouTube channels used for learning were only available in one language, while the YouTube Chanel in this study uses Indonesian and English. Therefore, the study's results are useful for schools implementing a bilingual learning curriculum. This study aimed to analyze the effect of YouTube media on learning outcomes in biology subjects and students' responses after learning using YouTube channels.

METHODS

This study was conducted in Surakarta City High School from August 2022 to November 2022. The study participants were 80 high school students from class XI, majoring in science. A mixed methods research method combining both qualitative and quantitative methods (Sugiyono, 2015) was used in this study. Data collection techniques included questionnaires, interviews, documentation, and tests. Using google form, questionnaires were used to collect the students' responses after learning using YouTube. Interviews were conducted with students, teachers, and principals. Nine learners were used as interview subjects; three had low learning outcomes, three had moderate learning outcomes, and three had high learning outcomes. The interviews aimed to clarify information and strengthen the data obtained quantitatively. Documentation was used to obtain school identity, student data, teacher data, and grade data

on biology subjects. Finally, tests were used to measure learning outcomes after students had used YouTube to learn.

**TABLE 1
MEDIA EXPERTS INSTRUMENT**

No	Indicator	Number of items
1	Use of voice	2
2	Use of text	2
3	Use of images	2
4	Ease	1
5	Interest	1

**TABLE 2
INSTRUMENT FOR SUBJECT CONTENT EXPERTS**

No	Indicator	Number of items
1	Suitability to the curriculum	2
2	Accuracy of content	2
3	The novelty of the material used	1
4	Depth of subject matter	1
5	References that are used	1

**TABLE 3
MEDIA FEASIBILITY CRITERIA**

No	Assessment results (standard deviation)	Classified
1	> 84% (100)	Very good
2	> 68% (84)	Good
3	> 52% (68)	Enough
4	> 36% (52)	Less
5	20% (36)	Very Less

(Sumber: Widoyoko, 2018)

FINDINGS

Three learning videos were uploaded to the YouTube channel. The first video explains "Blood Functions and Components", the second video explains the "ABO Blood Group System and Blood Transfusion", and the third video explains the "Blood Circulatory System." Media and material experts assessed the learning videos before they were used as learning media. The expert assessment results regarding the learning videos are shown in Table 4 and Table 5 and confirm that these learning videos are suitable for use in learning.

**TABLE 4
MEDIA EXPERT JUDGMENT**

No	Assessed aspects	Score (%)	Classification
1	Quality of the voice	80	Good
2	Accuracy of the use of intonation, tempo, and rhythm with the objectives and content of the material	90	Very good
3	Readability of the text on the video	90	Very good
4	Layout of the text on the video	90	Very good
5	Quality of the images in the video	90	Very good
6	Ease of use	90	Very good
7	Overall appeal of the learning video	90	Very good

**TABLE 5
MATERIAL EXPERT JUDGMENT**

No	Assessed aspects	Score (%)	Classification
1	Suitability of material with learning objectives	90	Good
2	Suitability of learning materials with the curriculum	100	Very good
3	Correctness of the content of the learning material	100	Very good
4	Release from conceptual errors	90	Very good
5	Novelty of learning materials	90	Very good
6	Sufficiency and depth of learning materials	90	Very good
7	Adequacy of references used	100	Very good

Table 6 shows the hypothesis testing results, which conclude that learning media used via a YouTube channel significantly affects the learning outcomes in biology. YouTube is effective in improving students' learning outcomes.

**TABLE 6
HYPOTHESIS TEST RESULTS**

		Paired Samples Test							
		Paired Differences					t-value	Degree of freedom	Sig. (2-tailed)
		Mean	Standard Deviation	Standard Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	-24.209	19.081	2.000	-28.183	-20.235	-12.103	90	0.000

TABLE 7
STUDENTS' RESPONSES AFTER LEARNING USING THE YOUTUBE CHANNEL

Ability	Students	Score	Result of Interview
High	1	100	Watching the video continuously without skipping anything, taking notes, and actively asking the teacher questions.
	2	100	Watching videos continuously, taking notes on the material as if learning face-to-face.
	3	100	Watching videos continuously, looking for material from other sources and actively asking the teacher questions.
Medium	4	85	Watching the learning video continuously but a little is skipped
	5	80	Watching videos continuously but incomplete notes
	6	75	Watching incomplete, incomplete notes, and not asking the teacher.
	7	65	Many videos are skipped as learning is not focused, what is watched is considered essential
Low	8	60	Partially watching the videos, incomplete and untidy notes
	9	20	Partial watching, incomplete and untidy notes, and not actively asking questions.

The efficacy of YouTube learning media is in line with the student's response after learning using YouTube. To discover the response of students, researchers conducted interviews. After learning to use the YouTube channel, interviews with nine students were conducted. Their responses are listed in Table 7.

DISCUSSION

We showed that, according to the media and material experts, (1) the YouTube learning media used in this study is feasible for learning, (2) YouTube learning media can significantly improve learning, and (3) students with high learning abilities have better responsibility, discipline, and independence compared to students who have medium or low learning ability. During learning using YouTube, each student is required to record the content of the material contained in the video. The student is responsible for ensuring that complete and legible notes are taken. The higher the responsibility of the student, the higher the test scores. Therefore, it is important for teachers to constantly check students' notes during learning (Puspitayanti & Maryam, 2014).

Learning videos are one of the most interesting media platforms because they present information visually, making it easier for students to understand the learning contents (Salamah et al., 2022; Siswanto et al., 2021). In addition, through learning videos, teachers will save time and money and students can learn independently and do not need to come to the study room because they can be accessed regardless of place and time.

Technology is developing rapidly, and most students have cell phones. YouTube can be downloaded on PlayStore, and every cell phone should have the YouTube application. Therefore, it is appropriate to use YouTube in learning (Dewanti & Sujarwo, 2021; Vocational Education et al., 2018; Sugianto et al., 2023).

Not all YouTube content contains positive content and is unsuitable for children to watch. Therefore, teachers must contribute by uploading the appropriate learning video content for the students. This study's results align with research conducted by Novita et al. (2019), which showed that by using video media, the competence of learning outcomes increased, and 85% of students reached the minimum criteria value. Learning videos support and ensure learning during a pandemic. This aligns with research conducted by Batubara & Batubara (2020) and Utami & Utami (2020), who stated that learning videos supported student learning during the Covid-19 pandemic.

Learning videos not only increase students' competence from the cognitive aspect but also their creativity (Hasanah et al., 2022).

Learning videos combine several media, such as text, color, sound, images, and graphics. The combination of several media is called multimedia. The use of multimedia in learning is a combination of

animation, video, audio, graphics, and text (Zulaidah et al., 2018). Teachers who utilize multimedia in learning will produce optimal learning outcomes because learning becomes more interesting and clear and helps students understand learning materials.

The YouTube channel has many advantages. In addition to being accessible regardless of place and time, teachers or schools can implement e-learning. Learners do not only learn at school or depend on the teacher alone. Good learning gives flexibility to learners. If teachers have e-learning, then YouTube can be utilized. Learning that can be accessed from any place and time certainly has many benefits. For example, if a learner is unable to attend school for some reason, they can learn from home or at other times through videos that the teacher uploaded to YouTube.

Creating a YouTube channel is relatively easy. It only requires an email. It is time for schools to implement e-learning. E-learning utilizes electronic media such as audio/video, interactive TV, internet, CD Room, and intranet (Susatio et al., 2022). One of the easiest ways for teachers to implement e-learning is by creating a YouTube channel and utilizing it in learning.

CONCLUSION

The YouTube media used in this study was assessed to be good quality and suitable for online learning. The biology learning outcomes increase after students learn using YouTube, and their responses after learning using YouTube are positive. Students feel that this way of learning is fun and helps them understand the content of the subject matter. In addition, students who take responsibility for their learning, are honest, and are independent during YouTube learning have higher test scores when compared to those who have a low attitude toward responsibility.

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