

# USE OF YOUTUBE AS A SCIENCE LEARNING MEDIA TO IMPROVE *HOTS* ELEMENTARY SCHOOL

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## ABSTRACT

One of the developments of independence in the field of technology is by utilizing YouTube which is used as a medium for learning science. The purpose of this study is to describe (1) the use of YouTube as a medium for learning science (2) YouTube as a stimulus before giving High Order Thinking Skill questions, (3) the use of YouTube to improve *HOTS* students. This study used descriptive qualitative research with a sample population of fourth grade students at Elementary School 4 Ranto Peureulak, totaling 24 students and taking science lessons. The data collection was carried out using the method of observation and the use of tests. The instruments used were observation sheets and multiple choice questions. Research validation was tested with external validity. Technical analysis was carried out by testing on *HOTS* student. The results of the study are (1) the use of YouTube is effective as a science learning media. (2) YouTube as a stimulus helps formulate material that is used as the basis for questions in certain contexts. (3) YouTube makes it easier for students to work on questions at easy, medium and difficult levels. Evidenced by the results of the questions *LOTS*, *MOTS*, *HOTS* which given to students. On the question *LOTS* students get grades with an average of 8.41, *MOTS* students achieved an average of 7.5 and on questions *HOTS* students get an average value of 7.33. This proves that the use of YouTube as an effective learning media to improve *HOTS* in class IV students of Elementary School 4 Ranto Peureulak.

Keywords: *youtube, science learning, media, HOTS*

## 1. INTRODUCTION

Ranto Peureulak 4 Public Elementary School takes part in the world of education with the dream of building the nation's buds to become noble and intelligent in accordance with educational goals Country Republic Indonesia namely Educating the Life of the Nation. The vision of Ranto Peureulak 4 Public Elementary School is to produce a generation of young students who have character, are innovative and achievement for the nation and state. While the mission of Elementary School 4 Ranto Peureulak is to form individuals with intelligent and tough characters, develop fun and motivating education, provide effective and efficient infrastructure in supporting learning activities, develop independence, critical thinking and creativity by facilitating the interests and talents of students and developing increased student achievement. The emphasized value is integrity, professional, synergy, creative, and tough. The concept of education starts from qualified teachers as facilitators and role models in the process of forming an independent personality, books as gateways and treasures of knowledge, outbound as a means of forming a spirit of leadership, and the universe as a laboratory without limits.

Elementary School 4 Ranto Peureulak uses an independent curriculum with an optimal orientation for the formation of children's character. The method of integrating the independent

curriculum with nature and culture through the spider web model. Spider Web (spider web model) is an integrated learning that uses a thematic approach (Rombe, 2020). This model refers to the concept of a structured experience to carry out the concept of education based on nature, culture and the use of used goods. This concept is different from schools in general. Meanwhile, the development of children's independence can be seen through the material entrepreneurship in biotechnology, information communication technology, retail, and distribution.

One of the developments of independence in the field of technology is by utilizing YouTube which is used as a medium for learning science with a case study of class IV Ranto Peureulak Public Elementary School with the sub-theme of diversity of living things in my neighbourhood. Previously, the teacher gave an understanding regarding the diversity of living things in my neighbourhood. In fact, not all teachers are good at explaining and practicing. If the teacher is good at explaining, students will be interested, but if the teacher is not good at explaining, students tend to get bored more easily. This becomes a problem and affects students' understanding in answering questions. Students should be able to think and understand explanations regarding the diversity of living things in my neighbourhood without having to be influenced by the teacher's ability to explain. In addition, according to (Premana et al., 2021) the teacher needs to choose the right media to be used as a student facility in obtaining the necessary knowledge, skills and attitudes. The media that is a solution as well as an alternative for students to easily access insight and knowledge is YouTube (Nugraha et al., 2021)

The use of YouTube as a learning medium has been researched by (RASMAN, 2021) which was published in the journal of technology-assisted educational innovation with the title "Use of YouTube as a medium for learning English during the Covid 19 Pandemic". The results of this study indicates that the existing video is used as a learning medium. The research is not associate. *HOTS* in his research. Another research on the use of YouTube, namely research entitled "Utilization of YouTube Social Media as a Learning Media for Class XII MIPA Students at State High School 1 Tawang Sari" by (Suwanto et al., 2021) was published in the Journal of Research in the Field of Education and Teaching. This study discusses YouTube as a teaching medium that is close to students' daily lives. The author reveals that the lack of creativity in teaching methods and media makes students bored in participating in the teaching and learning process. Several studies that have been conducted do not link increase *HOTS* students.

Research on *HOTS* students have been researched by (Hasanah et al., 2018) with the title "Improvement of Skills *HOTS* MI Salafiyah

Syafi'iyah Class 3 Students Through Mind Mapping in Problem Based Learning "which is published in seminar national education 2018. The results of this study show an increase in *HOTS* students by using the mind mapping model with problem-based learning. Another similar study by (Rindiana et al., 2022) entitled "Learning Models *RADEC* To Increase *HOTS* In IPS Learning in Elementary Schools". This study discusses the use of learning *RADEC* to improve abilities *HOTS* need management time and good classroom management so that appropriate and mature lesson plans are needed. In addition, this learning requires teachers who are knowledgeable in order to facilitate students. Research on *HOTS* another, namely "Implementation of Cooperative Learning-based Learning Models *HOTS* In Improving Learning Outcomes Mathematics in Madrasah Ibtidaiyah Negeri 2 Sleman" by (Aiman, 2020) which is published in the Madrasah Education Journal. The results of this study indicate that student learning outcomes in the incomplete category have decreased. Discussion of the three studies doesn't even discuss upgrading *HOTS* students through the use of YouTube-based learning media.

This study aims to describe the utilization YouTube as a science learning medium with a case study of class IV State Elementary School 4 Ranto Peureulak with material on the diversity of living things in my neighbourhood, explained YouTube as a stimulus before giving questions *HOTS*, and describes YouTube utilization to increase *HOTS* student. The strength of this research complements previous studies that did not link YouTube to upgrading *HOTS* students.

The use of YouTube as a learning medium helps convey messages. YouTube is one of the most video sharing services on the internet popular at the time This (Magfirah, 2021). YouTube as a video sharing website that allows its users upload, search for videos, watch, discuss/question and answer and share video clips for free. These videos are video clips, movies, TV, and videos made by users. YouTube is the most dominant online video provider site in the world and does not limit the duration for uploading videos. Another advantage, YouTube offers free services, especially for enjoying and accessing videos that are included in its system. To access videos users do not need to have a premium account or pay a certain amount of money within a certain time scale. Users can access these videos for free. YouTube users can download multiple videos and after they are successfully downloaded, the videos can be saved in gadget each to be enjoyed at any time without using an internet connection.

YouTube is used as a learning medium because it is one of the media that is close to life everyday students. (Mahardika et al., 2021) suggests that learning media is a tool used in delivery in the learning process. In line with that opinion (Audie, 2019) defines learning media as media that carry messages or information that have instructional purposes or contain teaching purposes. In this case, YouTube is a medium for conveying teaching material in the form of the diversity of living things in my neighbourhood.

YouTube as a learning medium affects internal abilities increase *HOTS* on students. Higher order thinking skills *HOTS* expected by the government. These competencies are critical, creative and innovative thinking, communication skills, cooperative skills and self-confidence. Higher order thinking skills *HOTS* is a thinking process that requires students to manipulate existing information and ideas in certain ways that give them new meanings and implications (Ruslan et al., 2020). (Nadlir & Alfiyah, 2019)

explains that higher-order thinking skills occur when a person associates information that has just been received with information already stored in his memory, then connects it and/or rearranges and develops this information so that a goal is achieved or a solution is achieved. difficult situation to solve.

According to (Gradini et al., 2018), higher order thinking skills *HOTS* includes logic and reasoning abilities, analysis, evaluation, creation, solution to problem, and decision making. Higher order thinking skills *HOTS* is a skill that involves a high cognitive level in Taksonomi Bloom. Cognitive Taksonomi Blom consists of six levels, namely knowledge, understanding, application, analysis, synthesis, and evaluation. Sixth level cognitive this was later revised by Anderson & Krathwohl to remember, understand, and apply, analyze, evaluate, and create. Level one is a low-level skill, levels two and three are skills medium level, and levels four to six are high-level skills. The ability to think highly is measured from the answers to questions that have been adapted to Taksonomi Bloom (Saraswati & Agustika, 2020).

Question writing *HOTS* preceded by determining the behavior to be measured, formulating the material used as the basis of the question (stimulus) in a certain context in accordance with the expected behavior. Description of the material to be asked (which requires high reasoning) is not always available in textbooks. Therefore, in writing questions at *HOTS*, it requires mastery of teaching materials, skills in writing questions (question construction) and teacher creativity in choosing stimulus questions according to the situation and conditions of the area around the education unit.

The steps of preparing questions *HOTS* namely analyzing the basic competencies that can be made questions *HOTS*, compiling a question grid, choosing an interesting and contextual stimulus, writing questions according to the question grid, and making scoring guidelines (rubrics) or answer keys (Rahayu et al., 2020). Questions *HOTS* using stimuli. Stimulus is the basis for making questions. In context *HOTS*, the stimulus presented should be contextual and interesting. Stimulus can also be raised from problems that exist in the environment around the education unit, excellence in certain areas (Fanani, 2018).

## 2. METHODS

This type of research is descriptive qualitative. Rukin (2019) Qualitative research is a research procedure in the social, cultural and fields philosophy which produces descriptive data in the form of words or notes related to meaning, value and understanding. In line with that, Moleong (2010) said that qualitative research is a research procedure that produces qualitative data in the form of written or spoken words from the behavior of the people being observed (Rodiah & Triyana, 2019). Meanwhile, descriptive research according to Hamdi and Bahruddin (2014), is a research method aimed at describing existing phenomena, which are taking place at present or in the past (Marto, 2021). According to Sukmadinata (Prawiyogi et al., 2021), the descriptive method examines forms of activity, characteristics, changes in relationships, similarities and differences with other phenomena. Meanwhile, according to (Sandy Anugrah Tangkas et al., 2021) qualitative research is a process of inquiry to understand social problems based on creating a complete holistic picture formed by words, reporting detailed views of informants, and arranged in a natural setting.

John Creswell in Raco (2010) presents the stages in qualitative research which include the following: 1) The first stage begins with the identification of the problem that is the target of the research. 2) The second stage which is a continuation of the previous stage is the discussion / search of literature. 3) The third stage is to determine the aims and objectives of the research. 4) The fourth stage centers on data collection. This stage also involves the selection and determination of potential participants. 5) The fifth stage is data analysis and interpretation. And 6) Stages last reporting.

In this study the six stages have been implemented and the research subject is a population of fourth grade students at SD Negeri 4 Ranto Peureulak. The sample of this research was grade 4 students who took science lessons with a total of 24 students consisting of 12 students from class A and 12 students from class B. Data collection was carried out using observation methods and the use of tests. The observation method according to Arikunto (2013), is a conscious effort to collect data that is carried out systematically, with standardized procedures. Data collection is done by knowing the condition of students in class, interviews to strengthen student answers and documentation to obtain data on school profiles, student identities and research results. In addition, the method used is to use the test results.

A study usually used more than one instrument Arikunto (2013). The research instrument was in the form of observation sheets and multiple choice question sheets. Research validation was tested with external validity. External validity means that the data generated from the instrument is in accordance with other data or information regarding the research variables referred to by Arikunto (2013). In this case, the test results have a correlation with the condition of the students in the class.

The question sheets tested on students in this study were compiled based on the cognitive processing level of Anderson and Krathwohl's revised Bloom's Taxonomy (2010). The material used is the topic of the diversity of living things in my neighbourhood which is a video from *YouTube*. The diversity of living things in my neighbourhood functions as a stimulus, the use of the stimulus makes it easier for students to work on the available questions. Then students are asked to work on questions from the easy level (*Low Order Thinking Skill/LOTS*), currently (*Middle Order Thinking Skill/MOTS*), and difficult (*High Order Thinking Skill/HOTS*). The questions tested totaled 15 multiple choice questions including 5 *LOTS* questions, 5 *MOTS* questions, and 5 *HOTS* questions with material listening to explanations about the diversity of living things in my neighbourhood. Multiple choice questions consist of the main questions and answer choices which consist of answer keys and distractors. The distractor is an incorrect answer, but allows students to be tricked into choosing it if they don't master the material well. Expected answer (answer key) is generally not explicitly contained in the stimulus. The correct answer is given a score of 1 and the wrong answer is given a score of 0.

Muhajir put forward the notion of data analysis as an effort to systematically search for and organize records of observations, interviews, and others to increase researchers' understanding of the cases studied and present them as findings to others (Pratiwi & Puspito Hapsari, 2020). Meanwhile, to increase this understanding, further analysis is needed to try to find meaning. Then Bogdan inside Sugiyono (2013) argues data analysis is the process of

systematically searching and arranging the interview transcripts, fieldnotes, and other materials that you accumulate to increase your own understanding of them and to enable you to present what you have discovered to others (Pratiwi & Puspito Hapsari, 2020). With these two opinions, analyzing the data in this study begins with data collection first. Then do the test on *HOTS* students from the easy level (*low order thinking skill*), currently (*middle order thinking skill*), and difficult (*high order thinking skill*). Research data analysis techniques carried out 3 stages of activity, namely 1) the stage of recording the results of interviews and observations and collecting documentation data from various sources related to the level of skills thinking of students in solving problems, 2) presentation of data, namely collecting information on research results, and 3) drawing conclusions.

### 3. RESULTS & DISCUSSION

Research on improvement *HOTS* in Using *YouTube* as a Science Learning Media shows that *YouTube* can be used as a science learning media. From the results of the interview with the question "Students choose to understand the material explanation of the diversity of living things in my neighborhood by using *YouTube* or explained by the teacher". Students answered more "agree with *YouTube*" as many as 20 students or 83.33%. Then, with the question "Are students bored or not (more interesting with *YouTube*)?". As a result, more students answered "*YouTube* is more interesting", namely 22 students or 91.66%.

Via *YouTube* It's contains videos about the explanation of the diversity of living things in my neighborhood has several benefits. The benefits of using video are showing moving images, showing objects, plants, animals and other living things in a comprehensive manner so as to make it more interesting for students. Students can observe events and record events on *YouTube* media because the elements of color, sound, and motion can make the characters more alive so as to strengthen students' understanding.

Students can also easily understand the diversity of living things in the surrounding environment. Video is also a safe means of observation, part of the teaching and learning activities at 4 Ranto Peureulak Elementary School are carried out *outdoor* so that this video is one side that can balance learning in the classroom. Video as a means to learn knowledge and skills, especially regarding the diversity of living things in the surrounding environment. Videos explain benefit living things as natural resources, by introducing the kinds of living things found in the environment. The video also contains knowledge with explanations regarding metamorphosis in animals. So, using *YouTube* videos can attract students' attention instead of listening to teacher explanations. In fact, not all teachers are good at explaining material in science lessons specifically sub-theme of the diversity of living things in my neighborhood. In addition, students easily gain knowledge about the diversity of living things in the neighborhood. Students and teachers can also use *YouTube* videos repeatedly if they feel they need playback. Therefore, *YouTube* videos overcome boredom, increase learning interest and student motivation in learning.

Question *HOTS* generally use stimuli that originate from real situations, which contain videos about the diversity of living things in my neighborhood. In the interview results with the question "Students find it easier to understand explanations with *YouTube* or stories from the teacher?". Students answered more "it's easier with *YouTube*" as many as 21 students or 87.5%. This shows the

use of stimulus to make it easier for students to work on the questions that are already available. Stimulus as a basis for making questions. In this case the video is contextual and interesting, sourced from the surrounding environment. In this explanation there is an explanation of metamorphosis in animals namely butterflies. For example, how to deal with butterflies so they don't fail metamorphosis. With these problems, it adds creativity in writing questions *HOTS*.

In the cognitive domain, after students listen to explanations regarding the diversity of living things in my neighborhood through YouTube, students' understanding is tested from the questions given. Students are given multiple choice questions totaling 15 to 24 students. The selection of the multiple choice form is adjusted to students who are still in grade IV Elementary School. This is so that more detailed and comprehensive information about the abilities of students at the basic level who are not proficient in writing vocabulary. The goal is that the assessment carried out describes the ability of students according to the actual situation. Multiple choice questions consist of main questions and answer choices. The answer choices consist of answer keys and distractor answers. The answer key is the correct answer but allows someone to be tricked into choosing it if they don't master the subject matter well. The answer key is not included explicitly in the stimulus. Students are asked to find answers to questions related to the stimulus using the concepts of knowledge they have and use logic/reasoning. The correct answer is given a score of 1 and the wrong answer is given a score of 0.

The questions given in this study include easy questions (Low Order Thinking Skills)/*LOTS*) which consists of 5 questions, moderate questions (Middle Order Thinking Skills/*MOTS*) which consists of 5 questions, and difficult questions (High Order Thinking Skills/*HOTS*) which consists of 5 questions. In the following table 1, the test scores for grade IV Elementary School students at Elementary School 4 Ranto Peureulak will be described.

**Table 1. Grade IV student test scores at state elementary school 4 Ranto Peureulak**

No	Description	Mark <i>LOTS</i>	Mark <i>MOTS</i>	Mark <i>HOTS</i>
1	Highest Rated	10	10	10
2	Lowest Score	4	2	4
3	Rate	8,41	7,5	7,33

Based on table 1, the average student on the question *LOTS* reached 8.41, the average student on the question reached *MOTS* 7.5, the average student on the question *HOTS* 7.3. This shows the average distance between questions *MOTS* and *HOTS* not too far away, only 0.15 adrift. The highest score *LOTS*, *MOTS*, and *HOTS* equal to 10 and the lowest value *LOTS*, *MOTS*, and *HOTS* 6,4,2. on the value of *LOTS* all students got a passing mark, at *MOTS* and *HOTS* the same, namely 22 students who got a complete score and there were 2 students who had not finished. This shows that YouTube makes it easier for students to work on questions *LOTS*, *MOTS*, and *HOTS* which can be seen from the difference between *MOTS* and *HOTS* not too far.

Utilization of YouTube as a learning medium helps convey messages. According to Snelson (2011), YouTube is one of the most video sharing services on the internet popular at the time This.

YouTube as a video sharing website that allows its users upload, search for videos, watch, discuss/question and answer and share video clips for free. These videos are video clips, movies, TV, and videos made by users. YouTube is the most dominant online video provider site in the world and does not limit the duration for uploading videos. Another advantage, YouTube offers free services, especially for enjoying and accessing videos that are included in its system. To access videos users do not need to have a premium account or pay a certain amount of money within a certain time scale. Users can access these videos for free. YouTube users can download several videos and after they have been successfully downloaded, the videos can be stored on their respective gadgets to be enjoyed at any time without using an internet connection..

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YouTube as a learning medium affects students' thinking skills. Higher level thinking skills are expected by the government. These competencies are critical, creative and innovative thinking, communication skills, cooperative skills and self-confidence. Higher-order thinking skills are thought processes that require students to manipulate existing information and ideas in certain ways that give them new meanings and implications (Fanani, 2018). (Panggabean et al., 2021) explains that higher order thinking skills occur when a person associates information that has just been received with information that is already stored in his memory, then links it and/or rearranges and develops this information so that it is achieved a goal or a solution to a situation that is difficult to solve

## 4. CONCLUSION

Higher-order thinking skills aim to equip students to face the global era, advances in information technology, convergence of science and technology technology as imbas tekno sains, as well as the rise of the creative industry in the future. Students who have high thinking skills will be better able to interpret and review existing information and be able to use that information to solve the problems they are facing. Based on the results of the study that the use of YouTube as an effective learning media to improve *HOTS* in class IV students of Elementary School 4 Ranto Peureulak.

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