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The Influence of Using Interactive Learning Videos Based on Inquiry on the Science Learning Outcomes of Grade IV Students of UPTD SD Negeri 67 Parepare

Muhammad Asrul Sultan, Nurul Mukhlisa, Mutmatul Amna Ruslan
Universitas Negeri Makassar, Indonesia
m.asrul.sultan@unm.ac.id; nurulmukhlisaa@unm.ac.id

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Abstract

This study examined the effect of interactive learning videos on Grade IV students' learning outcomes in Natural and Social Sciences (IPAS) at UPTD SD Negeri 67 Parepare. A quantitative approach was employed using a pre-experimental, one-group pretest–posttest design. The study population comprised 218 students enrolled at the school, while the sample consisted of one Grade IV class comprising 31 students. The participants received instruction using interactive learning videos during the IPAS learning process. Data were collected through learning-outcome tests administered before and after the intervention and analyzed using descriptive and inferential statistics. A paired-samples *t* test was conducted to determine whether students' learning outcomes differed significantly between the pretest and posttest. The analysis produced a two-tailed significance value of $p = .001$, which was below the .05 significance threshold; therefore, the null hypothesis was rejected, and the alternative hypothesis was accepted. These findings demonstrate a statistically significant difference in students' learning outcomes following the use of interactive learning videos. Thus, interactive learning videos were associated with improved IPAS learning outcomes among the participating Grade IV

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students. The findings indicate that interactive learning videos can serve as a potentially effective instructional medium for supporting IPAS learning in elementary school settings, although the pre-experimental design limits the strength of causal inference.

Keywords: Elementary Education; Interactive Learning Videos; Learning Outcomes; Natural and Social Sciences; Pre-Experimental Design

INTRODUCTION

Learning media is an integral part of the teaching and learning process, serving as a tool for teachers to deliver learning materials effectively and efficiently. Media not only acts as a conduit for information but can also increase students' interest, motivation, and understanding of the subject matter. According to (Ibrahim et al., 2022), learning media can help present information more concretely, facilitate active learning, and enable students to learn according to their individual learning styles. Various types of learning media, such as visual, audio, audiovisual, and interactive digital media, are now widely used in education, including at the elementary school level.

The role of media in learning is growing with advances in information and communication technology (ICT). Technology has brought about significant changes in education, where the learning process is no longer confined to conventional classrooms. In the context of modern education, technology serves as a means to create more dynamic, contextual, and enjoyable learning. According to (Nurillahwaty, 2022), the development of digital technology has had a significant impact on education because it allows teachers and students to access information quickly, broadly, and flexibly. Furthermore, technology also opens up opportunities for teachers to develop more engaging digital-based learning media, such as learning videos, animations, and educational applications.

One of the most prominent forms of media and technology integration in learning is video. Learning videos can present information through a combination of sound, images, text, and movement, stimulating more of students' senses. According to Melinda et al. (2017), video is highly suitable for use in elementary schools because it aligns with children's concrete thinking developmental stage. Through video, students can directly observe a simulation of an event or process, making it easier for them to understand abstract concepts in the lesson.

Similarly, Natural and Social Sciences (IPAS) learning, as one of the subjects taught at the elementary school level, is often considered challenging by students. Decree of the Education Standards, Curriculum, and Assessment Agency (BSKAP) of the Ministry of Education, Culture, Research, and Technology No. 033/H/KR/2022 also explains that Natural and Social Sciences (IPAS) is the study of living and non-living things in the universe and their interactions, and examines human life as both individuals and social beings interacting with their environment. In general, science is defined as a combination of various knowledge arranged logically and systematically, taking into account cause and effect. This knowledge encompasses both natural science and social science.

Natural and Social Sciences (IPAS) are subjects that require conceptual and contextual understanding. However, in elementary schools, IPAS instruction is still largely conducted conventionally, resulting in a lack of student interest and active engagement. This contributes to low student learning outcomes (Fitriani & Yuliani, 2018).

Therefore, a solution is needed in the form of using engaging, interactive learning media that is appropriate to the characteristics of elementary school students. One solution that has proven effective is the use of learning videos. Videos can convey information visually and auditorily simultaneously, thus helping students understand abstract material more concretely (Susilawati & Suyadi, 2022).

When creating learning media, teachers must be creative in selecting effective learning media to attract students' interest and engagement in the material being studied, thereby improving student learning outcomes. (Tafonao, 2018) states that the use of learning media can make the learning process more effective and efficient, and foster good relationships between teachers and students. (Wisada et al., 2019) suggest that there are many types of learning media. For students, learning media that follows trends can attract attention. One frequently used media is video.

According to (Melinda et al., 2017) the use of video media is one of the technology-based media that is easily accessible to the public and is quite popular, the use of video media in elementary schools is said to be quite effective. Referring to Piaget, who stated that the thinking of elementary school children is just starting to enter the concrete operational thinking stage, where their mental focus is on real objects and is based on experienced events. Therefore, the use of video-based learning media is used as an alternative that can make students think concretely.

However, the use of instructional videos alone may not provide optimal results if not combined with an appropriate learning model. Instructional videos will be more effective when used in conjunction with a learning model that actively engages students in the learning process. Therefore, teachers need to choose a learning model that not only displays information through videos but also encourages students to think critically, observe, ask questions, and discover concepts independently. This is in line with research by Neneng Anjarwati, et al., (2024) which states that the use of video media combined with a guided inquiry model can improve students' science process skills because students are actively involved in the process of investigation and concept discovery. Furthermore, Gulo, et al., (2024) also explain that guided inquiry-based instructional videos can encourage students to think critically and discover concepts independently, thus making learning more meaningful.

One learning model suitable for combining video media is the inquiry learning model. The inquiry learning model is a learning approach that emphasizes investigative activities to understand the relationships between objects and events. Students are encouraged to research problems using scientific skills to find explanations independently with teacher guidance. According to Tohir (2020), the inquiry learning model is a learning activity that optimally engages students' abilities to investigate problems systematically, critically, and logically so they can discover their own knowledge. This learning model aims to increase student engagement through the stages of formulating problems, proposing hypotheses, collecting data, and drawing conclusions. Its advantages include developing cognitive skills, increasing motivation, and achieving more meaningful understanding because it is student-centered. However, this model also has disadvantages, such as requiring students' mental readiness, being less effective in large classes, and being difficult to implement if they are used to conventional methods.

Several previous studies have examined the use of YouTube videos in elementary school learning. For example, research conducted by (Sastramiharja et al., 2021) stated that the level of student learning motivation in Civics Education was influenced by the use of video media. Khotimah et al., 2025 concluded that the use of animated videos had a positive impact on student discipline. Furthermore, (Prastica et al., 2021) stated that the percentage of fourth-grade students' mathematics learning outcomes at Kedungbanteng Elementary School, Sidoarjo, after using video learning media was in the high category.

The previous research above used learning video media to see whether or not there was an influence on students' motivation and learning activity. The difference between the previous research and the research to be conducted is the application of the video used in the form of learning videos with an inquiry model so that students not only receive information, but are also encouraged to observe, formulate problems, and find concepts independently based on the stimulus presented through the video. Another difference lies in the subjects where the research will be conducted using Natural Sciences and Social Sciences subjects. In addition, differences also lie in the place and time of the research. Based on the background that has been explained and the results of research from several previous researchers, the researcher is interested in conducting an experimental study with the title "The Effect of Inquiry-Based Interactive Learning Videos on Student Learning Outcomes in Natural Sciences and Social Sciences Subjects of Grade IV Students of UPTD Sd Negeri 67 Parepare" the researcher hopes that the use of interactive learning videos can have an influence on student learning outcomes in elementary schools.

METHODS

This research uses a quantitative approach with an experimental research type in the form of pre-experimental design (one group pretest-posttest design). The research aims to determine the effect of using video learning media on student learning outcomes.

The research design involved one group being given a pretest before treatment and a posttest after treatment. Schematically, the research design is stated as follows:

Table 1. Research Design One Group Pretest-Posttest

Pretest	Treatment	Posttest
O1	X	O2

Information:

O1 :*Pre-test*: giving treatmentin the form of multiple choice questions (measurements before treatment)

X:Treatment: providing treatment in the form of using videos in the learning process (Application of learning videos)

O2:Posttest: providing treatment in the form of multiple choice questions (Measurement after treatment)

The research variables consisted of the independent variable, namely video-based learning media, and the dependent variable, namely student learning outcomes in science

subjects. The research design used one group given a pretest before treatment and a posttest after treatment.

The research population was all students at the UPTD of SD Negeri 67 Parepare, while the research sample was 31 fourth-grade students (17 boys and 14 girls). The sampling technique used cluster sampling.

Data collection techniques used tests and documentation. A test consisting of 15 multiple-choice questions was used to measure learning outcomes before and after treatment, while documentation served as supporting data.

Data analysis includes descriptive and inferential statistics. Descriptive analysis is used to describe learning outcomes through mean, median, mode, standard deviation, variance, maximum, minimum, and range. Inferential analysis uses the t test. Paired sample t-test to test the hypothesis.

Before the hypothesis test was conducted, a normality test was performed using SPSS with a significance criterion of ≥ 0.05. The results showed that the data were normally distributed, making it suitable for further testing.

Hypothesis testing is done bypaired sample t-testwith the criteria if the significance value is ≤ 0.05 then H_0rejected and H_1accepted. In addition, the magnitude of the influence is calculated usingeffect size(Cohen's d) to determine the strength of the treatment effect.

RESULTS

This research was conducted at the UPTD of SD Negeri 67 Parepare, involving 31 fourth-grade students as participants. This research is an experimental research design.Pre Experimental in the form ofOne Group Pretest-Posttest. The results of this study aim to determine the improvement in student learning outcomes before and after the application of interactive video media in science lessons on plant body parts in grade IV of UPTD SD Negeri 67 Parepare.

Table 1. Data on Class IV Students of UPTD SD Negeri 67 Parepare

Man	Woman	Total
17 participants	14 participants	31

1. Student Learning Outcomes Before Using Video-Based LearningInquiry

PretestThis is given to determine the learning outcomes of students before being given a treatment. The student learning outcome data is grouped as follows:

Table 2. Frequency and Percentage of Completion Pretest Learners

Mark	Category	Frequency	Percentage (%)
0-59	Very less	22	72%
60-69	Not enough	6	19%
70-79	Enough	2	6%
80-89	Good	1	3%

Based on Table 2, it can be seen that the resultspretest Of the students, 22 students were in the very poor category with a score range of 0-59%, 6 students were in the poor category with a score range of 60-69%, 2 students were in the sufficient category with a score range of 70-79%, and 1 student was in the good category with a score range of 80-89%. Based on the category of student learning outcomes inpretestit can be concluded that the resultspretestare in the category of lacking and failing.

The descriptive statistical results related to the pretest scores of grade IV students with manual calculations and assisted by SPSS Version 27 are presented in the table below:

Table 3. Descriptive Statistics of Results Pretest Learners

Statistics	Statistical values
Number of samples	31
Rate-rate (Mean)	47.32
Median value (Median)	47.00
Modus	47
Standard deviation	15.602
Variance	243.626
Range	60
Minimum value	20
Maximum value	80

Based on table 3. It can be seen that the average pretest score of students is 47.32 indicating that the initial ability is still relatively low and most have not achieved completeness. Most students have a score of 47 which is included in the very poor category. The median score is 47 which means that 50% of students have a score above 47 and the other 50% below 47. The range of scores is quite large because the minimum score

is 20 and the maximum is 80, and the standard deviation is 15.602 indicating a high variation in ability, so that the initial ability of students is not evenly distributed.

2. Student Learning Outcomes After Using Video-Based Learning Media*Inquiry*

Statistical results of values posttestStudents in grade IV of UPTD SD Negeri 67 Parepare regarding the influence of learning videos on student learning outcomes. The following data is presented describing the learning outcomes of students:

Table 4. Frequency and Percentage of Completion Posttest Learners

Mark	Category	Frequency	Percentage (%)
0-59	Very less		0%
60-69	Not enough	2	6%
70-79	Enough	4	13%
80-89	Good	16	52%
90-100	Very good	9	29%

Based on Table 4, it is known that the learning outcomes of students after being given treatment in the form of interactive videos are that there are 2 students in the less category with a score of 60-69%, 4 students in the sufficient category with a score of 70-79%, 16 students in the good category with a score of 80-89% and there are 9 students in the very good category with a score of 90-100%.

As for the score posttestStudent learning outcomes are presented as follows:

Table 5. Descriptive Statistics of Results Posttest Learners

Statistics	Statistical values
Number of samples	31
Rate-rate (Mean)	84.74
Median value (Median)	87.00
Modus	87
Standard deviation	9.923
Variance	98.465
Range	40
Minimum value	60
Maximum value	100

Based on table 5, it can be seen that the average posttest score of 84.74 indicates that student learning outcomes have improved and are in the very good category. Most

students have a score of 87 which is included in the good category. The median score of 87 means that 50% of students have scores above 87 and the other 50% below 87. The range of scores is smaller than the pretest because the minimum score is 60 and the maximum is 100, and the standard deviation of 9.923 which is smaller than the pretest indicates that the variation in scores is reduced and student abilities are less spread than before. Overall, these results indicate that the use of learning video media improves students' science learning outcomes.

3. Improvement in Student Learning Outcomes After Using Video-Based Learning*Inquiry*

TestN-Gain (Normalized Gain) is used to determine the extent to which students' learning outcomes have improved after being given learning using interactive video media.

Table 6 N-TestGain

Rate-ratePretest	Rate-ratePosttest	N-Gain	Category
47,32	84,74	0,7062	High

Based on Table 6, it is known that the average pretest score is 47.32 and the average posttest score is 84.74. The calculation results show an N-Gain value of 0.7062. Referring to the N-Gain interpretation criteria, namely a g value < 0.3 is included in the low category, 0.3 ≤ g ≤ 0.7 is included in the medium category, and g > 0.7 is included in the high category, then the N-Gain value of 0.7062 is included in the high category, because it is above the limit of 0.7. This shows that the increase in student learning outcomes after the use of interactive video media is classified as effective.

4. The Influence of Interactive Learning Videos Based onInquiry On Student Learning Outcomes

The hypothesis test was conducted with the aim of determining the effect of interactive video media on student learning outcomes in the science subject (plant parts) in grade IV of UPTD SD Negeri 67 Parepare. The hypothesis test was conducted using the method Paired Samples T-Testversion 27.

Table 7. Test Results Paired Sample T-Test

Paired Sample T-Test			
	t	df	Sig. (2-tailed)
After treatment - before treatment	14.557	30	<.001

Test results paired sample t-testshows that the significance value is 0.001 (<0.05) and the calculated t value (14.557) is greater than the t table (2.042). These results indicate that H_0rejected and H_1accepted, so it can be concluded that there is a significant difference between learning outcomes before and after treatment. Thus, the use of interactive video media has a positive effect on the learning outcomes of fourth-grade students at UPTD SD Negeri 67 Parepare.

Effect size is a measure used to determine how much influence the use of interactive video media has on student learning outcomes, calculations are carried out effect size using Cohen's d formula.

The results of the effect size calculation are presented in the following table:

Table 8. Calculation Results Effect Size

Component	Mark
Mean Pretest	47,32
Mean Posttest	84,74
Mean Difference (Mpost − Mpre)	37,42
Pretest Standard Deviation	15,602
Posttest Standard Deviation	9,923
Pooled Standard Deviation (SD Pooled)	13,08
Effect Size (Cohen’s d)	2,86 (≈ 2,9)

Based on Table 8, it is known that the difference in the average pretest and posttest scores is 37.42. The combined standard deviation (pooled standard deviation) was obtained as 13.08. Based on these results, the value obtained waseffect size(Cohen's d) of 2.86 which was then rounded to 2.9. Referring to the interpretation criteriaeffect sizeAccording to Cohen, values of 0.2 (small), 0.5 (medium), and 0.8 (large) fall into the very large category. This indicates that the use of interactive video media not only has a significant but also a very strong influence on improving student learning outcomes.

This experimental research was conducted on fourth-grade students at the UPTD SD Negeri 67 Parepare, with a sample size of 31 students, consisting of 17 males and 14

females. The research design used waspre-experimental design with the shapeone group pretest-posttest To assess student learning outcomes, a pretest consisting of 15 multiple-choice questions was administered to assess initial abilities. The pretest results indicated that students' initial abilities were still relatively low, particularly in science. Next, students were given a treatment using interactive video media covering plant parts.

During the learning process, videos were shown on an LCD screen and paused occasionally to ask questions to make the videos interactive and encourage students to think actively. Students also completed group worksheets based on the video content. After the treatment, a posttest was administered to determine improvements in student learning outcomes.

DISCUSSION

1. Student Learning Outcomes Before Using Inquiry-Based Learning Video Media

Based on the results of research on fourth-grade students at the UPTD of SD Negeri 67 Parepare, learning outcomes before the use of learning video media showed a low category. This is indicated by the average pretest score of 47.32 with the highest score of 80 and the lowest of 20. This value indicates that most students have not yet understood the material thoroughly, both in terms of function, interrelationships between parts, and the process of food production in plants.

Furthermore, the standard deviation value of 15.609 and variance of 243.626 indicate variation in ability among students, but overall, they are still at a low level of understanding. This condition indicates that learning before using video media was not able to optimize students' conceptual understanding. This finding aligns with research by Pamungkas & Koeswanti (2021), which states that learning without video media support tends to result in lower learning outcomes.

2. Student Learning Outcomes After Using Inquiry-Based Learning Video Media

After being treated with video media, the average posttest score increased to 84.74. Furthermore, the lowest score increased from 20 to 60 and the highest score reached 100, indicating a significant improvement in learning outcomes.

The N-Gain test result of 0.7062 is considered high, indicating that the use of video media is effective in improving student learning outcomes. This finding aligns with

research by Pamungkas & Koeswanti (2021), which found that student learning outcomes using video media were higher than those without video media.

This improvement is evident not only in grades but also in students' conceptual understanding. Students are better able to explain the functions of plant parts and the process of photosynthesis. This demonstrates that video media helps concretize previously abstract concepts. Similarly, (Cahyaningsih & Muhammad Sofyan, 2021) state that video is effective because it presents material through a combination of visuals and audio. Furthermore, (Batubara & Ariani, 2016) state that video media can increase interest and learning outcomes.

Student learning outcomes can also improve because the learning process is carried out using interactive, inquiry-based learning videos. In the second meeting, students were given material about plant parts through learning videos that contained various elements such as audio, motion animations, and images of flowers, trees, teacher cartoons, animals, and other interesting animations. Motion animations and images of trees, flowers, roots, fruit, and leaves were used as the main media to describe and explain plant parts concretely, making it easier for students to understand the material. Meanwhile, supporting animations such as teacher cartoons, animals, clouds, and scenery served to increase the appeal of the videos so that learning was not monotonous. In inquiry-based learning, videos are not only used as a medium for conveying information, but also as a means to encourage students to observe, ask questions, discover, and conclude concepts independently based on what they see during the learning process.

The learning process is carried out by showing a video using the LCD, then students are asked to observe the video carefully and note several important parts. Before the video is played, the teacher first distributes group worksheets (LKPD) which will be worked on by students during the learning process according to the video content and teacher instructions. Each LKPD question is given 5 minutes to train students' discipline and ability to manage time. The activity of watching the video and noting important parts is part of the inquiry step, namely observation and initial data collection carried out by students to find answers to problems given by the teacher.

At the beginning of the lesson, the video displays the title of the material to be studied, followed by a brief explanation of the function of plants, delivered through clear and easy-to-understand audio narration. Next, trigger questions are presented, such as

"How can plants be one of the most important parts of the earth?" and "What are the parts of a plant?" These questions are given as a form of stimulation in inquiry learning to encourage students to express initial opinions and activate their previous knowledge. After students answer the questions given, the video continues with a discussion of the parts of the plant body through the display of a complete tree image used to demonstrate and demonstrate the parts of the plant body. Thus, students not only know the theory but also can directly see the shape of each part of the plant. The material is then presented in stages, starting with a discussion of roots, which is shown through moving animations in the form of root images and supported by audio explanations to clarify the concept. At this stage, students carry out the process of observing and analyzing information obtained from the video to discover the function of each part of the plant.

After the explanation of the function and benefits of roots is completed, the video is paused and the teacher provides brief reinforcement regarding the content of the video that has been played. Next, students are asked to start working on the Student Worksheet (LKPD) questions based on the content of the video that has been watched within the specified time. This activity is part of the inquiry process, namely students try to process information and find answers based on the results of observations that have been made. After students have completed the LKPD, the video continues with a discussion of other parts of the plant, namely stems, leaves, flowers, and fruit, in the same cycle until the learning video is finished and students have also completed all LKPD questions. At the end of the lesson, the teacher gives several short questions to students as a form of oral evaluation to ensure their understanding of the material that has been learned. Next, the teacher distributes evaluation sheets that are completed individually by students. After all students have collected their answer sheets, the teacher closes the learning process. The question and answer activities, LKPD work, and individual evaluations demonstrate the process of discovering and concluding concepts independently, which are the main characteristics of inquiry learning.

In the third meeting, the learning process was carried out using an instructional video discussing the food-making process in plants, namely photosynthesis. Students were asked to carefully observe the video shown by the teacher and note important parts of the material presented. The video included audio elements, motion animation, and images designed to increase student interest and understanding. In the inquiry approach, the activity of watching the video and noting important information is the initial stage for

students to obtain data and information that will later be used in discovering the concept of photosynthesis.

At the beginning, the video displays the title of the material to be studied, accompanied by animations of a child, a butterfly, clouds, and views of mountains and trees. This animation serves to attract students' attention and create a more enjoyable learning atmosphere so that the video does not seem monotonous. Next, a trigger question is shown: "Have you ever felt hungry? What would you do when you feel hungry?" Students are given the opportunity to answer this question before the lesson continues. Providing this trigger question is an inquiry step that aims to stimulate students' curiosity and explore their prior knowledge related to the material to be studied. After the question and answer session, the video explains that when animals feel hungry, they will look for food, and likewise humans will prepare food when hungry. This explanation is clarified and made interesting by animations in the form of images of animals and their food and an animation of a chef with his food, so that students can more easily understand the material because it provides a direct picture of the process. Next, the question is presented again: "How do plants get their food?" Students are given the opportunity to answer this question as part of the inquiry process to determine the extent of students' initial understanding before being given further explanations about how plants obtain food.

The teacher then continued with a video showing how plants make their food through photosynthesis. The explanation began with a discussion of forests, dubbed the lungs of the world, and was further clarified by adding B-roll elements in the form of video illustrations of vast forests so that students could not only imagine but also see them directly through the video. Next, the question resurfaced, "How can trees and forests support the survival of life on earth?" Students were invited to answer, and the teacher provided a brief explanation. This activity demonstrated the application of inquiry steps in the form of formulating conjectures or hypotheses based on the results of student observations and experiences.

The video then continues with a discussion of the stages of plants in making their own food, namely with the help of sunlight, water, and carbon dioxide. The food-making process is shown using B-roll elements in the form of an illustrative video of the photosynthesis process that shows an animation of a tree exposed to sunlight, an animation of water flowing from the soil to the trunk, stalk, and then leaves, and an animation of

carbon dioxide from the air entering the leaves. Through this display, students can see directly how the process of photosynthesis occurs. In inquiry learning, this activity helps students discover concepts through direct observation of the process shown in the video so that understanding becomes more concrete and meaningful.

The video also explains where photosynthesis occurs, clarified by animations of leaves and chlorophyll as the site of photosynthesis, and displays a depiction of the photosynthesis cycle. The teacher also occasionally repeats the explanation in several parts that are deemed necessary to further students' understanding of the material being studied. After the video presentation is complete, the teacher asks several questions to students as a form of reinforcement and to determine the results of the discovery of concepts that students have understood during the learning process. After that, the teacher distributes worksheets (LKK) which are immediately completed by students. The activity of working on the LKK is part of the proof stage in inquiry learning because students are asked to process and apply the information they have obtained while watching the video. After completing the LKK, the teacher and students together summarize the contents of the material studied and then continue with closing the learning. This concluding stage is the final step in inquiry learning, namely students draw conclusions based on the results of observations, discussions, and answers that have been found during the learning process.

Based on the description, this is in line with the opinion put forward by Ramadhan, (2021) who stated that inquiry learning can improve student activity and learning outcomes because students are directly involved in the process of discovering concepts through observing, asking questions, discussing, and concluding. This is in accordance with the learning process in this study, where students actively watched videos, answered prompting questions, worked on LKPD and LKK, and together with the teacher concluded the learning material. Furthermore, according to Mangesa et al., (2022) who stated that the increase in student activity and learning outcomes occurred because the use of media that presented visual and sound elements so as to attract students' attention to observe and explore each learning activity. This condition encouraged students to be more active during the learning process, such as asking questions, expressing ideas or opinions, and providing answers to questions posed.

The use of video media in this study not only serves as a means of conveying information, but is also combined with the inquiry learning model so that students are

actively involved in the process of discovering concepts independently. In inquiry learning, students do not only receive material passively, but are encouraged to observe, ask questions, gather information, analyze, and draw conclusions based on their own observations. According to Tohir (2020), the inquiry learning model is a learning process that involves students' maximum ability to investigate a problem systematically, critically, and logically so that students can discover their own knowledge. Therefore, the use of learning videos will be more effective when combined with the inquiry model because videos can provide visual and audio stimuli that support the student's investigation process. Furthermore, according to Rusman (2018), who stated that video media can help students understand the material more realistically because it is able to present moving images, sounds, and interesting illustrations, making it easier for students to observe the objects being studied. In inquiry learning, videos function as an initial stimulus to arouse students' curiosity and assist the process of investigation and concept discovery.

The application of inquiry in this study was evident from the beginning of the lesson when the video presented trigger questions such as "What are the parts of a plant?" and "How do plants get their food?" These questions constitute the orientation and problem formulation stage of inquiry, which aims to build students' curiosity. Next, students were asked to provide tentative answers based on their prior knowledge as a form of hypothesis proposal. Afterward, students watched a learning video containing animations, images, audio, and illustrations of the photosynthesis process to gather information and find answers to the questions posed. The activities of watching the video, recording important information, and discussing the results of observations indicate that students actively engaged in the inquiry process in the learning process.

The next stage of inquiry occurs when students complete student worksheets (LKPD) and student worksheets (LKKK) based on the content of the videos they have observed. At this stage, students process the information they have obtained to prove their answers or initial assumptions. The teacher acts only as a facilitator, guiding the learning process, while the students are the center of the learning activities. After all observations and discussions are complete, students and the teacher summarize the learning material. This concluding activity is the final stage of inquiry, drawing conclusions based on the results of the investigation.

Thus, improved student learning outcomes are not only influenced by the use of video media, but also by the combination of video and the inquiry model, which can activate students in the learning process. Video helps present concepts concretely through visual and audio elements, while the inquiry model helps students build understanding through independent conceptual discovery activities. This condition aligns with Ramadhan's (2021) opinion, which states that inquiry learning can improve student activeness and learning outcomes because students are directly involved in observing, asking questions, discussing, and drawing conclusions. Furthermore, according to Joni et al. (2022), the inquiry model provides opportunities for students to think critically and find their own answers to the problems being studied. Therefore, the use of inquiry-based learning videos has been proven to create more meaningful, engaging, and effective learning in improving student learning outcomes.

Thus, the use of instructional videos is more optimal when combined with an inquiry model rather than simply using them as a one-way medium for conveying information. Through inquiry, videos serve not only as visual aids but also as stimuli that encourage students to actively observe, ask questions, investigate, and discover concepts independently. This creates a more meaningful learning process because students are directly involved in the process of discovering knowledge, thus improving conceptual understanding and learning outcomes.

3. The Influence of Inquiry-Based Learning Video Media on Improving Student Learning Outcomes

The results of the hypothesis test using the paired sample t-test showed a significance value of 0.001 (<0.05) and a calculated t value of 14.557, which is greater than the t table of 2.042. These results indicate that H_0rejected and H_1accepted, so it can be concluded that there is a significant influence of the use of inquiry-based learning video media on the learning outcomes of class IV students at UPTD SD Negeri 67 Parepare.

Improved student learning outcomes occur because the use of video media is able to present learning materials more concretely through a combination of images, animation, sound, and movement. Material that was previously abstract becomes easier for students to understand, thereby increasing their attention and focus during the learning process. This is in line with the opinion of Fayzah et al. (2025) who stated that video media is able to

present information in audio and visual forms, making it easier for students to understand learning materials. Furthermore, Pardana and Hidayati (2025) stated that the use of video media can reduce boredom and increase students' motivation and enthusiasm for learning.

However, the improvement in learning outcomes in this study was not solely influenced by the use of instructional videos, but also by the integration of the videos with the inquiry learning model. In inquiry learning, students do not merely receive information passively but are actively involved in the process of discovering concepts through observing, asking questions, gathering information, processing data, and drawing conclusions. The use of videos in inquiry learning serves as a stimulus that helps students investigate the material being studied. This makes the learning process more meaningful because students construct their own knowledge based on observations and learning experiences gained during the learning process. This is in line with the opinion of Amini et al. (2020) who stated that the inquiry model can encourage students to understand concepts more deeply because students are directly involved in the process of discovering knowledge. Furthermore, Sanjaya (2016) stated that inquiry is a series of learning activities that emphasize critical and analytical thinking processes to seek and find answers to a problem. This opinion suggests that the use of instructional videos will be more effective when combined with the inquiry model because videos can provide a more realistic learning experience and help students carry out the active investigation process.

In addition, the N-Gain test results were 0.7062 which is in the high category and the value*effect size*A score of 2.86, which is considered very high, indicates that the use of inquiry-based video learning media has a strong influence on improving student learning outcomes. This aligns with research by Muliani and I Md. Citra Wibawa (2019) and Febriani et al. (2021), which found that the use of video media in learning significantly improves student learning outcomes by making learning more engaging, interactive, and easier to understand.

Thus, the use of inquiry-based video learning media has been proven to have a positive impact on improving student learning outcomes. Videos help present material in a concrete and engaging manner, while the inquiry model helps students actively construct knowledge through independent conceptual discovery. The combination of the two creates more meaningful, interactive, and effective learning, improving student learning outcomes.

CONCLUSION

Based on the formulation of the problem based on the results of research and discussion, several things can be concluded, including: 1) The learning outcomes of students in the science learning material on plant body parts in class IV UPTD SD Negeri 67 Parepare before and after the use of video media showed an increase in the high category. 2) There is an influence of video media on the learning outcomes of students in the science learning material on plant body parts in class IV UPTD SD Negeri 67 Parepare.

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