BIOEDUSCIENCE
ISSN: 2614-1558
http://journal.uhamka.ac.id/index.php/bioeduscience

Application of the Discovery Learning Model to Science Process Skills in Science Learning in Grade VIII of the 2023/2024 Academic Year

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Abstract

Background: Science Process Skills (SPS) are vital in science learning but often underdeveloped. This study examines how the Discovery Learning (DL) model improves SPS and identifies which SPS aspects are developed in class VIII of SMP Islam Sudirman Suruh during 2023/2024. **Methods:** This study uses a qualitative descriptive method with triangulation (observation, interviews, documentation), involving one class of 13 grade VIII students at SMP Islam Sudirman Suruh (2023/2024) selected purposively based on teacher recommendations. The researcher serves as the primary instrument, supported by observation sheets and interview guidelines, with data analyzed through reduction, presentation, and verification. **Results:** The average percentage of total KPS in the Work and Energy material reached 83.2% (Good category), and increased in the Simple Machine material to 87.4% (excellent category). KPS aspects, including the use of instruments/materials and conducting experiments, demonstrated high achievement (excellent category). In contrast, the aspect of implementing concepts showed the lowest achievement, despite an increase (from Fair to Good). Interview data confirmed the positive role of DL in stimulating students' activeness and KPS. **Conclusions:** The implementation of the Discovery Learning model has a positive and significant impact on improving the Science Process Skills of eighth-grade students at SMP Islam Sudirman Suruh in science classes, with an overall average reaching the "Good" category. This model is effective in training various aspects of KPS, although the implementation of the concept requires further attention.

Keywords: Discovery learning; Science; Science Process Skills

Article history
Received: 13 Jan 2024
Accepted: 14 Apr 2025
Published: 31 Jul 2025

Publisher's Note:
BIOEDUSCIENCE stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Citation:
Hapsari et al., 2025 Application of the Discovery Learning Model to Science Process Skills in Science Learning in Grade VIII of the 2023/2024 Academic Year. BIOEDUSCIENCE, 9(2), 225-235. doi: 10.22263/jbes/14159

Introduction

Learning is the most essential part of education. The importance of learning activities lies in empowering students' potential (Hidayat, 2021). In learning activities, teachers must be able to design effective and efficient learning. One way to do this is by using a Lesson Implementation Plan (RPP), of course, through the selection of an appropriate learning model. The learning model used during teaching must take into account the characteristics of the subject matter, the availability of learning media, and the mental and physical development of students. (Zakiah et al., 2019).

The learning model refers to the steps used by the teacher when learning occurs (Lase et al., 2022). There are many different types of learning models, and their effectiveness also varies. Teachers use various learning models as relevant and interactive strategies. These include Discovery Learning (DL), Inquiry Learning (IL), Problem-Based Learning (PBL), Project-Based Learning (PBL), and Scientific Learning (SL) (Dewi, 2022). One of the models chosen due to its relevance to these objectives is Discovery Learning

(DL). The DL model is a learning approach that emphasizes the active role of students in constructing knowledge and understanding through exploration, inquiry, and independent discovery. One of the learning models most frequently used by teachers is the Discovery Learning model. The Discovery Learning model is a learning approach that emphasizes the active role of students in constructing knowledge and understanding through exploration, inquiry, and discovery. Students have the opportunity to develop critical thinking skills, ask questions, and conduct observations.

This learning model encourages students to discover for themselves what they are learning and then apply it to their understanding of the material. The teacher's role in learning is as a facilitator. The main characteristic of this learning model is exploration, problem-solving, and the creation and integration of student-centered knowledge (Fajri, 2019). This learning model also encourages students to be more active, enabling them to work together in groups, express their arguments, and retain previously learned concepts for a more extended period (Marisya et al., 2020).

The Discovery Learning model is based on scientific stages derived from research. This is relevant to the current 21st-century requirements, including science process skills (Novebrini et al., 2021). These science process skills encompass definitions and methods for obtaining scientific information. Science process skills must be practiced and developed throughout the learning process (Fitriani et al., 2019). By applying the Discovery Learning model, it can have an impact on science process skills, because this learning model involves the process of solving problems in scientific learning activities (Khairuna et al., 2021). According to research (Rohana et al., 2021), which analyzed the Discovery Learning model on science process skills and students' discipline in physics lessons, the study aimed to investigate the impact of the Discovery Learning model on science process skills and students' discipline in physics lessons. Data collection techniques included observation, interviews, and documentation studies. The results showed that the Discovery Learning model can enhance science process skills and students' discipline in problem-solving. This is relevant to observations conducted at Sudirman Suruh Islamic Middle School.

Observations at Sudirman Suruh Islamic Middle School revealed that teachers also implemented the Discovery Learning model, particularly in science subjects. Science subjects encompass both products and processes, incorporating scientific concepts such as observation, measurement, hypothesis testing, data collection, experimentation, and inference. Furthermore, science subjects place a high emphasis on science process skills in conducting action experiments. The science process skills suitable for implementation at the junior high school/Islamic junior high school level are basic science process skills, as they are essential for students to learn and master (Gasila et al., 2019). These science process skills are intended to form a foundation for each individual, impacting student learning outcomes.

This model was chosen based on its characteristics, which align with the nature of science as a process of discovery. Learning-based learning encourages students to discover for themselves what they are learning, develop critical thinking skills, ask questions, and conduct observations, all components of the Science Process Skills (KPS). The implementation of learning-based learning, grounded in scientific stages, is expected to effectively bridge the gap between understanding science concepts and developing the KPS required by students in the 21st century.

Based on the background description, Sudirman Suruh Islamic Junior High School uses the Discovery Learning model in science instruction. Therefore, the researcher was interested in researching the application of the Discovery Learning model to students' science process skills. This analysis of Discovery Learning implementation is expected to provide empirical information on science process skills in eighth-grade students in the 2023/2024 academic year.

Methods

This research uses a qualitative descriptive method. Data collection techniques include data triangulation through observation, interviews, and documentation.

Sample or Participant

The sample was taken from one class, namely class VIII, with 13 students. The sampling method used in this research was purposive sampling, a technique that selects the sample based on specific criteria. Therefore, this technique was chosen non-randomly and was relevant to particular objectives and targets (Sitompul, 2022). Purposive sampling is suitable for qualitative research because researchers are likely to already know the quality of the respondents, thus increasing the validity of the study. In this research, class VIII was selected as the research sample based on the academic considerations of the students, as recommended by the class VIII science teacher.

Instrument

In qualitative research, the research instrument is the researcher themselves. After the research focus is clear, it is then developed into a research instrument that is expected to refine the data and compare it with the data found in interviews. Through the observation grid guidelines, interviews, and documentation, researchers can facilitate the collection of data on each information activity that occurs in class VIII. This research instrument utilizes an observation attachment of the Discovery Learning model for teachers during the course of instruction in the classroom and laboratory. There are two attachments: the instrument and rubric for observing science process skills in students, and an interview instrument for science teachers regarding the Discovery Learning model and students' science process skills.

Data collection

The data collection technique employed in this research was data triangulation, involving observation, interviews, and documentation. Observations were carried out through non-participant observation of students during the learning process in science subjects using the Discovery Learning learning model. The following observation focused on the science process skills that students possess. In conducting observations, researchers must maximize the use of the senses of sight and hearing to observe an object. Two observation sheets were used: the observation sheet for the implementation of Discovery Learning learning to observe the stages of Discovery Learning syntax applied by the teacher and student activities during learning and the observation sheet for students' science process skills designed based on relevant KPS indicators for junior high school level, including: (a) Observing (Observation), (b) Making Hypotheses, (c) Using Tools and Materials, (d) Conducting Experiments, (e) Interpreting/Implementing Data/Concepts, and (f) Communicating Results. This sheet uses a scoring rubric or checklist to assess the emergence and quality of KPS during practicum activities or discussions. This interview was conducted to determine the completeness of the data and efforts to obtain accurate and appropriate data sources. In this research, the researchers interviewed eighth-grade science teachers to analyze the Discovery Learning model's impact on students' science process skills. In the interview guide, it was conducted with eighth grade science teachers, with the interview outline including questions related to: (a) Planning and implementation of learning with the DL model, (b) Teachers' perceptions of the effectiveness of DL in improving students' KPS, (c) Observed development of students' KPS, (d) Obstacles faced in implementing DL and developing KPS, (e) Teachers' efforts to overcome obstacles. Documentation is helpful for the completeness and accuracy of information collected from existing documentation materials in the field. It can be used as a material in checking the validity of the data. Documentation also serves as secondary data in research. Through this research, secondary data on the evaluation of Discovery Learning implementation were obtained

from LKPD, RPP, learning media, student data, photos, notes from interviews, and observations.

Procedure

This research procedure is conducted in a setting relevant to the stages that must be implemented. Research procedures are designed and implemented systematically to plan, implement, and evaluate research. The following stages comprise the research procedure: preparation, implementation, and reporting.

Data analysis

The data analysis obtained in this research used a qualitative approach. The stages implemented in analyzing the data are data reduction, data presentation, and data verification. The data reduction collected is in the form of observation data on the learning process using the Discovery Learning learning model on the science process skills of grade VIII students. Observations on the learning process using the Discovery Learning model by filling out observation sheets and observing learning that takes place in the classroom and laboratory. To obtain valid science process skills scores, the researcher used an assessment rubric and categorized the science process skills results into percentage categories. To calculate the percentage data, the percentage formula is used as follows:

$$\text{KPS: } \frac{\text{total student scores x 100}}{\text{Total score}}$$

According to Putri (2020), the observation categories for science process skills are divided into four categories: excellent (86% - 100%), good (66% - 85%), quite good (46% - 65%), and poor (0% - 45%). The criteria for assessing science process skills observations are shown in Table 1.

Table 1. Science Process Skills Criteria

Scale	Score Interval	Criteria/Categories
4	86% - 100%	Excellent
3	66% - 85%	Good
2	46% - 65%	Fair
1	0% - 45%	Poor

Data presentation is the process of collecting information and allowing conclusions to be drawn. Qualitative data is presented in narrative text, brief descriptions, charts, tables, graphs, and other visual aids to combine the information into an easily understood format. Verification involves concluding previously analyzed data; conclusions in qualitative research attempt to answer the research questions formulated initially.

Result

Observations of student learning activities on work, energy, and simple machines (incline planes) were conducted by the researcher, who also served as the observer, using observation guidelines and completing a science process skills assessment sheet. This observation process was conducted in a manner that did not disrupt the ongoing learning process.

Several aspects measured by the observer in this science process skills assessment included observation skills, hypothesis formation, use of instruments and materials, conducting experiments, implementation, and communication. Data from observations of students' science process skills were obtained from two learning sessions with different sub-chapters: energy and simple machines (inclined planes). The results of the calculations on the students' science process skills observation sheets were summarized

to determine the average and total percentage scores. The science process skills data are displayed in Tables 2 and 3.

Table 2. Recapitulation of Data from Observations of Students' Science Process Skills, Meeting I (Work and Energy)

No.	Aspect Observed	Meeting I	Average (%)	Description
1.	Observation skills	49	94,2	Excellent
2.	Hypothesis-making skills	44	84,6	Good
3.	Instrument and material use skills	50	96,1	Excellent
4.	Experiment-conducting skills	43	82,6	Good
5.	Implementation skills	31	59,6	Fair
6.	Communication skills	43	82,6	Good
	Total number	**499,7**		
	Skill percentage	**83,2% (Good)**		

Table 3. Recapitulation of Data from Observations of Students' Science Process Skills Meeting II (Simple Machines (Inclined Planes)

No.	Aspect Observed	Meeting I	Average (%)	Description
7.	Observation skills	46	88,4	Excellent
8.	Hypothesis-making skills	47	90,3	Excellent
9.	Instrument and material use skills	46	88,4	Excellent
10.	Experiment-conducting skills	50	96,1	Excellent
11.	Implementation skills	36	69,2	Good
12.	Communication skills	48	92,3	Excellent
	Total number	**273**	**524,7**	
	Skill percentage	**87,4% (Excellent)**		

Figure 1. shows that the average percentage score in the first meeting, with the sub-chapter on work and energy, was categorized as good. In the second meeting, with the sub-chapter on simple machines (inclined planes), it was classified as excellent.

The highest percentage score in the science process skills aspect at the first meeting was for the skill of using instruments and materials, categorized as excellent. The lowest percentage score in the first meeting was for the skill of implementing science process skills, which was classified as fair. The highest percentage score in the second meeting was for the skill of conducting experiments, categorized as excellent, and the lowest score in the second meeting was for the skill of implementing science process skills, classified as good. The differences in scores for each aspect of students' science process skills between the first and second meetings are shown in Figure 2.

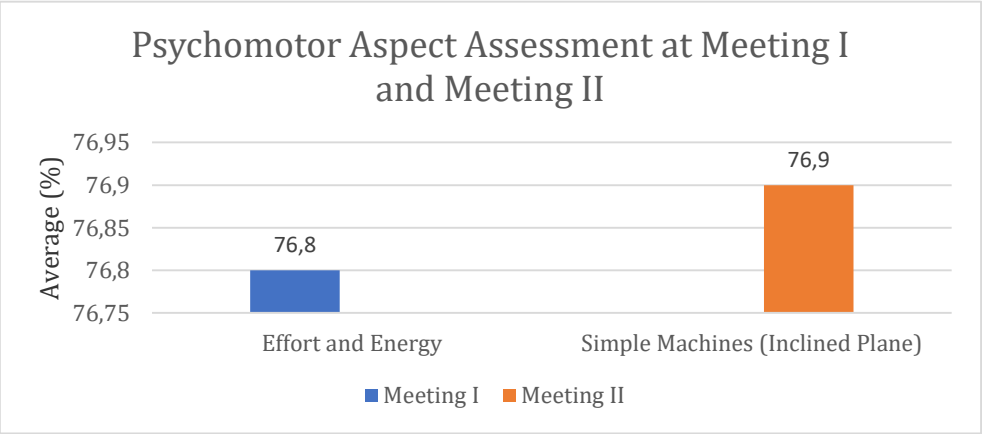

Figure 1. Graph of the Percentage of Science Process Skills of Class VIII Students, Meeting I (Effort and Energy) and Meeting II (Simple Machines (Inclined Field)

Figure 1 shows that the average percentage score in the first meeting, with the sub-chapter on work and energy, was categorized as good. In the second meeting, with the sub-chapter on simple machines (inclined planes), it was classified as excellent.

The highest percentage for science process skills in the first meeting was the skill of using instruments and materials, categorized as excellent. The lowest percentage for science process skills in the first meeting was for the skill of implementing experiments, which was classified as fair. The highest percentage for science process skills in the second meeting was for the skill of conducting experiments, categorized as excellent, and the lowest percentage for science process skills in the second meeting was for the skill of implementing, classified as good. The differences in scores for each aspect of students' science process skills between the first and second meetings are shown in Figure 2.

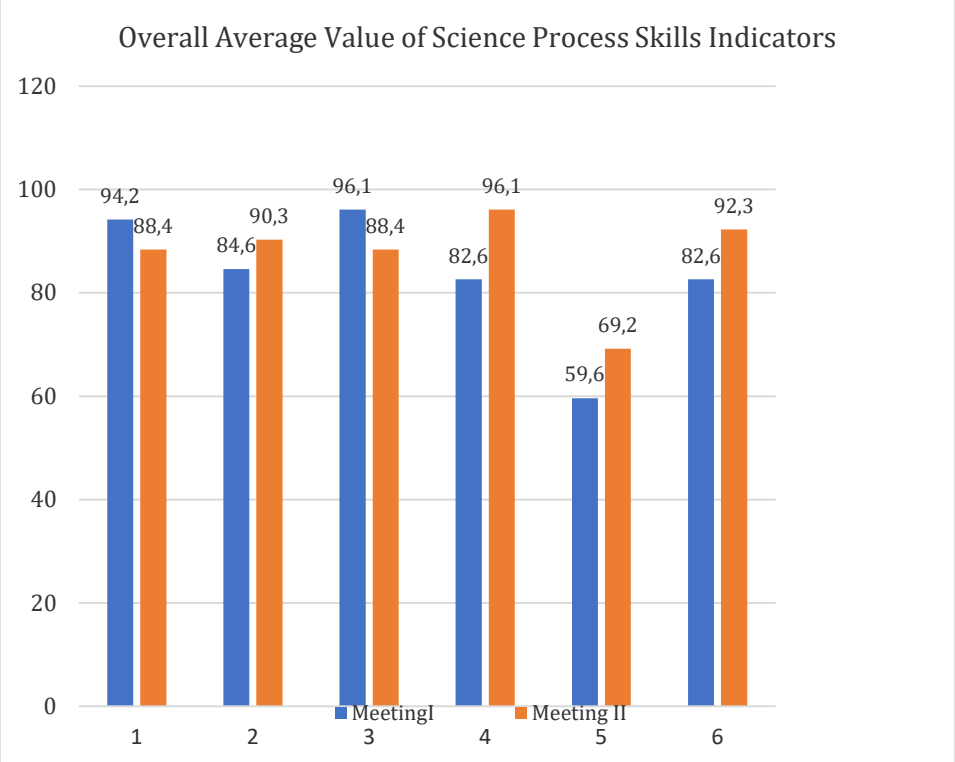

Figure 2. Percentage Graph of each Aspect of Science Process Skills of Class VIII Students Meeting I (Work and Energy) and Meeting II (Simple Machines (Mirngi Field)

Discussion

Science process skills are defined as a series of capabilities in the scientific method, encompassing understanding, discovery, and development (Rahmi, 2019). Science process skills are crucial in education, particularly in science, as they equip students with higher-order thinking skills, scientific reasoning, systematic problem-solving, and the ability to be lifelong independent learners. The development of science process skills aligns with national education goals and 21st-century demands that emphasize scientific and technological literacy. The findings of this study, which show an increase in science process skills through DL (Tables 2 and 3), indicate that appropriate learning models can contribute significantly to achieving these educational goals. Tables 2 and 3 demonstrate positive results, with a good percentage and a excellent percentage in the second meeting, which was taught using the Discovery Learning model. The following is a comprehensive overview of each aspect of science process skills.

Interpretation of the data in Figure 2 reveals an interesting dynamic: the highest percentage of science process skills was in the second meeting, namely the skill of using instruments and materials, with an outstanding category, and the lowest was in the skill of implementing the skills. Meanwhile, in the third meeting, regarding simple machines (inclined planes), the highest percentage was for conducting experiments, and the lowest was for implementing skills. In both meetings, the teacher used the same learning model, Discovery Learning.

Observation skills, meaning students use all five senses to observe clues, thus gaining an understanding of the issues being discussed (Yang et al., 2021). The analysis of science process skills revealed a very high average score of 94.2% in the first meeting on work and energy, categorized as excellent. The science process skills score in the first meeting was classified as amazing, while the score in the second meeting was categorized as good. This was evident when students conducted observations solely by watching videos on their mobile phones, compared to observations in the second meeting, which were more challenging to improve, namely by practicing on an inclined plane. The percentage in the second meeting was only 88.4%, categorized as good. This indicates that the observation aspect is influenced by the level of difficulty from one meeting to the next, with observations differing from those of the previous meeting.

The next aspect is hypothesis-making skills. The goal of this hypothesis is to formulate ideas or statements about the relationship between variables. The hypotheses investigated by students focus on identifying the cause-and-effect relationships between variables (Chen et al., 2021). In the first meeting, the average percentage was 84.61%, categorized as good, and in the second meeting, the rate of process skills increased to 90.38%, classified as excellent. Both meetings achieved good results, as they both utilized the Discovery Learning model.

The skill aspect of using instruments and materials is an essential aspect because it requires capabilities in observation, measurement, experimentation, analysis, and technical skills. Additionally, students must understand why and how to utilize the instruments and materials (Khairunnisa et al., 2019). From the analysis of science process skills, the percentage value of meeting I obtained an average of 96.15%, which was categorized as an excellent skill aspect. Meanwhile, for Meeting II, the percentage obtained was 88.46%, indicating that the percentage decreased but remained in the superb category. Overall, the aspect of using instruments and materials is the highest skill mastered by students in the material of Chapter 3, using the Discovery Learning model. This can happen because in chapter 3, the material on Work, Energy, and Simple Machines (inclined planes) uses instruments and materials that are very easy to learn and use by students, such as the PhET virtual lab that utilizes mobile phone or laptop technology, not only that, but also by using simple instruments such as levers or practicing how work and energy work. The difference in percentages is because sub-tasks

1 and 2 have slightly more challenging practical exercises compared to the virtual lab and in-person practicum.

The experimental skills aspect refers to the skills students possess in experimenting. Data analysis showed that in Meeting I, 82.69% achieved a good score, and in Meeting II, 96.15% achieved an excellent score. These results indicate that the Discovery Learning model had a significant impact on students' science process skills, as meetings I and II achieved positive outcomes.

This aspect consistently showed the lowest achievement (59.6% - Fair, increasing to 69.2% - Good). This indicates challenges for students in connecting newly learned conceptual knowledge (e.g., work, energy, mechanical advantage) with its application in explaining phenomena, solving contextual problems, or interpreting experimental data in depth. The DL model facilitates this connection through data processing and proofreading, but students appear to require more time and guidance to master this knowledge transfer. This difficulty may be caused by the abstract nature of the concept or a lack of prior experience in applying scientific concepts (González-pérez & Ramírez-montoya, 2022). The improvement from "Quite Good" to "Good" still indicates positive development. In this case, students must be able to apply problem-solving concepts and provide a systematic explanation. According to the data analysis results from the first meeting, the outcome was 59.61%, which falls into a pretty good category. In the second meeting, the results were 69.23%, indicating a good category. This aspect of implementation skills is in a low category compared to other skill aspects. This is because students are less able or less proficient in applying their new knowledge to the concepts they are learning. It was observed in the first meeting that students were a little confused about the application of the effort and energy they obtained from the results of virtual lab observations conducted via mobile phones or laptops. In the second meeting, students built upon the capabilities demonstrated during the practical observations in the first meeting and began to understand the concept of simple machines on inclined planes, as evidenced by the good results achieved in the second meeting.

In terms of communication skills, students were allowed to convey their observations through writing, graphs, reading, and speaking (in discussions and presentations), as well as experimental results, and to compare their data with that of other groups. Communication skills achieved a score of 82.69% in the first session and 92.30% in the second session. Both sessions yielded good and excellent results. During discussions and presentations, students were able to read and speak about what they had learned. This is a technique frequently used by science teachers themselves, as it appears to be effective in improving students' scientific communication skills.

This also demonstrates that the Discovery Learning model has a significant impact on science process skills, as evidenced by the results, which averaged good to excellent. The stages of Discovery Learning begin with providing stimulation, prompting students to ask questions related to the material, which helps develop hypotheses. This is followed by processing, proving, and drawing conclusions by presenting the results of the discussion to their groups. The results obtained were also satisfactory, with a good category in the first meeting and an excellent category in the second meeting. The percentages were 83.33% and 87.5%, respectively. The difference in these categories was also evident from the presentation of each aspect of the existing skills. However, despite the differences in the categories, both produced a good average percentage of skills. Based on the results of the research and discussion, it can be concluded that the application of the Discovery Learning learning model on the material of Work, Energy, and Simple Machines (Inclined Planes) has a positive and significant impact on improving the Science Process Skills (SPC) of grade VIII students. The total average SPC percentage increased from 83.2% (Good) in the first meeting to 87.4% (excellent) in the second meeting, with an overall average of 85.3% (Good category). In this case, it is relevant to research (Septi et al., 2021) if the Discovery Learning learning model has an impact on science process skills because, by implementing this model, it is very effective in practical activities in the

process of planning, implementing, and reporting practicums, which will improve students' science process skills. The definition of scientific process skills encompasses a series of capabilities in scientific methods, including understanding, discovering, and developing them (Rahmi, 2019). From Table 2 and Table 3, it is evident that the results are promising, as the meeting progresses from the first meeting in the good percentage category to the second meeting in the excellent percentage category, as taught through the Discovery Learning learning model. The following is an explanation of each aspect of the science process skills.

Figure 2 shows that the highest percentage of science process skills in the second meeting was the skill of using instruments and materials, categorized as excellent, and the lowest was the skill of implementing. Meanwhile, in the third meeting, regarding simple machines (inclined planes), the highest percentage was in the skill of conducting experiments, and the lowest was in the skill of implementing them. In both meetings, the teacher used the same learning model, Discovery Learning.

Observation skills, meaning students use all five senses to observe instructions, thus gaining an understanding of the issues being discussed (Yang et al., 2021). The analysis of science process skills shows that the average percentage of work and energy in meeting I, achieved a very high rate of 94.2%, categorized as excellent. The science process skills score in meeting I was classified as amazing, while Meeting II was categorized as good. This was evident when students conducted observations solely by watching videos on their mobile phones, compared to observations in Meeting II, which were more challenging to improve, particularly by practicing with an inclined plane. The percentage in meeting II was only 88.4%, categorized as good. This occurs in the observation aspect, influenced by the level of difficulty from one meeting to the next, with observations varying from those of the previous meeting.

The next aspect is hypothesis-making skills. The goal of this hypothesis is to formulate an idea or statement about the relationship between variables. The hypotheses investigated by students focus on identifying the cause-and-effect relationships between variables (Chen et al., 2021). In the first meeting, the average percentage was 84.61%, categorized as good, and in the second meeting, the rate of process skills increased to 90.38%, classified as excellent. Both meetings achieved good results, clearly using the Discovery Learning model.

The aspect of skill in using instruments and materials is an important one because it requires capabilities in observation, measurement, experimentation, analysis, and technical skills. The aspects of KPS that are intended to show development include the ability to observe, formulate hypotheses, utilize tools and materials, conduct experiments, interpret/implement data/concepts, and communicate results. Additionally, students must understand why and how to use the instruments and materials (Khairunnisa et al., 2019). From the analysis of science process skills, the percentage value of meeting I obtained an average of 96.15%, which was categorized as an excellent skill aspect. Meanwhile, for Meeting II, the percentage obtained was 88.46%, indicating that the percentage decreased but remained in the superb category. Overall, the aspect of using instruments and materials is the highest skill mastered by students in Chapter 3 material, as demonstrated by the Discovery Learning model. This can happen because in chapter 3 of the material on Work, Energy, and Simple Machines (inclined planes), it uses instruments and materials that are very easy to learn and use by students, such as the Phet virtual lab that utilizes mobile phone or laptop technology, not only that by using simple instruments such as levers or practicing how work and energy work. The difference in the percentage figures is due to Sub One and Sub Two having practicums with a slightly more challenging level of practice between virtual labs and direct practicums.

The experimental skills aspect refers to the skills students possess in experimenting. Data analysis showed that 82.69% of students performed in the first session, categorized as good, and 96.15% in the second session, categorized as excellent. These results

indicate that the Discovery Learning model had a significant impact on students' science process skills, as both sessions yielded positive outcomes.

The implementation skills aspect involves connecting previously learned knowledge through different contexts. The most commonly used research strategy involves implementing knowledge using techniques such as research-based learning, followed by a reflection strategy to encourage systematic thinking. In this context, students must be able to apply problem-solving concepts and provide systematic explanations for them. Data analysis showed that 59.61% of students performed in the first session, categorized as fair, and 69.23% of students performed in the second session, classified as good. The implementation skill aspect is categorized as low compared to other skill aspects. This is due to students' inability or lack of mastery in applying their new knowledge relevant to the concepts they are learning. In the first meeting, students were slightly confused about the application of the work and energy they obtained from virtual lab observations via mobile phones or laptops. In the second meeting, students, having gained capabilities from the first meeting during the practicum observations, began to understand the concept of simple machines on inclined planes. This is evident in the positive results of the second meeting.

In the communication skills aspect, students were given the opportunity to communicate their observations through writing, graphs, reading, and speaking (in discussions and presentations), as well as experimental results, and comparing data with other groups. Communication skills in the first meeting achieved 82.69% and in the second meeting achieved 92.30%. Both meetings achieved good and excellent results. Students were able to read and speak from what they had learned during discussions and presentations.

This also demonstrates that the Discovery Learning model has a significant impact on science process skills, as evidenced by the results, which averaged between good and excellent. The stages in Discovery Learning begin with providing stimulation, where the teacher encourages students to ask questions related to the material, which is part of developing a hypothesis. This is followed by processing, proving, and drawing conclusions by presenting the results of the discussion in front of the class with their groups. The results obtained were also satisfactory, with a good category in the first meeting and an excellent category in the second meeting. The respective percentages were 83.33% and 87.5%. The difference in these categories was also evident in the presentation of each existing skill aspect. However, despite these differences in categories, both produced a good average percentage of skills. In this case, it is relevant to research (Septi et al., 2021) that the Discovery Learning learning model has an impact on science process skills because, by implementing this model, it is very effective in practical activities in the process of planning, implementing, and reporting practicums, which will improve students' science process skills. This study provides an in-depth qualitative description of the improvement process in each aspect of the Student Learning Outcome (KPS) within the context of SMP Islam Sudirman Suruh. An aspect-by-aspect analysis reveals that DL does not uniformly improve all KPS components; certain aspects of concept implementation require additional supporting strategies. These findings provide education practitioners with a more nuanced picture of the strengths and areas to consider when implementing DL for KPS development.

Conclusions

From the results of the research and discussion that have been explained, regarding the application of the Discovery Learning learning model on the material of effort, energy, and simple machines (inclined planes) on science process skills in class VIII of SMP Islam Sudirman Suruh, it can be concluded that the application of the Discovery Learning learning model has an impact on science process skills in science learning in class VIII of SMP Islam Sudirman Suruh with an excellent category.

Acknowledgments

The researcher would like to thank all parties involved in this research, especially the supervising lecturer, the science teachers, and the students of class VIII at Sudirman Suruh Islamic Middle School.

Declaration statement

The authors reported no potential conflict of interest.

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