

THE SCIENCE PROCESS SKILLS OF BIOLOGY SCIENCE LEARNING IN STATE JUNIOR HIGH SCHOOLS IN PERCUT SEI TUAN DISTRICT DELISERDANG REGENCY

Sri Susanti, Syahmi Edi, dan Hasruddin

Universitas Negeri Medan, Indonesia

Email: srisusanti1314@gmail.com, syahmiedibiologi@gmail.com dan
hasruddin_lbsmdn@yahoo.com

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ABSTRACT

This study aimed to analyze the science process skills of a scientific approach in the learning process of biology in State Junior High Schools in Percut Sei Tuan, Deli Serdang. This method applied a descriptive study with a qualitative approach. The population was all students consisting of 8 public schools in State Junior High Schools of Percut Sei Tuan for the academic year of 2020/2021. Samples were taken from 180 eighth-grade students from 5 schools in Percut Sei Tuan by using purposive sampling. To obtain the data, the description test was used as an instrument to measure students' science process skills with indicators such as observing, classifying, interpreting, predicting, hypothesizing, planning experiments, applying concepts, and communicating in biology learning. The results on science process skills in the biology learning of plant structure and function material were categorized as good with a mean score of 72.06 and the highest indicator for observing obtained a mean score of 82.77 with a very good category and the lowest indicator for communicating obtained a mean score of 64.58 with a good category.

Introduction

Learning basically must be able to equip students how to know concepts, facts in-depth, and must be able to provide intellectual satisfaction, especially in building thinking ability. The ability to think will have implications for knowledge (cognitive), attitudes (affective), skills (psychomotor), these three components are outputs or results that must be obtained after learning science which is called learning outcomes ([Razak et al., 2016](#)).

A scientific-based approach according to the demands of the 2013 curriculum is believed to be a golden step for the development of students in science learning. Learning requires students to understand the material and be able to complete learning outcomes so that students can have the opportunity to develop their thinking skills, relate the material to daily life, the ability to work together and become independent learners, besides that by being contextual and student-centered, it will emerge students'

involvement to be active in learning activities so that assessment of students can include competence, attitudes, and skills, not only knowledge and student learning outcomes under the 2013 curriculum ([Arumisore et al.](#), 2018).

The learning and teaching process is more towards training than education and the majority of students do not have learning motivation ([Yazdi](#), 2012). Learning situations like this also make learning less attractive because students tend to be passive, less responsive, less creative causing potential which results in high-level abilities, science process skills, and low scientific attitudes ([Sati et al.](#), 2017)

Science learning is learning that not only emphasizes mastery of products, but also mastery of process skills and scientific attitudes. Process skills in science learning are known as science process skills ([Juhji](#), 2016). According to ([Gürses et al.](#), 2015) stated that science process skills are basic skills that facilitate learning in science, enable students to be active, develop a sense of responsibility, improve learning and methods of inquiry.

According to ([Rusli](#), 2015) suggested that students studying their plant material require high creativity and reasoning so that many students find it difficult to understand the material. Higher-order thinking is needed aims to train students to be able to think openly about the problems posed so that they get answers and/or solutions to these problems. According to ([Yee et al.](#), 2015) students can find new ways to solve problems through higher-order thinking skills. Apart from higher-order thinking skills, science process skills and scientific attitudes are also improved.

Science process skills are physical and mental skills that scientists should have to acquire and develop knowledge. In addition, science process skills also involve intellectual, manual, and social skills that are used by students in the learning process, including observing, formulating hypotheses, conducting experiments, planning research, controlling variables, interpreting data, inference, predicting, applying, and communicating the results. These skills involve the active role of students in learning ([Roza et al.](#), 2015).

Based on the initial observations of the implementation of the 2013 curriculum (K-13) in several schools in Percut Sei Tuan District, science-biology learning has been seen in the learning tools used. However, its implementation needs to be evaluated because the teacher has not applied the instrument how it is carried out, in measuring the ability of science process skills. This is a requirement for students in science learning and to train themselves to achieve learning goals, especially in the implementation of online learning.

Based on this, it is necessary to research students' science process skills in science learning biology in State Junior High Schools in Percut Sei Tuan District, Deliserdang Regency.

Research Methods

This study applied a descriptive study using a qualitative approach. The population were all State Junior High Schools in Percut Sei Tuan District for the academic year of

2020/2021, consisted of 8 public schools in Percut Sei Tuan District. The sampling method was carried out by purposive sampling. The sample was 180 students who were taken from 5 public Junior High Schools in Percut Sei Tuan.

A. Data Collection Technique

The data collection technique used a question sheet in the form of a description test of science process skills, to determine the ability of students' science process skills.

B. Research Instrument

The instrument was a science process skills essay test. The latticework of this instrument can be seen in Table 1

Table 1
Latticework of Science Process Skills Instruments

No.	Indicators
1.	Observing
2.	Classifying
3.	Interpreting
4.	Predicting
5.	Hypothesizing
6.	Planning Experiments
7.	Applying Concepts
8.	Communicating

C. Data analysis technique

The data analysis used a descriptive analysis technique. The technique of descriptive statistical analysis was used to describe research data by calculating the mean score as presented with the following formula:

$$S = \frac{R}{N} \times 100$$

Description:

S = The score of students' science process skills

R= The score obtained from the correct answer

N= The maximum number of scores from the test

So that the data obtained using the formula above was grouped in Table 2 to determine the category for each indicator.

Table 2
Criteria for the Process Skills Assessment

No.	Score	Criteria
1.	$0 \leq x < 21$	Very Poor
2.	$21 \leq x < 41$	Poor
3.	$41 \leq x < 61$	Satisfactory
4.	$61 \leq x < 81$	Good

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5.	$81 \leq x < 100$	Very Good
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(Source: *Critical Thinking Foundation, 2019*).

Results and Discussions

The data on students' science process skills in biology science learning in State Junior High Schools in Percut Sei Tuan District, Deliserdang Regency can be seen in

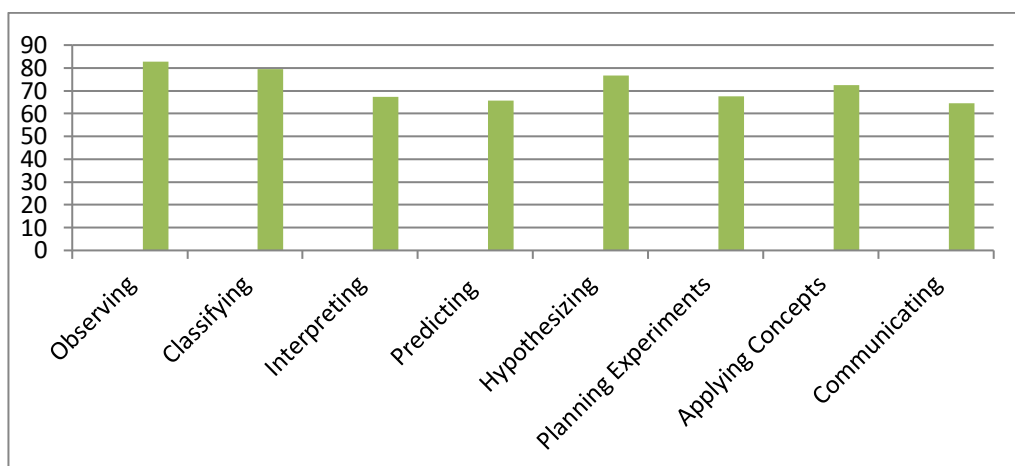


Figure 1

The data of science process skills in biology science learning in State Junior High Schools in Percut Sei Tuan District, Deliserdang Regency (N:180)

From Table 1 aforementioned above it could be explained that the results of students' science process skills were in a good category. The mean score was 72.06 on the plant structure and function material for the eighth-grade students in State Junior High Schools in Percut Sei Tuan, with a description of each aspect as follows, the mean score of observing was 82.77 with a very good category, classifying was 79.44 with a good category, interpreting was 67.35 with a good category, predicting was 65.69 with a good category, hypothesizing was 76 with a good category, planning experiments was 67.63 with a good category, applying concepts was 72.35 with a good category, and communicating was 64.58 with a good category.

The results of students' science process skills were in a good category. The mean score obtained was 72.06 on the plant structure and function material for the eighth-grade students in SMP Negeri Percut Sei Tuan, students' science process skills who were already in good categories, include aspects of observing, classifying, and hypothesizing, whereas the aspects of interpreting, predicting, planning experiments, applying concepts, and communicating were in moderate categories.

According to ([Damopolii et al., 2019](#)) explained that the contribution of teachers is important in managing student learning outcomes to be able to get a better picture of

student science process skills, teachers must compile science process skills tests and be competent in how to measure them. According to ([Hasruddin et al.](#), 2018) explained that science process skills that involve cognitive and intellectual learning will achieve good learning outcomes. According to ([Kesumawati & Sudiby](#), 2019) suggested that there is an influence on the application of contextual inquiry and empowerment of thinking through questions on science process skills. According to ([Malik](#), 2016), the need for teachers to conduct learning and approach students' science process skills to help student knowledge.

Conclusion

From the results and discussion, it can be concluded as follows: The level of students' science process skills ability with a scientific approach to the science learning of biology in State Junior High Schools in Percut Sei Tuan District, Deliserdang Regency was categorized as good with a mean score of 72.06 and the highest indicator was found in observing with a mean score of 82.77 with a very good category and the lowest indicator was found in communicating with a mean score of 64.58 with a good category. The teacher's contribution is important in managing student learning outcomes to get a better picture of students' science process skills and teachers must compile science process skills tests and be competent in measuring them.

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