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Improving Students' HOTs-Literacy Abilities Through Making Summaries at The End of Learning

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***Abstract*:** *The reading and writing habits of SMAN 2 Percut Sei Tuan students are relatively low. Therefore, students' literacy and high order thinking abilities are also relatively low. The implementation of scientific literacy-based learning strategies in the form of making summaries at the end of the learning process is expected to improve students' literacy and high order thinking skills. The instruments used are tests in the form of varied multiple choices and essays totaling 8 and 2 questions. The results of data analysis show that students' initial abilities on the 9 of HOTs-Literacy indicators are very low with an average value of 28.49. The summarizing treatment at the end of the learning process succeeded in improving the ability of HOTs-Literacy students in indicators (1) identifying information and data, (2) using information and data, (3) producing explanatory models, (4) distinguishing questions that can be researched scientifically, (5) formulating hypotheses, (6) making predictions, (7) analyzing data, (8) interpreting data, (9) drawing or presenting conclusions, respectively 63.7 ; 66.7; 68.4 ; 64.0 ; 70.9 ; 70.8; 79.2 ; 81.4 and 86.3 %.*

***Keywords*:** *HOTs-Literacy; Making Summary; Improving*

INTRODUCTION

Reading is the main activity in literacy as stated by the Ministry of Education and Culture (Kemendikbud, 2019); (Padmadewi & Artini, 2019); that Literacy is an individual's ability and skills in reading, writing, speaking, calculating and solving problems in certain areas or skills activities needed in processing information and knowledge for life skills. Therefore, reading, numeracy and science literacy are fundamental competencies that every student must have in accordance with the AKM (Minimum Competency Assessment) set by the current government. In line with the Ministry of Education and Culture, (Ginting et al., 2022) stated that scientific literacy is the ability to understand, communicate and implement scientific abilities in solving problems. A person's scientific literacy abilities are in line with high-level thinking abilities which include the ability to think critically, creatively and solve problems which play an important role in being able to compete in the 21st century (Simamora, 2022). However, the current reality shows that students' literacy skills in Indonesia are very

low. PISA (The Program for International Assessment) 2018, which is an assessment program for students aged 15 years, reported that Indonesian students' literacy skills were ranked 71st out of 78 countries with an average score of 382.0 (OECD, 2017). Meanwhile, previously in PISA 2015 it was also reported that Indonesian students' scientific literacy was ranked 62nd out of 70 countries with an average score of 403 (OECD, 2023) further revealed that 7 of 10 students' reading literacy levels were still below minimum competency. These students are only able to identify routine information from short readings (Heong et al., 2011). One of the causes of low student literacy skills is that students' reading and writing habits at school are still low.

Based on the results of direct interviews with library staff at SMAN 2 Percut Sei Tuan, data and information were obtained that the culture of visiting students to borrow and read books or other reading materials in the library was very low. In the 2017/2018 academic year (before the Covid-19 pandemic), 9.38% of students visited the library to borrow and read books per week, respectively, 9.38% of students came to the library to borrow books and only 1.56% of students read there. library. Further information reveals that the average length of time students read in the library in both the 2017/2018 and 2018/2019 school years has not changed, around 30 – 45 minutes or one class hour. As far as librarians know, there are no teachers who give assignments to students to read in the library and supervise them until all students have finished reading or assign assignments to students to read in the library and then make summaries based on what the students read. The information from the library staff was strengthened by the results of interviews with Chemistry subject teachers that teachers had never assigned students to read in the library and supervised them until the students finished or asked students to summarize what they had read. Teachers only encourage students to go to the library when the teacher cannot enter or cannot be present in class. During the learning process, teachers rarely give each student the opportunity to read at the beginning of the learning activity and/or assign them to prepare a written summary at the end of the lesson.

Meanwhile, the 2018 PISA findings reported that concentrating on the content of the reading or conversation and then marking or writing a summary in your own words was proven to be effective in improving students' literacy skills. Effective summarizing activities foster the ability to capture or find important things and rewrite them with your own creativity (Rosta, 2020). This is effective for improving students' high-level thinking abilities. Therefore, in order to improve students' scientific literacy and high-level thinking skills (HOTs-Literacy) (Nasution & Jahro, 2023), research has been carried out in the form of implementing literacy-based learning strategies in the form of making written summaries by students at the end of learning activities.

The problem formulation in this research is (1) How are students' abilities in compiling summaries at the end of each lesson? (2) What is the distribution of students' abilities on the 9 HOTs-Literacy indicators before and after the summary treatment at the end of the lesson? (3) What is the contribution of summary making activities to improving students' HOTs Literacy abilities?

LITERATURE REVIEW

Literacy is a set of a person's abilities and skills to read, write, speak, count and solve problems at a certain level of competence needed in everyday life (Purba et al., 2022) In line with this, scientific literacy is defined as scientific knowledge and skills to be able to identify questions, obtain new knowledge, explain scientific phenomena and draw conclusions based on facts, understand the characteristics of science, awareness of how science and technology shape the natural, intellectual and cultural environment, and the will to engage and care about science-related issues (Wibowo & Ariyatun, 2020). The Ministry of Education and Culture

(Kemendikbud, 2019) proposed levels of literacy achievement for junior high school (SMP) and senior high school (SMA) students as shown in Table 1.

Table 1. Levels of science literacy in middle school and high school

Junior High School (Class VII – IX)	Senior High School (Class X – XII)
Factual knowledge about science concepts were more complex	Factual knowledge about science is more complex, broad and deep
Conceptual knowledge about science is more complex	Conceptual knowledge of science more complex, broader and deeper
Simple procedural knowledge about science involving given variables	Procedural knowledge of science involves quantitative measurements and accurate with controlled variables
Explaining scientific phenomena and issues: Building a hypothesis; Carrying out experiments; Collect, process and interpret data, then constructing knowledge	Using scientific evidence from Various sources (empirical evidence and literature) to build the ability to argue and think at a higher level for produce work or ideas, creative and innovative

According to (Panggabean et al., 2021) High Order Thinking Skills (HOTs) is a thinking process in exploring complex, reflective and creative experiences to obtain knowledge that includes analytical, synthetic and evaluative levels of thinking. One way to improve High Order Thinking Skills (HOTs) in students is to expose students to problems they have not encountered before so that their thinking processes will emerge and continue to be trained. Thus, HOTs-Literacy is a high-level thinking ability in finding, understanding, applying and reasoning information intelligently ((Jahro et al., 2021); (Thompson, 2011)).

Based on the PISA 2018 framework, there are 3 categories of cognitive abilities that students must demonstrate as a measure of their literacy abilities, namely analyzing, evaluating and interpreting. The analyzing category includes abilities; (1) using theories, ideas, information and facts, (2) using standard scientific search procedures, (3) analyzing the role and function of scientific assessment, (4) identifying and producing explanatory models, (5) making and assessing predictions and (6) formulate a hypothesis.

Meanwhile the evaluating categories include abilities; (1) identifying questions, (2) distinguishing questions that can be researched scientifically, (3) proposing ways to explore scientific questions, (4) evaluating ways to explore scientific questions, (5) collecting data through observations and experiments in the laboratory and/or field, (6) develop a model, (7) make predictions and then test them experimentally and (8) publish the findings and methods used. The interpreting category includes ability; (1) presenting data from one form to another, (2) analyzing and interpreting data, (3) presenting conclusions, (4) identifying assumptions, evidence, and reasoning in science-based texts, (5) distinguishing arguments based on scientific evidence and theory, (6) evaluating arguments and scientific evidence from various sources and (7) evaluating the feasibility of procedures. (Sofyan & Lataami, 2020). The abilities that students must achieve based on the PISA 2018 framework all require high-level thinking abilities.

A summary is one component of an organizing strategy in the learning process which functions to provide a brief statement regarding the main ideas of the material that has been studied. Summaries consist of two types, namely internal summaries and internal summaries (Azizi & Arrosid, 2023). Internal summaries are usually given at the end of the lesson and only summarize the main ideas of the subject area being taught (Rohman, 2019) Meanwhile, an external summary is given after several lessons and summarizes all the contents of the subject areas that have been studied (Ismail, 2022). Summaries also play an important role in learning as a component of elaboration in communication which can remind the main ideas of the material, preventing students from forgetting the material that has been explained because it only contains important points (Mahyudin & Alihsan, 2023). Apart from that, making summaries of the material studied becomes

more meaningful for students because summarizing the main ideas of the material focuses students' attention on the content of the material being studied (Roihatun, 2022). Summarizing activities are also a skill that can encourage students to think at a higher level. Students are guided to analyze information and synthesize it into a summary (Aida, 2014).

METHODS

This research was carried out at SMA Negeri 2 Percut Sei Tuan in the even semester of the 2022-2023 academic year with a sample of 30 students from class XII MIA 1.

Tabel 2. Distribution of question forms on the test instrument

HOTs-Literacy Indicator	Question Form	Amount
Identifying information	Multiple choice	1
Use information	Yes or no	1
Produce an explanatory model	Essay	1
Determine questions that can be researched scientifically	Multiple choice	1
Formulate a hypothesis	Multiple choice	1
Make predictions	Yes or no	2
Analyze data	True or false	1
Interpret data	True or false	1
Present conclusions	Essay	1

There are 2 data collection instruments used, namely non-test and test. The non-test instrument used is a summary sheet that students complete at the end of each learning process. The test instrument used is 10 questions consisting of 2 essay questions and 8 questions in the form of various choices as shown in Table 2. This test instrument is a tool for measuring students' HOTs-Literacy abilities before treatment (pretest) and after treatment, making summaries by students at the end of each learning process in 4 consecutive meetings over 4 weeks.

The research was designed in the form of a one group pretest-posttest design with research stages as shown in Figure 1.

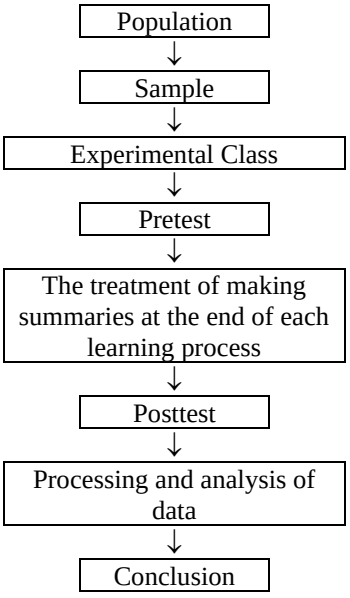

Figure 1. Research design scheme

The sheet contains summaries made by students at the end of each learning process, processed by comparing the main concepts in the student's summary with the main concepts that have been determined by the researcher as a benchmark in assessing students' ability to make summaries using the formula:

$$SS = \frac{Student\ MC}{Standard\ MC}\ x\ 100 \qquad (1)$$

SS is Student Summary Score
Student MC is the number of main concepts in the student's summary
Standard MC is the number of main concepts that have been determined by researchers.

For the test instrument which consists of 4 forms of questions, namely essay, multiple choice, yes or no and true or false, each is given a different score. For scoring essay questions, use the holistic scoring rubric that has been determined by the researcher. For multiple choice questions, a score of 1 is given if the answer choice is correct and 0 if the answer choice is wrong or not answered. For True or False and Yes or No questions, a score of 2 is given if the answer is correct and the reason is correct, a score of 1 if one answer or reason is correct and a score of 0 if the answer or reason is wrong or not answered. The scores obtained by students are then

converted into values that indicate students' HOTs-Literacy abilities using a formula:

$$VT = \frac{STS}{Ms}\ x\ 100 \qquad (2)$$

VT is HOTs-Literacy ability test score
STS is Test score obtained by students
MS is Maximum score

RESULT AND DISCUSSION

In this research, a series of activities have been carried out according to the design to answer the problem formulation and achieve the research objectives as follows: (1) giving an initial test to the sample to find out how students' abilities are distributed on the 9 indicators of HOTs-Literacy before being given treatment, (2) carrying out the process learning in 4 meetings where at the end of each learning process students are asked to make a summary to find out how students' abilities are in compiling a summary and (3) give a final test to find out the distribution of students' abilities on the 9 indicators of HOTs-Literacy after treatment and to find out the contribution of the summary making activity to increasing students' HOTs-Literacy abilities.

The distribution of students' abilities on the 9 HOTs-Literacy indicators before being given treatment is presented in Table 3.

Table 3. Results of the initial HOTs-Literacy test or pretest for SMAN 2 Percut Sei Tuan students and their distribution on 9 indicators

HOTs-Literacy Indicator	Value		
	Lowest	Highest	Average
Identify information	10	45	32.2
Use information	10	45	30.6
Produce an explanatory model	10	40	29.4
Distinguish questions that can be researched scientifically	10	40	30.8
Formulate a hypothesis	10	35	28.2
Make predictions	5	35	27.4
Analyze data	10	30	26.4
Interpret data	10	30	25.8
Present conclusions	10	30	25.6

In Table 3 it can be seen that the HOTs-Literacy abilities of SMAN 2 Percut Sei Tuan students on each indicator are classified as very low with an average of less than 35.0. This is in accordance with the results of the situation analysis that the low literacy culture of students at SMAN 2 Percut Sei Tuan has an impact on the low AKM (Minimum Competency Assessment) score which measures the ability to reason about text and numbers (Literacy and Numeracy) which includes skills in sorting and processing information, thinking. logical-systematic and reasoning using knowledge.

To improve students' HOTs-Literacy abilities, treatment is implemented in closing activities at the end of each learning process in the form of giving assignments to each student to make a written summary of the chemical material studied at that meeting. Students make a summary on a sheet provided by the teacher which is equipped with student identification. To assist students in making summaries, the teacher provides instructions that summaries must be made in accordance with the learning objectives that have been indicated and stated in the initial learning activities. Figure 2 shows the average results of the summary assessments made by students at the first to fourth meetings.

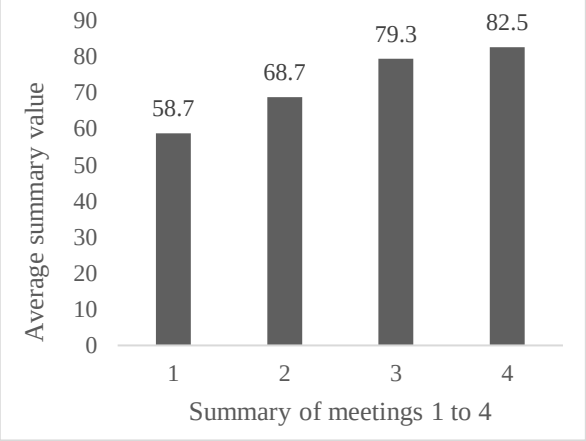

Figure 2. Average student summary scores at meetings 1 to 4

In Figure 2, it can be seen that students' literacy skills related to finding, writing and compiling concepts in the summary of the first meeting with an average score of 58.7 were still relatively low, then at

the second meeting it increased to 66.7, including the medium category and at the third meeting it was still in the medium category but with the average value is higher, namely 74.4. Then at the fourth meeting they managed to reach the high category with a score of 82.5.

This activity of making summaries by students is a substitute activity for drawing conclusions which is usually done orally by teachers and students. At the first and second meetings, most students needed 10-15 minutes to make a summary but at the fourth meeting the average student only needed 7-10 minutes. This shows that students' ability to make summaries increases as students' experience increases. in making a summary from the first meeting to the next meeting. In other words, getting used to doing an activity means that the activity can be done easily according to the adage that you can do it because you are used to it. The task of making a summary makes students pay more attention or pay attention to the discussion of the material during the core learning activities.

According to (Juanda, 2017) making summaries can train the delivery of ideas in good language and structure, guide and guide them so they can pay attention carefully, develop expression and economy of words, develop creativity and concentration and sharpen students' understanding of the material being studied.

To find out and analyze the impact of the summary-making treatment by students at the end of the learning process on students' literacy and high-level thinking skills (HOTs-Literacy), at the fifth meeting a final test or posttest was carried out using questions that were the same or similar to the initial test or pretest, the results of the posttest were summarized in Table 4.

Table 4. Results of the initial HOTs-Literacy test or pretest for SMAN 2 Percut Sei Tuan students and their distribution on 9 indicators

HOTs-Literacy Indicator	Value		
	Lowest	Highest	Average
Identify information	35	80	52.7
Use information	35	80	51.0
Produce an explanatory model	30	75	49.5
Distinguish questions that can be researched scientifically	40	70	50.5
Formulate a hypothesis	30	65	48.2
Make predictions	30	65	46.8
Analyze data	30	65	47.3
Interpret data	30	70	46.8
Present conclusions	30	70	47.7

In table 4, it can be seen that students' HOTs-Literacy abilities in each indicator have increased after students received the task of making summaries 4 times. The magnitude of the increase in students' HOTs-Literacy abilities in each indicator is summarized in Table 5.

Table 5. Increase in students' HOTs-Literacy abilities for each indicator as a result of the summary-making treatment by students at the end of the learning process

Number Indicator	Average Value		Increasing	
	Pre-test	Post-test	Number	%
1	32.2	52.7	20.5	63.7
2	30.6	51.0	20.4	66.7
3	29.4	49.5	20.1	68.4
4	30.8	50.5	19.7	64.0
5	28.2	48.2	20.0	70.9
6	27.4	46.8	19.4	70.8
7	26.4	47.3	20.9	79.2
8	25.8	46.8	21.0	81.4
9	25.6	47.7	22.1	86.3

Based on the data in Table 5, it appears that students' HOTs-Literacy ability achieved the highest increase in the indicators of analyzing and interpreting information and data and drawing conclusions. This is possible as a result of students' activities in making summaries 4 times in a row. This is in line with the research results of (Juliantina & Rahmadena, 2019) who conducted research to determine the effect of making summaries on student learning outcomes in writing. The results of the research show that there is an influence of making summaries on student learning outcomes in writing at SMA Melati Binjai. Meanwhile, (Padmadewi & Artini, 2019) used a scaffolding strategy in teaching writing to increase student literacy in

elementary schools. Students are given the task of writing a summary of an English novel read by the teacher. This activity is carried out 15 minutes before the English lesson starts. The results show that on average students obtained a good literacy skills score, namely above 80. This means that the scaffolding strategy with summary writing assignments can improve students' literacy skills.

Summarizing activities can also improve students' HOTs-Literacy abilities on indicators of identifying and using information and data, producing explanatory models, formulating hypotheses and making predictions. This is possible because summarizing activities can remind the main ideas of the material and prevent students from forgetting the material that has been explained and can reduce the difficulties they usually face because it only contains important material points. Apart from that, summarizing makes learning more meaningful for students because summarizing the main ideas of the material being studied will focus students' attention on the content of the material being studied. Summarizing can also encourage students to understand meaning and think critically because it requires students to apply high-level thinking skills. Students are led to analyze information and synthesize it before summarizing it.

CONCLUSION

Students' ability to make summaries from the first meeting to the next meeting increases in line with the increasing experience of students in making summaries at each meeting. Students' HOTs-Literacy abilities before treatment were classified as very low, especially in the indicators of analyzing and interpreting data and drawing conclusions. The practice of making summaries by students at the end of the learning process is quite effective in improving students' abilities not only on indicators of drawing conclusions based on the results of data analysis and interpretation but also on each indicator of HOTs-Literacy. Therefore, the activity of making summaries can be used as a routine activity at the end of learning as a substitute for teacher activities that encourage students to draw conclusions verbally. If in this research the making of summaries by students was done manually on a piece of paper, then in accordance with technological developments, summaries were then made by students can do this digitally or electronically using programs or media such as Canva so that it becomes a practical and efficient knowledge product that can be carried and read at anytime and anywhere.

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