Eduproxima: Jurnal Ilmiah Pendidikan IPA
http://jurnal.stkippgritulungagung.ac.id/index.php/eduproxima

THE EFFECT OF INQUIRY LEARNING MODEL GREEN-SCHOOL BASED TO THE STUDENT'S SCIENTIFIC LITERACY SKILLS CATEGORY

Aghniya Putri Rahmatika [1)], Fitria Wulandari [*2)]
[1,2)]Primary School Teacher Education Study Program, Fakulty of Psychology and Educational Sciences, University of Muhammadiyah Sidoarjo, East Java, Indonesia.
[*]*Corresponding author*
e-mail: tikaagniaputri35@gmail.com [1)], fitriawulandari1@umsida.ac.id [*2)]

Article history:
Submitted: July 4th, 2024; Revised: Aug. 5th, 2024; Accepted: Sep. 15th, 2024; Published: Jan. 15td, 2025

ABSTRACT

This study aims to determine the effect of the green school-based inquiry learning model and the categories of students' scientific literacy skills. Scientific literacy is a critical skill that students need to face the challenges of the 21st century. This research uses a mixed-method approach with a sequential explanatory design, combining quantitative and qualitative methods. The study was conducted in grade V with 27 students at SDIT El Haq Sidoarjo. The hypothesis test results using the t-test obtained a significance value of 0.000 < 0.05, thus rejecting H0 and accepting H1. It was concluded that there is a significant influence between the inquiry learning model and students' scientific literacy skills. The students' scientific literacy skills were at levels 3, 4, 5, and 6. The categories of students' scientific literacy skills were as follows: level 3 at 15%, level 4 at 15%, level 5 at 44%, and level 6 at 26%.

Keywords: inquiry, scientific literacy categories, green school

INTRODUCTION

The 21st century has shaped a new paradigm in the social environment, famously known as the era of globalization. A nation's success in this century is heavily dependent on its mastery of science and technology. The progress of a country becomes a benchmark for its ability to compete globally. Science education, which is part of the overall educational system, plays a crucial role in helping to create and shape students to better understand science contextually and apply it in their daily lives. Therefore, scientific literacy is an obligation for students. This discussion relates to changes in values and structures that impact human life, highlighting the importance for Indonesia to be equipped with education that meets the demands of the 21st century (Fery Haryadi, Priyono, and Retnoningsih 2015).

Surveys have been conducted to assess scientific literacy, one of which is the Programmed for International Student Assessment (PISA). PISA is a literacy study conducted by the Organization for Economic Co-Operation and Development and the UNESCO Institute for Statistics. Based on the 2022 PISA survey, Indonesia scored 383 in scientific literacy (Anon 2023). Showing a decline of 13 points, nearing the international average decline of 12 points, which is a low qualification compared to other countries (Anon n.d.). This indicates that Indonesian students' scientific literacy skills are still low, suggesting they lack sufficient skills to solve real-world problems. Furthermore, the low level of scientific literacy reflects

Indonesia's lack of readiness to compete globally. Scientific literacy is the ability to understand science, seek information, and make decisions based on facts (Uus Toharudin 2011). The knowledge and skills acquired by students during learning will be valuable assets in facing concrete challenges and solving problems. Scientific literacy involves students understanding the connections between the sciences they learn and their daily lives (Nafsih and Usmeldi 2022). It is the foundation for making decisions in daily life. Therefore, scientific literacy is a critical skill that students must have to apply scientific concepts in solving everyday problems (Merta et al. 2020). The science learning process is focused on concrete understanding of the potential development of students, allowing them to understand the natural environment through the discovery process. This aims to provide students with a deeper experience in gaining knowledge about the natural environment.

Scientific literacy skills can be measured through categories of students' literacy levels. The categories range from level 0, which is the lowest, to level 6, which is the highest. At level 0, students are able to use basic scientific knowledge to recognize aspects of existing phenomena. At level 1, students can use basic content and procedural knowledge to identify explanations of simple scientific phenomena. At level 2, students can use everyday content knowledge and basic procedural knowledge to identify scientific explanations and interpret data. At level 3, students can use fairly complex content knowledge to identify explanations of existing phenomena. At level 4, students can use more complex content knowledge to provide explanations of events and interpret data from fairly complex data sets. At level 5, students can use abstract scientific ideas or concepts to explain unusual and more complex phenomena involving many causal relationships. At level 6, students can evaluate experimental designs and explain scientific phenomena using their consistent conceptual and procedural knowledge (Anon 2019).

The aim of improving students' scientific literacy skills as early as possible is to enhance their literacy competence. This effort is increasingly important to implement and aligns with the implementation of the 2013 Curriculum. This curriculum integrates various subjects in Indonesia, promoting a literacy-based, integrative, and differentiated approach to learning, ultimately leading to multiliteracy learning. Therefore, consistent implementation of literacy is necessary to achieve the set goals optimally. In practice, the literacy culture movement has been well-received by schools. This movement is also related to the 2013 Curriculum, Strengthening Character Education, and other government programs (Pada, Pendidikan, and Pati n.d.).

National issues indicate that the PISA results for scientific literacy among students in Indonesia have low scores and have never met the assessment standards set by PISA, with students' scientific literacy generally falling into the low category (Hasasiyah et al. 2019). The low level of scientific literacy among students reflects that most Indonesian students do not yet have an adequate understanding of scientific concepts, scientific processes, and how to implement them in daily life. This means that students are not yet utilizing scientific knowledge or content to

explain natural phenomena, interpret data from scientific investigations, and draw conclusions based on scientific evidence and data. A study shows that students have not been able to implement scientific knowledge to solve the problems they face (Irwan et al. 2019). One of the factors contributing to the low scientific literacy among students is the science learning activities, including the lack of literacy facilities in the learning process, insufficient teacher understanding of scientific literacy, and inadequate school infrastructure. Therefore, a learning model is needed that can facilitate students in developing their scientific literacy skills.

Based on the issue of low scientific literacy among students in Indonesia, efforts are needed to address this problem by implementing an appropriate learning model. One such model is guided inquiry learning. Research conducted by Aulia, Poedjiastuti, and Agustini has concluded that using the guided inquiry learning model can improve scientific literacy skills (Aulia, Poedjiastoeti, and Agustini 2018). The guided inquiry learning model is a teaching approach where the teacher provides examples on a specific topic and guides students to understand that topic (Eggen 2012). In another sense, the inquiry-based learning model is a form of learning that focuses on the occurrence of theory discovery and connects all theories, where students design their own experiments and educators only provide guidance to the students (Komariyah and Syam 2016). Guided inquiry learning models can encourage students to discover more and act more independently, allowing them to work independently in both creating problems and finding answers, thereby enhancing learning activities. The guided inquiry learning model is one of the learning innovations that can lead to deeper knowledge, as it takes into account the high level of student autonomy (Sylvia Dewi 2016). In implementing the guided inquiry learning model, teachers must design an effective environment for the learning process, one of which is using Green School.

Based on observations at SDIT El-Haq, one of the green school-based elementary schools, this green school-based school is characterized by the presence of many plants around the school environment, there is a playground, there is a green house for plant nurseries and environmental conservation including disposing of garbage in its place and sorting garbage in the form of organic and inorganic waste and zero waste efforts made by students. Learning in this green school-based elementary school integrates material in all subjects with environmentally sound living behavior with the aim that the school looks very clean and well maintained, the garbage is well sorted and the gardens at school are neatly arranged. The learning process has not yet led to students' science literacy skills. The learning methods used do not show scientific phenomena, so students have difficulty in linking the concepts learned with phenomena that occur in everyday life. In addition, the learning used still uses conventional methods.

The Green School concept can be linked to students' scientific literacy, meaning students can enhance their scientific literacy skills through Green School programs. A green school, also known as a green school, is a school that extensively implements environmental education programs (Rahmah et al. n.d.). This is

because in Green Schools, students are taught and engaged with environmental issues. The learning environment contributes to the development of students' scientific literacy skills. Students' involvement in nature-based or environmental learning can enhance their sensitivity to the relationship between humans and the environment. The implementation of Green School initiatives is expected to teach students about environmental care and sustainability principles so that in the future, environmentally conscious green movements can be embraced by students as the responsible younger generation for the preservation of life on Earth.

The influence on students' scientific literacy can be found in the guided inquiry learning model, as concluded by research from Pratika and Muchlis, suggesting that the guided inquiry learning model can enhance students' scientific literacy skills (Kimia et al. 2016). Therefore, the implementation of scientific literacy should also be complemented with guided inquiry learning based on the Green School concept to cultivate critical thinking skills in students so that they can solve various problems. This will enable students to gain a deeper understanding of the surrounding environment.

The scientific literacy skills of students in Indonesia are still relatively low. Conversely, scientific literacy itself is a crucial aspect in facing the era of globalization. Considering the importance of scientific literacy skills as preparation for a better future life, where students can think logically, critically, creatively, argue correctly, collaborate effectively, the researcher seeks to understand the influence of these abilities through guided inquiry learning, especially for students attending schools with Green School programs. Guided inquiry learning is considered suitable for teaching science subjects (Jamaluddin et al. 2019).

Furthermore, it is explained that guided inquiry-based learning can have a positive influence on students' literacy skills because it demands direct student involvement in discovering new concepts through their individual creativity. Because of these reasons, this research aims to determine the effect of the guided inquiry learning model on students' scientific literacy skills in Green Schools, as well as the categories of students' scientific literacy skills.

METHODS

In this study, a mixed methods approach is used, which combines both quantitative and qualitative methods simultaneously to obtain more comprehensive, valid, reliable, and objective data. This study employs a sequential explanatory design, where initial data collection consists of quantitative data, followed by qualitative data collection to further explain or explore the results obtained from the quantitative data (Creswell 2018).

Quantitative data collection utilizes a one group pretest and posttest model, which includes an initial test (pre-test) to determine the condition before implementing the guided inquiry learning model based on the Green School concept, followed by a final test (post-test) to assess the condition after the treatment (Sugiyono 2020). The quantitative data collection instrument consists of essay questions. The subjects of this study involve 27 fifth-grade students from SDIT El Haq Sidoarjo.

The learning materials provided to students have undergone validation by subject matter experts. The subject matter experts are lecturers from the FPIP Science Education Department. In this research, validation sheets are used as data. According to the validation by subject matter experts, ecosystem learning using the guided inquiry learning model is deemed suitable for use and involves several important aspects. The essay test is examined using validity and reliability tests. Below are the results of the validity and reliability test of the essay questions in Table 1.

Tabel 1. Validity test

Item	Validitas Skor	Deskripsi
1	0.831	Valid
2	0.762	Valid
3	0.571	Valid
4	0.416	Valid
5	0.400	Valid
6	0.558	Valid
7	0.703	Valid
8	0.609	Valid
9	0.396	Valid
10	0.638	Valid

In Table 1, it is used to determine the validity test results of the questions. This is observed from the calculated value (r-value) > the table value (r-table), thus the questions are considered valid. Where the table value (r-table) using N = 25 is 0.381. Therefore, the data in items 1-10 in the table are considered valid. The results of the test for the reliability scale of the questions, where the Cronbach's alpha value is 0.792, indicate that the questions are reliable.

Research data on the achievement of science literacy indicator will be analyzed by calculating percentages. The percentage of achievement of science literacy indicators will then be interpreted descriptively based on the science literacy test, as follows:

Tabel 2. The score of achievement of science literacy indicators

Skor	Kategory
<56	Low
56-75	Medium
76-100	High

(Anon 2017)

The research data on the categories of students' science literacy skills will be analyzed by calculating percentages. The percentage of categories of students' science literacy skills will then be interpreted descriptively based on the interpretation of students' science literacy score categories, as follows:

Tabel 3. Interpretation of student science literacy score categories

Skor	Categories of Science Literacy Levels
0-7	Level 0
8-14	Level 1
15-39	Level 2
40-60	Level 3
61-71	Level 4
72-85	Level 5
86-100	Level 6

(Pravitasari, Widodo, and Purnomo n.d.)

Quantitative data is presented in the form of objective descriptions of written test results and is displayed in the form of inferential statistics. Inferential statistical analysis is used to explain the significance of improvements before and after the treatment is administered. In the inferential statistical analysis of this research, the Kolmogorov-Smirnov test is used for normality testing, and paired sample t-tests are used to test hypotheses using SPSS software version 26. The decision-making basis in this test is to reject H0 and accept H1 if the t-value > the t-table value and the significance probability < 0.05. If the t-table value and significance probability >

0.05, then H0 is accepted, and H1 is rejected.

In this study, qualitative data analysis is conducted using the Miles and Huberman model approach. The process involves steps such as data reduction, data display, and drawing conclusions from the data (Sugiyono 2018). In this study, qualitative data analysis is conducted using the Miles and Huberman model approach. The process involves steps such as data reduction, data display, and drawing conclusions from the data.

The qualitative data collection steps include observation and interviews to describe the results of students' science literacy skill categories. Observations are conducted throughout the research period. Interviews are conducted after the post-test to obtain additional data related to the patterns of student responses. Qualitative data is used to determine the categories of students' science literacy skills. From the results of the pretest and post-test data, students' science literacy skill categories are divided into three: high, medium, and low. Two students from the high category, two from the medium category, and two from the low category are selected as interview subjects.

RESULT AND DISCUSSION

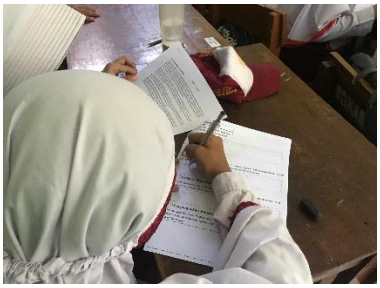
This research was conducted over 4 days from February 12th to 14th-16th, 2024, in one of the fifth-grade classes at SDIT El Haq Sidoarjo. Before implementing the guided inquiry learning based on the Green School concept, the researcher conducted a pretest to assess the science literacy skills of the students. Subsequently, the learning took place over two sessions. The students engaged in science learning on the topic of harmonious ecosystems. After the implementation of the treatment, which involved guided inquiry learning based on the Green School concept, the researcher conducted a posttest to evaluate the students' science literacy skills.

In the initial stage of the research, the researcher administered a pretest consisting of 10 essay questions as an initial assessment. After obtaining the pretest questions, the students engaged in science learning using the guided inquiry learning model based on the Green School concept, following the syntax and learning modules designed by the researcher. The researcher's activities began with stating the learning objectives to the students. Then, the learning continued according to the inquiry learning syntax, starting with phase 1 (identifying the problem), In phase 2 (formulating hypotheses), Then, in phase 3 (conducting experiments), Next, in phase 4 (collecting data), In phase 5 (analyzing data), The final phase is phase 6 (drawing conclusions). After completing the guided inquiry learning based on the Green School concept, the researcher administered a posttest consisting of final assessment questions to the students.

Pict 1. Phase 1

In phase 1 of the learning activity, the researcher begins by opening the lesson and stating the learning objectives. Next, the researcher presents a problem or phenomenon in the form of a reading that corresponds to the given material. Students

listen to the explanation provided by the researcher. The researcher divides the students into several groups and distributes worksheets to each group.



Pict 2. Phase 2

In phase 2 of the learning activity, the researcher guides the students in formulating hypotheses. Students, together with their group members, formulate hypotheses by conducting literature searches on the given material.

Pict 3. Phase 3

In phase 3 of the learning activity, after formulating hypotheses, the researcher guides the students in conducting experiments on biotic and abiotic components. Students, along with their group members, conduct experiments on biotic and abiotic components in the greenhouse located at the school.

Pict 4. Phase 4

In phase 4 of the learning activity, after conducting the experiment, students collect quantitative data and create graphs from the collected data. The researcher guides the students in collecting data and creating graphs.

Pict 5. Phase 5 dan 6

In phase 5 of the learning activity, which involves data analysis, students, along with their group members, analyze the data from the experiment activities. The researcher guides the students in analyzing the data.

In phase 6 of the learning activity, which involves drawing conclusions, students, together with their group members, draw conclusions from the activities conducted. The researcher guides the students in drawing conclusions.

The results of students' science literacy skills obtained from the pretest and posttest scores are presented in the following Table 4.

Tabel 4. Data of science literacy skills

Jenis Tes	Pretest	Postest
N	27	27
SD	6.340	12.816
Min.	34	54
Max.	58	98
Mean	43.04	77.41

Based on the data in the table above, the pretest score was 43.04. After receiving the treatment, which was guided inquiry learning, the posttest result for students' science literacy skills was 77.41. The average pretest and posttest scores showed an increase after the guided inquiry

learning. Next, the researcher conducted a normality test, as presented in Table 5.

Tabel 5. Uji Normality

Kolmogrov-Smirnov[a]			
	Statistic	df	Sig.
Pretest	.143	27	.163
Posttest	.101	27	.200*

The normality test results obtained based on the calculated data tested using the Kolmogorov-Smirnov test in Table 5 show a significance level for the pretest value of 0.163, while the posttest value is 0.200. These values are greater than α= 0.05 (Sign. > 0.05), indicating that the pretest and posttest scores are normally distributed. Next, the researcher conducted a hypothesis test, as presented in Table 6.

Tabel 6. Output Paired Sample t-test for Students' Scientific Literacy Skills

Paired Samples Test									
		Paired Differences							
					95% Confidence Interval of The Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	Pretest-Posttest	-34.370	9.187	1.768	-38.005	-30.736	-19.440	26	.000

The researcher conducted a hypothesis test to determine the effect of guided inquiry learning based on the Green School concept based on the results obtained after conducting pretests and posttests. The results of the hypothesis test for students' science literacy skills are presented in Table 6. The statistical results, providing pretest and posttest values, obtained a Sig. (2-tailed) result of 0.000, and the obtained t-value for students' science literacy skills is 19.440. The output results show that the degrees of freedom (df) are 26, as observed in the t-table, which is 2.056. Based on the test results, namely 0.000 < 0.05 and 19.440 > 2.056, therefore, guided inquiry learning based on the Green School concept has a significant effect on the science literacy skills of fifth-grade students at SDIT El Haq Sidoarjo.

The science literacy test assessed seven indicators of science literacy skills. Below are the results of the science literacy test conducted on the students.

Tabel 7. Achievement Scores of Science Literacy Skill Indicators

No	**Aspect of Scientific Literacy**		**Indikator**	**Persentase**	**Kategory**
1	Identifying Scientific Issues	1	Identifying valid scientific opinions	80%	High
2	Explaining Scientific Phenomena	2	Conducting effective literature searches.	87%	High
		3	Understanding the elements in research design.	87%	High
		4	Creating accurate graphs from data.	80%	High
		5	Solving problems using quantitative skills.	61%	Medium
		6	Understanding and interpreting basic statistics.	66%	Medium
3	Using Scientific Evidence	7	Analyzing and interpreting data and drawing conclusions.	73%	Medium

	Mean	76%	High

Based on the calculation results of the science literacy skill indicators in the table above, we obtained a percentage of 80% for indicator 1 with a high category, 87% for indicator 2 with a high category, 87% for indicator 3 with a high category, 80% for indicator 4 with a high category, 61% for indicator 5 with a medium category, 66% for indicator 6 with a medium category, and 73% for indicator 7 with a medium category. The average science literacy skill indicator for students is 76% with a high category. Therefore, it can be concluded that students have a high category of science literacy skills.

The categories of students' science literacy skill levels are obtained from the results of the posttest completed by the students. Below are the percentages of the categories of students' science literacy skill levels in Table 8.

Tabel 8. Percentage of Student Science Literacy Skill Categories

Categories of Science Literacy Levels	**Persentase**
Level 0	0%
Level 1	0%
Level 2	0%
Level 3	15%
Level 4	15%
Level 5	44%
Level 6	26%

Based on the data in Table 8, the results of the posttest for students' science literacy skills show that the average level of science literacy categories is at levels 3, 4, 5, and 6. 15% of students are at level 3, where they can distinguish between scientific and non-scientific issues and identify evidence that supports scientific claims. 15% of students are at level 4, where they can interpret data collected from relatively complex datasets or unfamiliar contexts, draw appropriate conclusions beyond the data, and provide reasons to support their decisions. 44% of students are at level 5, where they can critically evaluate scientific questions and identify limitations in interpreting data, including sources and impacts of uncertainty in scientific data. 26% of students are at level 6, where they demonstrate a strong ability to assess experimental designs and describe scientific phenomena using both procedural and conceptual knowledge consistently (Anon 2019).

Based on the observation data, interviews, and the results of the posttest on science literacy skills, students in the low category have the ability to use basic scientific knowledge to recognize aspects of phenomena. They can identify simple patterns in data, recognize basic scientific terms, and follow explicit instructions to carry out scientific procedures. This is consistent with the interview results from 2 students selected as interview subjects. The students who have a low category percentage of science literacy skills are subjects IR and SUN. Below are the answers from subject IR. *" I could understand the lesson material. However, when I was taking the final test, I found it very difficult because there were some things from yesterday's lesson that I couldn't remember, and there were many questions with readings, so I didn't read them much."*. Below are the answer from subject SUN. *"I enjoyed yesterday's lesson, I understood the learning material. When I was working on the questions, I didn't read much, I did my best."*

Furthermore, students in the moderate category have the ability to utilize moderately complex content knowledge in identifying existing phenomena. This is

consistent with the interview results from 2 students selected as interview subjects. The students who have a moderate percentage of science literacy skills are subjects ZNK and ZAS. Below is the response from subject ZNK. *"Yesterday's lesson was fun, and the material was easy to understand. When working on the final test, it wasn't difficult, but there were a few things I didn't understand because I had to be more careful in reading the passages."* Here is the response from subject ZAS. *"I enjoy lessons that include practical activities. The learning is easy to understand, but I had some difficulty when formulating hypotheses. When taking the final test, it wasn't difficult; I just had to read the passages first because the answers were already there in the readings. When answering the questions, I read the passage provided in the question first, then I wrote down the answer from the passage."*

Students in the high category demonstrate a strong ability to evaluate experimental designs and explain scientific phenomena using conceptual and procedural knowledge consistently. This aligns with the interview results from 2 students selected as interview subjects. The students who have a high percentage of science literacy skills are subjects AAP and SAA. Below is the response from subject AAP. *"Yesterday's lesson was exciting because we could identify problems by conducting experiments, so the lesson material could be quickly understood. When taking the final test, it wasn't difficult, but there were many readings, so I had to read a lot. When answering the questions, I read the question first, then I answered it in my own words."* Here is the response from subject SAA. *"I liked yesterday's lesson because it was exciting with the practical activities about the environment. When taking the final test, it wasn't difficult because all the answers were in the reading. When answering the questions, I read the questions, then I summarized them in my own words."*

Based on the analysis of the posttest results, observations, and interviews, students have been able to comprehend the problems in the questions. They can identify existing phenomena by writing down what they know from the questions. Students are able to explain scientific phenomena using conceptual and procedural knowledge. Some students tend to be less meticulous, thus not double-checking their completed answers.

Based on the above research results, it is evident that there is an improvement in the pretest and posttest results of students' scientific literacy. From the hypothesis testing conducted using the t-test, it was found that there is an influence in this learning process requiring a guided inquiry learning model based on the green school approach, which has advantages in students' scientific literacy in science learning. This is based on the hypothesis testing where the significance probability value is < 0.05, meaning H0 is rejected and H1 is accepted. In line with the hypothesis, there is an influence of the guided inquiry learning model based on the green school approach in the excellence of students' scientific literacy at SDIT El Haq Sidoarjo. This research is consistent with studies conducted by Herlina W, Hidayat T, and Rahman T, who concluded that students' scientific literacy in the experimental class experienced better improvement compared to the control class after conducting

inquiry-based green school learning (Herlina, Hidayat, and Rahman 2022).

Throughout the research, the guided inquiry learning model based on the green school approach has been implemented effectively. The smooth implementation of the guided inquiry learning model has brought about changes in the learning process. In guided inquiry learning, worksheets were used and activities were conducted in groups. The researcher evenly distributed the groups with 4-5 members each, allowing students to express their opinions more within their groups. The guided inquiry learning model provided students with more time to think, respond, work independently, and exchange ideas with other classmates to solve a problem (Lyman Frank 1981). In this teaching model, the researcher serves as a facilitator who assists students in problem-solving. The researcher opted for a green school-based learning model aimed at connecting students' experiences outside the classroom with science learning, which can support the development of students' scientific literacy (Erick 2012).

During the use of guided-inquiry learning based on the green school approach, students experienced an improvement in scientific literacy skills. Previous research has concluded that green school-based inquiry learning can enhance students' scientific literacy skills. This indicates that guided-inquiry learning significantly influences students' scientific literacy abilities. Several indicators of scientific literacy skills show that, on average, students are able to answer questions effectively. For indicator 1, on average, 80% of students are able to identify scientific opinions with a high category. For indicator 2, on average, 87% of students can effectively conduct literature searches with a high category. For indicator 3, on average, 87% of students can understand elements in research design with a high category. For indicator 4, on average, 80% of students can create accurate graphs from data with a high category. For indicator 5, on average, 61% of students can solve problems using quantitative data with a moderate category. For indicator 6, on average, 66% of students can understand and interpret basic statistics with a moderate category. For indicator 7, on average, 73% of students can analyze, interpret data, and draw conclusions with a moderate category. The overall average percentage of achievement for students' scientific literacy skill indicators is 76% with a high category.

Based on the data from the posttest results, observations, and interviews, students' scientific literacy skills are categorized. The posttest results of students' scientific literacy skills are classified into levels 3, 4, 5, and 6. The category of students' scientific literacy skills at level 3 is 15%. This indicates that students can distinguish scientific issues and identify evidence that supports science. The category of scientific literacy skills at level 4 is 15%. This indicates that students can interpret data from sufficiently complex data sets and contexts. The category of scientific literacy skills at level 5 is 44%. This indicates that students can evaluate and identify in interpreting data sets, including sources and impacts of uncertainty in scientific data. The category of scientific literacy skills at level 6 is 26%. This indicates that students can evaluate experimental designs and explain the

results of scientific facts that require conceptual and procedural knowledge.

CONCLUSION

Based on the research findings, the hypothesis testing using the t-test shows a significant influence (0.000 < 0.05), indicating that H0 is rejected and H1 is accepted. It is concluded that the use of the guided inquiry learning model based on the green school approach has a significant effect on students' scientific literacy skills in science learning at elementary. The results of the science literacy test based on the indicators of students' scientific literacy skills averaged 76%, which falls into the high category. The results of the posttest for students' science literacy skills showed an improvement, with 15% of students classified in level 3, 15% in level 4, 44% in level 5, and 26% in level 6 of scientific literacy skills.

REFERENCE

Anon. 2017. *PISA 2015 Assessment and Analytical Framework*. OECD.

Anon. 2019. *PISA 2018 Assessment and Analytical Framework*. OECD.

Anon. 2023. *PISA 2022 Results (Volume I)*. OECD.

Anon. n.d. "LAPORAN PISA KEMENDIKBUDRISTEK."

Aulia, E. V., S. Poedjiastoeti, and R. Agustini. 2018. "The Effectiveness of Guided Inquiry-Based Learning Material on Students' Science Literacy Skills." in *Journal of Physics: Conference Series*. Vol. 947. Institute of Physics Publishing.

Creswell, J. W. ,. &. Creswell, J. D. 2018. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Los Angeles: SAGE Publications Inc.

Eggen, P. ,. &. Kauchak, D. 2012. *Strategi Dan Model Pembelajaran*. Jakarta : Inex.

Erick, C. J. 2012. "Use of the Outdoor Classroom and Nature-Study to Support Science and Literacy Learning: A Narrative Case Study of a Third-Grade Classroom." *Journal of Science Teacher Education*.

Fery Haryadi, Eko S., Andreas BP Priyono, and Amin Retnoningsih. 2015. *DESAIN PEMBELAJARAN LITERASI SAINS BERBASIS PROBLEM BASED LEARNING DALAM MEMBENTUK KETERAMPILAN BERPIKIR KRITIS SISWA Info Artikel*. Vol. 4.

Hasasiyah, Siti Hardiyanti, Bagus Addin Hutomo, Bambang Subali, and Putut Marwoto. 2019. "Analisis Kemampuan Literasi Sains Siswa SMP Pada Materi Sirkulasi Darah." *Jurnal Penelitian Pendidikan IPA* 6(1):5. https://doi: 10.29303/jppipa.v6i1.193.

Herlina, Wida, Topik Hidayat, and Taufik Rahman. 2022. "Effect of Green School-Based Inquiry Learning Model on Students' Ability of Scientific Literacy." *Jurnal Penelitian Pendidikan IPA* 8(5):2513–17. https://doi: 10.29303/jppipa.v8i5.184.

Irwan, Andi Pratiwi,) Usman,) Bunga, Dara Amin, Universitas Negeri, Makassar Kampus, Unm Parangtambung, Jln Daeng, and Tata Raya. 2019. "ANALISIS KEMAM PUAN LITERASI SAINS PESRTA DIDIK DITINJAU DARI KEMAMPUAN MENYELESAIKAN SOAL FISIKA DI SMAN 2 BULU KUMBA 1)." *Jurnal Sains Dan Pendi dikan Fisika (JSPF) Jilid* 15:17–24.

Jamaluddin, Jamaluddin, A. Wahab Jufri, Agus Ramdani, and Afriana Azizah. 2019. "PROFIL LITERASI SAINS DAN KETERAMPILAN BERPIKIR KRITIS PENDIDIK IPA SMP." *Jurnal Penelitian Pendidikan IPA* 5(1). https://doi: 10.29303/jppipa.v5i1.185.

Kimia, Jurusan, Fakultas Matematika, Dan Ilmu, and Pengetahuan Alam. 2016.

PENERAPAN MODEL PEMBELAJARAN INKUIRI TERBIMBING PADA MATERI LAJU REAKSI UNTUK MELATIHKAN KEMAMPUAN LITERASI SAINS SISWA KELAS XI SMAN 1 GONDANG TULUNGAGUNG IMPLEMENTATION OF GUIDED INQUIRY LEARNING MODEL IN THE REACTION RATE TOPIC TO TRAIN SCIENTIFIC LITERACY SKILLS STUDENTS XI GRADE SMAN 1 GONDANG TULUNGAGUNG Vindhy Dian Indah Pratika Dan Muchlis. Vol. 5. https://doi.org/10.26740/ ujced. v5n1.p%25p

Komariyah, Laili, and Muliati Syam. 2016. *PENGARUH MODEL PEMBELAJARAN INKUIRI TERBIMBING (GUIDED INQUIRY) DAN MOTIVASI TERHADAP HASIL BELAJAR FISIKA SISWA*.

Lyman Frank. 1981. "The Responsive Classroom Discussion."

Merta, I. Wayan, I. Putu Artayasa, Kusmiyati Kusmiyati, Nur Lestari, and Dadi Setiadi. 2020. "Profil Literasi Sains Dan Model Pembelajaran Dapat Meningkatkan Kemampuan Literasi Sains." *Jurnal Pijar Mipa* 15(3):223–28. https://doi: 10.29303/jpm. v15i3. 1889.

Nafsih, Nurul Zakiatin, and Usmeldi Usmeldi. 2022. "Green School Oriented Guided Inquiry-Based Science E-Book: Effectiveness Analysis on Increasing Environmental Literacy." *Jurnal Penelitian Pendidikan IPA* 8(3):1355–60. https://doi: 10.29303/jppipa. v8i3. 1662.

Pada, Pengawas, Dinas Pendidikan, and Kabupaten Pati. n.d. *GERAKAN LITERASI SEKOLAH DASAR Mulyo Teguh*.

Pravitasari, Ovita Tri, Wahono Widodo, and Tarzan Purnomo. n.d. *Pengembangan Media Pembelajaran Blog Berorientasi Literasi Sains PENGEMBANGAN MEDIA PEMBELAJARAN BLOG BEROR IENTASI LITERASI SAINS PADA SUB MATERI PERPINDAHAN KALOR*.

Rahmah, Ulfatur, Pengaruh Penerapan, Institut Agama, and Islam Negeri Madura. n.d. *GREEN SCHOOL TERHADAP MINAT BELAJAR SISWA DI SMPN 26 SURABAYA*.

Sugiyono. 2018. *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, Dan R & D*. Bandung : Alfabeta.

Sugiyono. 2020. *Metode Penelitian Kuantitatif, Kualitatif, Dan Kombinasi (Mixed Method)*. Bandung: Alfabeta.

Sylvia Dewi, Pramita. 2016. "Tadris: Jurnal Keguruan Dan Ilmu Tarbiyah 01 (2) (2016) 179-186 PERSPEKTIF GURU SEBAGAI IMPLEMENTASI PEMBELAJARAN INKUIRI TERBUKA DAN INKUIRI TERBIMBING TERHADAP SIKAP ILMIAH DALAM PEMBELAJARAN SAINS."

Uus Toharudin, Sri Hendrawati, Andrian Rustaman. 2011. "Membangun Literasi Sains Siswa." *Bandung: Humaniora*.