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# The Effectiveness of Guided Inquiry Learning Model to Improve Science Literacy Skills and Students Self Efficacy on Acid-Base Materials

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**Abstract: The Effectiveness of Guided Inquiry Learning Model to Improve Students' Science Literacy and Self Efficacy on Acid-Base Material.** This research was aimed to gain an information about the effectiveness of guided inquiry learning model in improving students' science literacy and self efficacy on acid-base material. This research method is a quasi-experimental with pretest postest control group design. The population in this study were all students of class XI MIA SMA Negeri 3 Metro in the even semester of the 2019/2020 school year. Sampling on this study was taken by purposive samping with a sample of class XI MIA 2 as the experimental class and XI MIA 3 as the control class. The effectiveness of guided inquiry learning model was analyzed using the two mean difference test at n-Gain and the effect size test on students' science literacy and self efficacy between experimental class and control class. The results showed that guided inquiry learning model had a "large" effect on improving students' science literacy with effect size about 89,01%. Also, this learning model had a "large" effect on improving students' self efficacy with effect size about 93,28% by using guided inquiry learning model. The conclusion of this research is the guided inquiry learning model is effective for improving students' science literacy and self efficacy.

**Keywords**: acid-base, science literacy, self efficacy, guided inquiry learning model.

**Abstrak: Efektivitas Model Pembelajaran Inkuiri Terbimbing untuk Meningkatkan Kemampuan Literasi Sains dan Efikasi Diri Siswa pada Materi Asam Basa.** Penelitian ini bertujuan untuk mendapatkan informasi mengenai efektivitas model pembelajaran inkuiri terbimbing dalam meningkatkan kemampuan literasi sains dan efikasi diri siswa pada materi asam basa. Penelitian ini menggunakan metode kuasi eksperimen dengan pretest-posttest control group design. Populasi yang digunakan yaitu seluruh kelas XI MIA SMAN 3 Metro semester genap tahun ajaran 2019/2020. Pengambilan sampel pada penelitian ini dilakukan dengan cara purposive sampling dan diperoleh kelas XI MIA 2 sebagai kelas eksperimen dan XI MIA 3 sebagai kelas kontrol. Efektivitas model pembelajaran inkuiri terbimbing di analisis menggunakan uji perbedaan dua rata-rata pada n-Gain dan uji effect size terhadap kemampuan literasi sains dan efikasi diri siswa antara kelas eksperimen dan kelas kontrol. Hasil penelitian menunjukkan bahwa model inkuiri terbimbing memiliki pengaruh "besar" dalam meningkatkan kemampuan literasi sains siswa dengan effect size sebesar 89,01% dan memiliki pengaruh "besar" dalam meningkatkan kemampuan efikasi diri siswa dengan effect size sebesar 93,28% dengan menggunakan model pembelajaran inkuiri terbimbing. Pada penelitian ini diperoleh kesimpulan bahwa model pembelajaran inkuiri terbimbing efektif untuk meningkatkan kemampuan literasi sains dan efikasi diri siswa pada materi asam basa.

**Kata kunci:** asam basa, literasi sains, efikasi diri, model pembelajaran inkuiri terbimbing.

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- **INTRODUCTION**

The rapid advances in information, communication technology and the increasingly complex challenges of the future mark a new era called the era of the industrial revolution 4.0. In the era of the industrial revolution 4.0, students are required to be able to stop wisely and be able to adapt to science, the environment, society, and technology. As a result of this, education must be aggressive in developing life skills for students. One of the most essential skills for students is scientific literacy and self-efficacy.

Basic scientific literacy skills are so essential and important because scientific literacy can help students understand the environment, health, economy and many other problems that are often faced by modern society, while self-efficacy skills can help students to be more confident and be able to fulfill their assignments well.

However, in science learning there are still unresolved problems, including in the context of the application of science, which can be ascertained that many students are unable to relate the science knowledge they learn to the phenomena that occur in everyday life. This happens because students do not gain experience to relate it (Permatasari, 2016).

Science literacy according to PISA (Program for international student assessment) is a person's scientific knowledge and the use of that knowledge to identify questions and explain scientific phenomena, draw conclusions from science-related issues that can produce change (problem solving) in everyday life (OECD, 2009).

In this case students are able to use scientific knowledge and apply it in solving problems related to chemistry. Scientific literacy refers to several things in an individual, including (1) Scientific knowledge and the use of that knowledge to identify questions, gain new knowledge, explain scientific phenomena and draw evidence-based conclusions about science-related issues, (2) Character understanding -teristics of science as a form of human knowledge and research, (3) Awareness of how science and technology shape the material, intellectual and cultural environment, and (4) Willingness to be involved in issues related to science with scientific ideas (OECD, 2009 ).

According to Harahap (2011), self-efficacy is a student's belief in determining how he feels, thinks, motivates and behaves. Then students believe in their ability to increase achievement after being given a job and events that affect their life. This belief will have various effects through four major processes, that is; cognitive, motivational, affective and action selection process. The selection of the intended action is what will be done-kan after attending the lesson. In Indonesia, students' scientific literacy skills are still low. The low Students' scientific literacy can be seen in everyday life, namely, there are still many students who measure their body temperature near a fan or in an air-conditioned room, play in the field during heavy rain, throw garbage in the river without caring about the cleanliness and disasters that can be occurs from their actions, liking foods that contain additives (substances that are added to food to maintain taste or enhance taste, appearance and other qualities), and not even a few high school students have started smoking. There are still many other examples that can show the low level of student scientific literacy which affects students' scientific attitudes even though in school they already have knowledge of the various conditions above.

In addition, the self-efficacy ability of students in Indonesia is still quite low. This can be seen from learning in class where students are often passive, do not have the confidence to argue and are not trained in expressing opinions. This insecurity usually comes from feeling unsure of one's own abilities.

The low ability of scientific literacy and self-efficacy of students is possible because there are not yet varied methods of teaching that invite students to read a lot, learn from various learning sources around them, dare to argue and express opinions during the learning process.

A preliminary study conducted by researchers at SMAN 3 Metro, shows that learning chemistry which leads to the formation of scientific literacy and self-efficacy of students is still not fully understood by teachers. Learning in the classroom is still teacher centered. Students have not played an active role in the learning process and have not been trained to identify problems, connect concepts with everyday phenomena, provide opinions and convey arguments.

To overcome this problem, the researcher wants to apply a guided inquiry learning model during the teaching and learning process. In the syntax of the guided inquiry learning model, the teacher guides students to identify problems, so that students can explain scientific phenomena and identify scientific questions, the teacher provides opportunities for students to make their own hypotheses, the teacher provides opportunities for students to determine appropriate steps with the hypothesis that will be carried out so that students can use scientific evidence, the teacher guides students to get information through experiments so that students can understand scientific phenomena, and the teacher guides students in making conclusions so that students can solve problems then communicate it. These stages can help students to improve scientific literacy skills and self-efficacy because students are led to understand concepts and relate them to scientific phenomena and express their ideas during hands-on learning. This is supported by previous research conducted by Wibowo (2016) with the title "Application of Guided Inquiry Model in Increasing Student Self Efficacy and Mastery of Student Concepts in Electrolyte and Non-Electrolyte Solution Material" said that the application of guided inquiry models can increase student self-efficacy from those who previously in the "high" category to the "very high" category after the application of the guided inquiry learning model. In addition, in another study conducted by El Islami, RAZ, Nahadi, N. & Permanasari, A (2016) with the title "Building Student Science Literacy on the Concept of Acid-Bases through Guided Inquiry Learning" states that the application of guided inquiry learning models can improve students' scientific literacy skills in the acid-base concept material.

In this study, the researcher wanted to apply guided inquiry learning to acid-base material. Acid-base material is the material for class XI even semester which is contained in Basic Competency (KD) 3.10 in the 2013 curriculum, which analyzes the properties of solutions based on the concept of acid-base and / or pH of the solution. Researchers chose acid-base material because it was seen as fulfilling the three basic principles of selecting PISA content proposed by Hayat & Yusuf (2010), namely: (1) The concept being tested must be relevant to real everyday life situations. The concept of acid-base can be found in everyday life, such as fruits and so on; (2) The acid-base concept is estimated to be relevant for at least the next decade; and (3) The concept must be related to process competence, namely knowledge does not only rely on students' memory and relates only to certain information. The concept of acid-base is an experimental chemical concept, so that process competence can be measured through the acid-base concept chemistry practicum. Acid-base material was chosen because this material is closely related to everyday phenomena and is considered to be able to increase students' scientific literacy skills and self-efficacy.

Based on the problems and explanations as well as existing research, researchers are interested in conducting a study using a guided inquiry learning model on acid-base material to improve students' scientific literacy skills and self-efficacy so that in this study, researchers took the title "The Effectiveness of Inquiry Learning Models. Guided to Improve Science Literacy Skills and Students Self Efficacy on Acid-Base Materials ".

## ▪ METHOD

### Population and Sample

The population in this study were all class XI MIA students of SMA Negeri 3 Metro even semester of the 2019/2020 academic year which consisted of 5 classes. Samples were taken using purposive sampling technique. The sample in this study is class XI MIA 2 as an experimental class with learning using a guided inquiry model and XI MIA 3 as a control class using conventional learning.

### Research Methods and Design

The method used in this study was a quasi-experimental design *with a pretest-posttest control group design* (Fraenkel, 2012).

### Research variable

The independent variable in this study is the guided inquiry learning model in the experimental class and conventional learning in the control class. The dependent variable is the ability of scientific literacy and self-efficacy. The control variable is acid-base material.

### Learning Tools and Research Instruments

The learning tools in this research are syllabus, lesson plans, worksheets using guided inquiry learning models. The instrument used in this study was a pretest-posttest question consisting of four description questions to measure students' scientific literacy skills in acid-base material, a self-efficacy ability scale questionnaire consisting of 36 statements (18 positive statements and 18 negative statements) to measuring student self-efficacy, student activity observation sheets and observation sheets of the teacher's ability to manage learning using a guided inquiry model.

### Data Analysis and Hypothesis Testing

Before the learning was carried out, a pretest was held in the two research classes, then after the learning was carried out, a post-test was held. Then the n-Gain of each student can be calculated with the following formula:

$$n - Gain\ = \frac{\%postes - \%pretes}{100\% - \%pretes}$$

Next, calculate the n-Gain average for the experimental class and control class. The results of the n-Gain mean calculation are then interpreted by using the criteria as in Table 1.

**Tble 1.** N-Gain criteria

| N-Gain criteria | Category |
|---|---|
| n-Gain ≥ 0.7 | High |
| 0.3 ≤ n-Gain <0.7 | Moderate |
| n-Gain = 0.3 | Low |

(Hake, 2002)

Test the Difference of the Two n-Gain averages
The test for the difference between the two averages uses the para¬metric statistical test, namely by using the t-test (Sudjana, 2005) with SPSS *version* 23.0. With the test criteria: Accept H0 if *sig* (2-*tailed*) <0 , 05, and reject H0 for other prices.

**Percentage of Student Activity**

Student activities during learning are measured using observation sheets. Descriptive analysis of student activities in learning is carried out in the following steps:

a. Menghitung jumlah skor yang diberikan oleh pengamat untuk setiap aspek pengamatan, kemudian di-hitung persentase ketercapaian dengan rumus:

$$\% \, Ji = \left(\frac{\Sigma Ji}{N}\right) \text{ x } 100\%$$ (Sudijono, 2004).

Information : % Ji = Percentage of achievement from ideal score for every aspect observations at meetings i-th

ΣJi = The total score for each aspect observations given by observers at the first muan i

N = Maximum score (ideal score)

a. Calculate the average percentage of achievement for each aspect of the observations of two observers. Then interpret the data using the percentage price interpretation as in Table 2.

**Table 2.** Criteria for student activities

| **Percentage** | **Criteria** |
|---|---|
| 80,1% - 100,0% | Very high |
| 60,1% - 80,0% | High |
| 40,1% - 60,0% | Moderate |
| 20,1% - 40,0% | Low |
| 0,0% - 20,0% | Very low |

(Sunyono, 2012)

**Percentage of Teacher Ability Analysis in Managing Learning**

Data analysis of the teacher's ability to manage learning using a guided inquiry model, carried out the following steps:

a. Calculating the total score given by the observer for each aspect of the observation then calculating the percentage of achievement with the formula:

$$\% \, Ji = \left(\frac{\Sigma Ji}{N}\right) \times 100\%$$ (Sudijono, 2004).

Information :%Ji = Percentage of achievement for each aspect of observation at the ith meeting
ΣJi = The total score for each aspect of the observation given by the observer at the ith meeting
N = Skor maksimal (skor ideal)

Calculate the average percentage of the teacher's ability for each aspect of the observation from two observers. a). Interpreting the data by interpreting the price of the percentage of teacher ability is as in Table 3., b). Interpreting the data by interpreting the price of the percentage of teacher ability is as in Table 3.

**Tabel 3.** Kriteria tingkat kemampuan guru dalam mengelola pembelajaran

| **Percentage** | **Criteria** |
|---|---|
| 80,1%-100% | Very high |
| 60,1%-80% | High |
| 40,1%-60% | Moderate |
| 20,1%-40% | Low |
| 0,0%-20% | Very low |

(Sunyono, 2012)

The effect size test is used to determine how much influence the treatment has on the research sample. Before calculating the effect size, first look for the t value obtained from the independent sample t-test using the value of scientific literacy skills and student self-efficacy in each class. The effect size formula is as follows:

$$\mu^2 = \frac{t^2}{t^2 + df}$$

Information :
$\mu^2$ = *effect size*
t = t count from the t-test to the *pretest* and *posttest* values
df = degrees of freedom

**Table 4.** *Effect size* criteria

| **Nilai *effect size*** | **Kriteria** |
|---|---|
| $\mu \leq 0,15$ | Efek diabaikan (sangat kecil) |
| $0,15 < \mu \leq 0,40$ | Efek kecil |
| $0,40 < \mu \leq 0,75$ | Efek sedang |
| $0,75 < \mu \leq 1,10$ | Efek besar |
| $\mu > 1,10$ | Efek sangat besar |

Dyncer (2015)

- **RESULT AND DISCUSSION**

Based on research that has been conducted on the experimental class and the control class in SMA Negeri 3 Metro, data obtained in the form of test results, namely data on the pretest and posttest scores of scientific literacy abilities and student self-efficacy. The data that has been obtained is then processed with the help of SPSS *software version 23.0* and *Microsoft Office Excel*.

**Average pretest and posttest scores**

The effectiveness of the guided inquiry learning model can be seen from the average *n-Gain* value obtained between the control class and the experimental class. Before getting the average *n-Gain* value, first the average *pretest* and posttest scores were calculated in the two classes. The average *pretest* and posttest results for the experimental class and control class are shown in Figure 1 and Figure 2 as follows.

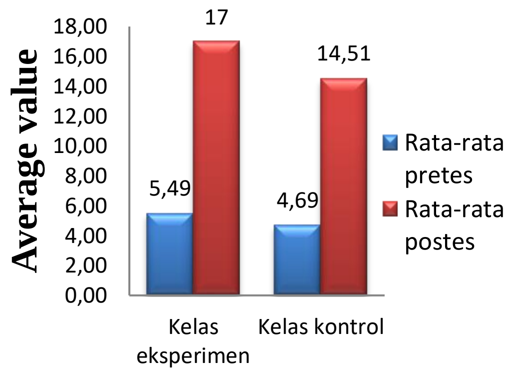


**Figure 1.** Diagram of average pretest and posttest scientific literacy

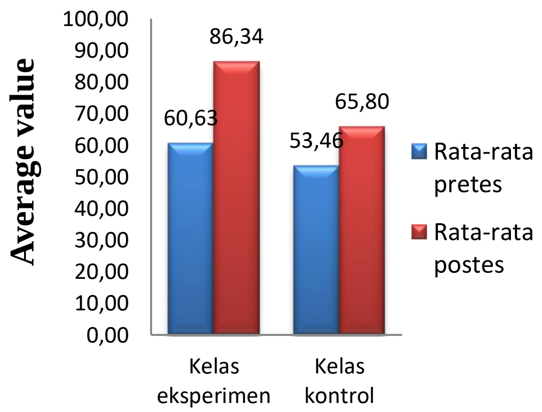


**Figure 2.** Diagram of average pretest and posttest self-efficacy

***N-Gain* average**

Based on the research conducted, the *n-Gain* average of students 'scientific literacy abilities in the experimental class and control class (Figure 3) and the *n-Gain* average of students' self-efficacy abilities in the experimental class and control class (Figure 4).

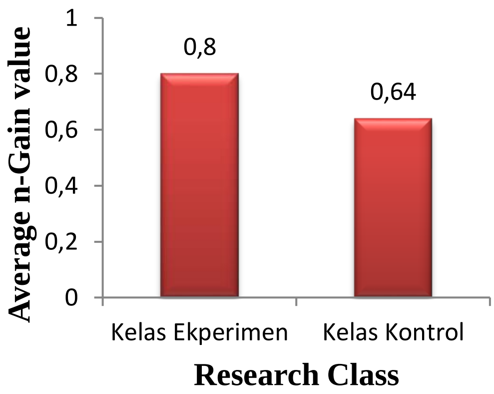


**Figure 3.** Diagram of students' average *n-Gain* score for scientific literacy

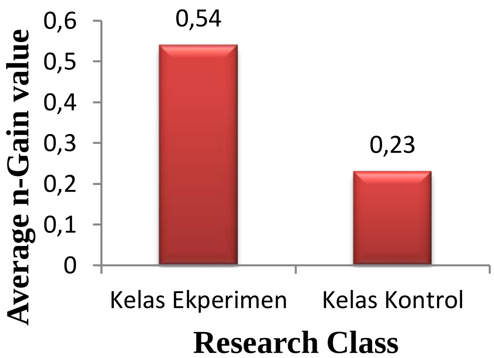


**Figure 4.** Diagram of the mean *n-Gain* value of students' self-efficacy

In Figure 3, information is obtained that the average n-Gain value of scientific literacy skills in the experimental class is 0.8 and in the control class is 0.64. In Figure 4, information is obtained that the average acquisition of the *n-Gain* value of the self-efficacy ability in the experimental class is 0.54 and in the control class is 0.23. Based on the criteria of Hake (2002), the *n-Gain* value of students' scientific literacy abilities in the experimental class was in the "high" criteria, in the control class it was included in the "moderate" criteria. Meanwhile, the *n-Gain* value of students' self-efficacy ability in the experimental class was in the "moderate" criteria, while the control class was included in the "low" criteria.

**Test the difference between the two *n-Gain* averages**

Before testing the difference between the two *n-Gain* averages, the normality test and homogeneity test are performed first. The normality test was tested using the *Kolmogrov-Smirnov* test with a significance level of> 0.05. The output results of SPSS *version 23.0* are presented in Table 5 and Table 6

**Table 5.** The results of the students' scientific literacy *n-Gain* normality test

| Research Class | Average *n-Gain* | N | *n-Gain* | |
|---|---|---|---|---|
| | | | Sig value. | Test Criteria |
| Experiment | 0,80 | 35 | 0,200 | Sig. > 0.05 |
| Control | 0,64 | 35 | 0,200 | |

**Table 6.** The results of the n-Gain normality test for students' self-efficacy

| Research Class | Average *n-Gain* | N | *n-Gain* | |
|---|---|---|---|---|
| | | | Sig value. | Test Criteria |
| Experiment | 0,54 | 35 | 0,070 | Sig. > 0.05 |
| Control | 0,23 | 35 | 0,907 | |

Based on the table above, it is known that the normality test results against the n-Gain value in the experimental class and control class have a *sig.*> 0.05, so the test decision is to accept $H_0$ and reject $H_1$, which means that the research data obtained comes from a normally distributed population. The sample homogeneity test was carried out using the *SPSS Statistics* 23.0 program by looking at the *One Way ANOVA value*. The homogeneity level of the data distribution can be seen from the *Sig*. The output displays the *SPSS Statistics* 23.0 program. The test criterion is to accept $H_0$ if the value is *Sig.* > 0.05 and reject $H_0$ if the value is *Sig.* <0.05

**Table 7.** The results of the students' science literacy *n-Gain* homogeneity test

| Research Class | *N-Gain* average | N | Information | |
|---|---|---|---|---|
| | | | Sig value. | Test Criteria |
| Experiment | 0,80 | 35 | 0,075 | sig > 0,05 |
| Control | 0,64 | 35 | | |

**Table 8.** The results of the *n-Gain* homogeneity test for student self-efficacy

| Research Class | *N-Gain* average | N | Information | |
|---|---|---|---|---|
| | | | Sig value. | Test Criteria |
| Experiment | 0,54 | 35 | 0,085 | sig > 0,05 |
| Control | 0,23 | 35 | | |

Based on the results of the homogeneity test of scientific literacy skills and self-efficacy on the *n-Gain* value in the experimental class and control class, it has a sig> 0.05, so the test decision is to accept $H_0$ and reject $H_1$, which means that the two samples have a homogeneous variance value.

Because the data obtained were normal and homogeneous, the two *n-Gain* mean difference tests were performed using parametric statistical tests, namely by using the Independent Samples T-test.

**Table 9.** The results of the test results for the difference between the two *n-Gain* means of students' scientific literacy

| Class | Mean n-Gain | N | Uji *t* | |
|---|---|---|---|---|
| | | | sig. *(2-tailed)* | Kriteria Uji |
| Ekspe- | 0,80 | 3 5 | 0,000 | sig. *(2-* |
| Class | Mean n-Gain | N | Test *t* | |
| | | | sig. *(2-tailed)* | Test Criteria |
| riment | | | | *tailed)* < 0,05 |
| Control | 0,64 | | | |

**Table 10.** The results of the two *n-Gain* mean difference test students' self-efficacy

| Class | Mean n-Gain | N | Test *t* | |
|---|---|---|---|---|
| | | | sig. *(2-tailed)* | Test Criteria |
| Experi ment | 0,54 | 35 | 0,000 | sig. *(2-tailed)* < 0,05 |
| Control | 0,23 | | | |

The results of the test for the difference between the two mean *n-Gain* scores of students' scientific literacy abilities showed that sig. *(2-tailed)* obtained from the t-test for equality of means of 0.000. Meanwhile, the results of *the test for the difference between the two mean n-Gain* scores of students' self-efficacy abilities also showed that sig. (*2-tailed*) obtained from the t-test for equality of means of 0.000. This indicates that sig. <0.05, so the decision to reject $H_0$ and accept $H_1$. The average *n-Gain* of science literacy ability and self-efficacy in the experimental class was higher than the *n-Gain* average in the control class. That is, there is a significant difference in the *n-Gain* mean between the experimental class and the control class.

The two mean difference test was carried out on the pretest and posttest results to get the t value used in the *effect size* test using the guided inquiry learning model in learning in the experimental class. After testing with SPPS 23.0 *software*, the results of the test results for the difference between the two average pretest and posttest students 'scientific literacy abilities along with the *effect size* test are presented in Table 11. Then the results of the two difference test averages of the pretest and posttest students' self-efficacy abilities along with the test The *effect size* is presented in Table 12.

**Table 11**. The results of the (*effect size*) test on scientific literacy abilities

| **Class** | ***μ (effect size)*** | **Criteria** |
|---|---|---|
| Experiment | 0,8901 | Great effect |
| Control | 0,8293 | Great effect |

**Table 12.** The results of the I(effect size) test on self-efficacy ability

| **Class** | ***μ (effect size)*** | **Criteria** |
|---|---|---|
| Experiment | 0,9328 | Great effect |
| Control | 0,7406 | Medium effect |

Based on the results of the *effect size* test, it can be seen that the *effect size* of the scientific literacy ability obtained for the experimental class is 0.8901 and is included in the criteria for "large effect", while for the control class is 0.8293 and is included in the criteria for "large effect". Based on the statement of Jahjouh (2014), the *effect size* obtained shows that 82.93% of scientific literacy is influenced by conventional learning methods, and 89.01% increase in scientific literacy is influenced by learning using guided inquiry learning models. . Meanwhile, in the self-efficacy ability, the *effect size* obtained in the experimental class was 0.9328 and included in the criteria for "large effect", while in the control class it was 0.7406 and included in the criteria for "moderate effect". The *effect size* obtained shows that 93.28% of students 'self-efficacy is influenced by learning using guided inquiry learning models, while 74.06% of students' self-efficacy is influenced by conventional learning.

From these results it is known that the *effect size* of the experimental class is greater than that of the control class, which means that the treatment in the experimental class with learning by using the guided inquiry learning model has an effect on increasing scientific literacy and student self-efficacy.

**The results of the analysis of student activity data during the learning process**

At the time of the research, the activities of the students in the class were observed by two observers, whose aim was to find out how students' activities were during the learning process.

The results of the observations of the two observers on student activities during learning are presented in Table 13.

**Table 13.** Data on the results of student activities in learning

| **Observed aspects** | Average (%) |
|---|---|
| Pay attention and listen to teacher / friend explanations | **84** |
| Identify problems and formulate hypotheses | **74** |
| Get involved in working on worksheets / discussing with group | **85** |
| Provide interpretation of a picture, story or problem | **80** |
| Testing hypotheses | **73** |
| Get involved in concluding the results of the discussion | **79** |
| Presenting the results of discussions / responding to other groups' presentations | **74** |
| Average | **78,42** |
| Criteria | **High** |

The results of observations and assessments of student activity during learning were applied with a guided inquiry model showing that the average student activity at each meeting had increased, where the overall average student activity had the criterion of "high". Student activities in learning are influenced by the guided inquiry learning model, so that students can play an active role in the implementation of learning. This is in accordance with the opinion of Nurhidayati, S., Zubaidah, S., & Indriwati, S. E (2015) which states that learning with the inquiry method increases the involvement of students in learning activities. The number of learning activities will result in more and more learning experiences, which are the results of student learning.

**The results of data analysis on the ability of teachers to manage learning**

Increased scientific literacy skills and student self-efficacy are influenced by the ability of teachers to manage learning well. The teacher's ability to manage this learning was observed during direct learning by 2 observers.

The results of the observations of the two observers on the teacher's ability to manage learning during this research are presented in Table 14. Based on Table 14, it can be seen that the percentage of the teacher's ability to manage learning can be categorized under the criteria of 'very high',

**Table 14.** Data on the results of the teacher's ability to manage learning

| Observational Aspects | **Average of 5 meetings (%)** |
|---|---|
| preliminary | 80,826 |
| Ask a question or problem | 77,5 |
| Formulating Hypotheses | 85 |
| Collecting data | 76,25 |
| Data analysis | 91,25 |
| Draw a conclusion | 82 |
| Closing | 76,66 |
| Assessment of Teachers | 83,5 |
| Average | 81,6233 |
| Criteria | Very high |

From Table 14, it can be seen that the average percentage of teacher ability at the first meeting to the fifth meeting has very high criteria. Overall, the average percentage of the teacher's ability to manage learning using the guided inquiry learning model from the first meeting to the fifth meeting has increased significantly, so that the teacher's ability to manage learning using the guided inquiry model has been implemented well. This shows that there is an influence between the applied learning model and student activities so that it can improve learning outcomes. This is in line with the opinion of Rusman (2011) which states that learning will be more meaningful if students are given the opportunity to participate in learning activities, so that students will be able to actualize their abilities both inside and outside the classroom.

From the data on the ability of teachers in managing learning, it was found that the average percentage of teachers' abilities in the aspect of collecting data was 91.25% which means very high. In the data on the results of student activities, it was found that the ability of students to involve themselves when working on worksheets, discussing with groups, providing interpretations of a picture, story or problem were all at a very high percentage. Based on the explanation above, it can be said that there is a relationship between the ability of teachers to manage the class with student activities during learning in improving scientific literacy skills and student self-efficacy.

## ▪ CONCLUSION

Based on the results of data analysis and discussion of the research that has been carried out, it can be concluded that: (1) guided inquiry is effective for improving scientific literacy skills and students' self-efficacy on acid-base material, which is indicated by a significant difference between the n-Gain value of scientific literacy skills. and students' self-efficacy in the experimental class and the control class, where the experimental class had an average n-Gain of science literacy skills and self-efficacy greater than the control class and the average student activity in the experimental class had "high" criteria. (2) Guided inquiry has a "big" effect on improving students' scientific literacy skills and self-efficacy on acid-base material.

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