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Research Article

The Effect Of Guided Inquiry Model Implementation Using Problem Solving Approach On Students 'Observation Skills

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ABSTRACT

Science learning requires an active role from students, but in general students are taught about the concept of science learning with the teacher as the center (teacher center). The impact is the lack of the role of students in understanding science which should emphasize the active participation of these students. The student should have the observation skills to learn science by maximizing the five senses. Observation skills if they are already proficient, then the initial efforts of students to have Science Process Skills have been fulfilled. This study aims to determine the effect of implementing the guided inquiry model with a problem so The research method used is a quantitative method with a cross-sectional random sampling design. The test used in this research is the instrument test, the validity test which shows all valid questions with r_{count}> 0.05. While the reliability test shows a significance value of 0.788, which means that the data is reliable. Then a prerequisite test consisting of normality and homogeneity was carried out and hypothesis testing using the t test and a sign (2-tailed) was obtained on student learning outcomes which was 0.000 <0.05, which means that there is an effect of applying the guided inquiry model with a problem solving approach to student observation skills lving approach on students' observation skills.

INTRODUCTION

Science learning has characteristics compared to other subjects, science learning must-have steps that can produce a work called a science product. It is produced through an experiment or experiment and is based on a scientific attitude. According to susanto, science learning is a lesson that does not only prioritize passive memorization or only listen to the

teacher lecturing during learning (Kumape, 2015; Susanto, 2014) . Students are also required to carry out a learning concept which includes experimental observation or testing effectively which in turn forms a creative and understanding attitude to improve and observe natural phenomena that occur in our environment. After forming a good scientific attitude, students can eventually be active in applying their knowledge in maintaining a balance in the natural environment in a consistent and good manner. Science learning is a step used to observe the many events that occur in nature, as a result of the work taken by humans to observe the natural surroundings in the form of theories, principles, concepts, laws and factors that are explained to understand natural phenomena. This is categorized as an essential part of science so that it can change our perceptions and attitudes as humans towards the universe (Darmodjo, 1993; Astuti et al., 2012; Damayanti, 2015; Khusniati, 2014).

Learning science or science has a relationship with the role of students, the relationship is to have mental and physical involvement in the experience that is given directly to students when the process of science learning is ongoing. And it is a very important thing to do in order to develop competence (Amijaya et al., 2018; Atmojo, 2012). Science issues and objects are holistic. The integration of science presents various aspects such as biology, physics, chemistry, geography, astronomy and others of the natural sciences. According to Hewitt, G Paul and etc argued that the integration of science or science is described through a contextual-based approach, which is linking science with the natural environment around daily life which is direct and personal and puts the main idea of problem solving in science studies (Hewwit, 2007). Furthermore, science material is presented in an appropriate way on the unity of the concept.

Guidelines in the 2013 curriculum state that science learning at the junior high school level are carried out with a technique that relies on integration. Science learning in junior high schools is considered not as a scientific discipline, but learning is developed as an integrative science-based lesson. Integrative science has the meaning of combining various aspects such as the domain of knowledge, attitudes and skills. As the meaning of integrative science, education leads to the application, development and ability to think and curiosity. One of the skills required in the science learning process is an observation skill. Observation skills are prioritized on the aspects that underlie students to learn about natural phenomena that are around us, so that the science subjects that have been studied can be applied to our environment. Science is a method or science that is used to learn a knowledge and a well-executed process that can increase success in learning. Therefore, in science learning, teachers are advised to present a lesson so that science skills can be created, namely observation skills, process abilities and scientific attitudes (Azizah, 2013; Marliani, 2015; Saregar, 2016).

Observation skills research is based on researchers with quantitative research types that aim to improve the ability of observation skills through the application of *Jigsaw and Number Head Together* to the classification material for living things in class VII G of SMPN 2 Ponorogo in the 2019/2020 school year. The research design used was cross-sectional random sampling, which means it was carried out at any time. The sample of this study consisted of 31 students in class VII G. Cluster sampling, where students were classed randomly. The procedure is that 1 class representing class VII is determined as a whole, all students are given the control variable and the independent variable after that each group is given the same skills test. The data was collected by means of a test, namely a test of observation skills and an unstructured interview with both teachers and students. The data analysis technique used quantitative descriptive techniques, namely by explaining the results of data collection from the sample and conducting a calculation test of the questions. The time needed to take the test is approximately 40 minutes or 1 lesson hour (Permendikbud, 2013). The format for working on questions related to observation skills is presented in the form of images in the presentation of the problem. In this observation skill, there are 5 indicators, namely: *determining the image or object in accordance with the statement,*

determining the differences and similarities of the object of observation, determining the type of object of observation, knowing the characteristics of the object being observed and explaining examples of relevant data. The aspect *describes an example of relevant data* showing a score of 112 / a mean of 3.61. While the aspect of *knowing the characteristics of the object being observed* shows a score of 82 / an average of 2.64. Based on the test of student observation skills, it shows that the average value of student observation classically is included in the low category. The score is obtained from the average results of the indicators of observation skills which include 5 indicators. Of the 31 students of class VII G of SMPN 2 Ponorogo, there is only 1 student who has a high category of observation skills with a score of 95, then the other 5 are in the moderate category with a score of 70 and the rest show a low category of observation skills. So the overall results still need to be improved again in order to meet the KKM.

Observation skills are an important factor that must be possessed by students. In many studies, students at school have low observation skills, this is what causes researchers to seek solutions about improving student observation skills and researchers use the model guided *inquiry* with aapproach *problem solving* so that students are skilled in maximizing what is around them in the form of tools or objects used. in learning activities. The factors that underlie the low student performance in observing skills are due to a lack of practice and practice in observing in class or in the laboratory. Activities in science learning, for example biology or physics, will then focus on active student participation and it is hoped that students can hone their observation skills.

The learning model *guided inquiry* or guided inquiry is learning that has been previously designed by the teacher and supervised by its implementation in the classroom. Guided inquiry is useful as a guide or broad direction, taught to students who do not have experience (D. S. Damayanti, 2013). While the approach with thetype *problem solving* is the learning step by maximizing the creativity of students in finding and finding problems with the aim of being able to find solutions in learning. The problem solving approach refers to active learning so that students can think to process data and solve a problem.

Based on the type of learning that is suitable for improving the ability of observation skills is the model *guided inquiry* with *problem solving* approach. Because the model *guided inquiry* with approach *problem solving* is a systematic way to learn a knowledge, especially science. Where the information in science itself is very much, among the information in science there must also be a natural phenomenon that we observe. Teachers have a role to provide instructions regarding the material to be taught to students as necessary. These instructions can be in the form of questions so that students are able to find or seek information about actions that must be taken to solve the problem (Diana, 2019; Pangestu & Kurniawati, n.d.). This work can be done in groups. Learning science prioritizes knowledge to observe, including using sensory organs and is related to phenomena that have occurred in nature and information that has been obtained. Students are ultimately directed to make a concept from the discoveries they get.

The weaknesses of previous research are: 1) It is still teacher centric, namely the teacher acts as a learning center. In the 2013 curriculum, it emphasizes the active participation of students so that the role of the teacher should be as a moderator rather than playing a major role in learning. 2) Lack of enthusiasm and motivation for students to learn. Previous research did emphasize practice but the aspects of enthusiasm and participation from students were not paid attention to so that this resulted in less optimal learning. 3) The process of learning science is too complicated which causes students to have difficulty understanding science. In fact, science can be learned easily as long as they know the points or points contained in science. This can be done by making a mind mapping or concept map. 4) The minimal active participation of students results in the learning itself not running optimally. Because these students have not become part of the learning itself, it can be caused by a lack of motivation from the teacher and the learning itself which is too

individualistic or does not prioritize student learning groups. Previous research had several weaknesses, namely the inadequacy of the material provided to students. In this study, using additives and addictive substances that have been adjusted to the students' average abilities. This material can be used as a reference to better understand students' observation skills. The merging of the gadot inquiry model with the problem solving approach has been investigated from the needs of students during previous data collection. The researcher concluded that the combination of these two methods can be carried out on students who have low observation skills, so that these students can learn science more easily and gradually compared to previous studies.

METHOD

This type of research is a quantitative study that aims to improve the ability of observation skills through the application of the model *guided inquiry* with a problem solving approach to student observation skills on additive and addictive substances in class VIII of SMPN 1 Sambit in the 2019/2020 school year. The research design used was *cross-sectional random* sampling, which means it was carried out at any time. Using cluster sampling, students are randomly classed. The procedure is that 2 classes representing class VIII are determined as a whole as a unit, each is given a control variable and an experimental variable after which each class is given the same skills test. In this research phase, the population was 128 students of class VIII A - D SMP Negeri 1 Sambit Ponorogo. The samples in this research were class VIII A and class VIII B SMP Negeri 1 Sambit Ponorogo, totaling 64 students. The procedure of taking samples by looking at the value of each class and the highest average was obtained by two classes, namely: class VIII A and class VIII B. Data collection was carried out by means of skills tests and documentation which was carried out by unstructured interviews with both teachers and students. The documentation method is carried out by the researcher using previous data or the initial values of students, while the test can be in the form of answering questions or exercises on student worksheets and other tools used to determine / measure attitudes, knowledge, skills and abilities through the potential possessed by individual or group. The data analysis technique used quantitative descriptive by explaining the results of data collection from the sample and performing a test calculation of the questions. The sample consisted of 30 students in each class..

RESULTS AND DISCUSSION

There are three kinds of data analysis used in this study. Firstly, the instrument test consists of validity test, reliability test, difficulty level and question difference power. The two prerequisite tests consist of normality test and homogeneity test. The third is hypothesis testing using the t test (*t-test*).

The validity test aims to determine whether the items of the questions being tested are valid or not. Researchers used questions that had been proven valid in the data analysis that had been carried out, while invalid questions were not used in giving questions to students because these questions could not measure the ability of students. To analyze the validity of each item, the researchers used *SPSS 16.0* and the results were as follows:

Table 1. Validity Test Question

		soal1	soal2	soal3	soal4	soal5	SkorTotal
soal1	Pearson Correlation	1	,429	,499*	,629**	,193	,693**
	Sig. (2-tailed)		,059	,025	,003	,415	,001
	N	20	20	20	20	20	20
soal2	Pearson Correlation	,429	1	,430	,391	,011	,575**
	Sig. (2-tailed)	,059		,058	,088	,963	,008
	N	20	20	20	20	20	20
soal3	Pearson Correlation	,499*	,430	1	,918**	,331	,899**
	Sig. (2-tailed)	,025	,058		,000	,154	,000
	N	20	20	20	20	20	20

		soal1	soal2	soal3	soal4	soal5	SkorTotal
soal4	Pearson Correlation	,629**	,391	,918**	1	,407	,935**
	Sig. (2-tailed)	,003	,088	,000		,075	,000
	N	20	20	20	20	20	20
soal5	Pearson Correlation	,193	,011	,331	,407	1	,550*
	Sig. (2-tailed)	,415	,963	,154	,075		,012
	N	20	20	20	20	20	20
Skor	Pearson Correlation	,693**	,575**	,899**	,935**	,550*	1
Total	Sig. (2-tailed)	,001	,008	,000	,000	,012	
	N	20	20	20	20	20	20

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

With the results as above, data will be said to be valid if the value is $r_{to\ tally} > 0.05$. Based on the table, the value $r_{to\ tally}$ in question 1 is 0.693, problem 2 is 0.575, question 3 is 0.899, question 4 is 0.935, question 5 is 0.550. All items obtained $r_{to\ tally} > r_{table}$ were> 0.05 so all items were valid.

After doing the validity test, the next step is to test the reliability of the question instrument. Reliability test aims to analyze the level of consistency of answers or can be tested at any time when the instrument is used. Researchers used *SPSS 16.00* for reliability testing. The following are the results of thecalculation *SPSS* in the table:

Table 2. Reliability of Test

Cronbach's Alpha	N of Items
,788	5

Based on the reliability test on the question instrument using SPSS above, it can be seen that the reliable value in the column *Cronbach's alpha,* if the significance value is> 0.05 then the data is reliable. The table above shows a significance value of 0.788, which means the value is > 0.05, so the data is reliable..

The normality test aims to make it known that a test has a normal distribution or not. The test is said to be good if it is normally distributed or close to normal. In this normality test, the calculation is carried out in each class that is used as the research sample. Based on the calculation of *SPSS 16.00* on the normality test, the results are as follows:

Table 3. Normality Test

	Modelbelajar	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Nilai	Guided Inquiry	,114	32	,200*	,974	32	,625
	Teacher Center	,120	32	,200*	,956	32	,210

a. Lilliefors Significance Correction
*. This is a lower bound of the true significance.

From the results of the normality test using themethod *Kolmogorof-Smirnov*, it can be concluded that the data shown has a normal distribution because the significance level is / .sign> 0.05. The post-test score in the experimental class *(guided inquiry)* shows a sign of 0.200 and the control class *(teacher center)* shows a sign of 0.200. In this case the sign value of both classes> 0.05. So it is concluded that the data is normally distributed.

The homogeneity test was carried out on the sample under study, the samples were in class VIII A and VIII B. This test was used to find out whether the sample in the study was homogeneous or not, if this test was fulfilled, then the researcher would carry out the hypothesis test using the t-test. The data on the homogeneity test was data from the students' post-test. A data is said to be homogeneous if it has a significance level of> 0.05, if the significance level is <0.05, a distribution is called homogeneous. The homogeneity test of the students' post-test scores was carried out usingsoftware *SPSS 16.00.* Based on calculations from *SPSS, the* data in the following table are generated:

Table 4. Homogenity Test

Levene Statistic	df1	df2	Sig.
,160	1	62	,690

From the data shown in Table 4.9, it displays the homogeneity value. In the signing table. if the significance value> 0.05, the data can be called homogeneous. The table shows a significance value of 0.690> 0.05, so the data is said to be homogeneous.

Based on the calculations carried out which include the normality test and the homogeneity test on the results of the student's answers are said to be fulfilled, the next stage is hypothesis testing or H_1 which means that there is an effect of applying themodel *guided inquiry* with a problem solving approach to students' observation skills on additive material and addictive substances in class VIII SMPN 1 Sambit Ponorogo in the academic year 2019/2020. Next, the analysis used is the t-test. While the steps taken in this study are as follows:

a. Making hypothesis

H1: There is an effect of applying themodel *guided inquiry* with a problem solving approach to student observation skills on additive and addictive substances in class VIII SMPN 1 Sambit Ponorogo in the academic year 2019/2020.

H0: There is no effect of applying themodel *guided inquiry* with a problem solving approach to students' observation skills on additive and addictive substances in class VIII SMPN 1 Sambit Ponorogo in the academic year 2019/2020.

b. Determining the criteria

- The significance value or probability value <0.05 then H_0 is rejected and H_1 is accepted.
- The significance value or probability value ≥ 0.05 then H_0 is accepted H_1 is rejected.

c. Calculation results on SPSS:

Table 5. Uji T-Test

	Modelbelajar	N	Mean	Std. Deviation	Std. Error Mean
Nilai	Guided Inquiry	32	14,28	2,453	,434
	Teacher Center	32	9,94	2,552	,451

Independent Sample T-Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Nilai	Equal variances assumed	,160	,690	6,942	62	,000	4,344	,626	3,093	5,594
	Equal variances not assumed			6,942	61,903	,000	4,344	,626	3,093	5,595

The results of the calculations in table 5 show the sign value (2-tailed) on student learning outcomes is 0.000 <0.05, then H_1 is accepted. So it was concluded that there was an effect of implementing the model *guided inquiry* with a problem solving approach on student observation skills on additive and addictive substances in class VIII SMPN 1 Sambit Ponorogo in the 2019/2020 academic year.

Table 6. Post-Test Value Data for Experiment Class VIII A

No	Name	Question					Score
		1	2	3	4	5	
1	Aji Lintang S.	3	3	2	3	1	12
2	Alya Candra K.	3	4	3	2	3	15
3	Amira Nadifa A.	4	3	4	2	1	14
4	Andini Puspitasari	4	4	3	1	2	14
5	Dafa Kurnia S.	4	3	3	4	3	17
6	Dea Rini F.	3	2	1	0	2	8
7	Enggar Maulana	4	4	2	3	0	13
8	Ezra Azizah N.	4	4	3	3	2	16
9	Farhan Wicaksono	3	3	1	2	1	10
10	Gigih Fitri N.	4	4	3	4	2	17
11	Gofar Rahma W.	4	3	1	3	2	13
12	Iman Syauqi	3	4	4	4	3	18
13	Mahfud Arafat	4	4	1	1	2	12
14	Moch Hanif R.	4	4	2	2	1	13
15	Muhammad Firman N.	4	4	3	3	2	16
16	Muhammad Faiz K.	4	3	3	4	1	15
17	Nafa Arbani	3	4	1	2	2	12
18	Nadia Anza S.	4	0	4	4	3	15
19	Nanda Putra P.	4	3	4	3	2	16
20	Puspa Armevia	3	4	3	2	1	13
21	Raffi Khazrin	4	3	3	3	2	15
22	Rania Amelia B.	3	3	4	3	3	16
23	Reva Ananda S.	3	4	2	1	3	13
24	Rivan Tirta E.	4	4	1	2	2	13
25	Satria Wardhana C.	2	3	4	4	3	16

No	Name	Question					Score
		1	2	3	4	5	
26	Salma Balqis M.	3	2	3	4	3	15
27	Sahrul Romadhon	4	4	2	2	2	14
28	Sinta Rosdiana K.	4	2	3	2	3	14
29	Tirsa Indrianti	3	2	3	3	1	12
30	Temy Rianto	2	3	4	2	1	12
31	Ubed Qisam I.	3	4	4	4	3	18
32	Vina Anugerah P.	4	4	4	4	4	20
JUMLAH		**112**	**105**	**88**	**86**	**66**	**457**

Table 7. Post-Test Value Data for Experiment Class VIII B

No	Name	Question					Score
		1	2	3	4	5	
1	Adila Masna Y.	3	2	1	1	1	8
2	Agam Wasis D.	1	1	2	1	2	7
3	Anasia Julia E.	3	2	1	1	1	8
4	Andrian Eko W.	3	1	1	2	1	8
5	Bima Aji S.	3	2	1	3	1	10
6	Dian Saputri	2	2	1	1	1	7
7	Dinda Eka N.	2	3	2	1	1	9
8	Erwin Pangestu	4	3	2	3	1	13
9	Irfan Sulistyo N	1	3	1	1	1	7
10	Julian Kurnia N.	3	3	2	3	1	12
11	Kiki Maulida S.	2	2	1	1	0	6
12	Kinan Winarsih	3	3	3	3	1	13
13	Jesica Laila A.	2	1	1	2	1	7
14	Luluk Masidah	2	2	1	1	1	7
15	Maher Nofan R.	2	3	1	2	1	9
16	Manda Agnia Sari	2	1	2	1	2	8
17	Marvin Dani P.	2	2	1	1	0	6
18	Muhammad Elfan	2	3	3	2	1	11
19	Muhammad Azam F.	2	3	2	2	1	10
20	Muhammad Tabrani	3	3	3	3	2	14
21	Nabila Saufa M.	4	2	2	2	2	12
22	Nina Astiana	3	2	3	2	0	10
23	Pamela Saputri	2	1	2	3	1	9
24	Putri Indah Sayekti	4	3	3	3	3	16
25	Radit Anandika	4	3	1	2	3	13
26	Rehan Putra L	2	2	2	1	3	10
27	Rika Nur Laila	2	2	2	3	1	10
28	Rizki Febrianto	3	3	3	2	2	13
29	Sabrina Almuna S.	2	2	3	2	3	12
30	Sania Maida I.	3	2	2	3	1	11

No	Name	Question					Score
		1	2	3	4	5	
31	Sofia Elya Agustin	4	1	3	2	2	12
32	Yeni Wahyu F.	3	2	1	2	2	10
Jumlah		**83**	**70**	**59**	**62**	**44**	**318**

Table 6 and table 7 show that there are postest results from class VIII A and class VIII B. Class VIII A is the experimental class and class VIII B is the control class. Class VIII A applied the guided inquiry learning model with a problem solving approach getting good scores from each indicator with a total score of 457. While class B with a total score of 318 who applied the teacher center or conventional methods did not have a better score than class A in each. -Each indicator of observation skills. From these data, it can be concluded that the guided inquiry model with a problem solving approach has an effect on improving student observation skills.

Observation or observation skills are one of the science process skills that students must acquire in schools starting from the most basic level. If the experience the student receives is lacking in observing a lesson, the student will show inadequate observation skills (Karamustafaoğlu, 2011). Observing skills are the most basic skills that bridge high-level scientific process skills. In an observation skill or also known as observing objects, it is more dominant to use various kinds of sensory tools that are owned to make an observation, for example by identifying differences in the similarities of an object using tools or data.

As is well known, observing skills are synonymous with the ability to make observations with the eye senses. But what is called the observation activity does not only use the senses but also use other sense organs. The senses that are used in addition to the eyes can also use the sense of taste, smell and hearing. The tools that are usually needed to make an observation will certainly influence a result of observation activities. The usefulness of the tool in the observation itself can affect the results to be obtained, such as the quality of the results that have been obtained from the data obtained during the observation. And it cannot be denied that the ability to observe a tool and use it is different between students. So that later it will show how the level of observations made by individuals and it will be seen whether the individual is able to make observations with good results or not.

Further observing students' skills can be measured by making skill assessments using indicators. After students can improve their observing skills, students will know more about an object that is observed in a phenomenon through their five senses. Students will also be able to identify these objects more easily. From the information through observations that have been recorded by students, a motivation will arise to continue learning. In this learning stage, they will find a problem or statement that arises, then students will make questions about the problems they find. After their questions are made, they will then look for solutions or make an understanding of the knowledge that has been obtained. The skill of observing is indeed the most basic observation so that in science learning. Observation skills are very useful to be developed so that skills in doing a practicum in science will be more helpful.

Integration of research findings with reference sources including: a) When practicum activities take place students will see their skills in observation are comparable to the habits carried out in science learning. According to Karamustafaoğlu, if the experience received by

students is lacking in observing a lesson, the student will show inadequate observation skills (Karamustafaoğlu, 2011). b) In the learning process students are easier to be directed / guided by the teacher first. Furthermore, students act as learning centers and teachers as facilitators. Sund & Trowbridge said the use of guided inquiry is the implementation of broad coaching and guidance, taught to students who do not have experience (Asmawati, 2015; Ratnaningrum et al., 2016). c) To initiate a learning process, students are given an apperception, this makes students think about the material to be studied while reviewing the material that has been taught. From this principle students are more interested or active in learning so that teachers can design appropriate schemes in class. According to Abdurrahman, the problem solving approach refers to learning so that you can think about solving a problem and processing data (Eftafiyana et al., 2018; Jannah et al., 2017; Putra, 2017) .

Student observation skills at the time the research was carried out were comparable to the habits carried out before this activity. After the model is applied *guided inquiry* with aapproach, *problem solving* students can understand the context of the statement that has been given with the suitability of the object being observed, while the teacher who acts as a facilitator is able to systematically improve observation skills and not be too teacher-centered because previously the material has been arranged based onapproach *problem solving.*

The impact of this research is that students are more active in learning so that teachers can design schemes according to the principles of problem solving. At the beginning of learning, the teacher is tasked with explaining the previous material that has been discussed and linked to today's material, so that students have confidence and enthusiasm in the learning process. Furthermore, the teacher guides students to experiment. In this phase, students conduct experiments according to the design that has been made. Because students design work procedures themselves, there is less teacher guidance in technical matters. However, the teacher still encourages students to feel responsible and confident in the procedures they are doing.

Guided inquiry learning *(guided inquiry)*is useful for students to develop a scientific way of thinking so that students can solve problems and acquire the knowledge that is the investigation and understanding of science concepts konesp. With theapproach *problem solving*, students can increase their desire and motivation to learn science. Students are increasingly motivated to study harder because they consider what they learn to be meaningful to themselves.

The model *guided inquiry* with theapproach *problem solving* carried out by researchers can be used as an alternative in improving observation skills so that students and teachers are easier to carry out observation activities. For example, sharing practicum time, making decisions, and increasing confidence in practicum procedures. While the integration of research with religious values is that this research basically helps students improve their observation skills by emphasizing the active participation of students, aspects of cooperation and mutual assistance to religious values have been applied in this study.

Observation skills are skills that must be possessed by students where these skills are the main capital in learning science learning in schools. This supports students in using the ability of their senses to observe available objects until they find relevant data to be used as a reference in research. For this reason, observation skills need to be sharpened in such a way that students can take advantage of these skills to achieve the goals of the predetermined science learning. Active participation of students in learning is needed with

active participation automatically associated with observation skills which will also increase. How to improve observation skills can be done by using an appropriate learning model.

This increase can be done with inquiry principles, namely a learning model that prioritizes the role of students in identifying a problem, processing data, testing data, compiling hypotheses and making a conclusion. The approach can also be done with problem solving, in simple terms problem solving learning can be linked to *guided inquiry* so that learning will run more optimally and with enthusiasm from students. So from this it can be easier to understand and apply the material obtained.

CONCLUSION

The conclusion obtained from this study is that there is an effect of applying the model *guided inquiry* with aapproach *problem solving* to students' observation skills on additive and addictive substances in class VIII SMPN 1 Sambit Ponorogo in the academic year 2019/2020. This result is due to the guided inquiry learning*(guided*inquiry)approach *problem solving* students'can improve scientific thinking oriented students as active participants in solving problems and acquire knowledge that is fully in the investigation so that students understand the concept of konesp science.

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