



# Guided Inquiry Learning Model in Science Learning on Responsible Attitudes of Elementary School Students

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## ABSTRAK

*Kurangnya sikap tanggung jawab siswa terhadap mata pelajaran IPA, membuat guru harus mampu mendesain pembelajaran yang bermakna dan memaksimalkan keterlibatan siswa dalam proses pembelajaran, oleh karena itu model pembelajaran inkuiri terbimbing sebagai alternatif untuk mencoba meningkatkan sikap tanggung jawab siswa dalam proses pembelajaran. Penelitian ini dilaksanakan dengan tujuan untuk menganalisis pengaruh penerapan model pembelajaran inkuiri terbimbing terhadap sikap tanggung jawab siswa kelas V Sekolah Dasar. Jenis penelitian ini adalah penelitian eksperimen semu dengan menggunakan nonequivalent control group design. Populasi berjumlah 56 siswa sehingga digunakan sampling total yaitu berjumlah 56 siswa. Data dalam penelitian ini dikumpulkan dengan menggunakan lembar observasi dan angket, kemudian dianalisis dengan program SPSS versi 20, analisis data terdiri dari uji normalitas, uji homogenitas, dan uji T-sampel berpasangan. Hasil penelitian yaitu terdapat pengaruh yang signifikan pada penerapan model pembelajaran inkuiri terbimbing terhadap sikap tanggung jawab siswa Sekolah dasar kelas V pada mata pelajaran IPA. Disimpulkan bahwa penerapan model pembelajaran inkuiri terbimbing dapat meningkatkan sikap tanggung jawab siswa Sekolah dasar kelas V pada mata pelajaran IPA.*

## ABSTRACT

The lack of students' responsible attitudes towards science subjects means that teachers must be able to design meaningful learning and maximize student involvement in the learning process, therefore the guided inquiry learning model is an alternative for trying to increase students' responsible attitudes in the learning process. This research was carried out with the aim of analyzing the effect of implementing the guided inquiry learning model on the responsible attitudes of fifth grade elementary school students. This type of research is quasi-experimental research using non-equivalent control group design. The population was 56 students so a total sampling of 56 students was used. The data in this study was collected using observation sheets and questionnaires, then analyzed using the SPSS version 20 program, data analysis consisted of normality tests, homogeneity tests, and paired sample T-tests. The results of the research are that there is a significant influence on the application of the guided inquiry learning model on the responsible attitude of fifth grade elementary school students in science subjects. It was concluded that the application of the guided inquiry learning model could improve the responsible attitude of fifth grade elementary school students in science subjects.

## 1. INTRODUCTION

The core competencies developed in class V in the 2013 curriculum content standards related to social attitudes are found in the second Core Competency (KI2) where students are expected to have honest, disciplined, responsible, polite, caring and confident behavior in interacting with family, friends and teachers (Muhaling & Lomboh, 2020; Sari & Bermuli, 2021). Responsibility is one of the 18 character values contained in character education. Responsible character defines a person's attitude and behavior in carrying out their duties and obligations. A student must be responsible to teachers, parents and himself. Character is an important aspect that needs to be developed at this time, considering that various challenges and obstacles that come from outside are very dangerous for the condition of the character of

Indonesian teenagers. At this time, character education is very much needed to form the nation's next generation of superior quality by fostering a sense of responsible attitude in facing the era of globalization (PA Lestari, 2018; Safitri & Harjono, 2021).

The implementation of character education in the 2013 curriculum which consists of being religious, honest, disciplined, hard working and responsible is still lacking in application in the learning process and still needs to be evaluated again (Azis, 2023; Sari & Bermuli, 2021). Character education in the 2013 Curriculum continues to be developed and improved so that it is affordable and relevant to the principles of ideal education for Indonesian students. School is seen as an effective place to form a positive personality in children after family (Raihana, 2018; Sherly et al., 2021). Positive personalities that are built from the character habituation process at school include: being able to assess oneself realistically, accepting responsibility, independence, being able to control emotions (Kahfi, 2022; Wahyuni, 2021). There are factors that support and factors that hinder the creation of character education in the 2013 curriculum which can be eroded and can change if each component such as teachers, students and the community work together well. Factors that hinder the implementation of character education which includes cognitive, affective and behavioral aspects are due to the large amount of academic material, and the lack of professional development programs and proactive involvement of the school community, the absence of a character education evaluation model as an operational guide in evaluating students' character education appropriately. , efficient and effective, education places too much emphasis on the intellectual aspect as a measure of success, so that the formation of good character is neglected, and there is no comprehensive implementation of character education, but simply fulfilling teaching obligations, without knowing how it should be (Hamriana, 2021; Salirawati, 2021). The success of character education implies that learning is not necessarily seen from the perspective of the cognitive domain alone, but rather how the balance of the cognitive, affective and psychomotor domains results in realizing the whole human being (Budiman, 2013; Wahyuni, 2021).

The success of character education can be seen from the balance between cognitive, affective and psychomotor domains. However, the problem that is happening now is that the implementation of character education in schools has not been successful. This is supported by research findings which state that the results of implementing character education in schools are not yet known with certainty, so it is necessary to identify the problems of evaluating character education in schools (Nur, 2013; Salirawati, 2021). Other findings state that the implementation of character education in the 2013 curriculum, which consists of being religious, honest, disciplined, hardworking and responsible, is still lacking and still needs to be evaluated again (Hamriana, 2021; Salirawati, 2021). As a result of observations carried out in elementary schools in the city of Makassar, information was obtained that when students were given practice assignments in science learning, only a few students completed the assignments to completion and most other students did not complete the assignments at all (Ilhamdi et al., 2020; Widiyanto, 2017). In fact, sometimes the results of the answers to the homework in the exercise book are almost uniform, even though the questions given in the homework really allow for varied answers because they involve each student's daily life. This fact shows that students do not try to do their assignments seriously and also indicates a low sense of responsibility for students. Indicators of responsibility include: (1) using time effectively: Students who use their time effectively are able to manage their workload and complete tasks on time; (2) prepare before studying: such as by completing assigned readings or reviewing notes from previous lessons; (3) commitment to tasks: students are considered responsible if they are committed to their tasks. This means that they take their responsibilities seriously and work to complete them to the best of their ability; (5) initiative: students take the initiative to solve problems and complete assignments without being asked by the teacher (Sari & Bermuli, 2021; Viona et al., 2022). Students' reluctance to do the assignments given ultimately results in low science learning outcomes, namely 71.25% below the KKM.

The facts above show the need for teachers to provide variations in implementing science learning activities to increase students' responsible attitudes (PA Lestari, 2018; Muhaling & Lomboh, 2020). The guided inquiry learning model is a model that can help students increase their attitude of responsibility towards the education they are undergoing and is directed so that they do not depend on the teacher and this model places students as learning subjects. This guided inquiry learning model has advantages, it forms and develops "Self Concept" in students, and encourages students to think and work on their own initiative, be objective, honest and open, encourages students to be intuitive and formulate their own hypotheses, providing intrinsic satisfaction and the situation of the learning process becomes more stimulated so that by using this model it is hoped that students can be responsible in carrying out assignments, so that student learning outcomes can reach grades above the KKM, this is supported by research results which state that the guided inquiry learning model has a positive effect on students' cognitive learning outcomes (Sulistiyani et al., 2020; Suryantari et al., 2019). The stages of the guided

inquiry model are (1) stimulation; (2) formulate the problem; (3) formulate a hypothesis (4) collect data and analyze data; (5) making conclusions (Kurniawan et al., 2022;).

Previous research stated that the guided inquiry learning model was able to increase student motivation and learning achievement. Previous research also found that there was an increase in student learning outcomes from cycle I to cycle II using the guided inquiry learning model (Qomaliyah et al., 2016; Setiawan et al., 2021). Other research findings reveal that the guided inquiry learning model can improve students' psychomotor skills and cognitive learning outcomes (Sulistiyani et al., 2020; Suryantari et al., 2019). So, the guided inquiry learning model can increase motivation, psychomotor skills and student learning outcomes. There has been no research found that examines the guided inquiry learning model in relation to the responsible attitudes of students in elementary schools in science learning.

This research aims to analyze the effect of implementing the guided inquiry learning model on students' responsible attitudes in the science learning process in elementary schools. The effect of implementing the guided inquiry learning model can be seen from the difference in the increase in students' responsible attitudes before and after learning compared to the increase in students taught using the conventional learning model. Through this guided inquiry learning, it is hoped that it can facilitate students to form and improve students' responsible attitudes. It is hoped that this research can provide alternative solutions for teachers in implementing science learning in elementary schools so that every student can have an attitude of responsibility both in participating in the learning process and in everyday life.

## 2. METHOD

The type of research used is quasi-experimental or quasi-experimental using a non-equivalent control group design. This research was carried out in class V of SD Sudirman Makassar. The population in this study was all fifth grade students at Sudirman Elementary School, totalling 56 students, where this number was less than 100, so total sampling was used as a sampling technique (Firmansyah, 2022; Ogwen et al., 2021). This sampling technique uses the entire population as the research sample. The samples used were class VA as an experimental class with a total of 29 students and class VB as a control class with a number of 27 students. In accordance with the research design used, the experimental class was given treatment, namely learning using a guided inquiry model, while the control class did not receive treatment so they continued to use the conventional learning model. Data collection techniques in this research used observation and questionnaire techniques. Before the learning model was implemented, students in both classes were given a pre-test using a responsibility attitude questionnaire (Firmansyah, 2022; Imelda et al., 2019). Likewise, after implementing the learning, students are given a post-test with the same questionnaire. The grid for the student responsibility attitude questionnaire is: (1) using time well, (2) making preparations before studying, (3) commitment to assignments, and (4) initiative. The learning process in both the control and experimental classes is controlled using lesson plans that have been prepared previously and monitored using observation sheets. Before learning tools and instruments are used in research, content validation is first carried out by two experts/experts. The validated learning tools and instruments include lesson plans, observation sheets, and student responsibility attitude questionnaires. Indicators for assessing the validity of the RPP content can be seen in Table 1.

**Table 1.** The Indicators for Assessment of RPP Content Validity

No.	Assessment Aspects	Indicator
1	Identity	a. Completeness of subject identity b. Completeness of time allocation
2	Formulation of Learning Objectives and Indicators	a. Conformity of goal formulation with KI and KD b. Conformity of competency achievement indicators with KD c. The accuracy of preparing operational verbs that can be measured
3	Material Selection	a. The truth of the concept is in accordance with the facts, concepts, theories, procedures in the subject matter b. Suitability of teaching materials with learning objectives c. The order and systematicity of the arrangement of matter
4	Selection of Learning Methods	a. Suitability of learning methods with learning objectives b. Suitability of learning methods to subject matter
5	Planning Learning Activities	a. Completeness of the steps in each learning stage b. Suitability of learning activities with the Guided Inquiry model

No.	Assessment Aspects	Indicator
		1) Stimulation 2) formulate the Problem 3) formulate a hypothesis 4) collecting data and data analysis; 5) make conclusions
6	Selection of Learning Resources	a. Suitability of learning resources with learning objectives b. Suitability of learning resources with learning materials
7	Compiling an Assessment	a. Conformity of assessment to learning objectives b. Conformity of assessment instruments with indicators
8	Language	a. Conformity with good and correct Indonesian language rules b. The language used is communicative c. The sentences used are easy to understand

The results of calculating the validity of the lesson plan content using the Aiken's test obtained the lowest value of 0.73 and the highest value of 0.89. This shows that the items in the RPP have good content validity and support the validity of the RPP as a whole. Indicators for assessing the validity of the contents of the Observation Sheet can be seen in [Table 2](#).

**Table 2.** The Indicators for Assessing the Validity of the Contents of the Observation Sheet

No.	Assessment Aspects	Indicator
1	Observation Sheet Format	a. Instructions are stated clearly b. Clarity of numbering system
2	Content Format	a. Statements are formulated briefly and clearly b. The indicators observed cover all aspects that support the implementation of learning.
3	Language and Writing	a. Conformity of language with standard Indonesian language rules b. The language used is communicative

The results of calculating the validity of the contents of the observation sheet using the Aiken's test obtained the lowest value of 0.81 and the highest value of 0.95. This shows that the items on the observation sheet have good content validity and support the validity of the observation sheet as a whole. Indicators for assessing the content validity of the student responsibility attitude questionnaire can be seen in [Table 3](#).

**Table 3.** Indicators for Assessing the Content Validity of the Student Responsibility Attitude Questionnaire

No.	Assessment Aspects	Indicator
1	Questionnaire Format	a. Instructions are stated clearly b. Clarity of numbering system
2	Content Format	a. Statements are formulated briefly and clearly b. The indicators measured cover all aspects of students' responsible attitudes
3	Language and Writing	a. Conformity of language with standard Indonesian language rules b. The language used is communicative

The results of calculating the validity of the contents of the student responsibility attitude questionnaire using the Aiken's test obtained the lowest value of 0.85 and the highest value of 0.92. This shows that the items in the questionnaire have good content validity and support the validity of the overall student responsibility attitude questionnaire. The data analysis techniques used in this research are descriptive analysis and inferential analysis. Descriptive analysis is used to describe questionnaire data obtained from students, in this case descriptive statistics are used which include minimum score, maximum score, range, average and standard deviation. Apart from that, the results of the responsibility attitude questionnaire were categorized. Inferential analysis aims to carry out generalizations which include estimation and hypothesis testing. This hypothesis testing uses paired sample t-test statistics with the help of SPSS 20 software. Data resulting from observations of learning implementation are analyzed and described using percentages as supporting data.

### 3. RESULT AND DISCUSSION

#### Result

The attitude of responsibility of SD Sudirman students before implementing the guided inquiry learning model in science subjects was measured using an attitude of responsibility questionnaire which was answered by students before implementing the guided inquiry learning model. The scores from the student responsibility attitude questionnaire were processed descriptively using a frequency distribution table. The results of the analysis show that the attitude of responsibility of students before implementing the guided inquiry learning model in the experimental class was in the low category as many as 3 people (10.34%), in the medium category as many as 16 people (55.17%), and in the high category as many as 10 people (34.48%). Meanwhile, the responsible attitude of students in the control class was in the medium category as many as 3 people (11.11%), in the medium category there were 14 people (51.85%) and in the high category there were 10 people (37.04%).

Students' attitudes of responsibility after implementing the guided inquiry learning model were measured using an attitude of responsibility questionnaire which was answered by students after implementing the guided inquiry learning model. The results of the research showed that the students' responsible attitude after implementing the guided inquiry learning model in the experimental class was in the medium category as many as 2 people (6.90%), in the high category as many as 18 people (62.07%), and in the very high category as many as 9 people (31.03%). Meanwhile, the responsibility attitude of students in the control class was in the medium category as many as 15 people (55.56%), in the high category there were 11 people (40.74%) and in the very high category there were 1 person (3.70%).

To determine the significance (meaningfulness) of the difference in increasing students' responsible attitudes in classes that use the guided inquiry learning model and conventional classes, hypothesis testing was carried out using a paired sample t-test. However, before testing the hypothesis, first testing the normality and homogeneity of student responsibility attitude data before and after learning is carried out.

Normality testing was carried out on student responsibility attitude data before implementing the guided inquiry learning model and student responsibility attitude data after implementing the guided inquiry learning model. This is intended to see the normality of the data. Normality testing used the Shapiro Wilk test with the help of the SPSS 20 program. The results are presented in [Table 4](#).

**Table 4. The Normality Test Results**

Score		Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	df	Sig.
Student Responsibility Attitude	Control	0.077	27	0.200	0.972	27	0.614
	Experiment	0.065	29	0.200	0.975	29	0.715

Based on [Table 6](#), it appears that the p value (sig.) for the control class is 0.614 and for the experimental class is 0.715. Both values are more than 0.05, so it can be concluded that the data on students' responsible attitudes in the control class and experimental class are normally distributed. The results of homogeneity testing using SPSS 20 are presented in [Table 5](#).

**Table 5. The Homogeneity Test Results**

		Levene Statistics	df1	df2	Sig.
Student Responsibility Attitude	Based on Mean	0.370	1	56	0.545
	Based on Median	0.376	1	56	0.542
	Based on Median and with adjusted df	0.376	1	51.730	0.542
	Based on trimmed mean	0.370	1	56	0.545

Based on [Table 5](#), the p value (sig.) is 0.545. These results show that  $p > 0.05$  so that the homogeneity assumption is met. The results of hypothesis testing with paired sample t-test statistics are presented in [Table 6](#).

Based on [Table 6](#), the p value = 0.000 and the t value = 26.633. This shows that the p value  $< 0.05$  so that  $H_0$  is rejected and  $H_1$  is accepted, which means that there is a significant difference in increasing students' responsible attitudes in classes that use the guided inquiry learning model compared to conventional classes. Thus, it can be concluded that there is a significant influence on the application of the guided inquiry learning model on students' responsible attitudes.

**Table 6. Paired Samples t-test Results (Paired Samples t-test)**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Posttest	20.414	4.128	0.766	21.984	18.844	26.633	28	0.000

**Discussion**

The application of the guided inquiry learning model in science learning towards students' responsible attitudes has increased, the average score has increased from the pretest score to the posttest score, but the increase in pretest scores and posttest scores is not too big, the indicator with the highest difference in value is the effective use of time, students are not yet accustomed to the guided inquiry learning model, because so far in the learning process, teachers have used the lecture method, and students only receive without any reciprocal communication between teachers and students or in other words teacher-centered learning, with the application of the inquiry learning model, At the beginning of learning, many students ask the teacher about the stages of this guided inquiry learning model, this is what takes up a lot of time and is in line with previous research which states that learning using the guided inquiry model is very fun, but requires quite a lot of time so that learning time often late for class schedules (Mardika, 2020; Muliani & Wibawa, 2019). The indicator with the least difference in average scores from the pretest and posttest is cooperation in working on group assignments, students actively discussing completing assignments given by the teacher. Student involvement in solving problems forms students' awareness of the importance of contributing to carrying out assignments to completion, which ultimately develops an attitude of responsibility. Student involvement in completing assignments can build students' attitudes of responsibility as stated by similar research that responsibility is a person's attitude and behavior to carry out their duties and obligations, which should be carried out, towards themselves, society, the environment (natural, social and cultural), country and God Almighty. Students can manifest an attitude of respect that can be seen in being polite and courteous, respecting rules, and appreciating differences (Ananda et al., 2022; Surifah et al., 2018).

Previous research findings also reveal that the application of the guided inquiry learning model is able to increase learning motivation. In the application of the guided inquiry learning model, students are guided to explore information related to the learning topic by carrying out an experimental activity, namely first formulating a problem, formulating a hypothesis, collecting data and data analysis, and make a conclusion that in this case students will be active during the learning process. If students are active in learning activities, it will have an impact on increasing student learning motivation, so that student learning outcomes can increase (S. Lestari et al., 2020; Setiawan et al., 2021).

This learning model, places students as learning subjects and has the advantage of forming and developing "Self Concept" in students, and encouraging students to think and work on their own initiative, and formulate their own hypotheses so as to provide intrinsic satisfaction in the learning process to be more stimulated so that by using this model It is hoped that students can be responsible in carrying out assignments, and that student learning outcomes can achieve grades above the KKM (Indarta & et al., 2022; Zakiyah et al., 2022). This is supported by research results which state that the guided inquiry learning model can improve student learning outcomes and achievements. The guided inquiry learning model should be used as an alternative learning model to be applied to students in science learning. The influence of the guided inquiry learning model on students' responsible attitudes should be an inspiration for teachers to try various models, methods or approaches that can improve students' responsible attitudes.

This research can provide an alternative solution for teachers in implementing science learning in elementary schools so that every student can have an attitude of responsibility both in participating in the learning process and in everyday life. However, this research also has limitations in terms of sample size and duration of application of guided inquiry learning as treatment. For further research, it is best to use a larger number of samples and apply guided inquiry learning to students with a larger number of meetings so that maximum results can be shown regarding the effect of implementing the guided inquiry learning model on students' responsible attitudes. This is because attitude formation takes a long time. By getting used to implementing the guided inquiry learning model in the learning process, it can help form students' attitudes of responsibility. This research can also be developed by examining other attitudes or social skills that can be developed and formed through guided inquiry learning, such as cooperation, honesty, discipline, self-confidence and caring for the environment.

#### 4. CONCLUSION

The results of the data analysis that has been carried out can be concluded that the application of the guided inquiry learning model in science learning has a significant effect on the responsible attitude of elementary school students. This model encourages students to actively seek knowledge and develop critical thinking skills. By involving students in a learning process that involves experimentation, observation, and research, they become more responsible for understanding the subject matter. The guided inquiry model helps create a learning environment that stimulates students' interest, increases their motivation, and overall contributes to the development of a positive attitude of responsibility at the elementary school level.

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