



The Effect of Implementing the Probing Prompting Model on the Cognitive Abilities of Class IV Students at SDN 31 Bontomacinna, Bulukumba Regency

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Abstract. This research was conducted at SDN 31 Bontomacinna, Bulukumba Regency based on the problem of not maximizing the use of learning models in schools and the low cognitive abilities of class IV students. This research aims to: (1) Find out how the probing prompting learning model is implemented in class IV, (2) describe how the cognitive abilities of class IV students are described, and (3) Find out the effect of the probing prompting learning model on the cognitive abilities of class IV students. The research uses a quantitative approach with a quasi-experimental design. Purposive sampling technique was used to select two classes as samples: experimental class (IV A) and control class (IV B). Data was collected through observation, tests and documentation, then analyzed using descriptive and inferential statistical analysis. The research results show that the application of the probing prompting learning model has a positive impact on students' cognitive abilities. This is proven by the results of the SPSS statistical analysis test which states that there are significant differences in students' cognitive abilities after being given treatment as well as observation results with percentage scores increasing from 77% (good) in the first treatment to 94% (very good) in the second treatment. . Based on this, it can be concluded that the probing prompting learning model has a positive effect on the cognitive abilities of class IV students at SDN 31 Bontomacinna, Bulukumba Regency.

Keywords: Probing Prompting Model, Cognitive Ability

1 Introduction

The learning process in school's places students as components that determine the success of achieving goals in the learning process. In RI Law no. 20 of 2003 article 1 paragraph 4 states that "Students are members of society who try to develop their potential through the learning process available at certain paths, levels and types of education". Learning is a process to achieve goals, or as a process of change and improvement. cognitive, affective, and psychomotor abilities (Suhaida, 2018). The results of the 2015 Program for International Student Assessment (PISA) survey show that the ability of students in Indonesia for science, reading and mathematics skills is still low, namely at rank 62, 61 and 63 out of 69 countries evaluated (Kemendikbud,

2018). Apart from that, the results of a 2015 survey conducted on students aged 15 years in the field of science, Indonesia obtained a score of 403. This score is classified as low, because it is still below the average score of all Organization for Economic Co-operation and Development (OECD) participating countries is 493 (PISA results, 2016). This is because the questions used in PISA cover cognitive aspects of six levels of cognitive processes (Aida, 2017). So, it can be concluded that the cognitive abilities of Indonesian students are still below the average in OECD countries.

One of the efforts that has been made by the government regarding the low cognitive aspects of students is by implementing a curriculum which is expected to improve the quality of education in Indonesia, namely the 2013 curriculum. According to Syaiful (2018) the 2013 curriculum is designed to improve high quality performance through the learning process to create students' abilities. which has high quality. In the 2013 curriculum learning, there is one assessment, namely the cognitive aspect assessment, which can measure students' cognitive abilities during learning (Aini, 2016).

According to Vidayanti (2017) cognitive abilities are abilities that can improve students' thinking abilities. One theory that discusses the importance of cognitive abilities is the JIPPF theory, Vol. 1, Edition 1, Pages: 1-7 as stated by Benyamin S. Bloom, good quality education is obtained by applying all levels of cognitive domains in every lesson. Meanwhile, according to Huda (2013), cognitive ability is students' mastery in the cognitive domain. (Nabilah et al., 2020).

Students' cognitive abilities really need to be improved so that students can compete in various countries in the world, this is where the role of teachers is very important. Teachers must provide lessons using various learning models that are suitable to be applied so that students' cognitive abilities can be improved.

In improving cognitive abilities in elementary schools (SD), efforts have been made to follow changes in the paradigm of the learning process so far. Efforts to provide a variety of learning models through cooperative learning are the main choice that is more familiar. However, teachers' limited understanding presents obstacles. Learning models that are not implemented correctly according to the learning theory that underlies them result in various negative impacts that are quite disturbing. Problems like this are the result of teachers' limitations in understanding learning models. If an understanding of the basis for applying learning models is not well mastered, the problems that arise cannot be resolved. Even though a teacher is expected to manage the learning process he is undergoing. Therefore, it is very important for teachers to gain an understanding of applying various learning models in achieving competency by students.

According to Rusman (2016), before determining the learning model that will be used in learning activities, there are several things that the teacher must consider in choosing it, namely consideration of the goals to be achieved, considerations related to learning materials, considerations from the students' point of view, considerations others of a non-technical nature. (Mukhtar et al., 2022).

The way to overcome this problem is by implementing a cooperative learning model. One of them is the probing prompting learning model. According to Huda (2013) Probing Prompting is a learning model that applies learning to direct students to convey their ideas. Meanwhile, according to Novena and Kriswandani (2018), in the probing

prompting learning model the teacher tries to make students more active with the questions asked.

In the probing prompting learning model, the teacher provides questions that guide and explore students' knowledge regarding the lesson being taught. The question-and-answer process is carried out by randomly appointing students so that each student can participate in each lesson. This can also eliminate embarrassment or awkwardness. students to express their opinions. This model really requires teacher creativity in asking questions that can guide students and also in creating active learning so that students don't get bored. This model is very suitable to be implemented at Bontomacinna 31 State Elementary School.

Similar research has also been carried out by Hendrawan, Kasdi and Sukartiningsih (2019), in their research it is said that there is an influence of learning models on student learning outcomes and H0 is accepted as learning that is implemented by exploring and guiding. This proves that there is a significant difference in student learning outcomes between the control and experimental class groups, in other words, there is an influence of the Probing Prompting learning model on student learning outcomes in the learning process in class IV in elementary school. Based on the results of this research, it shows that teachers are able to create learning situations and conditions that enable (make) students enthusiastic so that they are very active in participating in learning which will develop students' thinking patterns.

Based on the problems above, the author is interested in conducting research entitled "The Effect of Implementing the Probing Prompting Model on the cognitive abilities of Class IV Students at SDN 31 Bontomacinna, Bulukumba Regency." This research was conducted with the aim of seeing the effectiveness of the probing prompting model in creating an active learning atmosphere and improving cognitive abilities. students in the learning process in elementary school.

2 Research methods

2.1. Research Approach

This study uses a quantitative approach. This approach is used because the data in research is predominantly quantitative data or numbers that are analyzed statistically. This quantitative approach is used to test the hypotheses that have been formulated.

2.2. Types of research

The research carried out by researchers is experimental research. This research was used to determine the effect of using the probing prompting learning model on the cognitive abilities of class IV students at SDN 31 Bontomacinna, Bulukumba Regency.

2.3. Research design

The design of this research is quasi experimental with the form of a nonequivalent control group design. Researchers used this design to determine the effect of using the

probing prompting learning model on the cognitive abilities of class IV students at SDN 31 Bontomacinna, Bulukumba Regency. This research design began with an initial test (pre-test) given to both classes, then treatment was given to the experimental class with learning using the probing prompting learning model. Then it ended by giving a post-test to each class to determine the students' cognitive abilities after receiving the treatment.

2.4. Data collection technique

Test

Tests are a tool used to measure students' cognitive abilities. The test used in this research was in the form of a written test in the form of multiple choice with 10 numbers which was carried out during the pre-test and post-test. This was done to obtain data on the cognitive abilities of students in class IV A as the experimental class and class IV b as the control class at SDN 31 Bontomacinna, Bulukumba Regency before and after being given treatment.

Observation sheet

The observation sheet was used to observe the implementation of the probing prompting learning model on the learning of class IV students at SDN 31 Bontomacinna, Bulukumba Regency which took place during the research.

2.5. Data analysis technique

Descriptive Statistical Analysis

Descriptive analysis is statistical analysis used to analyze data by describing or illustrating the data that has been collected. The data analyzed descriptively is data from observations of the implementation of learning in the experimental class as well as the results of the pre-test and post-test.

Inferential Statistical Analysis

Inferential analysis is a statistical analysis technique used to analyze sample data, where the results apply generally or generalize (apply to the population). In this research, parametric statistics are used because the data used is ratio data. Meanwhile, if the data is not normally distributed, nonparametric statistical tests are used. The type of parametric statistics used is the Independent Sample t-Test. The Independent Sample t-Test is used to compare the averages of two variables in one class. The prerequisites for the Independent Sample t-Test are from data that is normally distributed and homogeneous, so that a normality test is previously carried out.

3 Results and Discussion

3.1. Application of the Probing Prompting Learning Model to Class IV Students at SDN 31 Bontomacinna, Bulukumba Regency

An overview of the application of the probing prompting learning model can be seen from the observation sheet of student and teacher activities which is explained as follows:

Table 1. Observation Results of Using the Probing Prompting Model

No.	Meeting Observation Results	Indicator Scores Achieved	Percentage	Category
1.	1	14	77 %	Good
2.	2	17	94%	Very good

Based on the data in table 4.1 above, it can be concluded that the implementation of learning using the probing prompting learning model takes place effectively because the percentage category for each meeting increases from the effective category to very effective. This can be seen in the learning process using the probing prompting learning model which is going well. In this way, the percentage category obtained for each meeting increases. So it can be concluded that the implementation of learning using the probing prompting learning model is very effective.

3.2. Description of the Cognitive Abilities of Class IV Students at SDN 31 Bontomacinna, Bulukumba Regency

Cognitive Ability Pretest Results

Table 2. Pretest Results of Experimental Class Cognitive Ability Indicators

No.	Question Indicator	Frequency	Percentage	Category
1.	Knowledge	26	58.4 %	Pretty good
2.	Application	26	61.5 %	Good

Based on table 2 above, it can be seen that in the experimental class students, on the knowledge question indicator, out of 26 students, 58.4% of students answered correctly and this indicates that on the knowledge questions, the experimental class students were in the quite good category. Furthermore, on the application questions from 26 students, 61.5% of students answered correctly and this indicates that on the experimental class students' knowledge questions were in the good category.

Table 3. Pretest Results of Control Class Cognitive Ability Indicators

No.	Question Indicator	Frequency	Percentage	Category
1.	Knowledge	26	53.7 %	Pretty good
2.	Application	26	66.2 %	Good

Based on table 3 above, it can be seen that in the control class students, on the knowledge question indicator from 26 students, 53.7% of students answered correctly and were in the quite good category and on the application question indicator from 26 students, there were 66.2% of students who answered correctly and were in the category. Good.

Cognitive Ability Posttest Results

Table 4. Posttest Results of Experimental Class Cognitive Ability Indicators

No.	Question Indicator	Frequency	Percentage	Category
1.	Knowledge	26	76.2 %	Good
2.	Application	26	78.9 %	Good

Based on table 4 above, it is known that in the experimental class students on the knowledge question indicator, out of 26 students, 76.2% of students answered correctly and this indicates that on the knowledge questions the experimental class students were in the good category. Furthermore, on the application questions from 26 students, 78.9% of students answered correctly and this indicates that on the experimental class students' knowledge questions were in the good category.

Table 5. Posttest Results of Control Class Cognitive Ability Indicators

No.	Question Indicator	Frequency	Percentage	Category
1.	Knowledge	26	66.2 %	Good
2.	Application	26	61.2 %	Good

Based on table 5 above, it can be seen that in the control class students, on the knowledge question indicators from 26 students, 66.2% of students answered correctly and were in the good category and on the application question indicators from 26 students, there were 61.2% of students who answered correctly and were in the good category.

3.3. The Effect of Using the Probing Prompting Learning Model on the Cognitive Abilities of Class IV Students at SDN 31 Bontomacinna, Bulukumba Regency

The independent sample t-test analysis aims to determine differences in students' cognitive abilities between the experimental class and the control class. This analysis was carried out by testing the results of the experimental class posttest and control class posttest using the help of the IBM SPSS Statistics Version 26 program. The results of

the Independent Sample T Test posttest scores for the experimental class and control class were as follows:

Table 6. Independent Sample T-Test Results

Data	Q	Df	Probability Value	Information
Posttest experimental class and control class	2,525	40	0.016	0.016 < 0.05 = There is a difference

Based on the table, it can be seen that the probability is smaller than 0.05, which means H0 is rejected and Ha is accepted. Likewise, if the calculated t value is 4.291 compared to the t table value with $\alpha = 5\%$ and $df = 40$, the t table value is 2.021. So the calculated t has a value greater than the t table ($2.525 > 2.021$). If $t \text{ count} > t \text{ table}$ it can be concluded that there is a significant difference, which means there is an influence of using the Probing Prompting learning model on students' cognitive abilities.

4 Conclusion

Based on the results of the research that has been carried out, it can be concluded that the application of the probing prompting learning model in the learning process of class IV students at SDN 31 Bontomacinna, Bulukumba Regency, which was carried out in 2 meetings and observed using an observation sheet, the implementation of the probing prompting learning model was carried out well at the first meeting and experienced an increase at the second meeting. This is proven by the percentage results in the implementation observation assessment rubric at the first meeting which was in the good category and at the second meeting it increased to very good. Description of students' cognitive abilities in the fourth grade learning process at SDN 31 Bontomacinna, Bulukumba Regency. After being given the probing prompting learning model, the experimental class experienced an increase compared to the control class. This is proven by the average post-test score for the experimental class being greater than the control class. The application of the probing prompting learning model has an influence on the cognitive abilities of class IV students at SDN 31 Bontomacinna, Bulukumba Regency. This can be seen from the increase in scores obtained and the difference in probability values between the experimental classes through the treatment of applying the probing prompting learning model with the control class which was not given treatment with smaller probability values. This can also be proven by the calculated t value which is greater than the t table so that it can be said that there is an influence from the application of the probing prompting learning model on the cognitive abilities of class IV students at SDN 31 Bontomacinna, Bulukumba Regency.

References

- Mukhtar, M., Rosyidah, U., & Setyawati, A. (2022). Application of the Probing Prompting Type Cooperative Learning Model in Improving Student Mathematics Learning Outcomes. *Mathematics Journal*, 4(1), 50–57. <http://www.almufi.com/index.php/AJMAEE/article/view/2>

2. Nabilah, M., Sitompul, SS, & Hamdani, H. (2020). Analysis of Students' Cognitive Abilities in Solving Momentum and Impulse Problems. *Journal of Physics Research and Learning Innovation*, 1(1), 1. <https://doi.org/10.26418/jippf.v1i1.41876>
3. Hendrawan, T., Kasdi, A., & Sukartiningsih, W. (2019). The Influence of the Probing-Prompting Learning Model on Student Learning Outcomes in Class V of Elementary Schools. *ReIVew Journal of Elementary Education: Journal of Educational Studies and Research Results*, 5(3), 1084–1091.
4. Huda, M. (2013). *Teaching and Learning Models*. Student Library.
5. Kurniasari, D., & et al. (2016). Experimental Cooperative Learning Model Type Group Investigation and Probing-Prompting with a Scientific Approach to Algebra Operations Material Seen from the Mathematics Learning Anxiety of Class IVII Karangayar State Middle School. *Electronic Journal of Mathematics Learning*, 4(4), 444–456.
6. Malikhah. (2019). Application of the Probing Prompting Strategy in the Calculus 3 Course in the Civil Engineering Study Program. *Dk*, 53(9), 1689–1699. <https://doi.org/https://doi.org/10.1017/CBO9781107415324004>
7. Shoimin, A. (2017). 68 Innovative Learning Models in the 2013 Curriculum. Ar-ruzz Media.
8. Sevilla, Consuelo, et al. 2016. *Introduction to Research Methods*. Jakarta: UI-Press.
9. Suyatno. (2018). *Exploring Innovative Learning*. Masmedia Buana Pustaka.
10. Usmiati A, D. (2018). The Influence of the Probing-Prompting Learning Model on the Mathematical Creative Thinking Ability and Self-Efficacy of Sentosa Buay Madang Vocational School Students. *Proceedings of the National Seminar*, 508–514.
11. Amir, A. (2014). Elementary Mathematics Learning Using Manipulative Media. *Journal of the Pedagogical Forum*, VI(01), 72–89.
12. Nurbudiyani, I. (2013). Implementation of measurements in the cognitive, affective and psychomotor domains in social studies subjects in class III of SD Muhammadiyah Palangkaraya. *Anterior Journal*, 13(1), 88-93.
13. Rosyidi, D. (2020). Cognitive Domain Assessment Techniques and Instruments. *Tasyri` : Tarbiyah-Syari`ah-Islamiyah Journal*, 27(1), 1–13. <https://doi.org/10.52166/tasyri.v27i1.79>.
14. Suyani, N. Made Fitri, & Wulandari, I Gusti Agung Ayu. (2020). Probing Prompting Model for Mathematical Communication. *Scientific Journal of Education and Learning*, 4, 380–381.
15. Lubis, MA (2020). *Elementary/mi Thematic Learning*. Prenada Media
16. Sugiyono. (2022). *Quantitative, Qualitative and R&D Research Methods*. Bandung: Alfabeta.
17. Wardani, RK, & Syofyan, H. (2018). Development of Interactive Videos in Integrative Thematic Science Learning on Human Blood Circulation Material. 2(4), 371–381.
18. Ruwaida, H. (2019). Cognitive Processes in Revised Bloom's Taxonomy: Analysis of the Ability to Create (C6) in Jurisprudence Learning. *Jurnal.Stiq-Amuntai.Ac.Id*, 4(1), 51–76.
19. Rahman, A. (2022). Efforts to Improve Graduate Competency Standards. *Adiba: Journal of Education*, 2(1), 122–132.
20. Purwanto. 2017. *Evaluation of Learning Outcomes*. Yogyakarta: Learning Library

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