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The Effect of Inquiry Learning Model on Mathematics Learning Outcomes of Elementary School Students

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Abstract
Students' math learning outcomes tend to be low, and when learning, it seems that students are less enthusiastic, like talking to friends or even disturbing friends. This is partly due to the lack of variety in teaching. So, it is appropriate for teachers to make some innovations in their learning methods. The purpose of this study was to determine the effect of the inquiry learning model on student math learning outcomes in class IV SD Negeri 040544 Dolat Rayat. This research is a quasi-experimental research with a purposive sampling technique. The results showed that the acquisition of the class average score of 86.19 means that it has exceeded the KKM value. Then the hypothesis was tested using the correlation test, and the results showed that students' math learning outcomes had changed for the better from before. Because the value of count = 0.855, while the value of table = 0.355, the alternative hypothesis is accepted. This means that there is an effect of the inquiry learning model on student math learning outcomes in class IV of SD Negeri 040544 Dolat Rayat. So, from the results of the study, it can be suggested that the application of the inquiry model in learning mathematics in grade IV is very appropriate.

Keywords: Elementary School, Inquiry Learning Model, Learning Outcomes, and Student

Abstrak
Hasil belajar matematika siswa cenderung masih rendah, dan ketika belajar, terlihat siswa kurang bersemangat, suka berbicara dengan teman atau bahkan menganggu teman. Hal ini salah satunya diakibatkan oleh kurangnya variasi dalam mengajar. Maka sudah sepantutnya guru melakukan beberapa inovasi pada metode pembelajarannya. Tujuan penelitian ini adalah untuk mengetahui pengaruh model pembelajaran inkuiri terhadap hasil belajar matematika siswa di kelas IV SD Negeri 040544 Dolat Rayat. Penelitian ini merupakan penelitian quasi eksperimen dengan teknik purposive sampling. Hasil penelitian menunjukkan bahwa perolehan nilai rata-rata kelas sebesar 86,19 artinya sudah melebihi nilai KKM. Kemudia hipotesis diuji dengan menggunakan uji korelasi, dan diperoleh hasil bahwa hasil belajar matematika siswa mengalami perubahan lebih baik dari sebelumnya. Sebab nilai r_{hit} = 0,855, sementara nilai r_{tab} = 0,355, maka hipotesis alternatif diterima. Artinya bahwa terdapat pengaruh dari model pembelajaran inkuiri terhadap hasil belajar matematika siswa di kelas IV SD Negeri 040544 Dolat Rayat. Maka dari hasil penelitian dapat disarankan bahwa penerapan model inkuiri dalam pembelajaran matematika di kelas IV sangat tepat.

Kata Kunci: Hasil Belajar, Matematika, Model Pembelajaran Inkuiri, dan Siswa

INTRODUCTION

Optimizing the potential of students to become noble, confident, independent, dynamic and responsible human beings is the responsibility of education as a whole, be it in formal, non-formal or informal education. This is also regulated in Article 31 paragraph 3 of the 1945 Constitution, which states that "Pemerintah mengusahakan dan menyelenggarakan satu sistem pendidikan nasional, yang meningkatkan keimanan dan ketakwaan serta ahlak mulia dalam rangka mencerdaskan kehidupan bangsa, yang diatur dengan undang-undang" (Sekretaris Jenderal DPR RI, 2002). Of course, schools have a strategic role in achieving this Indonesian education goal. Through teacher intervention in creating an environment that allows the formulated learning process to achieve maximum results.

The educational objectives are then outlined in the objectives of each subject. One of them is mathematics. Mathematics is a numeracy subject that is taught from elementary school to college. The characteristics of mathematics include (1) having abstract objects, (2) referring to unity (agreement), (3) having deductive thinking, (4) having systematic consistency, (5) having symbols that are not meaningful, (6) paying attention to the world of words (universe of speech) (Admin Pendidikan Matematika, 2015).

Of course, in the classroom students can be found who have learning difficulties, especially learning to count (math), especially with questions in the form of descriptions (Rawa et al., 2019). Students will feel that math adds to their learning burden, especially for students who do not like math. So, it is necessary that the presentation of the material is arranged in order from easy, moderate to difficult levels gradually. It should also start from the presentation of concrete material then with a semi-concrete presentation and continue with the presentation of material abstractly using symbols.

Therefore, in teaching mathematics, it is also necessary to pay attention to the cognitive development of students, so teachers can innovate learning. Innovative learning also involves learning that is packaged by teachers to create new ideas or techniques that can help students progress through the

learning process and outcomes (Arsella et al., 2022). This is also done to make it easier for students, especially at the elementary school level, who are at the age of 7-12 years in the concrete operational period, to master the learning objectives (Sari et al., 2017).

The steps of learning with guided inquiry begin with (1) proposing problems; (2) formulating hypotheses; (3) collecting data; (4) analyzing data; and (5) drawing conclusions (Trianto, 2007). Inquiry learning is one of the learning innovations that can direct students to make discoveries so that they can gain deeper knowledge. The purpose of inquiry learning is to help students formulate questions, find answers to problems and develop students' critical thinking levels. Inquiry learning creates fun learning activities so that it can affect student understanding (Tanjung, 2016).

METHODS

This study used a quantitative approach with a quasi-experimental format (Sari, 2017). The research sample was fourth grade students of SD Negeri 040544 Dolat Rayat. The research data collection technique was in the form of a learning outcome test. Data analysis starts from the prerequisite test analysis in the form of a validity test with the product moment formula to test the validity of the question (Suharsimi, 2021). Next is the reliability test using the KR-20 formula (Sugiyono, 2021). The second is the basic assumption test in the form of normality testing with the Shapiro-Wilk technique (Sudjana, 2017). Homogeneity testing was not carried out, because the treatment class was only one class. For hypothesis testing, the correlation coefficient test and t test were used (Sugiyono, 2021).

RESULTS AND DISCUSSION

1) Result

The results of basic assumption testing can be explained in detail as follows:

Table 1. Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Model Inkuiri	.176	31	.055	.956	31	.222

a. Lilliefors Significance Correction

Based on the sig value. in the Shapiro-Wilk test obtained a sig value. = 0.222> 0.05 this indicates that the data distribution is normal. So, it can be continued with hypothesis testing.

Description of Math Pretest Results

The pretest results before being given treatment showed that out of 31 students, only 3 people completed the KKM. The remaining 28 people did not complete the KKM. The average score of the pretest obtained was 41.29. While the KKM value set is 75. This is a serious problem that must be found a solution. So, the next step is to provide treatment with the guided inquiry learning model. Guided inquiry shows the characteristics of a learning model where in the teaching and learning process, students solve big problems and concepts related to their knowledge so as to form new knowledge. Students can learn how to build knowledge about what they already know.

Description of Mathematics Posttest Results

After completing the treatment given, students were tested again with questions to monitor their learning progress. The post-test results showed that the average student learning outcomes increased to 86.19 with a KKM score of 75. 29 students completed the KKM. To ensure that this guided inquiry learning model can boost students' enthusiasm for learning, they are asked to provide a response to the learning that has been given. Student

responses were obtained from distributing questionnaires. The result obtained was 70.29. The lowest questionnaire score was 59 and the highest student questionnaire score was 79.

Description of Hypothesis Testing Results

The results of testing the correlation coefficient can be seen in table 2. Below:

Table 2. Correlations

		Model Inkuiri	HasilBelajar
Model Inkuiri	Pearson Correlation	1	.855**
	Sig. (2-tailed)		.000
	N	31	31
Hasil Belajar	Pearson Correlation	.855**	1
	Sig. (2-tailed)	.000	
	N	31	31

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

From the table above, the value of r = 0.855> from the value of α = 0.05, this indicates that the hypothesis is accepted, namely that there is a very strong influence of the inquiry learning model on the mathematics learning outcomes of class IV students.

Tabel 3. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-7.619	10.616		-.718	.479
	Model Inkuiri	1.335	.151	.855	8.861	.000

a. Dependent Variable: Hasil Belajar

From the table above, the sig value = 0.479> 0.05 means that the effect given by the inquiry learning model on students' math learning outcomes is very significant. So, it can be stated that the inquiry learning model is very effectively applied to the material of finding the perimeter and area of flat shapes in class IV SD Negeri 040544 Dolat Rayat.

2) Discussion

Based on the findings of this research, it is known that it is convincing that the inquiry learning model can improve mathematics learning outcomes in the material of finding the perimeter and area of flat shapes in class IV SD. Student learning activities will increase if the teacher is able to provide the right stimulus during the learning process, the impact will be seen in their learning outcomes as well (Sari et al., 2017).

Diyah Puspitasari & Danu Rusmawati (2019) shows that the guided inquiry learning model affects students' concept understanding and concept discovery. In line with Rawa et al., (2019) which found that there were differences in the learning outcomes of students who were treated with the inquiry learning model and the direct learning model. Therefore, it is strongly recommended to teachers, especially teachers in elementary schools, to be able to choose the right learning model and in accordance with the characteristics of students. Because this is very impactful on their cognitive development.

It must be understood by all parties that the primary school curriculum emphasizes the acquisition of basic reading, writing and arithmetic skills. As an educational institution, the school must be directly responsible for the quality of education, must be able to improve all authoritative aspects of school management performance, including improving student learning outcomes achieved after following the learning process.

CONCLUSION

The findings of this study indicate that the guided inquiry learning model is very suitable for use in mathematics lessons, especially in class IV of SD Negeri 040544 Dolat Rayat. Because it is in accordance with the characteristics of the subject matter and the characteristics of the students. The results of hypothesis testing show that there is a significant effect of student learning outcomes on the material of finding the perimeter and area of flat shapes after being treated with this guided inquiry learning model.

REFERENCES

Admin Pendidikan Matematika. (2015, June 16). *Karakteristik matematika yang perlu dipahami mahasiswa pendidikan matematika Unimus*. Program Studi Pendidikan Matematika.

Arsella, O., Sari, R., & Anggreni, F. (2022). Perbedaan hasil belajar matematika siswa MI dengan menggunakan animasi avatar zepeto dan powerpoint. *At-Tarbawi: Jurnal Pendidikan, Sosial Dan Kebudayaan*, *9*(1).

Diyah Puspitasari, R., & Danu Rusmawati, R. (2019). Model pembelajaran inkuiri terbimbing berpengaruh terhadap pemahaman dan penemuan konsep dalam pembelajaran PPKn. In *JIPP* (Vol. 3).

Rawa, N. R., Lawe, Y. U., & Ninu, M. Y. (2019). Pengaruh model inquiry learning terhadap hasil belajar matematika pada siswa kelas IV SD. *Jurnal Kajian Pendidikan Ekonomi Dan Ilmu Ekonomi*, *2*(1), 1–19. http://www.scopus.com/inward/record.url?eid=2-s2.0-84865607390&partnerID=tZOtx3y1%0Ahttp://books.google.com/books?hl=en&lr=&id=2LIMMD9FVXkC&oi=fnd&pg=PR5&dq=Principles+of+Digital+Image+Processing+fundamental+techniques&ots=HjrHeuS_

Sari, R. (2017). *Pengantar penelitian kuantitatif*. Deepublish.

Sari, R., Nuraida, N., & Rizki, S. (2017). Think pair share: Alternatif peningkatan aktivitas dan hasil belajar IPA. *PeTeKa (Jurnal Penelitian Tindakan Kelas Dan Pengembangan Pembelajaran)*, *1*(1), 41–47.

Sekretaris Jenderal DPR RI. (2002). *Undang-undang dasar negara Republik Indonesia tahun 1945*. DEWAN PERWAKILAN RAKYAT REPUBLIK INDONESIA.

Sudjana, N. (2017). *Penilaian Hasil Belajar Mengajar* (21st ed.). Rosda.

Sugiyono. (2021). *Metode penelitian kuantitatif, kualitatiff dan R & D*. Alfabeta.

Suharsimi, A. (2021). *Prosedur penelitian*. PT Rineka Cipta.

Tanjung, I. F. (2016). Guru dan strategi inkuiri dalam pembelajaran biologi. *Jurnal Tarbiyah*, *23*(1).

Trianto. (2007). *Model-model pembelajaran inovatif berorientasi kontruktivistik*. Prestasi Pustaka.