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Improving Junior High School Students' Ability to Ask Mathematical Problems through the Use of Geogebra-Based Learning Media

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Abstrak
Penelitian ini dilatarbelakangi oleh pentingnya mengembangkan kemampuan mengajukan masalah, dan meningkatkan kualitas pembelajaran melalui pemanfaatan aplikasi geogebra. Tujuan dari penelitian adalah untuk mengetahui apakah kemampuan mengajukan masalah siswa yang menggunakan media pembelajaran berbasis geogebra lebih baik dibandingkan yang berbasis power point, ditinjau (a) secara umum, dan (b) setiap indikator kemampuan mengajukan masalah. Penelitian ini menggunakan penelitian kuantitatif dengan metode komparatif. Sampel dipilih secara acak kelas, yaitu siswa kelas VIII J sebanyak 31 siswa yang pembelajarannya menggunakan media berbasis power point, dan VIII K sebanyak 32 siswa berbasis geogebra Analisis data menggunakan uji parametrik untuk membandingkan kemampuan pengajuan masalah. Hasil penelitian ini adalah kemampuan mengajukan masalah matematik siswa yang menggunakan media pembelajaran berbasis geogebra lebih baik dibandingkan dengan berbasis power point, ditinjau secara umum, dan setiap indikator kemampuan mengajukan masalah. Simpulan dari penelitian ini adalah penggunaan media pembelajaran berbasis geogebra dapat meningkatkan kemampuan mengajukan masalah.
Kata Kunci: Geogebra; Kemampuan Mengajukan Masalah, Media Pembelajaran.

Abstract
This research is motivated by the importance of developing problem posing abilities and improving the quality of learning through the utilization of GeoGebra applications. The aim of the research is to determine whether the problem posing abilities of students who use GeoGebra-based learning media are better compared to those based on PowerPoint, both (a) in general, and (b) for each problem posing ability indicator. This research employs quantitative research with a comparative method. Samples were randomly selected classes, namely class VIII J consisting of 31 students whose learning used PowerPoint-based media, and class VIII K consisting of 32 students using GeoGebra-based media. Data analysis used parametric tests to compare problem posing abilities. The results of this research indicate that the mathematical problem posing abilities of students using GeoGebra-based learning media are better compared to those based on PowerPoint, both (a) in general, and (b) for each problem posing ability indicator. The conclusion drawn from this research is that the use of GeoGebra-based learning media can enhance problem posing abilities.
Keywords: Geogebra; Ability to Ask Problems; Learning Media.

I. INTRODUCTION

Students' mathematics learning achievement is still low. The average achievement score of Indonesian students for mathematics is ranked 63rd out of 70 countries (Harahap, Sinaga, Siagian, 2021).

Learning mathematics at school is very important to improve students' mathematical abilities. In the 21st century, the abilities needed are the ability to think creatively, think critically and solve problems, communicate and collaborate (Septikasari, Frasandy, 2012). One of the mathematical abilities that leads to mastery of the abilities needed in the 21st century is the ability to pose problems, because it can strengthen students' critical and creative attitudes (Siswono, 2004; Zubaidah et al., 2023).

The ability to pose problems is an essential content of mathematical problem solving (Afrilianto, 2018). So, in learning mathematics at school, efforts need to be made to improve the ability to pose mathematical problems. Mathematics is difficult for most students, because it does not contain interactive audio-visual graphics (Student, Centre, 2018). Therefore, the use of learning media is an important factor in improving the quality of learning (Hidayatullah, Karim, 2015; Marthani & Ratu, 2022; Ranila, Yunianta, & Prihatnani, 2023).

Brains store knowledge using both words and images. Instruction that targets and engages both of these systems of representation has been shown to significantly increase students' comprehension and retention (Velichová, 2011; Nofriyandi, Abdurrahman, & Andrian, 2023). Media is something that conveys messages and can stimulate the thoughts, feelings, and desires of the audience (students) so that it can encourage the learning process in him (Yaumi in Zikri, & Wahid, 2020).

One of the learning media that can be used in learning mathematics is Geogebra (Rochim & Herawati, 2021). Geogebra is a modern software which can be used from primary school to university level in the field of mathematics (Student, Centre, 2018; Maf'ulah, Wulandari, & Jauhariyah, 2021). GeoGebra is a useful application to improve and enrich mathematics teaching and learning by allowing students to visualize mathematical concepts, which is extremely useful for mathematical experiments and discoveries at all educational levels, from elementary school to university (Dahal, Pant, Shrestha, & Manandhar, 2022). With GeoGebra, students can play with math. They can do something quickly, shift points wherever they want, can experiment with mathematics, and it is hoped that this method will make students understand better (Suratno, Waliyanti, 2023).

The formulation of the problem in this research is to compare the ability to pose mathematical problems of students who receive Geogebra-based learning media which is better than those based on Power Point in mathematics learning, reviewed (a) in general, and (b) each indicator of the ability to raise problems.

The problem-solving approach in this research uses quantitative and qualitative research. The inferential statistics of the t test are used to determine whether the ability to pose mathematical problems of students who receive Geogebra-based learning media is better than those who use conventional learning media, and descriptive statistics regarding the average value, percentage and normalized gain are used to determine the quality of improvement in the ability to submit problems that involve Geogebra-based learning media.

Based on a review of literature studies, research regarding the use of Geogebra-based learning media to improve junior high school students' ability to pose mathematical problems in learning mathematics has never been carried out, this research is something new, so this research is expected to make a contribution to the world of education, especially in learning mathematics. Some of the results of research that have been carried out regarding the use of Geogebra-based learning media include the following: (1) Geogebra software helps explain mathematics subjects with visualization learning displays and examples of graphs and calculations. (Tanzimah, 2019); (2) Learning to pose problems with the help of Geogebra has an effect on understanding concepts, critical thinking and adaptive reasoning (Kusuma & Utami, 2017; Mangelep, 2017; Afhami, 2022).

Asking problems in learning essentially asks students to ask questions or problems. The background to the problem can be based on a broad topic, questions that have been worked on or certain information given by the teacher to students. 3. Posing problems is applied to three different forms of mathematical cognitive activity, namely: (1). Proposing a pre-solution (presolution posing), namely a student creates a question from the situation at hand; (2) Proposing a solution (within-solution posing), that is, a student reformulates the problem as it has been solved (Sofyan & Madio, 2017; Darma & Putra, 2020); (3). Posing after the solution (post solution posing), namely a student modifies the goal or condition of a problem that has been solved to create a new problem (Siswono, 2004; Iswara & Sundayana, 2021; Rizky & Sritresna, 2021).

According to Brown and Walter, there are two important aspects in posing mathematical problems that must be considered, namely: (1). Accepting, which is related to students' ability to understand difficult situations that have been given by the teacher; (2). Challenging, which is related to the extent to which students feel challenged by the given situation, giving rise to the ability to pose mathematical problems (Ardiyaningrum, 2013). A number of experts have stated that the ability to pose problems is related to other mathematical abilities, for example with understanding mathematical concepts and attitudes and self-confidence in learning mathematics, with the ability to think creatively in mathematics, the ability to pose problems is one of the key components of mathematical exploration. (Puspitasari, 2018).

Geogebra is dynamic, free and multi-platform mathematics software that combines geometry, algebra, tables, graphs, statistics and calculus in one easy package that can be used for all levels of education (Tanzimah, 2019). In education of math, the ability of software making a relationship between geometry and algebra has become an important value in math curriculum (Hohenwarter & Jones in Zengin, Furkan, & Kutluca, 2012).

GeoGebra is a software that can help in learning mathematics, it can even help in writing teaching materials and even more powerfully it can be used as a tool to solve problems (Faradisa, Sulstio, Ayu, 2018). GeoGebra based teaching was effective in improving students' self-efficacy and self-regulated (Zetriuslita, Nofriyandi, Istikomah, 2021). Learning with the Software geogebra emphasizes the students to be actively involved, are able to express their ideas as freely as possible during the learning process (Faradisa, Sulstio, Ayu, 2018). Penggunaan Geogebra dapat meningkatkan hasil belajar siswa (Bachore, 2021).

II. METHOD

The type of research applied is quasi-experimental research. The research design used was a posttest only control design. The independent variable in this research is learning using Geogebra-based or Power Point-based learning media, while the dependent variable is the ability to pose problems.

The population in this study were all class VIII students at one of the junior high schools in Tarogong Kaler, Garut. The research samples were two classes chosen randomly based on class, namely class VIII J with 31 students as the Control class with learning using power point-based media, and VIII K as the experimental class with Geogebra-based learning.

This research uses a problem-posing ability test instrument. In its implementation, the first step taken was to create an instrument grid. Next, test items are created in the form of descriptions according to the indicators of ability to pose problems.

III. RESULT AND DISCUSSION

Analysis of research data was using SPSS. The following is descriptive data on the ability to pose problems

Table 1.
Descriptive statistics Problem Asking Ability Score Experimental Class

	Geogebra Media	Valid N (listwise)
N	32	32
Minimum	1	
Maximum	10	
Sum	212	
Mean	6.63	
Std. Deviation	2.166	

Table 2.
Descriptive statistics Problem Asking Ability Score Control Class

	Power Point Media	Valid N (listwise)
N	31	31
Minimum	2	
Maximum	7	
Sum	126	
Mean	4.06	
Std. Deviation	1.315	

Based on Table 1 and Table 2, it was found that the ability to pose mathematical problems for experimental class students had an average score of 6.63, with a maximum score of 10, while control class students had an average score of 4.06 with a maximum score of 7.

Based on the normality test on the total score of the ability to pose problems for experimental and control class students, data was obtained as in Table 3.

Table 3.
Normality Test Problem Asking Ability Score

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	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Media Geogebra	.150	32	.065	.940	32	.075
Media Power Point	.149	31	.079	.938	31	.072

a. Lilliefors Significance Correction

Based on Table 3, using the Kolmogorov-Smirnov or Shapiro-Wilk test, the score of students' ability to pose problems in the experimental class and control class, both have a normal distribution, that is, they have a sig value. > 0.05. To find out whether the problem-posing ability of experimental class students was better than students in the control class. An average comparison test was used, as in Table 4.

Table 4.
Comparison Test Ability to Pose Problems

			Ability to Pose Problems: Equal variances assumed	Ability to Pose Problems: Equal variances not assumed
Levene's Test for Equality of Variances	F		5.455	
	Sig.		.023	
t-test for Equality of Means	t		5.648	5.691
	df		61	51.382
	Sig. (2-tailed)		.000	.000
	Mean Difference		2.560	2.560
	Std. Error Difference		.453	.450
	95% Confidence Interval of the Difference	Lower	1.654	1.657
		Upper	3.467	3.464

Based on Table 4, using the t-test, a sig value was obtained. < 0.05, this shows that there is a difference in the ability to pose problems between students in the experimental class and the control class. Based on the average score, students in the class have the ability to pose problems better than students in the control class.

The following is descriptive statistical data on the ability to raise problems in terms of each indicator of the ability to raise problems.

Table 5.
Experimental Class: Indicator 1 Breaking Down Main Problems into Mathematical Problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	43.8	43.8	43.8
	2	12	37.5	37.5	81.3
	3	6	18.8	18.8	100.0
	Total	32	100.0	100.0	

Based on Table 5, there were 6 students (18.8%) who had a score of 3 or were able to break down the main problem into mathematical problems completely and correctly.

Table 6.
Experimental Class: Indicator 2 Formulating Old Questions Into New Forms with Meaning The Same One

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	8	25.0	25.0	25.0
	1	4	12.5	12.5	37.5
	2	12	37.5	37.5	75.0
	3	8	25.0	25.0	100.0
	Total	32	100.0	100.0	

Based on Table 6, there were 8 students (25.0%) who had a score of 3 or were able to formulate old questions into new forms with the same meaning completely and correctly.

Table 7.
Experimental Class: Indicator 3 Compile/Ask Questions/Problems Regarding the Series of Information Provided

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	19	59.4	59.4	59.4
	3	13	40.6	40.6	100.0
	Total	32	100.0	100.0	

Based on Table 7, there were 13 students (40.6%) who had a score of 3 or were able to compose/ask questions/problems regarding a series of information provided completely and correctly.

Table 8.
Experimental Class: Indicator 4 Compile/submit problems related to MPS (Mathematical Problem Solving)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	3.1	3.1	3.1
	1	30	93.8	93.8	96.9
	2	1	3.1	3.1	100.0
	Total	32	100.0	100.0	

Based on Table 8, there are 0 students (0%) who have a score of 6 or are able to compose/pose problems related to MPS (Mathematical Problem Solving) completely and correctly.

Table 9.
Control Class: Indicator 1
Breaking Down Main Problems
Into Mathematical Problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6	19.4	19.4	19.4
	1	20	64.5	64.5	83.9
	2	5	16.1	16.1	100.0
	Total	31	100.0	100.0	

Based on Table 9, there are 0 students (0%) who have a score of 3 or are able to break down the main problem into mathematical problems completely and correctly.

Table 10.
Control Class: Indicator 2
Formulating Old Questions into New Forms
with Meaning the same one

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	26	83.9	83.9	83.9
	1	4	12.9	12.9	96.8
	2	1	3.2	3.2	100.0
	Total	31	100.0	100.0	

Based on Table 10, there are 0 students (0%) who have a score of 3 or are able to formulate old questions into new forms with the same meaning completely and correctly.

Table 11.
Control Class: Indicator 3
Compile/Ask Questions/Problems regarding
the Series of Information Provided

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	3.2	3.2	3.2
	1	1	3.2	3.2	6.5
	2	21	67.7	67.7	74.2
	3	8	25.8	25.8	100.0
	Total	31	100.0	100.0	

Based on Table 11, there were 8 students (25.8%) who had a score of 3 or were able to compose/ask questions/problems regarding a series of information provided completely and correctly.

Table 12.
Control Class: Indicator 4
Compile/submit problems related to MPS
(Mathematical Problem Solving)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	8	25.8	25.8	25.8
	1	23	74.2	74.2	100.0
	Total	31	100.0	100.0	

Based on Table 12, there are 0 students (0%) who have a score of 6 or are able to compose/pose problems related to MPS (Mathematical Problem Solving) completely and correctly.

Based on Table 8 - Table 12, looking at each indicator, it shows that in indicator 1, indicator 2, and indicator 3, the experimental class has the ability to pose problems better than the control class. Meanwhile, in indicator 4, none of the students in the experimental class and control class were able to answer completely and correctly.

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The results of the research show that the ability to pose mathematical problems for students whose learning uses Geogebra-based media shows better abilities than students whose learning uses Power Point-based media, both in general and in terms of each indicator of problem-posing ability. The results of this research are in line with this opinion Butar-butar, Sinuhaji, dan Ginting (2022) that learning mathematics using makes students very enthusiastic about learning, and is in line with research results Simbolon (2020) which concludes that learning using Geogebra software can improve students' mathematical abilities. The results of this research are also in line with Himmi and Hatwin (2018), that the use of GeoGebra in mathematics learning improves visual thinking abilities.

IV. Conclusion

The conclusion of this research is that the ability to pose mathematical problems for students whose learning uses Geogebra-based media is better than students who use Power Point-based media, namely the ability to break down the main problem into mathematical problems, formulate old questions into new forms with meaning. the same thing, and develop/ask questions/ problems regarding the series of information provided.

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References

Afhami, A. H. (2022). Aplikasi Geogebra Classic terhadap Pemahaman Konsep Matematika Siswa pada Materi Transformasi Geometri. *Plusminus: Jurnal Pendidikan Matematika*, *2*(3), 449-460.

Afrilianto, M. (2018). Strategi Formulate Share Listen Create Untuk Mengembangkan Kemampuan Mathematical Problem Posing Siswa SMP. *Didaktik: Jurnal Ilmiah STKIP Siliwangi Bandung, 8*(1), 21–28.

Ardiyaningrum, M. (2013). Upaya Peningkatan Kemampuan Pemecahan Masalah Matematis Siswa Kelas VII SMP Muhammadiyah 9 Yogyakarta Melalui Penerapan Pendekatan Pembelajaran Problem Posing. *Jurnal LiITERASI, IV*(1), 53–70.

Bachore, M. M. (2021). The Influence of Learning Mathematics Software Geogebra on The Ability Of Creative Thinking Of Students. *International Journal of Humanities Education and Social Sciences (IJHESS), 1*(1), 37–42.

Butar-butar, J.L., Sinuhaji, F., dan Ginting, A.S. (2022). Penggunaan Aplikasi Geogebra sebagai Media Pembelajaran Geometri di SMP Negeri 1 Berastagi. *Jurnal Pengabdian Masyarakat Bestari (JPMB), 1*(6), 401-408.

Dahal, N., Pant, B. P., Shrestha, I. M., & Manandhar, N. K. (2022). Use of GeoGebra in Teaching and Learning

Geometric Transformation in School Mathematics. *iJIM, 16*(8), 65–78.

Darma, Y., & Putra, S. R. (2020). Pengembangan media pembelajaran berbasis macromedia flash bermuatan problem posing terhadap kemampuan pemecahan masalah matematis. *Mosharafa: Jurnal Pendidikan Matematika*, *9*(2), 323-334.

Faradisa, M., Sulstio, M., Ayu, Y. A. (2018). Penggunaan Aplikasi Geogebra pada Pembelajaran Matematika Materi Poligon dan Sudut Sebagai Sarana Meningkatkan Kemampuan Siswa. *Jurnal Equation: Teori Dan Penelitian Pendidikan Matematika, 1*(2), 166–172.

Harahap, K. A., Sinaga, B., & Siagian, P. (2021). Development of Geogebra-Assisted Problem Based Learning (PBL) Learning Tools to Improve Visual Thinking Skills in Mathematical Problem-Solving Students of SMA Negeri 1 Samudera. *BirLe-Journal, 4*(1), 239–251.

Hidayatullah, M.T., Karim, A. (2015). *Pemanfaatan Aplikasi Geogebra Untuk Pembelajaran Matematika (Lanjut)*. Direktorat Jenderal Guru dan Tenaga Kependidikan: Kementerian Pendidikan dan Kebudayaan.

Iswara, E., & Sundayana, R. (2021). Penerapan model pembelajaran problem posing dan direct instruction dalam meningkatkan kemampuan pemecahan masalah matematis siswa. *Plusminus: Jurnal Pendidikan Matematika, 1*(2), 223-234.

Kusuma, A.B., Utami, A. (2017). Penggunaan Program Geogebra dan Casyopee in Pembelajaran Geometri Ditinjau dari Motivasi Belajar Siswa. *Mercumatika: Jurnal Penelitian Matematika dan Pendidikan Matematika, 1*(2), 119-131.

Maf'ulah, S., Wulandari, S., & Jauhariyah, L. (2021). Pembelajaran Matematika dengan Media Software GeoGebra Materi Dimensi Tiga. *Mosharafa: Jurnal Pendidikan Matematika*, *10*(3), 449-460.

Mangelep, N. O. (2017). Pengembangan perangkat pembelajaran matematika pada pokok bahasan lingkaran menggunakan pendekatan PMRI dan aplikasi geogebra. *Mosharafa: Jurnal Pendidikan Matematika*, *6*(2), 193-200.

Marthani, G. Y., & Ratu, N. (2022). Media pembelajaran matematika digital "BABADA" pada materi kesebangunan bangun datar. *Mosharafa: Jurnal Pendidikan Matematika*, *11*(2), 305-316.

Nofriyandi, N., Abdurrahman, A., & Andrian, D. (2023). Digital Learning Media Integrated with Malay Culture to Improve Students' Numeration Ability and Motivation. *Mosharafa: Jurnal Pendidikan Matematika*.

Puspitasari, N. (2018). Kemampuan Mengajukan Masalah Direlasikan Dengan Kemampuan Berpikir Logis Matematik. *Jurnal Mosharafa, 7*(1), 121–132.

Ranila, R., Yunianta, T. N. H., & Prihatnani, E. (2023). Developing Android-Based Counting Game as Learning Media to Train Students' Creative Thinking. *Mosharafa: Jurnal Pendidikan Matematika, 12*(3), 599-614.

Rizky, E. N. F., & Sritresna, T. (2021). Peningkatan kemampuan berpikir kritis dan disposisi matematis siswa antara guided inquiry dan problem posing. *PLUSMINUS: Jurnal pendidikan matematika*, *1*(1), 33-46.

Rochim, A., & Herawati, T. (2021). Deskripsi Pembelajaran Matematika Berbantuan Video Geogebra dan Pemahaman Matematis Siswa pada Materi Fungsi Kuadrat. *Mosharafa: Jurnal Pendidikan Matematika, 10*(2), 269-280.

Septikasari, R., Frasandy, R. N. (2012). Keterampilan 4C Abad 21 In Pembelajaran Pendidikan Dasar. *Jurnal Tarbiyah Al-Awlad, VIII*(2),112–122.

Siswono, T. Y. E. (2004). Mendorong Berpikir Kreatif Siswa Melalui Mengajukan Masalah (Problem Posing). In *Konferensi Nasional Matematika XII: Universitas Udayana*: p 74–87.

Simbolon, A.K. (2020). Penggunaan Software Geogebra in Meningkatkan Kemampuan Matematis Siswa Pada Pembelajaran Geometri Di Smpn2 Tanjung Morawa. Jurnal Cendekia: *Jurnal Pendidikan Matematika, 04*(02), 1106-1114.

Sofyan, D., & Madio, S. S. (2017). Meningkatkan Kemampuan Pemecahan Masalah dan Komunikasi Matematik melalui Pendekatan Problem Posing dalam Pembelajaran Matematika di SMA. *Mosharafa: Jurnal Pendidikan Matematika*, *6*(1), 93-104.

Student., B.E.D., Centre., A.M.U., M. (2018). Use Of Geogebra Mathematical Tool In Schools. *Indian Journal of Applied Research, 8*(5), 40-41.

Suratno, J., Waliyanti, I. K. (2023). The Integration of GeoGebra in Problem-Based Learning to Improve Students' Problem -Solving Skills. *IJRME, 1*(1), 63–75.

Tanzimah (2019). Pemanfaatan Geogebra in Pembelajaran Matematika. In *Prosiding Seminar Nasional Pendidikan Program Pascasarjana Universitas PGRI Palembang*. p 610–616.

Velichová, D. (2011). Interactive Maths with GeoGebra. *iJET, 6*(1), 31–35. *https://doi.org/10.3991/ijet.v6iS1.1620*

Zengin, Y., Furkan, H., & Kutluca, T. (2012). The effect of dynamic mathematics software geogebra on student achievement in teaching of trigonometry. *Procedia - Social and Behavioral Sciences*, (2011), 183–187. https://doi.org/10.1016/j.sbspro.2011.12.038

Zetriuslita, Nofriyandi, Istikomah, E. (2021). The Increasing Self-Efficacy and Self-Regulated through GeoGebra Based Teaching reviewed from Initial Mathematical Ability (IMA) Level. *International Journal of Instruction, 14*(1), 587–598.

Zikri, M. S., & Wahid, S. (2020). The Effect of Use of Geogebra Media on Student Learning Result in Trigonometry Function Material in Class X Senior High School 8 Cirebon. *International Journal of Education and Humanities (IJEH), 1*(2), 101–112.

Zubaidah, R., Pasaribu, R. L., Mirza, A., & Afriansyah, E. A. (2023). Students' Scientific Attitudes and Creative Thinking Skills. *Mosharafa: Jurnal Pendidikan Matematika*, *12*(2), 315-326.

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