

IMPROVING STUDENTS' MATHEMATICAL CREATIVE THINKING AND RESILIENCE USING ELICITING ACTIVITIES APPROACH

Lia Susilawati¹, M. Afrilianto², Utari Sumarmo³

¹IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia
susilawatilia384@gmail.com

²IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia
muhammadafrilianto1@gmail.com

³IKIP Siliwangi, Jl. Terusan Jend. Sudirman, Cimahi, Indonesia
utari.sumarmo@gmail.com

ARTICLE INFO

Article history:

Received Jul 24, 2024
Revised Jul 25, 2024
Accepted Aug 15, 2024

Keywords:

Mathematical Creative Thinking
Mathematical Resilience
Eliciting Activities Approach

ABSTRACT

The ability of students in mathematics especially in creative thinking and resilience is still low. This research aimed to overcome the low ability of students mathematical creative thinking and resilience using eliciting activities approach and also to analyze the role of model eliciting activities (MEAs) on students' mathematical creative thinking (MCT) and mathematical resilience. The method used in this research is a qualitative-quantitative method with quasi-experimental control group design. Subjects of this research are 30 students of 11th grade which selected randomly from 4 classes majoring agribusiness and horticulture in SMKN 4 Padalarang. Instruments of this research are mathematical creative thinking test ability (MCTA), a mathematical resilience scale (MR), and a student's opinion on MEAs. The results of this research found that students getting treatment with MEAs attained better grade on MCTA than the grades of students taught by scientific approach (SA) even though both grades were still at low-medium level. On MR, there was no different grades between students on both teaching approaches, and those grades were at medium-fairly good level. Besides that, the research found that students realized some difficulties in solving MCTA tasks, and there was no association between MCTA and MR. The facts found in this research concluded that the use of eliciting activities approach could improve the ability of students' mathematical creative thinking and resilience.

Copyright © 2025 IKIP Siliwangi.

All rights reserved.

Corresponding Author:

Lia Susilawati,
Department of Mathematics Education,
Institut Keguruan dan Ilmu Pendidikan Siliwangi,
Jl. Terusan Jend. Sudirman, Cimahi, Indonesia
Email: susilawatilia384@gmail.com

How to Cite:

Susilawati, L., Afrilianto, M., Sumarmo, U. (2025). Improving Students' Mathematical Creative Thinking and Resilience Using Eliciting Activities Approach. *JIML*, 8(1), 82-90.

INTRODUCTION

Mathematics is a scientific discipline that aims to improve reasoning power and avoid binary thinking which is often accepted in surplus (Reski et al., 2019). Mathematics seeks to foster curiosity and an attitude of integrity in life that is integrated with technology in solving problems that can be solved with previous reversibility. In learning activities, students are oriented toward goals with the hope that those who previously did not know will know, and

those who already know will know better (Bayu & Dian, 2022). Therefore, in the learning orientation carried out, efforts are needed in the learning model to be able to optimize students' abilities in mathematics which has implications for student learning outcomes. Education can be said to be an activity in optimizing the development of students which has implications for the characteristics of their interests and talents (Hagi, 2019). This is done coherently as is the goal of educational attainment. Education aims to calculate the expansiveness of students in their cognitive and affective aspects (Bayu & Dian, 2022).

Mathematics seeks to construct thinking with high creativity so that students can solve and resolve problems that have complexity to produce inherent conclusions (Widana & Diartiani, 2021). In studying mathematics, apart from creative thinking skills that need to be optimized, students need to prioritize mathematical resilience to be able to persist and never give up on solving mathematical problems, especially those that are correlative to everyday life. However, it is still found that many students' creative thinking abilities and mathematical resilience tend not to be considered optimal so the impact on their learning outcomes tends to be low. (Pranata et al., 2021; Sholikhakh et al., 2019; Suwanti & Iyam, 2021; Wardana & Rifaldiyah, 2019; Widayanti & Nur'aini, 2020). There are still many students at the junior high school level and especially at senior high school whose creative thinking abilities and mathematical resilience are still in the transition stage. This has implications for students' initial mathematical abilities which should have been completed at the basic level and need to be recalled (Pamungkas & Franita, 2019; Prihono & Khasanah, 2020; Silvi et al., 2020; Winoto, 2020; Zainal, 2022), this can occur due to non-optimal learning of mathematics at the elementary level of students (Afifah et al., 2019; Eismawati et al., 2019; Evi & Indarini, 2021; Lestari et al., 2021; Putri et al., 2019).

In a mathematics learning orientation that requires students to be able to think creatively and prioritize mathematical resilience, an appropriate learning model is needed according to students' cognitive abilities and geography (Al Ayyubi, et al., 2024; Al Ayyubi, et al., 2024; Al Ayyubi, et al., 2024; Al Ayyubi & Rohmatulloh, 2023; Pancawardana et al., 2023). So far, mathematics learning is still found using a conventional-based approach or it can be said that it is not parallel with current developments, thus causing students to be less interested in learning mathematics in the classroom (Andani et al., 2021; Datreni, 2022; Husnidar & Hayati, 2021; Lestari et al., 2020; Sukmawati, 2021). One learning model that is innovative and relevant to current developments is the Eliciting Activities learning model (MEAs). With the MEAs learning model, students are required to be more active, creative, and critical in understanding problems because they are correlated with life which can be investigated more meaningfully (Sukmawarti et al., 2022). This is because not too much previous research has been conducted at the school level, especially at the secondary level, which correlates mathematics learning with the MEAs learning model to optimize learning outcomes.

Thus, to fill the gaps in previous research, this research aims to overcome students' low creative thinking abilities and mathematical resilience by using the Eliciting Activities learning model. Apart from that, in this research, a comprehensive analysis was carried out regarding the learning outcomes of students whose learning used the Eliciting Activities Model on students' creative thinking abilities and mathematical resilience. So it is hoped that the research carried out can provide novelty in the contemporary era of mathematics learning to prioritize novelty and eliminate things that are conventionally based.

METHOD

This research is a qualitative-quantitative method with quasi-experimental control group design, having a goal to analyze the role of model eliciting activities (MEAs) on students' Mathematical Creative Thinking Ability (MCTA) and Mathematical Resillience (MR). The

subjects of this reasearch are 30 students of 11th grades classes who were randomly selected from 4 classes of agribusiness and holticultura in SMKN 4 Padalarang. The reasearchers used the qualitative method when (1) Formulating the research problems through a review of a number of relevant studies; (2) designing the research instruments by considering the suitability of the instrument with the object to be measured (content validity assessed by relevant experts, and face validity assessed by senior mathematics teachers according to the class level of the subjects to be involved in the research); (3) Analying the suitability of learning devices (Lesson plan, Student work sheet); (4) Summarizing student activities during MEAs lesson during the learning takes place; and (5) Drawing conclusions based on rational analysis.

Furthermore, the quantitative method is carried out when (1) Analyzing the characteristics of the instruments (at the stage of try out the instruments) to obtain empirical characteristics the instruments (reliability of the test and the scale, the validity of the test items, the differential power and difficulty level of the test items, and scoring on the reponse choices of the scale items); (2) Testing the hypothesis using the relevant formula; and (3) Interpreting the findings and test the hypothesis and drawing conclusions based on the results of the relevant calculations. The population of this study were 11th grade students in a Vocational High School in Cirebon . The sample subjects were students of two 11th grades classess who were classes randomly assigned from the 11th classess of the vocational high school.

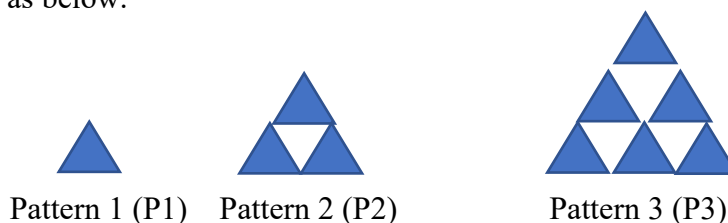
RESULTS AND DISCUSSION

Results

The research instruments used are MCT test, Resiliency Scale, and student's opinion on instruction using MEAs. All instruments are prepared specifically for this research. In the following, reearchers listed some sample of instruments of this study.

Sampel 1. Item Test of Mathematical Creative Thinking

Given a pattern as below.



Task:

- 1) Arrange the known and asked elements
- 2) Draw Pattern 4 , and Pattern 5
- 3) Count the number of blue Δ , in Pattern 4 and Pattern 5.
- 4) Count the number of blue Δ , in pattern n
- 5) Write the symbols P4 , P5
- 6) Write the symbol Pn

Sampel 2. Item Test of Mathematical Creative Thinking

It is known that triangle ABC is right angled A, angles B = 300 and AC = 10 .

From point A draw line AD1 $\perp$ BC, then draw line D1 D2 $\perp$ AB, then draw D2 D3 $\perp$ BC, and draw D3 D4 $\perp$ AB, and so on.

Task:

- 1) Draw a sketch of the situation above.
- 2) Calculate the length of AD₁, D₁ D₂, D₂ D₃
- 3) Suppose the process continues up to D₇ D₈. Write down these numbers sequentially
Observe the number sequence, then name the concept contained in the number sequence along with the reason.
- 4) Count the number sequences from D₁D₂ to D₇ D₈

Characteristics of MCT test, SRL Scale, Student's opinion on MEAs

Table 1. Description of MCT, MSC, and Students' Opinion on MEAS

Variables	Statistic	MEAS				Ordinary teaching			
		Pre-Test	Post-Test	N Gain	n	Pre-Test	Post-Test	N Gain	n
MCT	$\bar{X}$	12.08	25.65	.29	26	11.00	19.68	.18	25
	%	20.47	43.47			18.64	33.36		
	S	2.08	4.18	.08		1.83	4.36	.09	
MR	$\bar{X}$		74.62		26		75.96		25
	%		61.16				62.26		
	S		10.97				7.76		
Opinion on MEAS	$\bar{X}$		69.65		26				
	%		72.56						

Based on table 1, students' grades on MCT are at low level. Moreover, on MR there is no difference student's grades in both teaching approaches, and those grades were at medium level. The ideal scores on MCT, MR, and Opinion on MEAs are 59, 122, and 96. The testing hypothesis of those data was attached in Tabel 2.

Table 2. Mean Difference of MCTA and MR

Variables	Teaching Approach	Mean	SD	N	Sig (2-tailed).	Interpretation
MCT	MEAS	25.65	4.18	26	.000	MCT _{PBL} > MCT _{CT}
	CT	13.74	4.36	25		
N-Gain MCT	MEAS	.29	.08	26	.000	N-Gain MCT _{PBL} > N-Gain MCT _{CT}
	CT	.18	.09	25		
MR	MEAS	74.62	10.91	26	.617	No difference of MSE _{PBL} and MSE _{CT}
	CT	75.96	7.76	25		

Based on table 2, the finding of the low grade of students' mathematics creative thinking in the post-test in this study is similar to several previous studies' findings (Rohaeti & Budiyananto, 2014; Saputri, 2015; Sumarmo, et al., 2012; Widyaningtiyas, 2014), that students taught by various teaching approaches obtained MCT at between low and medium grade level. In addition, based on Table 1, the study found that students performed at fairly good grade level or positive opinion on the implementation of MEAs. The positive finding of this study was similar to several previous studies findings' (Alam, 2022; Calleja et al., 2024; Darling-Hammond et al., 2020; Nurhayati & Ni'mah, 2023) which found students' positive opinion on implementation of teaching approaches that they follow during the learning process.

Discussions

This study is a qualitative-quantitative study with a quasi-experimental design and uses a comparison group to analyze the effects of the eliciting event Approach (MEA) on students' Mathematical Creative Thinking (MCT) and Mathematical Resillience (MR). The participants in this study were 30 students of 11th grade students from two classes randomly selected from four classes in a vocational school in Bandung. This study used the Mathematical Creative Thinking Skills Test (MCTA), the Mathematical Resilience Scale (MR) and students' opinions on the MEA.

This research found out that students' grades on MCT on initial test are at low level. Moreover, on MR there is no difference student's grades in both teaching approaches, and those grades were at medium level. The finding of the low grade of students' mathematics creative thinking (43,47% out of Ideal score 59, and N-gain is 0.29) in the post-test in this study is similar to several previous studies' findings (Rohaeti & Budiyo, 2014; Saputri, 2015; Sumarmo, et al., 2012; Widyaningtyas, 2014), that students taught by various teaching approaches obtained MCT at between low and medium grade level. Students experienced difficulties (score < 60% out of ideal score) on components of MCT. Seemingly, mathematical creative thinking problems are difficult tasks for most junior high school students.

In addition, the study found that students performed at fairly good grade level or positive opinion on the implementation of MEAs. The positive finding of this study was similar to several previous studies findings' (Auliya et al., 2022; Dodd et al., 2022; Irwan & Elniati, 2021; Mei et al., 2022; Nurhusain, 2021; Pohan et al., 2023; Rifanti & Ananda, 2020; Roesdiana & Hidayati, 2020; Salafy & Susanah, 2022; Wijayanti et al., 2021) which found students' positive opinion on implementation of teaching approaches that they follow during the learning process.

CONCLUSION

This study shows that the MEA is effective in improving the mathematical creative thinking ability of vocational students, although the development is still at a low average level. There is no significant difference in the mathematical stability of the MEA approaches and the values are at a moderately acceptable level. Students also had difficulties in completing the MCTA tasks, and there was no relationship between mathematical creative thinking ability and mathematical resillience. The students' perception on MEA can be considered positive. Thus, these findings had provided important insights to develop more effective teaching methods to improve students' mathematical abilities especially in improving students' mathematical creative thinking and so mathematical resillience. The obstacles to the research carried out are related to students' initial mathematical abilities which are still relatively low. So, for further study, it is hoped that research can be carried out using the MEAs learning approach by looking at the differences, improvements, and interactions between students based on their gender to look more deeply into students' initial mathematical abilities to optimize their creative thinking abilities.

REFERENCES

- Afifah, E. P., Wahyudi, W., & Setiawan, Y. (2019). Efektivitas problem based learning dan problem solving terhadap kemampuan berpikir kritis siswa kelas V dalam pembelajaran matematika. *MUST: Journal of Mathematics Education, Science and Technology*, 4(1), 95–107. <https://doi.org/https://doi.org/10.30651/must.v4i1.2822>
- Al Ayyubi, I. I., Hayati, A. F., Azizah, E. N., Herdiansyah, R., & Mirayanti, U. (2024).

- Pendidikan Humanis Paulo Freire Dalam Pembelajaran Matematika MI. *Wulang: Jurnal Pendidikan Guru Madrasah Ibtidaiyah*, 1(1), 1–15.
<http://ojs.staisdharma.ac.id/index.php/wjp/article/view/178>
- Al Ayyubi, I. I., Rohaendi, N., Herdiansyah, R., & Puspita, T. (2024). Implementasi Model Problem Based Learning pada Pembelajaran Matematika. *Tadruusun: Jurnal Pendidikan Dasar*, 3(1), 206–216. <https://doi.org/https://doi.org/10.62274/tadruusun.v3i1.121>
- Al Ayyubi, I. I., & Rohmatulloh, R. (2023). Penerapan Pendekatan Model-Eliciting Activities untuk Meningkatkan Kemampuan Berpikir Kritis dan Kreatif Siswa. *Jurnal El-Audi*, 4(1), 1–12. <https://doi.org/https://doi.org/10.56223/elaudi.v4i1.70>
- Al Ayyubi, I. I., Rohmatulloh, R., Suryana, I., & Wijaya, T. T. (2024). Improving Students' Creative Thinking Skills Assisted by GeoGebra Software. *Noumerico: Journal of Technology in Mathematics Education*, 2(1), 23–34.
<https://doi.org/https://doi.org/10.33367/jtme.v2i1.4244>
- Alam, A. (2022). Contemplative Pedagogy: An Experiment with School Students for Demystifying the Philosophy of Contemplative Education. *Resilience and Transformation in Global Restructuring*, 289–300.
<https://www.torrossa.com/en/resources/an/5323522#page=301>
- Andani, M., Pranata, O. H., & Hamdu, G. (2021). Systematic literature review: model problem based learning pada pembelajaran matematika sekolah dasar. *PEDADIDAKTIKA: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 8(2), 404–417.
<https://ejournal.upi.edu/index.php/pedadidaktika/article/view/35391>
- Auliya, A. R., Junaedi, I., & Susilo, B. E. (2022). Students' Mathematical Problem Solving Ability in terms of Independent Learning in the Eliciting Activities Model (MEAs). *Journal of Medives: Journal of Mathematics Education IKIP Veteran Semarang*, 6(2), 58–64. <https://doi.org/https://doi.org/10.31331/medivesveteran.v6i2.2140>
- Bayu, A. P., & Dian, M. (2022). Kemampuan berpikir kritis matematis antara siswa yang mendapat model problem-based learning dan discovery learning. *Jurnal Inovasi Pembelajaran Matematika: PowerMathEdu*, 1(1), 83–92.
<https://karya.brin.go.id/id/eprint/16025/1>
- Calleja, P., Knight-Davidson, P., McVicar, A., Laker, C., Yu, S., & Roszak-Burton, L. (2024). Gratitude interventions to improve wellbeing and resilience of graduate nurses transitioning to practice: A scoping review. *International Journal of Nursing Studies Advances*, 6, 100188. <https://doi.org/https://doi.org/10.1016/j.ijnnsa.2024.100188>
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140. <https://doi.org/10.1080/10888691.2018.1537791>
- Datreni, N. L. (2022). Model pembelajaran problem based learning meningkatkan hasil belajar matematika siswa kelas III sekolah dasar. *Journal of Education Action Research*, 6(3), 369–375. <https://doi.org/https://doi.org/10.23887/jear.v6i3.49468>
- Dodd, V., Hanson, J., & Hooley, T. (2022). Increasing Students' Career Readiness Through Career Guidance: Measuring the Impact with a Validated Measure. *British Journal of Guidance & Counselling*, 50(2), 260–272.
<https://doi.org/https://doi.org/10.1080/03069885.2021.1937515>
- Eismawati, E., Koeswanti, H. D., & Radia, E. H. (2019). Peningkatan hasil belajar matematika melalui model pembelajaran problem based learning (PBL) siswa kelas 4 SD. *Jurnal Mercumatika: Jurnal Penelitian Matematika Dan Pendidikan Matematika*, 3(2), 71–78. <https://doi.org/https://doi.org/10.26486/jm.v3i2.694>
- Evi, T., & Indarini, E. (2021). Meta analisis efektivitas model problem based learning dan problem solving terhadap kemampuan berpikir kritis mata pelajaran matematika siswa sekolah dasar. *Edukatif: Jurnal Ilmu Pendidikan*, 3(2), 385–395.

- <https://doi.org/https://doi.org/10.31004/edukatif.v3i2.314>
- Hagi, N. A. (2019). *Peningkatan Kemampuan Berpikir Kritis Melalui Model Problem Based Learning pada Muatan Matematika Kelas V SD N Salatiga 01*. Program Studi Pendidikan Guru Sekolah Dasar FKIP-UKSW. <https://repository.uksw.edu/handle/123456789/19290>
- Husnidar, H., & Hayati, R. (2021). Penerapan model pembelajaran problem based learning untuk meningkatkan hasil belajar matematika siswa. *Asimetris: Jurnal Pendidikan Matematika Dan Sains*, 2(2), 67–72. <https://doi.org/https://doi.org/10.51179/asimetris.v2i2.811>
- Irwan, I., & Elniati, S. (2021). Pengembangan Perangkat Pembelajaran Berbasis Pendekatan Model Eliciting Activities (MEAs) Untuk Meningkatkan Pemahaman Konsep Matematika. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 10(4), 2351–2361. <https://doi.org/http://dx.doi.org/10.24127/ajpm.v10i4.4159>
- Lestari, F., Ekok, A. S., & Febriandi, R. (2020). Pengembangan Bahan Ajar Matematika Berbasis Problem Based Learning Pada Siswa Kelas V SD. *Wahana Didaktika: Jurnal Ilmu Kependidikan*, 18(3), 255–269. <https://doi.org/https://doi.org/10.31851/wahanadidaktika.v18i3.4395>
- Lestari, F., Ekok, A. S., & Febriandi, R. (2021). Pengembangan Bahan Ajar Matematika Berbasis Problem Based Learning Pada Siswa Sekolah Dasar. *Jurnal Basicedu*, 5(1), 394–405. <https://doi.org/https://doi.org/10.31004/basicedu.v5i1.628>
- Mei, M. F., Wondo, M. T. S., Seto, S. B., & Meke, K. D. P. (2022). Penggunaan Model Eliciting Activities (MEAs) Dalam Meningkatkan Hasil Belajar Ditinjau dari Self-Confidence Pada Materi Aritmatika. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 11(3), 1768–1774. <https://doi.org/https://doi.org/10.24127/ajpm.v11i3.5436>
- Nurhayati, Y., & Ni'mah, K. (2023). Analisis Resiliensi Matematis Siswa sebagai Self Assessment dalam Pembelajaran Matematika. *Teorema: Teori Dan Riset Matematika*, 8(2), 233–246. <https://doi.org/http://dx.doi.org/10.25157/teorema.v8i2.10866>
- Nurhusain, M. (2021). Penelitian Tindakan: Peningkatan Kemampuan Berpikir Kreatif Siswa Melalui Model Eliciting Activities (MEAs). *ELIPS: Jurnal Pendidikan Matematika*, 2(1), 16–23. <https://doi.org/https://doi.org/10.47650/elips.v2i1.188>
- Pamungkas, M. D., & Franita, Y. (2019). Keefektifan problem based learning untuk meningkatkan kemampuan literasi matematis siswa. *JP3M (Jurnal Penelitian Pendidikan Dan Pengajaran Matematika)*, 5(2), 75–80. <https://doi.org/https://doi.org/10.37058/jp3m.v5i2.957>
- Pancawardana, H., Al Ayyubi, I. I., Rohmatulloh, R., & Murharyana, M. (2023). The Influence of Nonformal Education on Students' Cognitive Formation. *KOLOKIU Jurnal Pendidikan Luar Sekolah*, 11(2), 236–243. <https://doi.org/https://doi.org/10.24036/kolokium.v11i2.612>
- Pohan, D., Saragih, S., & Khairani, N. (2023). Penerapan Pembelajaran Model Eliciting Activities (MEAs) dengan Pendekatan Saintifik untuk Meningkatkan Kemampuan Representasi Matematis dan Kemandirian Belajar Siswa. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, 7(3), 3350–3363. <https://doi.org/https://doi.org/10.31004/cendekia.v7i3.2752>
- Pranata, D. P., Frima, A., & Ekok, A. S. (2021). Pengembangan LKS matematika berbasis problem based learning pada materi bangun datar sekolah dasar. *Jurnal Basicedu*, 5(4), 2284–2301. <https://doi.org/https://doi.org/10.31004/basicedu.v5i4.1183>
- Prihono, E. W., & Khasanah, F. (2020). Pengaruh model Problem Based Learning terhadap kemampuan berpikir kritis matematis siswa kelas VIII SMP. *EDU-MAT: Jurnal Pendidikan Matematika*, 8(1). <https://doi.org/http://dx.doi.org/10.20527/edumat.v8i1.7078>

- Putri, R. S., Suryani, M., & Jufri, L. H. (2019). Pengaruh Penerapan Model Problem Based Learning terhadap Kemampuan Pemecahan Masalah Matematika Siswa. *Mosharafa: Jurnal Pendidikan Matematika*, 8(2), 331–340. <https://doi.org/10.31980/mosharafa.v8i2.471>
- Reski, R., Hutapea, N., & Saragih, S. (2019). Peranan model problem based learning (PBL) terhadap kemampuan pemecahan masalah matematis dan kemandirian belajar siswa. *JURING (Journal for Research in Mathematics Learning)*, 2(1), 49–57. <https://doi.org/http://dx.doi.org/10.24014/juring.v2i1.5360>
- Rifanti, U. M., & Ananda, R. (2020). Analisis Kemampuan Komunikasi Matematis Mahasiswa pada Aplikasi Graf Menggunakan Pendekatan MEAs. *Jurnal Gantang*, 5(2), 113–121. <https://doi.org/https://doi.org/10.31629/jg.v5i2.2515>
- Roesdiana, L., & Hidayati, N. (2020). Pembelajaran dengan Model Eliciting Activities (MEAs) untuk Meningkatkan Kemampuan Penalaran. *JUMLAHKU: Jurnal Matematika Ilmiah STKIP Muhammadiyah Kuningan*, 6(2), 166–175. <https://doi.org/https://doi.org/10.33222/jumlahku.v6i2.1018>
- Salafy, Y. W., & Susanah, S. (2022). Perbandingan Literasi Matematika Siswa Kelas VIII SMP Dalam Pembelajaran Model Eliciting Activities (Meas) Dan Pembelajaran Konvensional. *MATHEdunesa*, 11(1), 302–310. <https://doi.org/https://doi.org/10.26740/mathedunesa.v11n1.p302-310>
- Sholikhakh, R. A., Pujiarto, H., & Suwandono, S. (2019). Keefektifan Model Pembelajaran Problem Based Learning terhadap Minat dan Prestasi Belajar Matematika. *Journal of Medives: Journal of Mathematics Education IKIP Veteran Semarang*, 3(1), 33–39. <https://doi.org/https://doi.org/10.31331/medivesveteran.v3i1.561>
- Silvi, F., Witarsa, R., & Ananda, R. (2020). Kajian Literatur tentang Kemampuan Pemecahan Masalah Matematika dengan Model Problem Based Learning pada Siswa Sekolah Dasar. *Jurnal Pendidikan Tambusai*, 4(3), 3360–3368. <https://doi.org/https://doi.org/10.31004/jptam.v4i3.851>
- Sukmawarti, S., Hidayat, H., & Liliani, O. (2022). Implementasi Model Problem Based Learning untuk Meningkatkan Kemampuan Pemecahan Masalah Matematika Siswa SD. *Jurnal Pendidikan Dan Konseling (JPDK)*, 4(4), 886–894. <https://doi.org/https://doi.org/10.31004/jpdk.v4i4.5345>
- Sukmawati, R. (2021). Penerapan Model Pembelajaran Problem Based Learning untuk Meningkatkan Hasil Belajar Matematika Kelas II SDN Wonorejo 01. *Glosains: Jurnal Sains Global Indonesia*, 2(2), 49–59. <https://doi.org/https://doi.org/10.59784/glosains.v2i2.21>
- Suwanti, S., & Iyam, M. (2021). Kemampuan Representasi Matematis Siswa Melalui Model Problem Based Learning dan Probing Prompting Learning. *Plusminus: Jurnal Pendidikan Matematika*, 1(2), 303–314. <https://karya.brin.go.id/id/eprint/16099/1>
- Wardana, M. Y. S., & Rifaldiyah, Y. (2019). Penerapan Model Problem Based Learning terhadap Hasil Belajar Kognitif Pemecahan Masalah Matematika. *Thinking Skills and Creativity Journal*, 2(1), 19–26. <https://doi.org/https://doi.org/10.23887/tscj.v2i1.18380>
- Widana, I. W., & Diartiani, P. A. (2021). Model pembelajaran problem based learning berbasis etnomatematika untuk meningkatkan aktivitas dan hasil belajar matematika. *Emasains: Jurnal Edukasi Matematika Dan Sains*, 10(1), 88–98. <https://doi.org/https://doi.org/10.5281/zenodo.4657740>
- Widayanti, R., & Nur'aini, K. D. (2020). Penerapan Model Pembelajaran Problem Based Learning untuk Meningkatkan Prestasi Belajar Matematika dan Aktivitas Siswa. *Mathema: Jurnal Pendidikan Matematika*, 2(1), 12–23. <https://doi.org/https://doi.org/10.33365/jm.v2i1.480>
- Wijayanti, S., Triyono, T., & Syaifuddin, M. W. (2021). Penggunaan Model-Eliciting

- Activities (MEAs) Untuk Meningkatkan Kemampuan Berpikir Reflektif Pada Pembelajaran Geometri Transformasi. *JURNAL E-DuMath*, 7(1), 1–5.
<https://doi.org/https://doi.org/10.52657/je.v7i1.1330>
- Winoto, Y. C. (2020). *Efektivitas Model Problem Based Learning Dan Discovery Learning Terhadap Kemampuan Berpikir Kritis Siswa Sekolah Dasar*.
<https://repository.uksw.edu/handle/123456789/24398>
- Zainal, N. F. (2022). Problem Based Learning pada Pembelajaran Matematika di Sekolah Dasar/Madrasah Ibtidaiyah. *Jurnal Basicedu*, 6(3), 3584–3593.
<https://doi.org/10.31004/basicedu.v6i3.2650>