

DAFTAR PUSTAKA

- Adnyani, L. P. A. P. 2020. Applying Cognitive Conflict Strategy to Develop Mathematical Critical Thinking Ability and Character of Students. *JME: Journal of Mathematics Education*, Volumen 5, No 1, Halaman 30-38. <http://doi.org/10.31327/jme.v5i1.1174>
- Afri, L. D. & Retno, W. 2021. Analisis Metakognisi Siswa Kelas X SMA dalam Pemecahan Masalah Sistem Persamaan Linear Tiga Variabel. *AXIOM: Jurnal Pendidikan dan Matematika*, Volumen 10, No 1, Halaman 110-124. <http://dx.doi.org/10.30821/axiom.v10i1.9002>
- Agusti, F. A., Herman, R., & Zafirah, A., 2023. Kemampuan Penalaran Imitatif dan Kreatif Matematis Siswa SMP pada Materi Persamaan Garis Lurus. *Jurnal Program Studi Pendidikan Matematika (AKSIOMA)*, Volume 12, No 1, Halaman 1447-1458.
- Ahdhianto, E., Marsigit, Haryanto, & Nurfauzi, Y. 2020. Improving Fifth-Grade Students' Mathematical Problem-Solving and Critical Thinking Skills Using Problem-Based Learning. *Universal Journal of Educational Research*, Volumen 8, No 5, 2012–2021. <https://doi.org/10.13189/ujer.2020.080539>
- Aini, N. R., Syafril, S., Netriwati, N., Pahrudin, A., & Rahayu, T. 2020. Problem Based Learning for Mathematics Critical Thinking Skills. *AXIOM: Jurnal Pendidikan dan Matematika*, Volume 9, No 1, Halaman 100-111.
- Akrom, M., Triyanto, T., & Nurhasanah, F. 2020. Students' Mathematical Reasoning Ability Viewed from Personality Type Rational and Idealist. *International Journal of Multicultural and Multireligious Understanding*, Volume 7, No 11, Halaman 132-142. <https://doi.org/10.18415/ijmmu.v7i11.2149>
- Alfayez, M. Q. E., Aladwan, S. Q. A., & Shaheen, H. R. A. 2022. The Effect of a Training Program Based on Mathematical Problem-Solving Strategies on Critical Thinking Among Seventh-Grade Students. *Frontiers in Education*, Volume 7, No 1, Halaman 1–9. <https://doi.org/10.3389/feduc.2022.870524>
- Alifiani & Faradiba, S. S. 2021. Mathematics Pre-service Teacher's Metacognitive Failure in Mathematics Online Learning. *Jurnal Riset Pendidikan Matematika*, Valume 8, No 2, Halaman 179-190. <https://dx.doi.org/10.21831/jrpm.v8i2.43366>
- Amin, S., Utaya, S., Bachri, S., Sumarmi, & Susilo, S. 2020. Effect of Problem-

Based Learning on Critical Thinking Skills and Environmental Attitude. *Journal for the Education of Gifted*, Volumen 8, No 2, Halaman 743–755. <https://doi.org/10.1088/1742-6596/1810/1/012060>

- Aminah, R. 2024. Kajian Teori: Pengembangan Modul Ajar Pemodelan Matematika Bernuansa Etnomatematika Terintegrasi Challenge Based Learning terhadap Kemampuan Berpikir Kreatif Matematis. Edisi 7.
- Anam, K., Susanto, Asror, D. A., Rizq, M. N., Mukhlas, E. A. 2024. Pendampingan dan Pelatihan Pengembangan Buku Ajar Digital Berbasis Bookcreator bagi Guru. *CARADDE: Jurnal Pengabdian Kepada Masyarakat*, Volume 7, No. 3, Halaman: 518-526.
- Applebaum, M. 2025. Fostering Creative and Critical Thinking Through Math Games: A Case Study of Bachet's Game. *European Journal of Science and Mathematics Education*, Volume 13, No. 1, Halaman: 16–26. <https://doi.org/10.30935/scimath/15825>
- Arends, R. I. 2012. Learning to Teach Ninth Edition. New York: McGraw-Hill Companies, Inc.
- Arianatasari, A., & Hakim, L. 2018. Penerapan Desain Model Plomp pada Pengembangan Buku Teks Berbasis Guided Inquiry. *Jurnal Pendidikan Akuntansi (JPAK)*, Volume 6, No 1, Halaman 36–40.
- Arifin, S., Setyosari, P., Sa'dijah, C., & Kuswandi, D. 2019. Increasing Critical Thinking and Student Retention: A Learning Model Approach. *International Journal of Research & Review*, Volume 6, No 10, Halaman 168–175.
- Atmaja, S. A. A., Nusantara, T., & Subanji. 2023. Berpikir Kreatif Siswa dalam Menyelesaikan Permasalahan Kontroversial Matematika. *AKSIOMA*, Volume 12, No 1, Halaman 1240-1254. DOI: <https://doi.org/10.24127/ajpm.v12i1.6764>
- Bahanan, Z., Parta, I. N., & Slamet, S. 2023. Penalaran Imitatif Siswa Berkemampuan Matematika Tinggi. *Jurnal Cendekia: Jurnal Pendidikan Matematika*, Volume 7, No. 2, Halaman: 1379–1391. <https://doi.org/10.31004/cendekia.v7i2.2283>
- Basri, H., & As' ari, A. R. 2019. Investigating Critical Thinking Skill of Junior High School in Solving Mathematical Problem. *International Journal of Instruction*, Volume 12, No 3, Halaman 745–758.
- Candiasa, I. M. 2011. Pengujian Instrumen Penelitian Disertai Aplikasi ITEMAN dan BIGSTEPS. Singaraja: Undiksha Press.

- Cahyo, E. D. & Kodariyati, L. 2018. Effectiveness of the Use of Controversial Issues (CI) on Critical Thinking Ability. *Journal of Humanities ang Social Studies*, Volume 2, No 2, Halaman 5-10.
- Ceker & Fezile. 2016. Features and Characteristics of PBL & PBL Oriented Research Studies. *Cypriot Journal of Educational*, Volume 11, No 4, Halaman 195-202.
- Chotimah, C. & Fathurrohman, M. 2018. Paradigma Baru Sistem Pembelajaran dari: Teori, Metode, Model, Media, hingga Evaluasi Pembelajaran. Yogyakarta, Indonesia.
- Dahlan, A. H. 2018. Pengembangan Model Pembelajaran PMRI untuk Meningkatkan Ketertarikan Belajar Matematika. *JUPITEK*, Volume 1, No. 1, Halaman: 9-16.
- Danila, R., & Agustini, R. 2021. Analisis Keterampilan Metakognitif Siswa Menggunakan Model Inkuiri Terbimbing pada Materi Laju Reaksi Berbasis Pembelajaran Daring. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, Volume 7, No 3, Hal 596-606. doi: <https://doi.org/10.33394/jk.v7i3.3487>
- David, B. 2014. Understanding Vygotsky: Learning Culture and Social Interaction, Volume 5, No 3. DOI: [10.1016/j.lcsi.2014.06.001](https://doi.org/10.1016/j.lcsi.2014.06.001)
- Dickens, O. N., Simon, K., & Madrine, K. 2020. Manifestations and Meanings of Cognitive Conflict Among Mathematics Students in Embu, Kenya. *Educational Research and Reviews*, Volume 15, No. 11, Halaman: 690–699. <https://doi.org/10.5897/ERR2020.4061>
- Edi, S., & Rosnawati, R. 2021. Keterampilan Berpikir Kritis Siswa dalam Pembelajaran Matematika Model Discovery Learning. *JNPM (Jurnal Nasional Pendidikan Matematika)*, Volume 5, No. 2, Halaman: 234-245. <https://doi.org/10.33603/jnpm.v5i2.3604>
- Facione, P. A. 2013. Critical Thinking: What It Is and Why It Counts. *Critical Thinking*. Insight Assessment.
- Facione, P. A. 2015. Critical Thinking: What It Is and Why It Counts. Insight Assessment.
- Faruq, A. Z., Puspitasari, A. I., Fibritha, Y. E., Septianingrum, A., Kurniawati, R., & Velanisa. 2022. Landasan Filsafat (Idealisme, Realisme, Pragmatisme) dalam Pendidikan.

- Fauzan, A., Sari, S., & Elniati, S. 2014. Pengaruh Model Pembelajaran Berbasis Masalah Terhadap Kemampuan Pemecahan Masalah Matematika Siswa. *Jurnal Pendidikan Matematika*, Volume 3, No 2, Halaman 54-59.
- Ferdiani, R. D. 2022. Assessment Instrumens of STEM Project-Based Learning on Statistical Materials. *Volumen 5*, No 1, Halaman 356–368.
- Firdausy, A. R., Triyanto, & Indriati, D. 2021. Mathematical Reasoning Abilities of High School Students in Solving Contextual Problems. *International Journal of Science and Society*, *Volumen 3*, No 1, Halaman 201–211. <https://doi.org/10.54783/ijssoc.v3i1.285>
- Firmanti, P. 2021. Student's Cognitive Conflict in Geometry Learning. *Al-Ishlah: Jurnal Pendidikan*, *Volumen 14*, No 3, Halaman 4713-4722, DOI: [10.35445/alishlah.v14i3.2236](https://doi.org/10.35445/alishlah.v14i3.2236)
- Fitri, M., Yuanita, P., & Maimunah, M. 2020. Pengembangan Perangkat Pembelajaran Matematika Terintegrasi Keterampilan Abad 21 Melalui Penerapan Model Problem Based Learning (PBL). *Jurnal Gantang*, *Volume 5*, No 1, Halaman 77–85. <https://doi.org/10.31629/jg.v5i1.1609>
- Gazali, R. Y. 2016. Pembelajaran Matematika Bermakna. *Math Didactic: Jurnal Pendidikan Matematika*, *Volumen 2*, No 3, Halaman 181-192.
- Guraya, S. Y., & Abdalla, M. E. 2020. Determining the Effectiveness of Peer Assisted Learning in Medical Education: A Systematic Review and Meta-analysis. *Journal of Taibah University Medical Sciences*, *Volume 15*, No. 3, Halaman: 177–184. <https://doi.org/10.1016/j.jtumed.2020.05.002>
- Habibi, H., Winiati, I., & Kurniawati, Y. 2020. Analisis Berpikir Kritis Matematis Siswa SMP Ditinjau Dari Gaya Kognitif Visualizer dan Verbalizer. *Indonesian Journal of Mathematics and Natural Science Education*, *Volume 1*, No. 2, Halaman: 99–110. <https://doi.org/10.35719/mass.v1i2.34>
- Hake, R. 1999. Analizing Change/Gain Scores. Indiana University: Departement of Physics.
- Halimah, Subanji, & Dian, S. N. A. 2019. Student's Cognitive Conflict from Problem Solving on Mathematics. *Journal Physics: Conference Series*, Halaman 1-5. doi: [10.1088/1742-6596/1339/1/012127](https://doi.org/10.1088/1742-6596/1339/1/012127)
- Hand, M. & Levinson, R. 2012. Discussing Controversial Issues in the Classroom. *Educational Philosophy and Theory*, *Volume 44*, No 6, Halaman 614-629. doi: [10.1111/j.1469-5812.2010.00732.x](https://doi.org/10.1111/j.1469-5812.2010.00732.x)
- Handayani, T., Saulon, B. O., & Maryani, I. 2023. Integrating Metacognitive Strategies Impact in Virtual Science Experiments for Undergraduate

- Students' HOTS. *Jurnal Cakrawala Pendidikan*, Volume 42, No. 2, Halaman: 17-30. <https://doi.org/10.21831/cp.v42i2.51752>
- Hannan, S., Juan, A., & Harvey, J. 2024. Fostering Self-efficacy: Understanding South African Grade 9 Students' Confidence in their Mathematics Abilities. *African Journal of Research in Mathematics, Science and Technology Education*, Volume 28, No. 2, Halaman: 272–284. <https://doi.org/10.1080/18117295.2024.2404344>
- Hansen, E. K. S. 2022. Students' Agency, Creative Reasoning, and Collaboration in Mathematical Problem Solving. *Mathematics Education Research Journal*, Volume 34, No. 4, Halaman: 813–834. <https://doi.org/10.1007/s13394-021-00365-y>
- Harjo, B., Kartowagiran, B., & Mahmudi, A. 2019. Development of Critical Thinking Skill Instrumens on Mathematical Learning High School. *International Journal of Instruction*, Volume 12, No 4, Halaman 149–166. <https://doi.org/10.29333/iji.2019.12410a>
- Harta, G. W., Wahyuni, D. S., Santyadiputra, G. S. 2021. Kepraktisan Media Pembelajaran Augmented Reality Mata Pelajaran Sablon Untuk SMK. *Kumpulan Artikel Mahasiswa Pendidikan Teknik Informatika (KARMAPATI)*, Volume 10, No. 2, Halaman: 182–192. <https://doi.org/10.23887/karmapati.v10i2.35648>
- Hasanah, S. I., Tafrilyanto, C. F., & Aini, Y. 2019. Mathematical Reasoning: The Characteristics of Students' Mathematical Abilities in Problem Solving. *Journal of Physics: Conference Series*, 1188, 012057. <https://doi.org/10.1088/1742-6596/1188/1/012057>
- Hasanah, M., & Astuti, R. 2021. The Effect of Project Based Learning on IPS Students' Learning Outcomes in Class V in Online Learning. *Academia Open*, 4, 10–21070.
- Hidayati, N., Suryanti, S., & Cahaya, N. 2023. The Potential for the Development of Critical Thinking Tests: An Overview of Educators' Perceptions. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, Volumen 9, No 1, Halaman 56-65. <https://doi.org/10.33394/jk.v9i1.6794>
- Hjelte, A., Schindler, M., & Nilsson, P. 2020. Kinds of Mathematical Reasoning Addressed in Empirical Research in Mathematics Education: A Systematic Review. *Education Sciences*, Volume 10, No. 10, Halaman: 289-299. <https://doi.org/10.3390/educsci10100289>
- Ismail. 2018. Critical Thinking Skills of an Eighth Grade Male Student with High

- Mathematical Ability in Solving Problem. *Journal of Physics: Conference Series*, 947(1). <https://doi.org/10.1088/1742-6596/947/1/012073>
- Ismail, Suwarsono, S., & Lukito, A. 2018. Critical Thinking Skills of Junior High School Female Students with High Mathematical Skills in Solving Contextual and Formal Mathematical Problems. *Journal of Physics: Conference Series*, 953(1). <https://doi.org/10.1088/1742-6596/953/1/012205>
- Isnaintri, E., Faidhotuniam, I., & Yuhana, Y. 2023. Filsafat Realisme Aristoteles: Mengungkap Kearifan Kuno dalam Implementasi Pembelajaran Matematika. *Prosiding Seminar Nasional Pendidikan Matematika*, 247-256. <https://doi.org/http://dx.doi.org/10.25157/teorema.v8i2.11074>
- Jablonski, S. 2023. Real Objects as a Reason for Mathematical Reasoning – A Comparison of Different Task Settings. *International Electronic Journal of Mathematics Education*, Volume 18, No. 4, Halaman: 1–18. <https://doi.org/10.29333/iejme/13859>
- Joyce, B. & Weil, M. 2013. *Models of Teaching* (Fifth edit). New Delhi: Prentice Hall of India.
- Karim & Normaya. 2015. Keterampilan Berpikir Kritis Siswa dalam Pembelajaran Matematika dengan Menggunakan Model Jucama di Sekolah Menengah. *Jurnal Pendidikan Matematika*, Volume 3, No 1, Halaman 92-104.
- Kollosche, D. 2021. Styles of Reasoning for Mathematics Education. *Educational Studies in Mathematics*, Volume 107, No. 3, Halaman: 471–486. <https://doi.org/10.1007/s10649-021-10046-z>
- Kosasih, A. 2022. Filsafat Pendidikan Pragmatisme Telaah Atas Teori Manajemen Pendidikan John Dewey, Volume 9, Nomor 58, 98–109.
- Kusaeri, K., Arrifadah, Y., & Dina, A. M. 2021. Bagaimana Bentuk Tugas Matematika yang Mampu Mendorong Munculnya Penalaran Imitatif dan Kreatif?. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, Volume 10, No. 4, Halaman 21-45. <https://doi.org/10.24127/ajpm.v10i4.3887>
- Lestary, R. & Ahbi, M. R. 2022. Instrumenal Student Cognitive Conflict in Solving Mathematical Problems. *EduMa: Mathematics Education Learning and Teaching*, Volume 11, No 2, Halaman 236-248.
- Lestary, R., Subanji, & Rustanto, R. 2018. Konflik Kognitif Internal Siswa dalam Menyelesaikan Masalah Matematika Ditinjau dari Proses Asimilasi Akomodasi. *Numerical: Jurnal Matematika dan Pendidikan Matematika*, Volume 2, No 2, Halaman 167-178.

<https://doi.org/10.25217/numerical.v2i2.329>

- Linda, L., & Asyura, I. 2021. Students' Mathematical Reasoning Ability in Solving Post-Covid-19 PISA Model Math Problems. *Jurnal Riset Pendidikan Matematika*, Volume 8, No 2, Halaman 140–152. <https://doi.org/10.21831/jrpm.v8i2.44739>
- Maharani, I. P., & Subanji, S. 2018. Scaffolding Based on Cognitive Conflict in Correcting the Students' Algebra Errors. *International Electronic Journal of Mathematics Education*, Volume 13, No. 2, Halaman: 30-45. <https://doi.org/10.12973/iejme/2697>
- Maulida, U. 2022. Pengembangan Modul Ajar Berbasis Kurikulum Merdeka. *Jurnal Tarbawi*, Volume 5, No. 2, Halaman: 130-138.
- Marzuki, Wahyudin, Cahya, E., & Juandi, D. 2021. Students' Critical Thinking Skills in Solving Mathematical Problems: A Systematic Procedure of Grounded Theory Study. *International Journal of Instruction*, Volume 14, No 4, Halaman 529–548. <https://doi.org/10.29333/iji.2021.14431a>
- McKenney, Susan. 2011. Computer-Based Support for Science Education Materials Developers in Africa: Exploring Potentials. *Doctoral Thesis*. Enschede (The Netherlands): University of Twente. Tersedia pada link: <http://projects.edte.utwente.nl/cascade/seastudy/>
- Milala, H. F., Endryansyah, Joko, J., Agung, A. I. 2022. Keefektifan Dan Kepraktisan Media Pembelajaran Menggunakan Adobe Flash Player. *Jurnal Pendidikan Teknik Elektro*, Volume 11, No. 2, Halaman: 195–202. <https://ejournal.unesa.ac.id/index.php/jurnalpendidikanteknikielektro/article/view/43450>
- Miller, S. E., & Topple, T. A. 2020. Thinking and Thinking About Thinking: A Qualitative Study of Learning in a Process-Centric Teaching Model. *Journal of Social Work Education*, Volume 56, No 1, Halaman 115–130.
- Monteleone, C., Miller, J., & Warren, E. 2023. Conceptualising Critical Mathematical Thinking in Young Students. *Mathematics Education Research Journal*, Volume 35, No. 2, Halaman: 339–359. <https://doi.org/10.1007/s13394-023-00445-1>
- Monrat, N., Phaksunchai, M., & Chonchaiya, R. 2022. Developing Students' Mathematical Critical Thinking Skills Using Open-Ended Questions and Activities Based on Student Learning Preferences. *Education Research International*, 2022(2015). <https://doi.org/10.1155/2022/3300363>

- Mukuka, A., Balimuttajjo, S., & Mutarutinya, V. 2023. Teacher Efforts Towards the Development of Students' Mathematical Reasoning Skills. *Heliyon*, Volume 9, No. 4. <https://doi.org/10.1016/j.heliyon.2023.e14789>
- Musdi, E., Permana, D., Wiska, S., & Rusyda, N. A. 2020. Increasing Student Mathematical Critical Thinking Ability Through the Development of Geometry Instructional Device Based on Van Hiele's Theory. *Journal of Physics: Conference Series*, 1554(1). <https://doi.org/10.1088/1742-6596/1554/1/012073>
- Muslimahayati, Dasari, D., & Agustiani, R. 2020. Mathematical Critical Thinking Ability of Students With Realistic Mathematics Learning Innovations With Ethnomathematics (PMRE). *Journal of Physics: Conference Series*, 1480(1). <https://doi.org/10.1088/1742-6596/1480/1/012004>
- Muslimin, M., & Sunardi, S. 2019. Analisis Kemampuan Penalaran Matematika Siswa SMA Pada Materi Geometri Ruang. *Kreano, Jurnal Matematika Kreatif-Inovatif*, Volume 10, No 2, Halaman 171–178. <https://doi.org/10.15294/kreano.v10i2.18323>
- Muslimin, M., & Sunardi, S. 2019a. Analisis Kemampuan Penalaran Matematika Siswa SMA Pada Materi Geometri Ruang. *Kreano, Jurnal Matematika Kreatif-Inovatif*, Volume 10, No 2, Halaman 171–178. <https://doi.org/10.15294/kreano.v10i2.18323>
- Munawwarah, Jusniar, Side, S., & N, N. 2022. Pengembangan E-Book Multimodal sebagai Bahan Ajar Interaktif dalam Pembelajaran Kimia. *Jambura Journal of Educational Chemistry*, Volume 4, No. 2, Halaman: 77–82. <https://doi.org/10.34312/jjec.v4i2.15315>
- Narmaditya, B. S., Wulandari, D., & Sakarji, S. R. B. 2018. Does Problem-Based Learning Improve Critical Thinking. *Cakrawala Pendidikan*, Volume 3, No. 3, Halaman 17-30.
- Nasution, M. 2018. Konsep Standar Proses dalam Pembelajaran Matematika. *Logaritma*, Volume 6, No. 1, Halaman 23-36.
- NCTM. 2000. Principles and Standards for School Mathematics. Reston. VA: National Council of Teacher of Mathematics.
- Ngichio, D. O., Simon, K., & Madrine, K. 2020. Manifestations and Meanings of Cognitive Conflict Among Mathematics Students in Embu, Kenya. *Academic Journals: Educational Research and Review*, Volume 15, No 11, Halaman 690-699. doi: [10.5897/ERR2020.4061](https://doi.org/10.5897/ERR2020.4061)

- Nieveen, N. & Folmer, E. 2013. Formative Evaluation in Educational Design Research. In T. Plomp & N. Nieveen (Eds.), Educational Design Research. *Part A: An Introduction* (pp. 152–169). Enshede.
- Nugroho, P. B., Nusantara, T., As'ari, A. R., Sisworo, Hidayanto, E., & Susiswo. 2018. Critical Thinking Disposition: Students Skeptic in Dealing With Ill-Logical Mathematics Problem. *International Journal of Instruction*, Volume 11, No 3, Halaman 635–648. <https://doi.org/10.12973/iji.2018.11343a>
- OECD. 2023. PISA 2022 Results: The State of Learning and Equity in Education. Volume I: OECD Publishing, Paris.
- OECD. 2023a. PISA 2022 Results: Learning During-and From-Disruption. Volume II: OECD Publishing, Paris.
- Palinussa, A. L., Molle, J. S., & Gaspersz, M. 2021. Realistic Mathematics Education: Mathematical Reasoning and Communication Skills in Rural Contexts. *International Journal of Evaluation and Research in Education (IJERE)*, Volume 10, No 2, Halaman 522-532. <https://doi.org/10.11591/ijere.v10i2.20640>
- Palupi, B. S., & Subiyantoro, S. 2020. The Effectiveness of Guided Inquiry Learning (GIL) and Problem-Based Learning (PBL) for Explanatory Writing Skill. *International Journal of Instruction*, Volume 13, No 1, Halaman 713–730.
- Parwati, N. N., Suryawan, I. P.P, & Apsari, R. Ay. 2018. Belajar dan Pembelajaran. PT RajaGrafindo Persada.
- Permatasari, S. W., Rohana, & Marhaman. 2020. Pengaruh Pembelajaran Berbasis Masalah dengan Strategi Konflik Kognitif Terhadap Keterampilan berpikir kritis Siswa di SMP Negeri 6 Palembang. *Jurnal Widya Wacana*, Volume 15, No 2, Halaman 102-109. <https://doi.org/10.33061/j.w.wacana.v15i2.3988>
- Permatasari, N., Darhim, D., & Jupri, A. 2020. Students' Imitative and Creative Reasoning Ability in Solving Geometry Problems. *Journal of Physics: Conference Series*, 1469(1), 012166. <https://doi.org/10.1088/1742-6596/1469/1/012166>
- Plomp, T. 2013. Educational Design Research: An Introduction. In T. Plomp & N. Nieveen (Eds.), Educational Design Research. *Part A: An introduction* (pp.10–51). Enshede.
- Plomp, T. dan Nieveen, N. 2013. Educational Design Research. Netherlands Institute for Curriculum Development: SLO (2013): 1-206.

- Poesia, G., & Goodman, N. D. 2023. Peano: Learning Formal Mathematical Reasoning. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 381(2251), 20220044. <https://doi.org/10.1098/rsta.2022.0044>
- Prabawanto, S., & Susilo, B. 2020. The Effect of Problem-Based Learning and Mathematical Problem Posing in Improving Student's Critical Thinking Skills. *International Journal of Instruction*, Volume 13, No 4, Hal 103-116.
- Pramasdyahsari, A. S., Setyawati, R. D., Aini, S. N., Nusuki, U., Arum, J. P., Astutik, I. D., Widodo, W., Zulia, N., & Salmah, U. 2023. Fostering Students' Mathematical Critical Thinking Skills on Number Patterns Through Digital Book STEM PjBL. *Eurasia Journal of Mathematics, Science and Technology Education*, Volume 9, No. 7, em2297. <https://doi.org/10.29333/ejmste/13342>
- Pratiwi, E., Nusantara, T., Susiswo, S., & Muksar, M. 2022. Routines' Errors When Solving Mathematics Problems Cause Cognitive Conflict. *International Journal of Evaluation and Research in Education (IJERE)*, Volume 11, No.2, Halaman 773-785. <https://doi.org/10.11591/ijere.v11i2.21911>
- Pratiwi, P., Hidayat, T., & Amprasto, A. 2022. Analysis of Guided Inquiry-Based Cladistic E-Worksheet Development to Improve Critical Thinking in High School. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, Volume 8, No 3, Halaman 776-785. doi: <https://doi.org/10.33394/jk.v8i3.5359>
- Priyanto, D. (2017). Implikasi Aliran Filsafat Pragmatisme Terhadap Praksis Pendidikan. 1(April), 177–191.
- Putri, D. P., Ferdianto, F., & Fauji, S. H. 2020. Designing a Digital Teaching Module Based on Mathematical Communication in Relation and Function. *Journal on Mathematics Education*, Volume 11, No 2, Halaman 223–236.
- Putri, D., Ekawati, R., & Fiangga, S. 2022. Kemampuan Penalaran Matematika Siswa dalam Pemecahan Masalah Matematika Ditinjau dari Gaya Belajar. *Jurnal Pendidikan Matematika Undiksha*, Volume 13, No 1, Halaman 1–12. <https://doi.org/10.23887/jipm.v13i1.35865>
- Putri, A., Nusantara, T., Purwanto, & As'ari, A. R. 2025. The Contribution of Critical Thinking Skills in Rich Mathematical Problem Completion: Insights from Pre-service Mathematics Teachers. *Eurasia Journal of Mathematics, Science and Technology Education*, Volume 21, No. 2, Halaman: 1–18. <https://doi.org/10.29333/ejmste/15931>

- Raharjo, D. 2022. Pembelajaran Berkarakteristik Inovatif Abad 21 Pada Materi Kemandirian Karir Siswa Dengan Metode Pembelajaran Berbasis Masalah (Pbl) Di Smk Negeri 1 Adiwerna Tegal. *Cakrawala: Jurnal Pendidikan*, Halaman 87–104.
- Rahayuningsih, S., Sirajuddin, S., & Ikram, M. 2021. Using Open-ended Problem-solving Tests to Identify Students' Mathematical Creative Thinking Ability. *Participatory Educational Research*, Volume 8, No. 3, Halaman 285–299. <https://doi.org/10.17275/per.21.66.8.3>
- Rahmawati, U. & Suryanto. 2018. Pengembangan Model Pembelajaran Matematika Berbasis Masalah untuk Siswa SMP. *Jurnal Riset Pendidikan Matematika*, Volume 1, No. 1, Halaman: 88-97.
- Ramadhani, R., Bina, N. S., Sihotang, S. F., Narpila, S. D., & Mazaly, M. R. 2020. Students' Critical Mathematical Thinking Abilities Through Flip-Problem Based Learning Model Based on LMS-Google Classroom. *Journal of Physics: Conference Series*, 1657(1). <https://doi.org/10.1088/1742-6596/1657/1/012025>
- Ramdiah, S. A., Royani, M. A., Fauzi, A. 2020. South Kalimantan Local Wisdom-Based Biology Learning Model. *European Journal of Educational Research*, Volume 9, No.2, Halaman: 639-653.
- Randi, P. 2019. The Impact of Cognitive Conflict Based Learning Tools on Students Mathematical Problem Solving Ability. *International Journal of Education Dynamics*, Volume 2, No 1, Halaman 209-218.
- Rosyadi, A. A. P. 2021. Analisis Berpikir Kritis Mahasiswa dalam Menyelesaikan Masalah Kontroversial Matematika. *EDU-MAT: Jurnal Pendidikan Matematika*, Volume 9, No 1, Halaman 1-11. <https://doi.org/10.20527/edumat.v9i1.9988>
- Rosyadi, A. A. P., Cholis, S., Susiswo, & Swasono, R. 2021. Berpikir Kritis Calon Guru dalam Menyelesaikan Masalah Kontroversial Matematika dengan Menggunakan High Order Thinking Skills. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, Volume 10, No 4, Halaman 1972-1982. <http://dx.doi.org/10.24127/ajpm.v10i4.4082>
- Rosyadi, A. A. P., Cholis, S., Susiswo, & Swasono, R. 2022. High Order Thinking Skills: Can it Arise When a Prospective Teacher Solves a Controversial Mathematics Problem? *Journal of Physics: Conference Series*, 1-9. [doi:10.1088/1742-6596/2157/1/012038](https://doi.org/10.1088/1742-6596/2157/1/012038)
- Rusdi, M. 2020. Penelitian Desain dan Pengembangan Kependidikan. Bandung: PT Rajagrafindo Persada.

- Rusmana, I. M. 2021. Konflik Kognitif dalam Pembelajaran Matematika. *Indonesian Journal of Education and Humanity*, Volume 1, No 1, Hal 9-16.
- Sachdeva, S., & Eggen, P.-O. 2021. Learners' Critical Thinking About Learning Mathematics. *International Electronic Journal of Mathematics Education*, Volume 16, No. 3, em0644. <https://doi.org/10.29333/iejme/11003>
- Salsabilla, I. I., Jannah, E., Juanda. 2023. Analisis Modul Ajar Berbasis Kurikulum Merdeka. *Jurnal Literasi dan Pembelajaran Indonesia*, Volume 3, No. 1, Halaman: 33-41.
- Samura, A. O., Juandi, D., & Darhim. 2020. Improving Mathematical Critical Thinking Skills Through Problem-Based Learning. *Journal of Physics: Conference Series*, 1521 (3). <https://doi.org/10.1088/1742-6596/1521/3/032102>
- Sanjaya, H. W. 2014. Strategi Pembelajaran Berorientasi Standar Proses Pendidikan. Jakarta: Kencana Prenada Media.
- Sanjayanti, N. P. H. A., Suastra, I. W., Suma, I. K., Adnyana, P. B. 2021. Integration of Bali Local Wisdom in Science Learning Model. *Proceedings of the 5th International Conference on Learning Innovation and Quality Education*, article No. 60, Pages 1 – 4. <https://doi.org/10.1145/3516875.351694>
- Sari, V. T. A., & Hidayat, W. 2019. The Students' Mathematical Critical and Creative Thinking Ability in Double-loop Problem Solving Learning. *Journal of Physics: Conference Series*, 1315 (1). <https://doi.org/10.1088/1742-6596/1315/1/012024>
- Sari, R. N., Rosjanuardi, R., Isharyadi, R., & Nurhayati, A. 2024. Level of Students' Proportional Reasoning in Solving Mathematical Problems. *Journal on Mathematics Education*, Volume 15, No. 4, Halaman: 1095–1114. <https://doi.org/10.22342/jme.v15i4.pp1095-1114>
- Schleicher, A. 2023. Programme for International Students Assessments (PISA) 2022: Insights and Interpretations: OECD.
- Setiawan, Y. 2020. Pengembangan Model Pembelajaran Matematika SD Berbasis Permainan Tradisional Indonesia dan Pendekatan Matematika Realistik. *Jurnal SCHOLARIA*, Volume 10, No. 1, Halaman: 12-21.
- Shemshack, A., & Spector, J. M. 2020. A Systematic Literature Review of Personalized Learning Terms. *Smart Learning Environments*, Volume 7, No. 1, Halaman: 1–20. <https://doi.org/10.1186/s40561-020-00140-9>
- Shida, N., Abdullah, A. H., Osman, S., & Ismail, N. 2023. Design and Development of Critical Thinking Learning Strategy in Integral Calculus. *International*

Journal of Evaluation and Research in Education (IJERE), Volume 12, No. 1, Halaman: 284. <https://doi.org/10.11591/ijere.v12i1.23779>

Shongwe, B. 2024. The Effect of STEM Problem-Based Learning on Students' Mathematical Problem-Solving Beliefs. *Eurasia Journal of Mathematics, Science and Technology Education*, Volume 20, No. 8, Halaman: 1–13. <https://doi.org/10.29333/ejmste/14879>

Siallagan, F., Sinaga, B., & Rajagukguk, W., 2021. Analisis Kemampuan Penalaran dan Berpikir Kreatif Matematis Siswa Dalam Pembelajaran Penemuan Terbimbing. *Jurnal Pendidikan Matematika (Paradikma)*, Volume 14, No 1, Halaman 68-74.

Simanjuntak, M. F., & Sudibjo, N. 2019. Meningkatkan Keterampilan Berpikir Kritis Dan Kemampuan Memecahkan Masalah Siswa Melalui Pembelajaran Berbasis Masalah [Improving Students' Critical Thinking Skills and Problem Solving Abilities Through Problem-Based Learning]. *JOHME: Journal of Holistic Mathematics Education*, Volume 2, No 2, Halaman 108-120.

Smit, R., Dober, H., Hess, K., Bachmann, P., & Birri, T. 2023. Supporting Primary Students' Mathematical Reasoning Practice: The Effects of Formative Feedback and the Mediating Role of Self-efficacy. *Research in Mathematics Education*, Volume 25, No. 3, Halaman: 277–300. <https://doi.org/10.1080/14794802.2022.2062780>

Subanji, Rosyadi, A. A. P., & Emanuel, E. P. L. 2021. Level of Controversial Reasoning of The Pre-service Teachers to Solve Mathematical Problems. *Journal of Southwest Jiaotong University*, Volume 56, No 4, Hal 645-658. <https://doi.org/10.35741/issn.0258-2724.56.4.55>

Sudiarta, I. G. P. 2018. Perpektif Baru Penelitian Pendidikan Matematika. Singaraja: Universitas Pendidikan Ganesha.

Sudiarta, I. G. P. 2019. Pembelajaran Matematika Inovatif. Surabaya: Paramita.

Sugiyono. 2019. Metode Penelitian Pendidikan (Kuantitatif, Kualitatif, Kombinasi, R&D, dan Penelitian Pendidikan). Bandung: Alfabet.

Suharta, I. G. P. 2018. Penelitian Desain dalam Pendidikan Matematika. Singaraja: Undiksha Press.

Suharta, I. G. P., Astawa, I. W. P., & Budarsini, K. P. 2020. The Development of Ethnomatematics-Based Teaching Material with a Multi-Representation Approach on The Subject of Geometric Transformation To Improve Understanding of Mathematical Concepts in the Grade IX Students of Junior High School. *International Journal of Engineering Sciences & Research*

Technology (IJESRT), Volume 9, No 1, Halaman 47–59.
<https://doi.org/10.5281/zenodo.3632473>

- Suharta, I. G. P., & Sudiarta, I. G. P. 2022. Penelitian Desain: Tren Baru untuk Penelitian Multi Tahun, Penyusunan Skripsi, Tesis, dan Disertasi [*Design Research: A new trend for multi-year research, Drafting of theses, theses and dissertations*]. Undiksha Press.
- Suhartono. 2017. Filsafat Progresivisme : Membangun ‘Role Model’ Pendidikan Dalam Skala Konsep Engineering to Organic, di Kota Bekasi yang Smart City. *Jurnal Sains Dan Seni ITS*, Volume 6, No. 1, Halaman: 51–66.
<https://doi.org/https://doi.org/10.61390/euangelion.v3i1.45>
- Suparman, Juandi, D., & Tamur, M. 2021. Problem-Based Learning for Mathematical Critical Thinking Skills: A Meta-Analysis. *Journal of Hunan University (Natural Sciences)*, Volume 48, No 2, Halaman 133–144.
- Supriatna, N., Arhasy, E.A., & Ratnaningsih, N., 2021. Kajian Teori: Pengembangan Modul Ajar Pemodelan Matematika Bernuansa Etnomatematika Terintegrasi Challenge Based Learning terhadap Kemampuan Berpikir Kreatif Matematis. *Jurnal Ilmiah Pendidikan Matematika, Matematika dan Statistika (LEBESGUE)*, Volume 2, No 1, Halaman 10-21.
- Surti, G. A., Sudira, P., Mutohhari, F., & Suyitno, S. 2022. Project-Based Learning with STEM Approach in Automotive Engineering: A Study of Increasing Students ' 21st Century Skills. 55, 299–312.
- Suryawan, I. P. P. & Ratnaya, I. G. 2023. Analisis Berpikir Kritis Matematika Siswa dalam Menyelesaikan Masalah Kontroversial. *JOHME: Journal of Holistic Mathematics Education*, Volume 7, No. 1, Halaman: 91-107.
- Suryawan, I. P. P., Suharta, I. G. P., & Sudiarta, I. G. P. 2023a. Students' Critical Thinking Skills in Solving Mathematical Problems: Systematic Literature Review. *Indonesian Journal of Educational Research andn Review (IJERR)*, Volume 6, No 1, Halaman 120-133.
- Suryawan, I. P. P., Jana, P., Pujawan, I. G. N., Hartawan, I. G. N. Y., & Putri, P. E. W. 2023b. Ethnomathematically Controversial Problem-Based Multimodal Approach in Terms of Students' Critical Thinking Ability. *Pegem Journal of Education and Instruction*, Volume 13, No 3, Halaman 323-336.
- Suryawan, I. P. P., Nitiasih, P. K., Riastini, P. N., & Sudiarta, I. G. P. 2023c. Controversial Mathematical Issues: Problem Based Learning on Critical Thinking. *Jurnal Kependidikan Universitas Pendidikan Mandalika*, Volume 9, No 3, Halaman 808-821.

- Suryawan, I. P. P., Sudiarta, I. G. P., Suharta, I. G. P., Pujawan, I. G. N. 2024. Students' Critical Thinking Ability in Solving Controversial Mathematical Problems Seen from Computational Thinking. *Internatinoal Journal of Religion*, Volume 5, No 11, Halaman 3038-3051.
- Susanti, E., & Hartono. 2019. An Analysis Mathematical Problem Solving and Mathematical Critical Thinking Skills of Junior High School Students. *Journal of Physics: Conference Series*, 1320(1). <https://doi.org/10.1088/1742-6596/1320/1/012071>
- Susilo, B. E., Darhim, D., & Prabawanto, S. 2020. Critical Thinking Skills Based on Mathematical Dispositions in Problem-Based Learning. *Journal of Physics: Conference Series*, 1567(2). <https://doi.org/10.1088/1742-6596/1567/2/022101>
- Sutama, S., Fuadi, D., Narimo, S., Hafida, S. H. N., Novitasari, M., Anif, S., Prayitno, H. J., Sunanih, S., & Adnan, M. 2022. Collaborative Mathematics Learning Management: Critical Thinking Skills in Problem Solving. *International Journal of Evaluation and Research in Education (IJERE)*, Volume 11, No. 3, 1015. <https://doi.org/10.11591/ijere.v11i3.22193>
- Sutopo. 2021. Cognitive Conflict pada Penyelesaian Masalah Matematika. *JPPI: Jurnal Penelitian Pendidikan Indonesia*, Volume 7, No 2, Halaman 217-224. <https://doi.org/10.29210/020211164>
- Sutrisna, N. & Gusnidar. 2022. Pengembangan Buku Siswa Berbasis Inkuiri pada Materi IPA. *Jurnal Inovasi Penelitian*, Volume 2, No. 8, Halaman: 2859-2867.
- Tanjung, H. S., & Nababan, S. A. 2022. Pengembangan Perangkat Pembelajaran berbasis Masalah untuk Meningkatkan Kemampuan Pemecahan Masalah dan Komunikasi Matematika Siswa SMA Negeri 3 Kuala Kabupaten Nagan Raya. *Genta Mulia: Jurnal Ilmiah Pendidikan*, Volume 10, No 2.
- Tashtoush, M. A., Qasimi, A. B., Shirawia, N. A., & Hussein, L. A. 2025. The Efficacy of Utilizing Artificial Intelligence Techniques in Developing Critical Thinking in Mathematics among Secondary School Students and their Attitudes Toward it. *Iraqi Journal for Computer Science and Mathematics*, Volume 6, No. 1, Halaman: 37–50. <https://doi.org/10.52866/2788-7421.1231>
- Tegeh, I. M. 2010. Metode Penelitian Pengembangan Pendidikan. Singaraja: Universitas Pendidikan Ganesha.
- Vlădescu, C. 2022. Mastery Learning and the Impact of the COVID-19 Pandemic on Teaching and Learning Mathematics in Romanian Schools. *Journal of*

Education in Black, Volumen 7, No. 2, Halaman: 2–23.
<https://doi.org/10.31578/jebs.v7i2.258>

- Walida, S. E., Cholis, S., Subanji, & Sisworo. 2022. A Portrait of Controversial Mathematics Problems and Student's Metacognitive Awareness: A Case of Indonesia. *Journal of Higher Education Theory and Practice*, Volume 22, No 12, Halaman 51-62. <https://doi.org/10.33423/jhetp.v22i12.5462>
- Walle, J. A., Karp, K. S., & Bay-Williams, J. M. (2013). *Elementary and Middle School Mathematics: Teaching Developmentally* (8th ed). Pearson.
- Wasiran, Y., & Andinasari, A. 2019. Meningkatkan Kemampuan Berpikir Kreatif dan Penalaran Adaptif Matematika Melalui Paket Instruksional Berbasis Creative Problem Solving. *JNPM (Jurnal Nasional Pendidikan Matematika)*, Volume 3, No. 1, Halaman: 51-65.
<https://doi.org/10.33603/jnpm.v3i1.1466>
- Wasitohadi. 2017. Pragmatisme, Humanisme, dan Implikasinya Bagi Dunia Pendidikan di Indonesia. 1982, 175–190.
<https://doi.org/https://doi.org/10.24246/j.sw.2012.v28.i2.p175-190>
- Wayudi, M. 2020. Kajian Analisis Keterampilan Berpikir Kritis Siswa Sekolah Menengah Atas. *Jurnal Pendidikan Manajemen Perkantoran*, Volume 5, No 1, Halaman 67-82. Doi: [10.17509/jpm.v4i2.18008](https://doi.org/10.17509/jpm.v4i2.18008)
- Widayanti, R., & Nur'aini, K. D. 2020. Penerapan Model Pembelajaran Problem Based Learning untuk Meningkatkan Prestasi Belajar Matematika dan Aktivitas Siswa. *MATHEMA JOURNAL*, Volume 2, No. 1, Hal: 12-23.
- Wilkinson, L. C., Bailey, A. L., & Maher, C. A. 2018. Students' Mathematical Reasoning, Communication, and Language Representations: A Video-Narrative Analysis. *ECNU Review of Education*, Volume 1, No. 3, Halaman: 1–22. <https://doi.org/10.30926/ecnuoe2018010301>
- Wiradnyana, I. G. A., Pramana, K. A. B. A., Purandina, I. P. Y. 2020. Pengembangan Model Problem Based Learning Bermuatan Tri Kaya Parisuda untuk Meningkatkan Kemampuan Pemecahan Masalah dan Nilai-Nilai Karakter Siswa. *Jurnal Kependidikan Undikma*, Volume 8, No. 4, Halaman: 1004-1017.
- Wulandari, T. 2019. Teori Progresivisme John Dewey Dann Pendidikan Partisipatif Dalam Pendidikan Islam. *At-Tarbawi: Jurnal Kajian Kependidikan Islam*, Volume 4, No. 2, Halaman: 104-117.
<https://doi.org/10.22515/attarbawi.v4i2.1927>
- Wuryanto, H. & Abduh, M. 2022. Mengkaji Kembali Hasil PISA Sebagai Pendekatan Inovasi Pembelajaran untuk Peningkatan Kompetensi Literasi

dan Numerasi. Jakarta: Direktorat Guru Pendidikan Dasar.

- Wyrasti, A. F., Sa'dijah, C., As'ari, A. R., & Sulandra, I. M. 2018. The Misanalogical Construction of Undergraduate Students in Solving Cognitive Conflict Identification Task. *International Electronic Journal of Mathematics Education*, Volume 14, No 1, Halaman: 28-40. <https://doi.org/10.12973/iejme/3961>
- Yonanda, A. D., Yuyu, Y., Saputra, D. S. 2019. Development of Problem-Based Comic Book as Learning Media for Improving Primary School Students' Critical Thinking Ability. *Elementary School Forum (Mimbar Sekolah Dasar)*, Volume 6, No. 3, Halaman: 341-348.
- Zetriuslita. 2016. Analisis Keterampilan berpikir kritis Matematis Mahasiswa dalam Menyelesaikan Soal Uraian Kalkulus Integral Berdasarkan Level Kemampuan Mahasiswa. *Infinity Jurnal Program Studi Matematika STKIP Siliwangi Bandung*, Volume 5, No 1, Halaman 56-65.

