

DAFTAR PUSTAKA

- Afifah, S. N., Muhdhar, M. H. I. Al, Aisyah, D. F. N., & Udiarti, E. (2024). The Linkage Between Problem Solving Skills and Social Attitudes with Environmental Literacy of 10 th Grade Students at SMAN 7 Malang. *BIOEDUKASI: Jurnal Biologi Dan Pembelajarannya*, 22(1), 102–111. <https://doi.org/10.19184/bioedu.v22i1.43776>
- Agustin, E., Rahmawati, I., & Salamah, U. (2024). Analisis Implementasi Model Kooperatif tipe STAD dalam Peningkatan Motivasi Belajar Kelas 3. *Jurnal Review Pendidikan Dasar : Jurnal Kajian Pendidikan Dan Hasil Penelitian*, 10(3), 230–237. <https://doi.org/10.26740/jrpd.v10n3.p230-237>
- Ahmadi, Z. S. (2022). Review Article: Peningkatan Literasi Lingkungan Siswa di Sekolah. *Educatoria: Jurnal Ilmiah Ilmu Pendidikan*, 2(3), 175–180. <https://doi.org/10.36312/ejiip.v2i3.105>
- Al-Tabany, T. I. B. (2017). *Mendesain Model Pembelajaran Inovatif, Progresif, dan Kontekstual*. Jakarta: Kencana.
- Alwasi, F. T., Nurohmah, W., & Prihantini. (2024). Analisis Penggunaan Infografis Mengenai Masalah Pelestarian Sumber Daya Alam Sebagai Upaya Meningkatkan Literasi Lingkungan Pada Siswa Sekolah Dasar. *Semantik : Jurnal Riset Ilmu Pendidikan, Bahasa Dan Budaya*, 2(1), 69–82. <https://doi.org/10.61132/semantik.v2i1.190>
- Aminulloh, M., & Abidatillah. (2024). Deskripsi Model Pembelajaran Kooperatif Tipe Student Team Achievement Division (STAD) Pada Mata Pelajaran IPAS. *Jurnal Bina Ilmu Cendekia*, 5(2), 91–98. <https://doi.org/10.46838/jbic.v5i2.683>
- Angreani, A., Saefudin, S., & Solihat, R. (2022). Virtual Laboratory Based Online Learning: Improving Environmental Literacy in High School Students. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 8(1), 10–21. <https://doi.org/10.22219/jpbi.v8i1.18120>
- Arends, R. I. (2014). *Learning to Teach*. In *McGraw-Hill Education* (10th ed.). New York: McGraw-Hill Education.
- Arif, A., Haifaturrahmah, & Nizaar, M. (2025). Analisis Keterbatasan Alokasi Waktu Pembelajaran Terhadap Hasil Belajar IPA Siswa Sekolah Dasar. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, 10(4), 227–239. <https://doi.org/10.23969/jp.v10i04.38616>
- Arikunto, S. (2013). *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
- Arikunto, S. (2018). *Dasar-Dasar Evaluasi Pendidikan* (3rd ed.). Jakarta: Bumi Aksara.

- Arnani, N. P. R. (2021). *Panduan Praktis Penggunaan Aplikasi SPSS*. Yogyakarta: Jejak Pustaka.
- Ashlan, S., & Firayani. (2025). Contextual Learning of Science Based on Environmental Problems Around Schools. *Scientica Education Journal*, 2(4), 1–9. <https://doi.org/10.62872/sej.v2i4.311>
- Asmida, L., Sitanggang, R. S., Sianturi, S. A., & Mukra, R. (2024). Tantangan dan Strategi Guru dalam Pembuatan Materi Pemantik Berbasis PBL Di SMAS 1-2 Kartika Medan. *BIODIK*, 10(2), 181–187. <https://doi.org/10.22437/biodik.v10i2.33896>
- Asrizal, Desnita, Darvina, Y., Usman, E. A., & As Sidiq, S. A. (2021). Effects of Mechanical Wave Learning Material by Integrating CTL Strategy on Environmental Literacy of Grade XI Students. *Journal of Physics: Conference Series*, 1876(1). <https://doi.org/10.1088/1742-6596/1876/1/012079>
- Asyiah, L. F., & Hendrawan, M. G. (2025). Analysis of The Contextual Teaching and Learning Model to Foster Ecoliteracy Character in Fourth-Grade Students at an Elementary School in Cimahi City. *Current Issues on Elementary Education Journal*, 4(2), 56–63. <https://doi.org/10.17509/ciee.v4i2.92214>
- Aulia, A. T., & Aji, A. (2024). Hubungan Antara Literasi Lingkungan dengan Kemampuan Memecahkan Masalah Lingkungan Pada Peserta Didik di Sekolah Adiwiyata SMA N 4 Semarang. *Edu Geography*, 11(3), 1–9. <https://doi.org/10.15294/edugeo.v11i2.69710>
- Aulia, M., Ahied, M., Hadi, W. P., & Muharrami, L. K. (2020). Pendekatan Contextual Teaching and Learning Berbasis Green Chemistry Terhadap Karakter Peduli Lingkungan Siswa. *Jurnal Natural Science Education Research (NSER)*, 2(3). <https://doi.org/10.21107/nser.v2i3.13764>
- Aviste, R. P., & Niemiec, C. P. (2023). Antecedents of Environmental Values and Pro-Environmental Behavior Intentions: a Self-Determination Theory Approach. *Journal of Environmental Psychology*, 88(1). <https://doi.org/10.1016/j.jenvp.2023.102023>
- Azaly, Q. R., & Fitrihidajati, H. (2022). Pengembangan Media Pembelajaran Berbasis Microsoft Office Sway Pada Materi Perubahan Lingkungan Untuk Melatihkan Kemampuan Literasi Sains Siswa Kelas X SMA. *BioEdu: Berkala Ilmiah Pendidikan Biologi*, 11(1), 218–227. <https://doi.org/10.26740/bioedu.v11n1.p218-227>
- Azizah, N., & Roshayanti, F. (2024). Profil Literasi Lingkungan Siswa Kelas X di SMKN 1 Ampelgading. *Jurnal Inovasi Pembelajaran Di Sekolah*, 5(1), 209–214. <https://doi.org/10.51874/jips.v5i1.188>

- Azrai, E. P., Razak, A. A., & Sartono, N. (2023). The E-Learning-Based Group Investigation (GI) Effectiveness on Student Biology Learning Outcomes. *Biosfer*, 16(1), 176–185. <https://doi.org/10.21009/biosferjpb.25015>
- Balqis, H. A., Andriana, E., & Fajari, L. E. W. (2025). Pengaruh Model Project-Based Learning Berbantuan Media Digital Canva Terhadap Literasi Sains Pada Pembelajaran IPAS. *Kalam Cendekia: Jurnal Ilmiah Kependidikan*, 13(2), 1189–1201. <https://doi.org/10.20961/jkc.v13i2.102438>
- Bardach, L., & Murayama, K. (2025). The Role of Rewards in Motivation—Beyond Dichotomies. *Learning and Instruction*, 96(1). <https://doi.org/10.1016/j.learninstruc.2024.102056>
- Burgos-Espinoza, I. I., García-Alcaraz, J. L., Gil-López, A. J., & Díaz-Reza, J. R. (2025). Effect of Environmental Knowledge on Pro-Environmental Attitudes and Behaviors: A Comparative Analysis Between Engineering Students and Professionals in Ciudad Juárez (Mexico). *Journal of Environmental Studies and Sciences*, 15(4), 861–875. <https://doi.org/10.1007/s13412-024-00991-5>
- Cahyadi, F., Widyawati, N., Sofianto, R., Zahro, A., & Anggraini, A. E. (2024). Peningkatan Kemampuan Berpikir Kritis Peserta Didik Menggunakan Model Group Investigation pada Materi Lingkaran Sekolah Dasar. *Konstruktivisme : Jurnal Pendidikan Dan Pembelajaran*, 16(1), 201–207. <https://doi.org/10.35457/konstruk.v16i1.2581>
- Cahyani, R. P., Rahmat, A., Hamdiyati, Y., Amprasto, A., & Jamil, M. W. (2025). Does Environmental Knowledge Predict Attitudes and Behaviors in Environmental Literacy? Evidence from senior high school students. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 11(3), 828–840. <https://doi.org/10.22219/jpbi.v11i3.41213>
- Choe, J.-H., Kim, C.-H., & Ri, G.-H. (2020). An Investigation on The Environmental Knowledge and Attitudes of Senior Middle School Students in The Democratic People's Republic of Korea. *International Research in Geographical and Environmental Education*, 29(2), 146–162. <https://doi.org/10.1080/10382046.2019.1678276>
- Chophel, S., Tshewang, P., Wangdi, P., Wangdi, U., & Jamtsho, S. (2023). Implementing Student Teams Achievement Divisions (STAD) Learning Model in Grade 9 Biology and its Impact on Learning Achievement. *International Research Journal of Science, Technology, Education, and Management*, 3(2), 65–77. <https://doi.org/10.5281/zenodo.8139804>
- Chusni, M. M., Mahardika, A., Sayekti, I. C., & Setya, W. (2017). The Profile of Student Activities in Learning Basic Natural Science Concepts Through The Contextual Teaching and Learning (CTL) Approach With Group Investigation (GI) Model. *Jurnal Penelitian Dan Pembelajaran IPA*, 3(1), 1–10. <https://doi.org/10.30870/jppi.v3i1.734>

- Cintyamulya, I. (2013). Mendorong Berpikir Analisis Mahasiswa Melalui Pembelajaran Investigasi Kelompok Berbasis Pendekatan Kontekstual Pada Mata Kuliah Konservasi dan Pengetahuan Lingkungan. *Proceeding Biology Education Conference: Biology, Science, Enviromental, and Learning*.
- Corneasari, M. L. (2025). Mewujudkan Pendidikan yang Efektif dengan Pendekatan Kontekstual di Masyarakat. *Khidmat: Journal of Community Service*, 2(1), 31–42. <https://doi.org/10.31629/khidmat.v2i1.7056>
- Darma, B. (2021). *Statistika Penelitian Menggunakan SPSS*. Jakarta: Guepedia.
- Denisa, R., Siregar, A. N., Damaiyani, Fauziah, E., Salsabilah, T., Mukra, R., & Arwita, W. (2026). Analisis Penggunaan Media Pembelajaran dan Tantangan dalam Penerapan Pembelajaran Biologi Pada Siswa MAN 1 Medan. *Journal BIONatural*, 13(1), 23–31.
- Fadly, W. (2022). *Model-Model Pembelajaran Untuk Implementasi Kurikulum Merdeka*. Yogyakarta: Bening Pustaka.
- Fajeriadi, H., Fahami, & Arisandi, R. (2024). How Does Students' Environmental Literacy Support The Sustainable Development Goals? A Literature Review. *Indonesian Journal of Science Education and Applied Science (IJSEAS)*, 4(1), 61. <https://doi.org/10.20527/i.v4i2.13443>
- Fang, W.-T., Hassan, A., & LePage, B. A. (2023). *Environmental Literacy* (pp. 93–126). Singapore: Springer. https://doi.org/10.1007/978-981-19-4234-1_4
- Faqih, M. K., Aziz, I., & Hayati, R. M. (2025). The Use of Learning Models Cooperative Learning Type Student Teams Achivement Division (STAD) in Islamic Education Subjects to Increase Learning Motivation. *International Journal on Advanced Science, Education, and Religion (IJoASER)*, 8(2), 203–217. <https://doi.org/10.33648/ijoaaser.v8i2.942>
- Fathoni. (2020). Pengembangan Bahan Ajar Kitab Alala Berbasis CTL dalam Meningkatkan Motivasi Belajar. *Muróbbi: Jurnal Ilmu Pendidikan*, 4(2). <https://doi.org/10.52431/murobbi.v4i2.303>
- Fetiana, N., Permanasari, A., & Permana, I. (2022). Environmental Literacy of Junior High School Students in Bogor: Contribution of Knowledge to Environmental Attitudes and Behaviors. *Jurnal Penelitian Pendidikan IPA*, 8(5), 2423–2429. <https://doi.org/10.29303/jppipa.v8i5.1794>
- Firman, Nurqalbi, & Hisbullah. (2022). Keterlaksanaan Model Pembelajaran Kooperatif Tipe Talking Stick Berbasis Pelatihan Kepramukaan di Sekolah Dasar. *Jurnal Sinestesia*, 12(1), 152–164.
- Gannar, S., & Kilani, C. (2025). Contextualized Learning and Social Constructivism: Implementing a Project-Based Approach in Information Systems Development Education. *Journal of Science Learning*, 8(1), 15–24. <https://doi.org/10.17509/jsl.v8i1.72667>

- Gaol, P. L., Hasruddin, & Sofia. (2024). Sikap Peduli Lingkungan Siswa Sesuai Penerapan Kurikulum Merdeka Belajar Pada Materi Perubahan Lingkungan. *JSSR: Jurnal Sains Student Research*, 2(6), 594–602. <https://doi.org/10.61722/jssr.v2i6.3038>
- Ghufron, S., Nafiah, Syahrudin, Kaswadi, & Mustofa. (2023). The Effect of STAD-Type Cooperative Learning Based on a Learning Tool on Critical Thinking Ability in Writing Materials. *International Journal of Instruction*, 16(1), 61–84. <https://doi.org/10.29333/iji.2023.1614a>
- Gillies, M. R. (2016). Cooperative Learning: Review of Research and Practice. *Australian Journal of Teacher Education*, 41(3), 39–54. <https://doi.org/10.14221/ajte.2016v41n3.3>
- Güngör, F., Altunbaşak, İ., Aydın, A. T., Kaya, M., & Erdem, C. (2026). A Second-Order Meta-Analysis on The Effects of Cooperative Learning on Students' Academic Achievement, Higher-Order Thinking, and Affective Behaviors. *Current Psychology*, 45(6), 552. <https://doi.org/10.1007/s12144-025-08943-0>
- Hadiapurwa, A., Ali, M., Ropo, E., & Hernawan, A. H. (2024). Teacher Effort in Strengthening Student's Thinking Skill and Awareness upon Environment Conservation: PLS-SEM of Climate Change Education (CCE) Study. *International Journal of Environmental Impacts*, 7(1), 111–119. <https://doi.org/10.18280/ije.070113>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis* (7th ed.). Harlow: Pearson Education Limited.
- Hake, R. R. (1998). Interactive-Engagement Versus Traditional Methods: A Six-Thousand-Student Survey of Mechanics Test Data for Introductory Physics Courses. *American Journal of Physics*, 66(1), 64–74. <https://doi.org/10.1119/1.18809>
- Hanna, T., & Kuntjoro, S. (2024). Pengembangan E-Book Berbasis Creative Problem Solving untuk Melatihkan Kemampuan Literasi Digital Materi Perubahan Lingkungan Siswa SMA. *BioEdu: Berkala Ilmiah Pendidikan Biologi*, 13(3), 629–635. <https://doi.org/10.26740/bioedu.v13n3.p629-635>
- Harahap, S. M., & Lubis, M. S. (2023). *Memahami Bacaan melalui Pendekatan Kontekstual (Inquiry)*. Pekalongan: NEM.
- Hartini, S. H. A., Na'im, M., & Alfansi, R. (2024). Pengaruh Model Pembelajaran Kooperatif Tipe Snowball Throwing dengan Media Kontekstual Terhadap Keterampilan Berpikir Kritis dan Keterampilan Sosial Siswa Kelas V pada Pembelajaran IPS. *Jurnal Penelitian Pendidikan Dasar*, 10(2), 750–764. <https://doi.org/10.31932/jpdp.v10i2.3768>
- Herman, B. C., Zeidler, D. L., & Newton, M. (2020). Students' Emotive Reasoning Through Place-Based Environmental Socioscientific Issues. *Research in*

- Science Education*, 50(5), 2081–2109. <https://doi.org/10.1007/s11165-018-9764-1>
- Hermawan, I. M. S., Suwono, H., Paraniti, A. A. I., & Wimuttipanya, J. (2022). Student's Environmental Literacy: An Educational Program Reflections for Sustainable Environment. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 8(1). <https://doi.org/10.22219/jpbi.v8i1.16889>
- Hermawan, V., Anggiana, A. D., & Septianti, S. (2021). Analisis Kemampuan Pemahaman Matematis Melalui Model Pembelajaran Student Achievemen Divisions (STAD). *Symmetry: Pasundan Journal of Research in Mathematics Learning and Education*, 6(1), 71–81. <https://doi.org/10.23969/symmetry.v6i1.4126>
- Hidayat, R., & Saad, M. R. M. (2025). A Meta-Analysis of The Effect of Peer Tutoring in Science, Technology, Engineering and Mathematics (STEM) Subjects. *International Journal of Educational Research Open*, 8(1), 1–13. <https://doi.org/10.1016/j.ijedro.2025.100446>
- Hollweg, K. S., Taylor, J. R., Bybee, R. W., Marcinkowski, T. J., Mcbeth, W. C., & Zoido, P. (2011). *Developing a Framework for Assessing Environmental Literacy*. North American Association for Environmental Education (NAAEE). <http://www.naaee.net>.
- Hungerford, H. R., & Peyton, R. Ben. (1976). *Teaching Environmental Education*. Portland: J. Weston Walch.
- Iduard, Hasdin, & Idrus. (2025). Analisis Dampak Model Pembelajaran Kontekstual terhadap Literasi Lingkungan Siswa Sekolah Dasar. *Pedagogik Journal of Islamic Elementary School*, 8(2), 543–554. <https://doi.org/10.24256/pijies.v8i2.7567>
- Ilmiyah, N. (2022). Pembentukan Karakter dan Keterampilan Sosial Peserta Didik di SMA Melalui Model Pembelajaran Berbasis Inquiry dan Group Investigasi dengan Setting Lingkungan. *Jurnal Terapung : Ilmu-Ilmu Sosial*, 4(2), 46–57. <https://doi.org/10.31602/jt.v4i2.8622>
- Irawan, D. P., Warman, Jamil, Asnar, Marwiah, & Herliah, E. (2024). Analisis Kemampuan Kolaborasi Peserta Didik Melalui Model Pembelajaran Kooperatif Tipe Group Investigation (GI) pada Pembelajaran PKn Kelas XI SMA Negeri 11 Samarinda. *Edukasi Elita : Jurnal Inovasi Pendidikan*, 1(4), 24–37. <https://doi.org/10.62383/edukasi.v1i4.603>
- Istikomayanti, Y., Suwono, H., & Irawati, M. H. (2016). Experiential Learning Group Investigation as Effort to Develop Environmental Literacy Ability at 5th Grade Students of Madrasah Ibtidaiyah. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 2(1), 57–71. <https://doi.org/10.22219/jpbi.v2i1.3372>

- Jauhari, M. T., Adisan, Kurniawan, D., & Rohkmat, J. (2025). Model Pembelajaran Kontekstual dan Ilmu Pengetahuan Alam: Analisis Bibliometrik Tren dan Lanskap Penelitian dalam Pendidikan. *Contextual Natural Science Education Journal (CNSEJ)*, 3(2), 15–31. <https://doi.org/10.29303/cnsej.v3i2.1079>
- Johnson, E. B. (2002). *Contextual Teaching and Learning*. California: Corwin Press.
- Kagan, S., & Kagan, M. (2009). *Kagan Cooperative Learning*. California: Kagan Publishing.
- Karmana, I. W. (2023). Literature Review: Peningkatan Literasi Lingkungan Siswa di Sekolah. *Biocaster: Jurnal Kajian Biologi*, 3(3), 155–159. <https://doi.org/10.36312/biocaster.v3i3.198>
- Kasim, T. S. A. T., Yusoff, Y. M., & Mansor, F. (2021). Building Student Character through Contextual Learning Approach: Islamic Education Novice Teachers' Experiences. *Islamiyyat*, 43(2), 39–52. <https://doi.org/10.17576/islamiyyat-2021-4302-04>
- Khoirunnisa, A., Nurdiansyah, & Yogiarni, T. (2025). Pengaruh Model Contextual Teaching and Learning (CTL) Berbantuan Media Canva terhadap Kemampuan Berpikir Kritis IPS Siswa Sekolah Dasar. *Jurnal Pendidikan Tambusai*, 9(2), 13332–13337.
- Kholid, I. (2023). Pengaruh Pendekatan Contextual Teaching and Learning (CTL) Terhadap Keaktifan Belajar Siswa. *Tarunaedu: Journal of Education and Learning*, 1(1), 68–82. <https://doi.org/10.54298/tarunaedu.v1i1.134>
- Khorwal, G., Meshram, R., Vaibhav, V., Sharma, R., Singh, B., Chandran, S., & Sharma, K. (2024). Peer Assessment of Student Presentations: Key Takeaways and Lessons Learned. *Cureus*, 16(5). <https://doi.org/10.7759/cureus.59809>
- Komala, R., Lestari, D. P., & Ichsan, I. Z. (2020). Group Investigation Model in Environmental Learning: An Effect for Students' Higher Order Thinking Skills. *Universal Journal of Educational Research*, 8(4A), 9–14. <https://doi.org/10.13189/ujer.2020.081802>
- Kristanto, V. H. (2018). *Metodologi Penelitian Pedoman Penulisan Karya Tulis Ilmiah (KTI)*. Yogyakarta: Deepublish.
- Kurniasih, D. (2021). Implementasi Model Pembelajaran Contextual Teaching and Learning (CTL) dalam Pelajaran IPA di Sekolah Dasar. *Social, Humanities, and Educational Studies (SHES): Conference Series*, 3(4). <https://doi.org/10.20961/shes.v3i4.53345>
- Kurniati, A., Dike, D., & Parida, L. (2021). Pengembangan Literasi Lingkungan untuk Membangun Sekolah Sehat dan Hijau di SD Negeri 01 Kenukut Kecamatan Kelam Permai Kabupaten Sintang. *Jurnal Abdidias*, 2(2), 223–230. <https://doi.org/10.31004/abdidias.v2i2.243>

- Kurniawan, A. (2018). *Metodologi Penelitian Pendidikan*. Bandung: Remaja Rosdakarya.
- Kurniawan, S., Sugiarno, Y., & Rahman, M. A. (2025). Analisis Kurikulum Biologi Berbasis Konteks Lingkungan Pendekatan Holistik dalam Pembelajaran Sains di SMA Antartika Sidoarjo. *SENDJA: Science Education and Development Journal Archives*, 3(1), 27–36. <https://doi.org/10.59923/sendja.v3i1.415>
- Kuswendi, U., & Arga, H. S. P. (2020). Developing Primary School Students' Environmental Literacy by Utilizing Scraps. *Mimbar Sekolah Dasar*, 7(2), 198–215. <https://doi.org/10.17509/mimbar-sd.v7i2.26497>
- Lana, Y., Hadi, W. P., Wahyuni, E. A., Putera, D. B. R. A., & Fikriyah, A. (2025). Peningkatan Literasi Lingkungan Siswa Melalui Model Pembelajaran Problem Based Learning. *NSER: National Science Education Research*, 8(1), 77–83. <https://doi.org/10.21107/nser.v8i1.27118>
- Le, H., Janssen, J., & Wubbels, T. (2018). Collaborative Learning Practices: Teacher and Student Perceived Obstacles to Effective Student Collaboration. *Cambridge Journal of Education*, 48(1), 103–122. <https://doi.org/10.1080/0305764X.2016.1259389>
- Li, H. (2025). Impact of Collaborative Learning on Student Engagement in College English Programs: Mediating Effect of Peer Support And Moderating Role of Group Size. *Frontiers in Psychology*, 16(1), 1–11. <https://doi.org/10.3389/fpsyg.2025.1525192>
- Lovren, V. O., & Jablanovic, M. M. (2023). Bridging The Gap: The Affective Dimension of Learning Outcomes in Environmental Primary and Secondary Education. *Sustainability*, 15(8), 6370. <https://doi.org/10.3390/su15086370>
- Maesaroh, S., Bahagia, & Kamalludin. (2021). Strategi Menumbuhkan Literasi Lingkungan pada Siswa. *Jurnal Basicedu*, 5(4). <https://doi.org/10.31004/basicedu.v5i4.1048>
- Maftuh, M. S. J., Lawal, U. S., Ade, M., Lama, A. V., & Adzim, A. F. (2023). Understanding Learning Strategies: A Comparison Between Contextual Learning and Problem-Based Learning. *Educazione: Journal of Education and Learning*, 1(1), 54–65. <https://doi.org/10.61987/educazione.v1i1.496>
- Marianingsih, P., Firdausy, A., Nestiadi, A., & Leksono, S. M. (2021). Muatan Aspek Literasi Lingkungan Pada Buku Teks Biologi Kelas X SMA. *Biodidaktika: Jurnal Biologi Dan Pembelajarannya*, 16(2), 50–64.
- Masduki, A. I. (2021). Perpaduan Pembelajaran CTL dan GI pada Materi Bentuk Aljabar Untuk Meningkatkan Hasil Belajar Siswa. *Pembelajaran Dan Bimbingan Dan Konseling*, 9(2). <https://doi.org/10.56013/edu.v9i2.3073>
- Mashudi, & Azzahro, F. (2020). *Contextual Teaching and Learning*. Lumajang: LP3DI Press.

- Maurer, M., & Bogner, F. X. (2020). Modelling Environmental Literacy With Environmental Knowledge, Values and (Reported) Behavior. *Studies in Educational Evaluation*, 65, 1–9. <https://doi.org/10.1016/j.stueduc.2020.100863>
- Mendo-Lázaro, S., León-del-Barco, B., Polo-del-Río, M.-I., & López-Ramos, V. M. (2022). The Impact of Cooperative Learning on University Students' Academic Goals. *Frontiers in Psychology*, 12(1), 1–7. <https://doi.org/10.3389/fpsyg.2021.787210>
- Mohammed, A., Kyarma, H. M., & Garba, A. (2022). Group Investigation Strategy: A Social Model of Teaching English as A Second Language in Senior Secondary Schools. *African Journal of Humanities and Contemporary Education Research*, 6(1).
- Muhdhar, M. H. I. Al, Aini, N., Rohman, F., Sumberartha, I. W., Mardiyanti, L., & Wardhani, W. (2021). Improvement of Collaboration Skills and Environmental Literacy Through the Surrounding Nature Exploration Integrated Group Investigation. *AIP Conference Proceedings*, 2330. <https://doi.org/10.1063/5.0043101>
- Muhlis, N. F., Yani, A., Suryanni, S. D., & Upe, A. (2022). Environmental Literacy Profile of Senior High School in Mowewe Southeast Sulawesi. *Biosfer: Jurnal Pendidikan Biologi*, 15(2), 313–319. <https://doi.org/10.21009/biosferjpb.26787>
- Nababan, D., Simangunsong, D. P., & Pasaribu, D. S. R. (2023). Strategi Pembelajaran Afektif Terhadap Pembentukan Sikap Pendidikan Karakter Masa Depan Peserta Didik. *Pediaqu: Jurnal Pendidikan Sosial Dan Humaniora*, 2(2), 654–661.
- Nanor, E., Mahama, A., & Hanson, R. (2024). Effect of STAD Model of Cooperative Learning on Students' Learning Outcome on Nomenclature of Hydrocarbon. *International Journal of Scientific Research and Management (IJSRM)*, 12(3), 3264–3274. <https://doi.org/10.18535/ijssrm/v12i03.el03>
- Nguyen, T. N. T., & Oanh, D. T. K. (2025). Cooperative Learning and its Influences on Student Engagement. *Cogent Education*, 12(1). <https://doi.org/10.1080/2331186X.2025.2513414>
- Novitasari, A. (2025). Kemampuan Pengetahuan Ekologis dan Sikap Peduli Lingkungan Siswa. *BIOEDUKASI (Jurnal Pendidikan Biologi)*, 16(1), 120. <https://doi.org/10.24127/bioedukasi.v16i1.12272>
- Nurchayani, I., Kusmaryani, R. E., Jaya, A. C., & Syafitri, D. (2025). Learning Motivation and Learning Readiness on Science Learning Outcomes. *Jurnal Penelitian Dan Pengembangan Pendidikan*, 9(2), 390–399. <https://doi.org/10.23887/jppp.v9i2.92838>

- Nurhalimah, & Bakti, S. (2025). Effectiveness of Group Investigation Cooperative Learning Method Based on Curipod Application For Class II Students At MTS Uswatun Hasanah. *International Journal of Islamic Education, Research and Multiculturalism (IJIERM)*, 7(2), 543–562. <https://doi.org/10.47006/ijierm.v7i2.453>
- Ong, J. A. I. (2024). Effects of Online Cooperative Learning (OCL) Student Teams Achievement Division (STAD) Method to the Motivation, Self-efficacy, and Academic Achievement of Students in Science 10. *International Multidisciplinary Research Journal*, 6(2). <https://doi.org/10.54476/ioer-imrj/104815>
- Pattipeilohy, M., Rumahlatu, D., Salmanu, S. I. A., & Sangur, K. (2022). The Inquiry Investigation Group Learning Model: Improving Students' Critical Thinking Skills, Cognitive Learning Outcomes, and Scientific Attitudes. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 8(3), 205–215. <https://doi.org/10.22219/jpbi.v8i3.22113>
- Prasetyo, P., Muhdhar, M. H. I. Al, Ibrohim, I., & Saptasari, M. (2024). Promoting Students' Environmental Literacy Through PBIB Learning Model. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 10(2), 383–391. <https://doi.org/10.22219/jpbi.v10i2.33034>
- Pungkasana, R., & Yuliati. (2025). The Implementation of Student Team-Achievement Divisions Techniques in Interactive Speaking Learning at Private Vocational School in Pekalongan City. *International Journal of Research and Review*, 12(10), 253–267. <https://doi.org/10.52403/ijrr.20251026>
- Purnama, C., Suarti, & Ishak, S. (2025). Efektivitas Model Pembelajaran Kooperatif Tipe Student Team Achievement Division (STAD) untuk Meningkatkan Hasil Belajar Fisika di SMA. *Journal Sultra Elementary School*, 6(1), 1234–1245. <https://doi.org/10.64690/jses.v6i1.473>
- Putra, E., & Vebrina, D. (2023). Literatur Riwiew : Persepsi Mahasiswa Calon Guru terhadap Sustainabel Development Goals (SDGs) dalam Meningkatkan Literasi Lingkungan. *Jurnal Edugenesi*, 6(3), 36.
- Putri, H. C., Cyntia, M., & Gamaliel, N. Y. (2025). Model Pembelajaran Kooperatif Tipe GI (Group Investigation) untuk Meningkatkan Kemampuan Berpikir Kreatif Siswa. *Katalis Pendidikan : Jurnal Ilmu Pendidikan Dan Matematika*, 2(4), 233–247. <https://doi.org/10.62383/katalis.v2i4.2701>
- Putri, S. W., Handayani, S., & Ramadanty, R. (2025). Integrating Problem-Based Learning and SSI-ESD Context to Foster Chemical Literacy and Environmental Awareness in Secondary Education. *Jurnal Pendidikan MIPA*, 26(3), 1988–2002. <https://doi.org/10.23960/jpmipa.v26i3.pp1988-2002>

- Rahmat, K. H., Niazi, H. A., Oktaviani, R. F., Veronika, N., Arif, F., & Syah, N. (2025). Peningkatan Literasi Lingkungan pada Siswa di Sekolah Dasar Guna Membangun Generasi Cerdas Iklim. *Indonesian Journal of Emerging Trends in Community Engagement*, 3(1), 25–32. <https://doi.org/10.71383/ijetce.v3i1.79>
- Rajagukguk, S., Sinaga, D. P., & Sipayung, M. I. (2025). Penerapan Model Pembelajaran Student Teams Achievement Division (STAD) Untuk Meningkatkan Motivasi dan Hasil Belajar Siswa dalam Pembelajaran Biologi. *SIBATIK JOURNAL: Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi, Dan Pendidikan*, 4(7), 1597–1606. <https://doi.org/10.54443/sibatik.v4i7.3056>
- Riduwan. (2013). *Dasar-Dasar Statistika*. Bandung: Alfabeta.
- Risda, S., Kusumawati, D., & Primadoni, A. B. (2026). Implementasi Model Kooperatif Tipe STAD Pada Materi IPAS Aspek Sosial Untuk Meningkatkan Kerjasama Kelas IV. *Jurnal Wawasan Pendidikan*, 6(1), 267–279. <https://doi.org/10.26877/jwp.v6i1.25823>
- Robi, F. S., Dianti, P. R., & Handayani, N. R. (2024). Improving Cognitive Learning Outcomes and Communication Skills Through Problem-Based Learning With Lesson Study. *Jurnal Penelitian Ilmu Pendidikan*, 16(2), 144–153. <https://doi.org/10.21831/jpipfip.v16i2.60041>
- Rokhmah, Z., & Fauziah, A. N. M. (2021). Analisis Literasi Lingkungan Siswa SMP pada Sekolah Berkurikulum Wawasan Lingkungan. *Pensa: E-Jurnal Pendidikan Sains*, 9(2), 176–181.
- Rosyad, S., Avalentina, K. Z., Istiqomah, Sofiana, I. A., Puspitasari, E., & Putri, W. A. (2026). *Pembelajaran Kontekstual: Konsep dan Teori*. Bandung: Naba Edukasi Indonesia.
- Rosyadi, I., Purwanto, B. E., & Mulyono, T. (2025). The Effect of Cooperative Learning Model with Student Team Achievemen Division (STAD) Type on Motivation and Learning Outcomes. *Journal of English Language and Education*, 10(1), 292–300. <https://doi.org/10.31004/jele.v10i1.637>
- Roth, C. E. (1992). *Environmental Literacy: Its Roots, Evolution and Directions in the 1990s*. (p. 17). ERIC Clearinghouse for Science, Mathematics, and Environmental Education, Columbus, Ohio.
- Rusman. (2018). *Model-Model Pembelajaran* (2nd ed.). Jakarta: Rajawali Pers.
- Safitri, A., & Habibi. (2024). Pembelajaran IPA di Sekolah Kawasan Pesisir Sumenep Berorientasi Kemampuan Literasi Lingkungan. *Jurnal Abdiraja*, 7(1). <https://doi.org/10.24929/adr.v7i1.3315>
- Safri, Z., Hasanah, S., Mahmudah, Soraya, F., & Siregar, T. S. (2024). Implementation of Contextual Teaching and Learning Model in Nature-Based

- Learning to Improve Morals and Concern for the School Environment at SMP S Alam Leuser. *Jurnal Profesi Guru Indonesia*, 1(4), 162–169. <https://doi.org/10.62945/jpgi.v1i4.636>
- Samsudin, Weda, S., & Amirullah. (2024). Assessing the Impact of Contextual Teaching and Learning (CTL) Approach in Reading Instruction: A Multiple Case Study. *IDEAS: Journal on English Language Teaching and Learning, Linguistics and Literature*, 12(2), 921–935. <https://doi.org/10.24256/ideas.v12i2.5006>
- Sani, R. A. (2013). *Inovasi Pembelajaran*. Jakarta: Bumi Aksara.
- Santhosh, M. E., Bhadra, J., Ahmad, Z., & Al-Thani, N. (2024). A Meta-Analysis to Gauge The Impact of Pedagogies Employed in Mixed-Ability High School Biology Classrooms. *Humanities and Social Sciences Communications*, 11(1), 1–17. <https://doi.org/10.1057/s41599-023-02338-x>
- Sari, I. P., & Kamila, N. (2024). Edukasi Pengelolaan Minyak Jelantah Sebagai Upaya Literasi Lingkungan Di Sekolah Dasar. *Jurnal Pengabdian Masyarakat Ilmu Keguruan Dan Pendidikan*, 7(2), 71–78. <https://doi.org/10.31326/jpm-ikp.v7i2.2280>
- Sari, M., Afandi, & Marlina, R. (2021). Pentingnya Literasi Lingkungan dalam Pembelajaran Abad 21. *Prosiding: Seminar Nasional Pendidikan FKIP Untan*, 685–689.
- Sarwari, K., & Kakar, A. F. (2023). Developing Students' Critical Thinking Skills through Contextual Teaching and Learning. *Journal of Cognition, Emotion & Education*, 1(1), 29–42. <https://doi.org/10.22034/cee.2023.172192>
- Sharan, S. (2015). *The Handbook of Cooperative Learning* (S. Prawoto, Tran.). Yogyakarta: Istana Media.
- Sharan, Y., & Sharan, S. (1992). *Expanding Cooperative Learning Through Group Investigation*. New York: Teachers College Press.
- Siddiq, M. N., Supriatno, B., & Saefudin. (2020). Pengaruh Penerapan Problem Based Learning Terhadap Literasi Lingkungan Siswa SMP Pada Materi Pencemaran Lingkungan. *Assimilation: Indonesian Journal of Biology Education*, 3(1), 18–24. <https://doi.org/10.17509/aijbe.v3i1.23369>
- Siew, N. M., & Chai, W. L. (2024). The Integration off 5E Inquiry-Based Learning and Group Investigation Model: its Effects on Level Four Science Process Skills of Form Four Students. *Problems of Education in the 21st Century*, 82(1), 133–148. <https://doi.org/10.33225/pec/24.82.133>
- Sigit, D. V., Sulistiyanto, T. Q., & Aulya, N. R. (2025). The Effect of The Self-Directed Learning (SDL) Model Integrated With Peer Teaching on Environmental Literacy. *Jurnal Inovasi Teknologi Pendidikan*, 12(3), 298–306. <https://doi.org/10.21831/jitp.v12i3.79663>

- Siswosuharjo, P., Al-Bahra, Purnomo, A. C., & Suciana, E. (2026). The Effect of a Motivation-Based STAD Learning Model on Students' Academic Achievement in Mathematics and Science. *Journal La Edusci*, 7(4), 1064–1083. <https://doi.org/10.37899/journallaedusci.v7i4.3286>
- Slavin, R. E. (2020). *Cooperative Learning* (N. Yusron, Tran.). Bandung: Nusa Media.
- Slavin, R. E. (2021). *Educational Psychology: Theory and Practice* (13th ed.). Harlow: Pearson.
- Suarmika, P. E., & Faliyandra, F. (2016). Model Kooperatif GI Berbasis Outdoor Study Meningkatkan Aktivitas dan Hasil Belajar IPA SD. *JPDI (Jurnal Pendidikan Dasar Indonesia)*, 1(2), 20–24. <https://doi.org/10.26737/jpdi.v1i2.261>
- Sudaryati, Rahayuningsih, M., & Ngabekti, S. (2019). Classification Learning Effectiveness of Living with Contextual Teaching and Learning (CTL) and Cooperative Learning (CL) Type Group Investigation (GI). *Journal of Innovative Science Education*, 8(1), 23–29.
- Sudaryono. (2016). *Metode Penelitian Pendidikan* (1st ed.). Jakarta: Kencana.
- Sudijono, A. (2017). *Pengantar Evaluasi Pendidikan*. Jakarta: RajaGrafindo Persada.
- Sugiarto, T. (2020). *Contextual Teaching and Learning (CTL)*. Yogyakarta: cv. Mine.
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif dan RnD*. Bandung: Alfabeta.
- Sugiyono. (2021). *Metode Penelitian Pendidikan* (3rd ed.). Bandung: Alfabeta.
- Suhartono, & Indramawan, A. (2021). *Group Investigation: Konsep dan Implementasi dalam Pembelajaran*. Lamongan: Academia Publication.
- Sumargo, B., Budyanra, & Kurniawan, R. (2024). *Metode dan Pengaplikasian Teknik Sampling*. Jakarta: Bumi Aksara.
- Sumiati. (2023). Penerapan Model Contextual Teaching And Learning (CTL) untuk Meningkatkan Motivasi dan Hasil Belajar Siswa. *Ideguru: Jurnal Karya Ilmiah Guru*, 8(3), 611–619. <https://doi.org/10.51169/ideguru.v8i3.546>
- Supratman, Ubaidullah, Muslimin, Safitri, A., Satriawansyah, T., Rusdianto, & Lugi, F. (2026). Pendidikan Lingkungan Berbasis Nilai Lokal Samawa untuk Menumbuhkan Literasi Lingkungan Peserta Didik. *JagoMIPA: Jurnal Pendidikan Matematika Dan IPA*, 6(1), 147–157. <https://doi.org/10.53299/jagomipa.v6i1.3796>

- Surayanah, Azizah, N., Ridhowati, I. P., Anandita, P. M., & Putri, M. A. (2026). Pendekatan Contextual and Learning (CTL) dalam Pembelajaran Pendidikan Pancasila: Studi Pada Materi “Aturan” Siswa Kelas I Sekolah Dasar Negeri I Karangsari. *Jurnal Citra Pendidikan Anak*, 5(1), 1–11. <https://doi.org/10.38048/jcpa.v5i1.6368>
- Suryanda, A., Sartono, N., & Reyhanah. (2023). The influence of SOLE learning model on the environmental literacy of high school student. *JPBIO (Jurnal Pendidikan Biologi)*, 8(2), 234–247. <https://doi.org/10.31932/jpbio.v8i2.2576>
- Suryawati, E., Suzanti, F., Zulfarina, Putriana, A. R., & Febrianti, L. (2020). The Implementation of Local Environmental Problem-Based Learning Student Worksheets to Strengthen Environmental Literacy. *Jurnal Pendidikan IPA Indonesia*, 9(2), 169–178. <https://doi.org/10.15294/jpii.v9i2.22892>
- Syaifuddin, T., Nurlaela, L., & Prasetya, S. P. (2021). Contextual Teaching and Learning (CTL) Model to Students Improve Learning Outcome at Senior High School of Model Terpadu Bojonegoro. *IJORER: International Journal of Recent Educational Research*, 2(5), 528–535. <https://doi.org/10.46245/ijorer.v2i5.143>
- Syuhada, M. F., Tobroni, Rasilah, & Hadiansah, D. (2025). Application of the STAD-type Cooperative Learning Model in Improving Natural Science Learning Outcomes. *Journal of General Education and Humanities*, 4(1), 129–140. <https://doi.org/10.58421/gehu.v4i1.329>
- Teplá, M., & Distler, P. (2025). The Impact of Long-Term Inquiry-Based Science Education on Students’ Motivation and Knowledge Acquisition: The Role of Gender, Subject, and Level of Inquiry. *Humanities and Social Sciences Communications*, 12(1), 239. <https://doi.org/10.1057/s41599-025-04437-3>
- Torkar, G., & Klofutar, Š. (2026). Enhancing Biodiversity Literacy in Early Learners: The Impact of Direct Outdoor Experience Versus Classroom Instruction. *The Journal of Environmental Education*, 1(1), 1–14. <https://doi.org/10.1080/00958964.2026.2631979>
- Triannisa, S., Erlisnawati, & Guslinda. (2025). Pengembangan Video Animasi Berbasis Isu Lingkungan Lokal Pada Pembelajaran IPAS Kelas V Sekolah Dasar. *Tunjuk Ajar: Jurnal Penelitian Ilmu Pendidikan*, 8(2), 157–174.
- Triyanti, M. M., Siburian, J., Johari, A., & Anggereini, E. (2024). Literature Review: Implementasi Pembelajaran Biologi Berbasis Edutourism Untuk Meningkatkan Literasi Lingkungan Siswa. *Dharmas Education Journal*, 4(3), 567–674. <https://doi.org/10.56667/dejournal.v4i3.1063>
- Triyono, A., Nuary, R. H., Permatasari, N., Yuni, Y., & Wibowo, T. (2024). The Level of Effectiveness of TPS and Conventional Methods Judging from Students’ Geometry Learning Results Using the N-Gain Test. *AlphaMath* :

- Journal of Mathematics Education*, 10(1), 142–156. <https://doi.org/10.30595/alphamath.v10i1.21530>
- Tsani, I., Huda, S., Yasin, M., Syazali, M., Sari, W. R., & Jernsittiparsert, K. (2020). The Impact of Group Investigation (GI) Learning Models on Sequence and Series: A Study Case Numerical Skills Analysis in Islamic Boarding School. *Journal of Physics: Conference Series*, 1467(1), 1–7. <https://doi.org/10.1088/1742-6596/1467/1/012030>
- Tumulak, D. S. (2025). The Effectiveness of Student-Teams Achievement Divisions (STAD) on Vocabulary Acquisition among EFL learners. *International Journal of English Literature and Social Sciences*, 10(6), 214–225. <https://doi.org/10.22161/ijels.106.32>
- Vann, S., Bou, D., Norm, R., Nin, L., & Chhen, B. (2026). The Use of the STAD Strategy to Promote Students' Achievement in Science Education. *Gateway for Understanding Research in Education*, 2(1), 1–17. <https://doi.org/10.69855/guru.v2i1.438>
- Welerubun, R. C., Wambrauw, H. L., Jeni, Wolo, D., & Damopolii, I. (2022). Contextual Teaching and Learning in Learning Environmental Pollution: The Effect on Student Learning Outcomes. *Prima Magistra: Jurnal Ilmiah Kependidikan*, 3(1), 106–115. <https://doi.org/10.37478/jpm.v3i1.1487>
- Wetering, J. van de, Leijten, P., Spitzer, J., & Thomaes, S. (2022). Does Environmental Education Benefit Environmental Outcomes in Children and Adolescents? A Meta-Analysis. *Journal of Environmental Psychology*, 81(1), 1–12. <https://doi.org/10.1016/j.jenvp.2022.101782>
- Widyaningsih, R. O., & Puspasari, D. (2020). Analisis Penggunaan Model Pembelajaran Group Investigation (Investigasi Kelompok) Pada Mata Pelajaran Kearsipan di Smkn 1 Lamongan. *Jurnal Pendidikan Administrasi Perkantoran (JPAP)*, 9(1), 77–84. <https://doi.org/10.26740/jpap.v9n1.p77-84>
- Wiyoko, T., Megawati, & Wandira, A. (2021). Analisis Pelaksanaan Pembelajaran Tematik Menggunakan Model Contextual Teaching and Learning (CTL) Kelas III Sekolah Dasar di Era Pandemi Covid-19. *Jurnal Dimensi Pendidikan Dan Pembelajaran*, 9(1), 20–30. <https://doi.org/10.24269/dpp.v9i1.3471>
- World Economic Forum. (2024). *The Global Risks Report 2024* (19th Edition). Cologny/Geneva. www.weforum.org
- Wulandari, A. Y. R., & Qomaria, N. (2024). *Analisis Statistik Deskriptif dan Uji Hipotesis Dengan SPSS*. Madiun: Bayfa Cendekia Indonesia.
- Wuryaningrum, R., Bektiarso, S., & Suyitno, I. (2020). The Effects of Knowledge-Transforming Text on Elementary Students' Declarative, Procedural Knowledge, and Motivation in Environmental Learning. *International Journal of Instruction*, 13(1), 567–586. <https://doi.org/10.29333/iji.2020.13137a>

- Xiong, Z., Song, Y., & Zhu, R. (2025). Pedagogical Strategies for Teaching Environmental Literacy in Secondary School Education: A Systematic Review. *Sustainability*, 17(20), 9104. <https://doi.org/10.3390/su17209104>
- Yildirim, M. S., Elkoca, A., Gökçay, G., Yilmaz, D. A., & Yıldız, M. (2025). The Relationship Between Environmental Literacy, Ecological Footprint Awareness, and Environmental Behavior in Adults. *BMC Public Health*, 25(1), 551. <https://doi.org/10.1186/s12889-025-21340-3>
- Yücel, D. (2025). A Comparative Investigation of Environmental Literacy Dimensions in Science Curricula of Several Countries. *Participatory Educational Research*, 12(4), 210–228. <https://doi.org/10.17275/per.25.57.12.4>
- Zahrani, U., Hadiansah, & Yuliawati, A. (2024). Peningkatan Literasi Lingkungan Siswa Melalui Penggunaan E-Modul Berbasis Socio-Scientific Issues pada Materi Perubahan Lingkungan. *Semantik : Jurnal Riset Ilmu Pendidikan, Bahasa Dan Budaya*, 2(4), 38–44. <https://doi.org/10.61132/semantik.v2i4.992>
- Zakariya, H., Suparwi, Setyowati, R., Aditia, R., & Pratama, H. N. (2023). Dampak Perubahan Iklim dan Pemanasan Global terhadap Ekonomi Dunia. *Sultan Adam: Jurnal Hukum Dan Sosial*, 1(2), 288–297.

