

DAFTAR PUSTAKA

- Acesta, A. (2017). Upaya Mengembangkan Literasi Sains Menggunakan Model SETS (Science Environment Technology Society) dalam Pembelajaran Konsep Dasar IPA. *Pedagogi: Jurnal Penelitian Pendidikan*, 4(1), 53.
- Adeoye, M. A., Wirawan, K. A., Pradnyani, M. S., & Septiarini, N. I. (2024). Revolutionizing Education: Unleashing the Power of the ADDIE Model for Effective Teaching and Learning. *Jurnal Pendidikan Indonesia*, 13(1), 202.
- Aini, W., Rachmadiarti, F., Prabowo, Hariyono, E., & Prahani, B. K. (2022). The Study of Implementation SETS Approach to Improve Students' Critical Thinking Skills. *Eighth Southeast Asia Design Research (SEA-DR) & the Second Science, Technology, Education, Arts, Culture, and Humanity (STEACH) International Conference (SEADR-STEACH 2021)* (p. 219). Atlantis Press.
- Aka, K. A. (2019). Integration Borg & Gall (1983) and Lee & Owen (2004) Models as an Alternative Model of Design-Based Research of Interactive Multimedia in Elementary School. *Journal of Physics: Conference Series*, 1318(1), 12022.
- Aldilla, E., Ulfa, J., Desnita, & Usmeldi. (2023). Needs Analysis for Physics E-Module Development on Work and Energy Materials in Senior High School. *Jurnal Pendidikan Fisika*, 11(2), 258.
- Amilyana, A. S., Noer, T. K., & Raharjo. (2021). A Teaching Material Based on Science, Environment, Technology, and Society to Improve Student's Critical Thinking Skills: Synchronous and Asynchronous Learning During Covid-19 Pandemic. *IJORER: International Journal of Recent Educational Research*, 2(4), 374.
- Arikunto, S. (2019). *Prosedur Penelitian: Suatu Pendekatan Praktik* (Edisi Revisi ed.). Rineka Cipta.
- Astalini, Darmaji, Kurniawan, D. A., Chen, D., Fitriani, R., Wulandari, M., . . . Ramadhanti, A. (2022). A Study for Student Perception of Mathematical Physics E-Module Based on Gender. *Journal of Turkish Science Education*, 19(3), 912.
- Aulia, N., Harahap, U. H., Silitonga, N. E., Sihite, M. L., & Ketaren, M. A. (2025). Tantangan dan Strategi Manajemen Kurikulum di Era Digital: Studi Literatur untuk Inovasi Pendidikan. *JIIC: Jurnal Intelek Insan Cendikia*, 2(5), 10283-10302.
- Basri, H. (2023). Pendidikan dan masyarakat serta pentingnya pendidikan karakter terhadap moralitas pelajar di lingkungan masyarakat era digital. *Al-Murabbi Jurnal Pendidikan Islam*, 1(2), 160-178.
- Borg, W. R., & Gall, M. D. (1983). *Educational Research: An Introduction* (Fourth ed.). New York: Longman.

- Bukhori, A., Gani, H. A., & Yahya, M. (2024). Digital Module Development of Islamic Education to Improve Student Independence in Learning at Middle School Program. *Journal of Multidisciplinary Academic and Practice Studies (JoMAPS)*, 2(1), 71.
- Calado, F. M., Scharfenberg, F.-J., & Bogner, F. X. (2018). Science-Technology-Society-Environment Issues in German and Portuguese Biology Textbooks: Influenced of the Socio-Cultural Context? *International Journal of Science Education, Part B*, 8(3).
- Camelia, S., Mawardi, & Suryani, O. (2023). Pengembangan Bahan Ajar untuk Menunjang Pembelajaran Kurikulum Merdeka pada Materi Konsep dan Dampak Pemanasan Global Fase E SMA/MA. *Jurnal Pendidikan MIPA*, 13(2), 530.
- Cynthia, Arafah, K., & Palloan, P. (2023). Development of Interactive Physics E-Module to Improve Critical Thinking Skills. *Jurnal Penelitian Pendidikan IPA*, 9(5), 3944.
- Diansah, I., & Asyhari, A. (2020). Effectiveness of Physics Electronic Modules Based on Self Directed Learning Model (SDL) Towards the Understanding of Dynamic Fluid Concept. *Journal of Physics: Conference Series*. 1572, p. 8. IOP Publishing.
- Dmitrenko, N., Shkola, I., Saliuk, B., Panchenko, V., & Neshko, S. (2024). Canva Platform: Visual Content for Developing Writing Skills of Prospective Engineers in ESP Classes. *Proceedings of the 15th International Scientific and Practical Conference*. 2, p. 359. Rezekne Academy of Technologies.
- Eldis, E. N., Suban, M. E., & Riong, M. B. (2024). The Analysis of Phase E Students' Problem-Solving Skills on Global Warming Materials with the Help of the Problem-Based Electronic Module. *Journal of Innovative Science Education*, 13(1), 30.
- Fauzi, M. R., & Jannah, R. (2019). Pengembangan Lembar Kegiatan Peserta Didik Berbasis Science, Environment, Technology and Society (SETS) pada Materi Dinamika Rotasi dan Keseimbangan Benda Tegar Kelas XI MIA. *Natural Science*, 5(2), 909-910.
- Fembriyanti, R., Sarwanto, & Suparmi. (2018). Pengembangan E-Learning IPA Terpadu Berbasis SETS pada Tema Gunung Berapi dan Gempa Bumi. *Seminar Nasional Pendidikan Fisika*, 3, p. 336.
- Gehred, A. P. (2020). Canva. *Journal of the Medical Library Association*, 108(2), 339.
- Ghassani, J. P., Pramudya, V. N., Araminta, A. A., & Hendratmoko, A. F. (2024). Mekanisme, Penyebab, dan Efek Rumah Kaca Terhadap Kehidupan Makhluk Hidup di Bumi. *Trigonometri: Jurnal Matematika dan Ilmu Pengetahuan Alam*, 2(2), 89-100.

- Gustiani, S. (2019). Research and Development (R&D) Method as a Model Design and Educational Research and Its Alternatives. *Holistics Journal*, 11(2), 13-14.
- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the Role of Digital Technologies in Education: A Review. *Sustainable Operations and Computers*, 3, 277.
- Hati, S. S., Kurnia, I., & Wahyudi. (2024). Kevalidan Media Pembelajaran E-Puzzle Pada Materi Simbol Pancasila di Kelas 1 Sekolah Dasar. *Prosiding SEMDIKJAR (Seminar Nasional Pendidikan dan Pembelajaran)*, 7, p. 1130.
- Hikmawati, N. (2020). Model Pembelajaran Kurikulum 2013 dalam Materi IPA Kelas 6 MI Miftahun Najah Desa Tenonan. *Kariman*, 8(1), 101.
- Hodiyanto, Darma, Y., & Putra, S. R. (2020). Pengembangan Media Pembelajaran Berbasis Macromedia Flash Bermuatan Problem Posing terhadap Kemampuan Pemecahan Masalah Matematis. *Mosharafa: Jurnal Pendidikan Matematika*, 9(2), 327.
- Irkhamni, I., Izza, A. Z., Salsabila, W. T., & Hidayah, N. (2021). Pemanfaatan Canva sebagai E-Modul Pembelajaran Matematika Terhadap Minat Belajar Peserta Didik. *Prosiding Konferensi Ilmiah Pendidikan*, 2, pp. 129-133.
- Irma, M. F., & Gusmira, E. (2024). Tingginya Kenaikan Suhu Akibat Peningkatan Emisi Gas Rumah Kaca di Indonesia. *JSSIT: Jurnal Sains dan Sains Terapan*, 2(1), 29.
- Iskandar, M. Y., Hendra, Syafril, Putra, A. E., Nanda, D. W., & Efendi, R. (2023). Developing Interactive Multimedia for Natural Science in High School. *International Journal of Multidisciplinary Research of Higher Education*, 6(3), 130.
- Keramati, B. (2019). *Introduction to Physics*. Pressbooks.
- Kharissidqi, M. T., & Firmansyah, V. W. (2022). Aplikasi Canva sebagai Media Pembelajaran yang Efektif. *Indonesian Journal Of Education And Humanity*, 2(4), 110-111.
- Khasanah, N. (2015). SETS (Science, Environmental, Technology and Society) sebagai Pendekatan Pembelajaran IPA Modern pada Kurikulum 2013. *Seminar Nasional Konservasi dan Pemanfaatan Sumber Daya Alam*, (pp. 271-276).
- Komikesari, H., Mutoharoh, M., Dewi, P. S., Utami, G. N., Anggraini, W., & Himmah, E. F. (2020). Development of E-Module Using Flip pdf Professional on Temperature and Heat Material. *Journal of Physics: Conference Series*. 1572, p. 1. IOP Publishing.
- Latorre-Cosculluela, C., Suarez, C., Quiroga, S., Sobradiel-Sierra, N., Lozano-Blasco, R., & Rodríguez-Martínez, A. (2021). Flipped Classroom Model

- Before and During COVID-19: Using Technology to Develop 21st Century Skills. *Interactive Technology and Smart Education*, 18(2), 190.
- Middleburg, J. J. (2024). *Thermodynamics and Equilibria in Earth System Sciences: An Introduction*. Switzerland: Springer.
- Nelson, M., & Nelson, D. B. (2024). The Cloud Model for Climate Change. *International Journal of Geosciences*, 15, 366-395.
- Nhi, N. V., & Anh, N. T. (2024). The utilization of the Canva application for enhancing speaking skills among non-English major students at The People's Police College II. *Journal of Knowledge Learning and Science Technology*, 3(2), 121-122.
- Ni'mah, K., Umroh, I. L., Asrori, I., & Machmudah, U. (2024). Development of Animated Videos Based on the Canva Application as a Learning Media for Arabic Listening Skills Students of Darul 'Ulum Lamongan Islamic University. *ALSUNIYAT: Jurnal Penelitian Bahasa, Sastra, dan Budaya Arab*, 7(2), 461.
- Nurhasnah, Kasmita, W., Aswirna, P., & Abshary, F. I. (2020). Developing Physics E-Module Using "Construct 2" to Support Students' Independent Learning Skills. *Thabiea : Journal of Natural Science Teaching*, 3(2), 81.
- Pedroso, J. E., Sulleza, R. S., Francisco, K. H., Noman, A. J., & Martinez, C. A. (2023). Students' Views on Using Canva as an All-In-One Tool for Creativity and Collaboration. *Journal of Digital Learning and Distance Education (JDLDE)*, 2(2), 445.
- Pilendia, D. (2024). Kajian Filsafat Ilmu: Integrasi Multimedia Interaktif dan Kearifan Lokal dalam Pembelajaran Fisika. *JPSS: Jurnal Pendidikan Sang Surya*, 10(2), 478.
- Prachagool, V., & Nuangchaler, P. (2021). Perspectives of Thai educators toward 21st century instruction. *Journal of Education and Learning (EduLearn)*, 15(3), 435.
- Pradana, Y., & Arijanto, A. (2024). Implementation of Strategic Human Resource Management in Improving the Quality of Education. *Indonesian Journal of Business Analytics*, 4(2), 487.
- Pratama, O. R., Connie, & Risdianto, E. (2021). The Need Analysis of Learning Module Development Using Self Organized Learning Environment (Sole) Assisted by Augmented Reality on Rotational Dynamics and Rigid Body Equilibrium. *International Journal of Innovation and Education Research (IJIER)*, 1(1), 20.
- Purwanto, A., Nurjayadi, M., Suluya, R., & Ichsan, I. Z. (2020). EM-SETS: An Integrated E-Module of Environmental Education and Technology in Natural Science Learning. *International Journal of Advanced Science and Technology*, 29(3), 7015.

- Puspaningsih, A. R., Tjahjadarmawan, E., & Krisdianti, N. R. (2021). *Ilmu Pengetahuan Alam untuk SMA Kelas X*. Jakarta Pusat: Pusat Kurikulum dan Perbukuan Badan Penelitian dan Pengembangan dan Perbukuan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- Puspitasari, Y. D., & Nugroho, P. A. (2020). Peningkatan Higher Order Thinking Skill dan Kemampuan Kognitif pada Mahasiswa Melalui Pendekatan Science, Environment, Technology, and Society Berbantuan Modul Pembelajaran. *Jurnal IPA dan Pembelajaran IPA*, 4(1), 12.
- Putri, A. E. (2024). Penggunaan Media Pembelajaran Berbasis Digital dalam Pembelajaran Sejarah untuk Meningkatkan Minat Belajar Peserta Didik. *JIM: Jurnal Ilmiah Mahasiswa Pendidikan Sejarah*, 9(2), 533-540.
- Rahim, F. R., Sari, S. Y., Sundari, P. D., Aulia, F., & Fauza, N. (2022). Interactive Design of Physics Learning Media: The Role of Teachers and Students in a Teaching Innovation. *Journal of Physics: Conference Series*. 2309, p. 2. IOP Publishing.
- Ridwan. (2015). *Skala Pengukuran Variabel-Variabel Penelitian*. Bandung: Alfabeta.
- Ristanto, R. H., Heryanti, E., & Madaniyyah, S. (2024). E-Modul EDU KEHATI Berbasis I-SETS: Pengembangan Bahan Ajar Berorientasi pada Literasi Keanekaragaman Hayati. *Jurnal Inovasi Pembelajaran Biologi*, 5(2), 69.
- Ristinen, R. A., Kraushaar, J. J., & Brack, J. T. (2022). *Energy and the Environment* (Fourth Edition ed.). USA: John Wiley & Sons.
- Rohmatun, H., & Rasyid, A. (2022). Model Pembelajaran SETS (Science, Environment, Technology, Society) Berbantuan Media Video Terhadap Pemahaman Konsep Siswa. *Prosiding Seminar Nasional Pendidikan*, 4, p. 119.
- Rosalina, S. S., & Suhardi, A. (2020). Need Analysis of Interactive Multimedia Development with Contextual Approach on Pollution Material. *INSECTA: Integrative Science Education and Teaching Activity Journal*, 1(1), 93-108.
- Rustamana, A., Suandi, M., Rahma, Z. S., & Nugroho, E. (2023). Pengembangan dan Pemanfaatan Media Cetak: Modul, Hand Out, dan LKS dalam Pembelajaran. *Sindoro: Cendikia Pendidikan*, 1(8), 104.
- Sahania, A. (2020). Pengaruh Model Pembelajaran Guided Inquiry Berbasis Pendekatan SETS (Science Environment Technology and Society) untuk Meningkatkan Kemampuan Berpikir Kritis Siswa pada Materi Usaha dan Energi. In *Doctoral Dissertation*. UIN Raden Intan Lampung.
- Saleh, M. R. (2020). *Menghijaukan HAM*. Jakarta Timur: Rayyana Komunikasindo.
- Sanny, T. A. (2024). Sejarah bumi dan masa depan kehidupan kita. *JURNAL 'ULŪM AL-QUR'ĀN: Ilmu Pengetahuan dan Masyarakat Madani*, 1(1), 85-94.

- Sari, E., Ramadansur, R., Putri, R. M., Awal, R., & Sari, M. (2022). Pengaruh Penerapan Model SETS (Science, Environment, Technology, and Society) Melalui Media OBS (Open Broadcaster Software) Studio pada Pembelajaran Ekosistem Terhadap Hasil Belajar Siswa Kelas X SMAN 16 Pekanbaru. *BIO-Lectura: Jurnal Pendidikan Biologi*, 9(2), 211.
- Schipper, E. L., Dubash, N. K., & Mulugetta, Y. (2021). Climate Change Research and the Search for Solutions: Rethinking Interdisciplinarity. *Climatic Change*, 168(18).
- Serevina, V., & Hamidah, I. (2022). Science, Technology, Engineering, and Math (STEM) Based Geothermal Energy Source Digital Module Assisted by Canva Application. *Journal of Physics: Conference Series*, 2377, 1.
- Serevina, V., & Lestari, M. A. (2021). Development Device Learning Online Use Model Inquiry Learning on Theory the Balance of Tough Things. *Journal of Physics: Conference Series*, 1876, 1.
- Serevina, V., Nugroho, D. A., & Lipikuni, H. F. (2022). Improving the Quality of Education Through Effectiveness of E-Module Based on Android for Improving the Critical Thinking Skills of Students in Pandemic Era. *Malaysian Online Journal of Educational Management (MOJEM)*, 10(1), 4.
- Shakeel, S. I., Al Mamun, M. A., & Haolader, M. F. (2023). Instructional Design with ADDIE and Rapid Prototyping for Blended Learning: Validation and its Acceptance in the Context of TVET Bangladesh. *Education and Information Technologies*, 28(6), 7605.
- Sidiq, R., Najuah, Syarifah, & Saragih, A. (2023). Development of Interactive E-Modules Based on Animated Videos to Improve Critical Thinking Skills In History Learning Media Courses. *International Journal of Educational Research & Social Sciences*, 4(5), 954.
- Sitompul, B. (2022). Kompetensi Guru dalam Pembelajaran di Era Digital. *Jurnal Pendidikan Tambusai*, 6(3), 13953-13960.
- Spatioti, A. G., Kazanidis, I., & Pange, J. (2022). A Comparative Study of the ADDIE Instructional Design Model in Distance Education. *Information*, 13(9), 2-3.
- Subaidi, Sudarmaji, Nasuka, M., & Munasir. (2021). The Implementation of Human Resource Management in Improving the Quality of Teacher's Learning. *Nidhomul Haq: Jurnal Manajemen Pendidikan Islam*, 6(3), 580.
- Sugiyono. (2022). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Syahfitri, J., & Safitri, D. (2024). The Effect of Digital-Based Interactive Modules to Improve Student's Critical Thinking Skills and Learning Motivation on Biology Learning. *Jurnal Penelitian Pendidikan IPA*, 10(5), 2496.

- Tarumingkeng, R. C. (2024). *Pengaruh Perubahan Iklim Pada Pola Cuaca*. Bogor: RUDYCT e-PRESS.
- Tosepu, R. (2019). *Analisis Kualitas Lingkungan*. Kabupaten Ponorogo: Uwais Inspirasi Indonesia.
- Vembriarto. (1981). *Pengantar Pengajaran Modul*. Yogyakarta: Yayasan Pendidikan Paramita.
- Wibowo, F. C., & Nasbey, H. (2024). Interactive Digital Modul Physics (IDMP) Berbasis Inquiry pada Konsep Energi Alternatif. *Prosiding Seminar Nasional Fisika (E-Journal)*, 12, p. 190.
- Yevira, R., Yustina, & Yennita. (2023). Development of SETS (Science Environment Technology and Society) Based E-Modules on Environmental Pollution Materials to Increase Learning Interest and Critical Thinking Ability. *Jurnal Penelitian Pendidikan IPA*, 9(8), 6307.
- Yuliatun, T., Putranta, H., & Uskenat, K. (2024). Development of Natural Sciences E-Modules Based on Android with a Science, Environment, Technology, and Society Approach in the Earth Structure Chapter. *Revista Mexicana de Física E*, 21(1), 2.

