

## DAFTAR PUSTAKA

- Afriana, J, Anna P, Any F. (2016). Penerapan Project Based Learning Terintegrasi STEM untuk Meningkatkan Literasi Sains Siswa Ditinjau dari Gender. *Jurnal Inovasi Pendidikan IPA*, 2 (2), 2016, 202 – 212
- Ahmad, S. Z. dan Arifin, A.M. (2015). Exploring Computer Assisted Learning for Low Achieving Children: A Comparative Analysis Study. *Jurnal Teknologi (Sciences & Engineering)*, 77(29) , 1–7
- Ahmadi, I. K., Amri, S., & Elisah, T. (2011). *Learning strategies integrated school*. Jakarta: Prestasi Pustaka.
- Andriani, R. dan Rasto. (2019). Motivasi belajar sebagai determinan hasil belajar siswa. *Jurnal Pendidikan Manajemen Perkantoran* , 4(1), 80-86.
- Arias, et al. (2016). Teachers' use of educative curriculum materials to engage students in science practices. *International Journal of Science Education*, 39(9), 1504-1526.
- Aziz, A. A., Yusof, K. M., & Yatim, J. M. (2012). Evaluation on the Effectiveness of Learning Outcomes from Students' Perspectives. *Procedia-Sosial and Behavioral Sciences*, 56, 22-30.
- Aziz, N., Eshak, N. R., & Mutalib, A. A. (2011). Assistive courseware for the visually impaired based on theory of multiple intelligence and SECI model. *American Journal of Economics and Business Administration*, 3(1), 150-156. doi: 10.3844/ajebasp.2011.150.156.
- Baharuddin dan Juhriyansyah D. (2017). Interactive Courseware for Supporting Learners Competency in Practical Skills. *TOJET: The Turkish Online Journal of Educational Technology* – July 2017, volume 16 issue 3, 88-99.
- Bahtiar, E. (2016). Penulisan Bahan Ajar. Conference Paper · October 2015 <https://www.researchgate.net/publication/283042709>
- Bakırcı, H dan Dilek K. (2017). Investigating the Preservice Primary School, Mathematics and Science Teachers' STEM Awareness. *Journal of Education and Training Studies*, 6(1), 32-42.
- Becker, K. dan Kyungsuk P. (2011). Effects of integrative approaches among science, technology, engineering, and mathematics (STEM) subjects on students' learning: A preliminary meta-analysis, *Journal of STEM Education* , 12(5 dan 6), 23-37.

- BSNP. (2010). Paradigma Pendidikan Nasional Abad XXI.
- Capobianco, B, M., Diefes-Dux, H. A., Mena, I., & Weller, J. (2011). What is an engineer? Implications of elementary school student conceptions for engineering education. *Journal of Engineering Education*, 100(2), 304-328
- Carberry, A.R. dan Ann F., (2014). Exploring Student Conceptions of Modeling and Modeling Uses in Engineering. *Design*. 103(1), 77-91.
- Churcill, D. (2011). Conceptual model learning objects and design recommendations for small screens. *Journal of Educational Technology & Society*, 14(1), 203–216.
- Dermawan, dkk. (2019). Microsoft Visual Basic 6.0 Software to Develop Mathematics Teaching Materials. *IOP Conf. Series: Journal of Physics: Conf. Series 1155 (2019) 012090*
- Devi, dkk. (2018). *Materi Bimbingan Teknis Pembelajaran berbasis STEM dalam Kurikulum 2013 STEM*. Jakarta: Kemdikbud.
- DiFrancesca et.al. (2014). Where Is the “E” in STEM for Young Children? Engineering Design Education in an Elementary Teacher Preparation Program. *Spring*, 23(1), 49-64.
- Ejiwale, J. (2013). Barriers to successful implementation of STEM education. *Journal of Education and Learning*. 7 (2), 63-74.
- Ejiwale, J.A. (2012). Facilitating Teaching and Learning Across STEM Fields. *Journal of STEM Education*, 13(3), 87-94.
- EL-Deghaidy, dkk. (2017). Context of STEM Integration in Schools: Views from Inservice Science Teachers. *EURASIA Journal of Mathematics Science and Technology Education*, 13(?), 1-26.
- El-Deghaidy, H dan Nasser, M. (2015). Science Teachers’ Perceptions of STEM Education: Possibilities and Challenges. *International Journal of Learning and Teaching*, 1(1), 51-54.
- Goovaerts, L, dkk. (2019). A Concrete Proposal to Introduce Control Theory to 16 Year Old Pupils. *European Journal of STEM Education*, 4(1), 1-11.
- Hamzah, A. (2019). *Metode Penelitian dan Pengembangan*. Malang: Literasi Nusantara.
- Hartini, Dinda, dan Abdul, (2020). Developing High School Physics Teaching Materials Through 7e Learning Cycle Model. *Journal of Physics:*

*Conference Series 1422 (2020) 012032 IOP Publishing doi:10.1088/1742-6596/1422/1/012032 1*

- Hersandi, Mahardika, dan Nuriman. (2017). Pengembangan Bahan Ajar Lembar Kerja Siswa (LKS) dalam Bentuk Brosur untuk Pembelajaran IPA di SMP Ditinjau dari Aspek Kegrafikaannya. *Jurnal Pembelajaran dan Pendidikan Sains*, 2(1), 57-64.
- Hisbullah dan Nurhayati S. (2018). *Pembelajaran Ilmu Pengetahuan Akam di Sekolah Dasar*. Makasar: Aksara Timur.
- Khairiyah, N. (2019). *Pendekatan Science, Technology, Engineering dan Mathematics (STEM)*. Bogor: Guepedia.
- Khusniati, M. (2012). Pendidikan Karakter Melalui Pembelajaran IPA. *Jurnal Pendidikan IPA Indonesia*, 1(2), 204–210
- Khusniati, M. (2013). Model Pembelajaran Sains Berbasis Kearifan Lokal Dalam Menumbuhkan Karakter Konservasi. *Indonesian Journal of Conservation*, 3 (1), 67—74.
- Kpolovie, P. J., Joe, A. I., & Okoto, T. (2014). Academic achievement prediction: Role of interest in learning and attitude towards school. *International Journal of Humanities Sosial Sciences and Education (IJHSSE)*, 1(11), 73-100.
- Listyawati, M. (2012). Pengembangan Perangkat Pembelajaran IPA Terpadu Di SMP. *Journal Of Innovative Science Education*, 1(1), 61–69
- Listyawati, Suarjana , dan Sudana. (2013). Pengaruh Model Pembelajaran Kuantum Berbantuan Peta Pikiran Terhadap Kemampuan Berpikir Kritis Siswa pada Pembelajaran IPA Kelas V SD. *Mimbar PGSD UNDIKSHA*, 1(1), 1-10.
- Litbang Kemdikbud. (2013). *Kurikulum 2013: Pergeseran Paradigma Belajar Abad-21*. Retrieved September 29, 2015, from <http://litbang.kemdikbud.go.id/index.php/index-berita-kurikulum/243-kurikulum-2013-pergeseran-paradigma-belajar-abad-21>
- Marzouk et.al. (2016). What if learning Analytics were Bades on Learning Science. *Australasian Journal of Educational Technology*, 32(6).
- Meyrick, K. (2011). How STEM Education Improves Student Learning. *School Computer Technologies Journal*, 14(1), 1-5.
- National Governors Association. (2010). Common Core State Standards for

- mathematics. Washington, DC: Authors. Retrieved from <http://www.corestandards.org/Math/Practice>
- Next Generation Science Standards. (2013). *Next Generation Science Standards: For states, by states, next generation science standards*. Retrieved from <http://www.nextgenscience.org/next-generation-science-standards>
- Nichols, Jennifer. (2018). *4 Essential Rules of 21st Century Learning*. [Online]. Tersedia di: <http://www.teachthought.com/learning/4-essential-rules-of-21stcentury-learning/>. Diakses 8 Oktober 2020.
- Noel, L.A. (2017). Using Design Thinking to Create a New Education Paradigm for Elementary Level Children for Higher Student Engagement and Success. *Desain and Technology Education: An International Journal*, 22(1), 1-12.
- Ong E.T., dkk. (2016). The Effectiveness Of An In-Service Training Of Early Childhood Teachers On Stem Integration Through Project-Based Inquiry Learning (PIL). *Journal Of Turkish Science Education*, 3(1), 44-58.
- Pamungkas, G. H., Harjono, N., & Airlanda, G. S. (2019). Peningkatan Proses dan Hasil Belajar IPA Kelas 5 Tema 6 Subtema 3 dengan Model Pembelajaran Discovery Learning. *Jurnal Basicedu*, 3(1), 43-46.
- Pangesti K.I., Dwi Y., dan Sugianto. (2017). Bahan Ajar Berbasis STEM (Science, Technology, Engineering, and Mathematics) untuk Meningkatkan Penguasaan Konsep Siswa SMA. *Unnes Physics Education Journal*, 6(3), 53-58.
- Rahmatina, C.A., Misbahul J., dan Fera A. (2020). Pengembangan bahan ajar berbasis science, technology, engineering, and mathematics (STEM). *Jurnal Pendidikan Fisika dan Fisika Terapan*, 1 (4), 2020, hal. 20-26.
- Remillard J.T. & Heck, D. (2014). Conceptualizing The Curriculum Enactment Process in Mathematics Education. *ZDM The International Journal on Mathematics Educations*, 465(5), 705-718.
- Ridwan, Rahmawati, dan Triyatma. (2017). STEM Integration in Chemistry Learning for Developing 21<sup>st</sup> Century Skills. *MIER Journal of Educational Student*, 7(12), 184-194.
- Rizal. (2014). Pengaruh pembelajaran inkuiri terbimbing dengan mind map terhadap keterampilan proses sains dan hasil belajar IPA. *Jurnal Pendidikan Sains*, 2(4), 159–165.
- Roberts, A. (2012). A justification for STEM education. *Technology and Engineering Teacher*, 74(8), 1-5.



- Rolisca, R.U.C dan Bety N.A. (2014). Pengembangan Media Evaluasi Pembelajaran dalam Bentuk Online Berbasis E-Learning Menggunakan Software Wondershare Quiz Creator dalam Mata Pelajaran Akuntansi SMA Brawijaya Smart School (BSS). *Jurnal Pendidikan Akuntansi Indonesia*, 12(1), 41-48.
- Rusyati, Anna P., dan Didit A. (2019). Rekonstruksi Bahan Ajar Berbasis Stem Untuk Meningkatkan Literasi Sains Dan Teknologi Siswa Pada Konsep Kemagnetan. *Journal of Science Education And Practice*, II (2), hlm. 10-22.
- Sahali, dkk. (2015). Bitara-Stemtm Training Of Trainers' Programme: Impact On Trainers' Knowledge, Beliefs, Attitudes And Efficacy Towards Integrated Stem Teaching. *Journal of Baltik Science Education*, (p. 85-95)
- Sahin, E dan Bekir Y. (2019). The Development and Validation of Turkish Version of the Elementary Teachers' Efficacy and Attitudes towards STEM (ET-STEM) Scale. *Journal of Education in Science, Environment and Health*, 5(1), 12-35.
- Saleha. (2019). *STEM Menjawab Tantangan Abad 21*. Batu: CV. Beta Aksara.
- Saman, I, dkk. (2019). Eksplorasi Literasi Teknologi Informasi dan Komunikasi Siswa melalui Blended Learning Fisika. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, 4(1), 79—84.
- Sanders, M. (2009) STEM, STEM education, STEMmania. *The Technology Teacher*, 68(4). 20-26.
- Sardinah, Tursinawati, dan Anita N. (2012). Relevansi Sikap Ilmiah Siswa Dengan Konsep Hakikat Sains Dalam Pelaksanaan Percobaan pada Pembelajaran IPA di SDN Kota Banda Aceh. *Jurnal Pendidikan Serambi Ilmu*, Edisi September 2012, Volume 13 Nomor 2 70-80
- Sari, Abdurahman, dan Jalmo. (2020). The prospective science teaching material based on Integrated-STEM approach: Analysis of teachers and students expectations. *Journal of Physics: Conference Series* 1572 (2020) 012084 doi:10.1088/1742-6596/1572/1/012084
- Sari, N, Mohamad S., dan Ishak G. (2018). The Development of Science Teaching Materials Based on STEM to Increase Science Literacy Ability of Elementary School Students. *International Journal of Advances in Scientific Research and Engineering (ijasre)*, 4(7), 161-169.
- Sheldrake\*, R., Tamjid M., dan Michael J. (2017). Science teaching and students' attitudes and aspirations: The importance of conveying the applications and relevance of science. *International Journal of Educational*

*Research*, 85, 167-183.

- Shernoff et.al. (2017). Assessing Teacher Education and Professional Development needs for the Implementation to STEM Education. *International Journal of STEM Education*, 4(13).
- Sitohang, R. (2014). Mengembangkan Bahan Ajar Dalam Pembelajaran Ilmu Pengetahuan Sosial (IPS) di SD. *Jurnal Kewarganegaraan*, 23(2).
- Slavit, D, Tamara, H. N., dan Kristin L. (2016). The teachers' role in developing, opening, and nurturing an inclusive STEM-focused school. *International Journal of STEM Education*, 3(7), 1-17.
- Stohlmann, M. (2020). STEM Integration for High School Mathematics Teachers. *Journal of Research in STEM Education*, 6(1), 52-63.
- Sudjana, N. (2010). *Penilaian Hasil Belajar*. Jakarta: PT. Rajawali Press.
- Sudjana, Nana dan Rivai Ahmad. (2011). *Media Pengajaran*. Bandung: Sinar Baru Algensindo
- Sugianto, S.D., Mochammad, A., Puspita, W.H. dan Wulandari, A.Y.R., (2018). Pengembangan Modul IPA Berbasis Proyek Terintegrasi STEM pada Materi Tekanan. *Journal of Natural Science Education Research*, Volume. 1(1).
- Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Sukardi. (2018). *Metodologi Penelitian Pendidikan*. Jakarta: Bumi Aksara.
- Sulistiyorini, Sri. (2007). *Model Pembelajaran IPA Sekolah Dasar*. Yogyakarta: UNNES dan Tiara Wacana
- Susiani, K., Dantes, N., & Tika, N. (2013). Pengaruh Model Pembelajaran Quantum Terhadap Kecerdasan Sosio-Emosional dan Prestasi Belajar Ipa Siswa Kelas V SD di Banyuning. *Jurnal Pendidikan Dasar*, 3(13).
- Tegeh, M dan Made. (2013). Pengembangan Bahan Ajar Metode Penelitian Pendidikan Dengan Addie Model. *Jurnal IKA*, 11(1), 12-26.
- Valentina, Dindin, dan Edi. (2018). Mobil Bertenaga Angin : Media Berbasis STEM untuk Siswa Kelas IV Sekolah Dasar. *Pedagogika: Jurnal Ilmiah Pendidikan Guru Sekolah Dasar*, 5(3), 152-162.
- Wedyawati, N. dan Yasinta L. (2018). *Pembelajaran IPA DI Sekolah Dasar*.

Yogyakarta: Deepublish.

Widoyoko, E. P. (2016). *Evaluasi Program Pembelajaran*. Yogyakarta: Pustaka Pelajar.

Yuanita dan Feni K. (2019). Pengembangan Bahan Ajar Berbasis Stem (Science, Technology, Engineering, And Mathematics) Materi Kelistrikan Untuk Sekolah Dasar. *Jurnal Profesi Pendidikan Dasar*, VI (2), hlm. 199-210.

Zeid, I, dkk. (2014). Engineering Based Learning: A Paradigm Shift for High School STEM Teaching. *International Journal Of Engineering Education*, 30(4), 876-887.

Zulaiha, A. S., & Mutalib, A. A. (2015). Preliminary study: An investigation on learning assistance requirement among low achievers in primary schools. *International Journal of Computer Application*, 114(2), 48-54. doi. 10.5120/19954-1783

