

## DAFTAR PUSTAKA

- Ahmar, A., & Rahman, A. (2017). Development of teaching material using an Android. *Global Journal of Engineering Education*, 19(1).
- Amir, M. F., Hasanah, F. N., & Musthofa, H. (2018). Interactive Multimedia Based Mathematics Problem Solving to Develop Student s' Reasoning. *Int. J. Eng. Technol*, 7(2.14), 272-276.
- Anitah, S. (2012). *Media Pembelajaran*. Surakarta: Yuma Pustaka.
- Arda, A. (2015). Pengembangan media pembelajaran interaktif berbasis komputer untuk siswa SMP Kelas VIII. *Mitra Sains*, 3(1), 153834.
- Ariani, N., & Dany, H. (2010). *Pembelajaran Multimedia di Sekolah*. Jakarta: Prestasi Pustakarya.
- Arikunto, S. (2012). *Dasar – Dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara.
- Arsyad, A. (2017). *Media Pembelajaran*. Jakarta: Raja Grafindo Persada.
- Ayuningtyas, F. B., & Rinawati, W. (2020, January). The development of interactive android-based learning multimedia on the beef and its processing results course. In *Journal of Physics: Conference Series* (Vol. 1446, No. 1, p. 012067). IOP Publishing.
- Branch, R. M. (2009). *Instructional design: The ADDIE approach* (Vol. 722). Springer Science & Business Media.
- Budiman, A., Triono., & Desy, A. (2014). Aplikasi Interaktif Pengenalan Pahlawan Revolusi Indonesia Berbasis Multimedia (Studi Kasus di MI AL-GINA). *Jurnal Sisfotek Globa*, 4(2), 36-40.
- Chang, C. C., Liang, C., Chou, P. N., & Lin, G. Y. (2017). Is Game-Based Learning Better in Flow Experience and Various Types of Cognitive Load Than Non-Game-Based Learning? Perspective From Multimedia and Media Richness. *Computers in Human Behavior*, 71, 218-227.
- Chang, R. (2013). *Kimia Dasar*. Jakarta: Erlangga.
- Ciampa, K. (2013). Learning In A Mobile Age: An Investigation of Student Motivation. *Journal of Computer Assisted Learning*, 30(1), 82-96.
- Dhevi, D., Rondhi, M., & Nugrahani, R. (2013). Multimedia Pembelajaran Interaktif Pengenalan Angka dan Huruf. *Journal of Visual Art*. 2(1).

- Dimiyati., & Mudjiono. (2013). *Belajar dan Pembelajaran*. Jakarta: PT Rineka Cipta.
- Domagk, S., Schwartz, R. N., & Plass, J. L. (2010). Interactivity in multimedia learning: An integrated model. *Computers in Human Behavior*, 26(5), 1024-1033.
- Domingo, M. G., & Garganté, A. B. (2016). Exploring the use of educational technology in primary education: Teachers' perception of mobile technology learning impacts and applications' use in the classroom. *Computers in Human Behavior*, 56, 21-28.
- Erhel, S., & Jamet, E. (2013). Digital game-based learning: Impact of instructions and feedback on motivation and learning effectiveness. *Computers & education*, 67, 156-167.
- Fajrina, W., Nurfajriani., & Simorangkir, M. (2018, December). Developing Interactive Computer Based Learning Media of Lectora Inspire to Enhance Conceptual Skills of Senior High Schools Students. In *3rd Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2018)*. Atlantis Press.
- Fauzia, E. (2017). The Development Of SABC (Solve Acid Base Case) Game Oriented Android As Intructional Media Acid Base For Eleventh Grade Senior High School. *UNESA Journal of Chemical Education*, 6(2).
- FIGUEIREDO, M., SOLMAZ, A., & RODRIGUES, J. (2016). AN INTERACTIVE APP FOR STEM LEARNING IN MOBILE DEVICES. *The Eurasia Proceedings of Educational and Social Sciences*, 4, 465-470.
- Firly, N. (2019). *Android Application Development for Rookies with Database*. Jakarta: PT Alex Media Komputindo.
- Fitria, W. D., & Lutfi, A. (2018). Development Of Wind's Maze Chemistry Game Based On Android As A Learning Media On Hydrocarbon Matter For Eleventh Grade Senior High School. In *Seminar Nasional Kimia-National Seminar on Chemistry (SNK 2018)*. Atlantis Press.
- Furió, D., González-Gancedo, S., Juan, M. C., Seguí, I., & Costa, M. (2012). The effects of the size and weight of a mobile device on an educational game. *Computers & Education*, 64, 24-41.
- Furió, D., Juan, M. C., Seguí, I., & Vivó, R. (2015). Mobile Learning VS. Traditional Classroom Lessons: A Comparative Study. *Journal of Computer Assisted Learning*, 31(3), 189-201.

- Gunawan, G., Mashami, R. A., & Herayanti, L. (2020). Gender Description on Problem-Solving Skills in Chemistry Learning Using Interactive Multimedia. *Journal for the Education of Gifted Young Scientists*, 8(1), 561-579.
- González, M. Á., González, M. Á., Martín, M. E., Llamas, C., Martínez, Ó., Vegas, J., & Hernández, C. (2017). Teaching and learning physics with smartphones. In *Blended Learning: Concepts, Methodologies, Tools, and Applications* (pp. 866-885). IGI Global.
- Hake, R. (1998). Interactive-engagement Versus Traditional Method: A Six-Thousand-Student Survey of Mechanics Test Data for Introductory Physics Courses. *American Journal of Physics*, 66(1), 64-74.
- Hanafi, H. F., & Samsudin, K. (2012). Mobile Learning Environment System (MLES): The Case of Android-Based Learning Application on Undergraduates' Learning. *arXiv preprint arXiv:1204.1839*.
- Hansun, s., Marcel, B. K., & Michael, W. S. (2018). *Pemrograman Android dengan Android Studio*. Yogyakarta: ANDI.
- Hsiao, C. C., Tiao, M. M., & Chen, C. C. (2016). Using interactive multimedia e-Books for learning blood cell morphology in pediatric hematology. *BMC medical education*, 16(1), 290.
- Heinich, R., Molenda, M., & Russel, J. D. (2007). *Instructional Media And Technology for Learning*. New Jersey: Prentice Hall, Inc.
- Huda, M. (2011). *Cooperative Learning: Metode, Teknik, Struktur, dan Model Penerapan*. Yogyakarta: Pustaka Pelajar.
- Husein, S., Harjono, A., & Wahyuni, S. (2019, June). Problem-Based Learning with Interactive Multimedia to Improve Students' Understanding of Thermodynamic Concepts. In *Journal of Physics: Conference Series*, 1233(1), 12-28. IOP Publishing.
- Indria, E., Sitorus, M., & Muchtar, Z. (2018, December). The Influence of Learning Model Oriented Analogy on Material Acid and Based Towards Learning Outcomes. In *3rd Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2018)*. Atlantis Press.
- Kennedy, G. (2004). Promoting cognition in multimedia interactivity research. *Journal of Interactive Learning Research*, 15(1), 43-61.

- Leow, F. T., & Neo, M. (2014). Interactive multimedia learning: Innovating classroom education in a Malaysian university. *Turkish Online Journal of Educational Technology-TOJET*, 13(2), 99-110.
- Lee, T. T., & Osman, K. (2012). Interactive multimedia module in the learning of electrochemistry: effects on students' understanding and motivation. *Procedia-Social and Behavioral Sciences*, 46, 1323-1327.
- Liu, M., Horton, L., Olmanson, J., & Toprac, P. (2011). A study of learning and motivation in a new media enriched environment for middle school science. *Educational technology research and development*, 59(2), 249-265.
- Mardhani, E. (2010). Manfaat Penyuluhan Dengan Media Buku Saku Dalam Upaya Meningkatkan Pengetahuan Remaja Tentang Keamanan Pangan Di SMA Negeri Colomadu. Skripsi. Surakarta: UNS.
- Martono, K. T., & Nurhayati, O. D. (2014). Implementation of Android Based Mobile Learning Application As A Flexible Learning Media. *International Journal of Computer Science Issues (IJCSI)*, 11(3), 168.
- Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record*, 115(3), 1-47.
- Muchtar, Z., Rosalia, A. V. A., & Silaban, S. (2019). Implementation of dubido based on contextual in improving students achievement on rate reaction. In *Journal of Physics: Conference Series* (Vol. 1462, p. 012053).
- Munadi, Y. (2012). *Media Pembelajaran*. Jakarta: Gaung Persada Press.
- Munir. (2010). *Kurikulum Berbasis Teknologi Informasi dan Komunikasi*. Bandung: Alfabet.
- Munthe, E. A., Silaban, S., & Muchtar, Z. (2019). Discovery learning based e-module on protein material development. In *4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019)*. Atlantis Press.
- Novaliendry, D. (2013). Aplikasi Game Geografi Berbasis Multimedia Interaktif (Studi Kasus Siswa Kelas IX SMPN 1 Rao). *Jurnal Teknologi Informasi & Pendidikan*, 6(2), 106-118.
- Neo, M., Neo, T. K., & Tai, X. L. (2007). A constructivist approach to learning an interactive multimedia course: Malaysian students' perspectives. *Australasian Journal of Educational Technology*, 23(4).

- Peraturan Menteri Pendidikan dan Kebudayaan Republik Indonesia. Nomor 36 tahun 2018. Perubahan Atas Peraturan Menteri Pendidikan Dan Kebudayaan Nomor 59 Tahun 2014 Tentang Kurikulum 2013 Sekolah Menengah Atas/Madrasah Aliyah. Ditetapkan di Jakarta pada tanggal 20 Desember 2016.
- Purwanto. (2011). *Evaluasi Hasil Belajar*. Yogyakarta: Pustaka Pelajar.
- Purwanto, S., Rahmawati, H., & Tharmizi, A. (2013). Mobile Searching Objek Wisata Pekanbaru Menggunakan Location Base Service (LBS) Berbasis Android. *Jurnal. Politeknik Caltex Riau*, 1, 177.
- Putra, I. E. (2013). Teknologi Media Pembelajaran Sejarah melalui Pemanfaatan Multimedia Animasi Interaktif. *Jurnal TEKNOIF*, 1(2).
- Rahmawati, L., Supardi, K. I., & Sulistyaningsih, T. (2018). Contextual Teaching and Learning Integrated with Character Education to Improve Student's Motivation and Character in Concentration of Solutions Topic at Pharmacy Vocational School. *Journal of Innovative Science Education*, 7(2), 484-492.
- Ramdhani, M. A., & Wulan, E. R. (2012). The Analysis of Determinant Factors in Software Design for Computer Assisted Instruction. *International Journal of Scientific & Technology Research*, 1(8), 69-73.
- Ramdhani, M. A., & Muhammadiyah, H. (2015). The Criteria of Learning Media Selection for Character Education in Higher Education.
- Ramud, N. A., Muchtar, Z., & Hutabarat, W. (2018, December). The Development Of Flash Program Based Mobile Learning (M-Learning) On Colloidal System Material. In *3rd Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2018)*. Atlantis Press.
- Ratnaningtyas, L., Wilujeng, I., & Kuswanto, H. (2019). Android-based Physics Comic Media Development on Thermodynamic Experiment for Mapping Cooperate Attitude for Senior High School. In *Journal of Physics: Conference Series* (Vol. 1233, No. 1, p. 012054). IOP Publishing.
- Richey., Rita, C., Klein. (2007). *Design and Development Research*. London. Lawrence Erlbaum Associates. Inc.
- Rusli, M., Dadang, H., & Ni, N. S. (2017). *Multimedia Pembelajaran Yang Inovatif Prinsip Dasar & Model Pengembangan*. Yogyakarta: ANDI.
- Safaat, N. H. (2012). *Android Pemrograman Aplikasi Mobile Smartphone dan Tablet PC Berbasis Android*. Bandung: Informatika.

- Sahronih, S., Purwanto, A., & Sumantri, M. S. (2020). The effect of use interactive learning media environment-based and learning motivation on science learning outcomes. *International Journal for Educational and Vocational Studies*, 2(3).
- Santi, N., Muchtar, Z., & Sudrajat, A. (2019). Developing Mobile Learning Media Integrated of Problem Based Learning In Chemical Equilibrium Materials at Unimed Chemical Education Study Program. In *4th Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2019)*. Atlantis Press.
- Sardiman, A. M. (2018). *Interaksi Motivasi Belajar Mengajar*. Jakarta: Rajawali Pres.
- Sari, S., Anjani, R., Farida, I., & Ramdhani, M. A. (2017, September). Using android-based educational game for learning colloid material. In *Journal of Physics: Conference Series* (Vol. 895, No. 1, p. 012012). IOP Publishing.
- Sarrab, M., Elgamel, L., & Aldabbas, H. (2012). Mobile learning (m-learning) and educational environments. *International journal of distributed and parallel systems*, 3(4), 31.
- Satyaputra., & Aritonang. (2014). *Beginning Android Programming with ADT Budle*. Jakarta: Elex Media Komputindo.
- Schwartz, R. N., & Plass, J. L. (2014). Click versus drag: User-performed tasks and the enactment effect in an interactive multimedia environment. *Computers in Human Behavior*, 33, 242-255.
- Setiawan, E. B., & Angga, T. R. (2019). *Membangun Aplikasi Android, Web dan Web Service*. Bandung: Informatika Bandung.
- Setyosari, P. (2012). *Metode Penelitian Pendidikan dan Pengembangan*. Jakarta: Prenada Media Group.
- Sheeba, M. T., & Begun, S. H. (2018). Comparative Study of Developing Interactive Multimedia Applications Using Adobe Flash and HTML/CSS. *International Journal of Advanced Research in Computer Science and Electronic Engineering*, 8(5), 1-5.
- Sholikhakh, R. A., & Waluya, S. B. (2012). PENGEMBANGAN PERANGKAT PEMBELAJARAN BERACUAN KONSTRUKTIVISME DALAM KEMASAN CD INTERAKTIF KELAS VIII MATERI GEOMETRI DAN PENGUKURAN. *Unnes Journal of Mathematics Education Research*, 1(1).

- Simaremare, S. (2019). Pengembangan Bahan Ajar Inovatif Menggunakan Multimedia Berbasis Proyek Untuk Pengajaran Kesetimbangan Asam-Basa. Master Tesis. Medan: UNIMED.
- Siregar, H. (2019). Pengembangan Multimedia Pembelajaran Interaktif dengan Menggunakan Program Adobe Flash Berbasis Problem Based Learning untuk Meningkatkan Motivasi dan Hasil Belajar Siswa Pada Materi Hidrolisis Garam. Tesis. Medan: UNIMED.
- Situmorang, M., Sitorus, M., Hutabarat, W., & Situmorang, Z. (2015). The Development of Innovative Chemistry Learning Material for Bilingual Senior High School Students in Indonesia. *International Education Studies*, 8(10), 72-85.
- Sousa Lima, M. A., Monteiro, Á. C., Melo Leite Junior, A. J., de Andrade Matos, I. S., Alexandre, F. S. O., Nobre, D. J., ... & da Silva Júnior, J. N. (2019). Game-Based Application for Helping Students Review Chemical Nomenclature in a Fun Way.
- Su, C. H., & Cheng, C. H. (2015). A mobile gamification learning system for improving the learning motivation and achievements. *Journal of Computer Assisted Learning*, 31(3), 268-286.
- Sudarmo, U. (2013). *Kimia Untuk SMA/MA Kelas XI Kelompok Peminatan dan Ilmu Alam*. Erlangga: Jakarta.
- Sudrajat, A., (2013). *Pengembangan Perangkat Asesmen Kompetensi Praktikum Kimia Analitik Dasar Berbasis Task With Student Direction (TWSD) Bagi Mahasiswa Calon Guru*. Disertasi, Bandung: UPI.
- Sugiharti, G. (2014). *Evaluasi dan Penilaian Hasil Belajar Kimia*. Medan: UNIMED Press.
- Sugiyono. (2013). *Metode Penelitian Kuantitatif, Kualitatif dan R & D*. Bandung: Alfabeta.
- Sukmadinata, N.S. (2013). *Metode Penelitian Pendidikan*. Bandung: PT Remaja Rosdakarya.
- Susanto, A. (2013). *Teori Belajar dan Pembelajaran Di Sekolah Dasar*. Jakarta: Kencana Prenadamedia Group.
- Tamhane, K. D., Khan, W. T., Tribhuwan, S. R., Burke, A. P., & Take, S. B. (2015). Mobile learning application. *International Journal of Scientific and Research Publications*, 5(3), 1-4.

- Taufiq, M., Amalia, A. V., Parmin, P., & Leviana, A. (2016). Design Of Science Mobile Learning of Eclipse Phenomena With Conservation Insight Android-Based App Inventor 2. *Jurnal Pendidikan IPA Indonesia*, 5(2), 291-298.
- Vo, H. M., Zhu, C., & Diep, N. A. (2017). The effect of blended learning on student performance at course-level in higher education: A meta-analysis. *Studies in Educational Evaluation*, 53, 17-28.
- Widiyatmoko, A. (2012). Pengembangan perangkat pembelajaran IPA Fisika dengan pendekatan physics-edutainment berbantuan CD pembelajaran interaktif. *Journal of Primary Education*, 1(1).
- Yuliani, E., Sari, S., Windayani, N., & Sobandi, O. (2018, December). Android-based multimedia for learning acid and base. In *International Conference on Mathematics and Science Education of Universitas Pendidikan Indonesia* (Vol. 3, pp. 309-313).
- Zheng, Z., Cheng, J., & Peng, J. (2015). Design and implementation of teaching system for mobile cross-platform. *International Journal of Multimedia and Ubiquitous Engineering*, 10(2), 287-296.