

## DAFTAR PUSTAKA

- Ardac, D., & Akaygun, S. (2004). Effectiveness of multimedia-based instruction that emphasizes on student' understanding of chemical change. *Journal of Research In Science Teaching*, 41(4), 317-337.
- Arikunto, S. (2009). *Dasar-dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara.
- Arsyad, A. (2013). *Media Pembelajaran*. Jakarta: PT Rajagrafindo Persada.
- Bakar, N., Zaman, H. B., Kamalrudin, M., Jusoff, K., & Khamis, Noorli. (2013). An Effective Virtual Laboratory Approach for Chemistry. *Australian Journal of Basic and Applied Sciences*, 7 (3), 78-84.
- Barak, M., & Dori, Y. J. (2005). Enhancing undergraduate students' chemistry understanding through project-based learning in an it environment. *Science Education*. 89 (1), 117-139.
- Borg, W. R., Gall, M. D., & Gall, J. P. (2003). *Educational Research an Introduction 7th edition*. Boston: Pearson Education, Inc.
- Canpolat, N. (2006). Turkish undergraduates' misconceptions of evaporation, evaporation rate, and vapor pressure. *International Journal Science Education*, 28, 1757-1770.
- Canpolat, N., Pinarbasi, T., & Sozlibir, M. (2006). Prospective chemistry teachers' misconceptions of vaporization and vapor pressure. *Journal Chemistry Education*, 83, 1237-1242.
- Chandrasegaran, L. A., Treagust, D., & Mocerino, M. (2007). The development of a two-tier multiple-choice diagnostic instrument for evaluating secondary school students ability to describe and explain chemical reaction using multiple levels of representation. *Chemistry Education Research and Practice*, 8 (3), 293-307.
- Chang, R. (2005). *Chemistry. Eighth Edition*. New York: Mc Graw-Hill.
- Dahar, R.W. (2006). *Teori-Teori Belajar & Pembelajaran*. Jakarta: Erlangga.
- Daryanto. (2010). *Media Pembelajaran*. Yogyakarta: Gava Media
- Depdiknas. (2006). *Pedoman Khusus Pengembangan Silabus dan Penilaian Mata Pelajaran Kimia*. Jakarta: Departemen Pendidikan Nasional.

- Fessenden, R.J. & J.S. Fessenden. (1986). *Kimia Organik Dasar Edisi Ketiga*. Jilid 2. Terjemahan oleh A.H. Pudjaatmaka. Jakarta: Erlangga.
- Firman, H. (2013). *Evaluasi Pembelajaran Kimia*. Bandung: Jurusan Pendidikan Kimia FPMIPA Universitas Pendidikan Indonesia.
- Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2011). *How to Design and Evaluate Research in Education 8<sup>th</sup> ed.* Newyork: Mc.Grawhil.
- Grimaldi, D. & Rapuano, S. (2009). Hardware and software to design virtual laboratory for education in instrumentation and measurement. *Measurement*, 42 (4), 485-493.
- Hendrawan., & Mulyani, S. (2003). *Kimia Fisika II*. Bandung: Jurusan Pendidikan Kimia FPMIPA Universitas Pendidikan Indonesia.
- Herga, N. R., & Dinevski, D. (2012). Virtual Laboratory In Chemistry- Experimental Study of Understanding, Reproduction and Application of Acquired Knowledge of Subject's Chemical Content. *Journal of Management, Informatics and Human Resources*, 45, 108-116.
- Herron, J. D., Cantu, L. L., Ward, R., & Srinivasan, V. (1977). Problems associated with concept analysis. *Journal of Science Education*, 61(2), 185-199.
- Hofstein, A., & Lunetta, V. N. (2003). The laboratory in science education: foundations for twenty-first century. *Science Education*, 88(1), 28-54.
- Johnstone, A. H. (1991). Why is science difficult to learn? things are seldom what they seem. *Journal of Computer Assisted Learning*, 7, 75-83.
- Kamisa. (1997). *Kamus Lengkap Bahasa Indonesia*. Surabaya: Kartika Surabaya
- Kearney, M., & Treagust, D. F. (2001). Constructivism as a referent in the design and development of a computer program which uses interactive digital video to enhance learning in physics. *Australian Journal of Educational Technology*, 17(1), 64-79.
- Luoga, N. E., Ndunguru, P. A., & Mkoma, S. L. (2013). High school student's misconception about colligative properties in chemistry. *Tanzania Journal of Natural & Applied Sciences*, 4(1), 575-581.

- Martin, B. L. & Briggs, L. J. (1986). *The Affective and Cognitive Domains: Integration of Instruction and Research*. New York: Educational Technology Publication.
- Maxwell, J. A. (1996). *Qualitative Research Design: an introduction approach*. London: Sage.
- McMurry, J. & Fay, R. C. (2003). *Chemistry (Fourth Edition)*. New York: Pearson Prentice Hall.
- Minium, E. W., King, B. M., & Bear, G. (1970). *Statistical Reasoning in Psychology and Education*. Canada: Wiley.
- Morozov, M., Tanakov, A., Gerasimov, A., Bystrov, D., & Cvirco, E. (2004). Virtual chemistry laboratory for school education. *The 4th IEEE International Conference on Advanced Learning Technologies (ICALT)*, 605-608.
- Mulyani, S., Liliyasi, & Wiji. (2015). Model mental calon guru kimia mengenai sifat koligatif larutan melalui pembelajaran berbasis TIK. *Jurnal Pendidikan Matematika dan Sains*, 3(2), 123-132.
- Munir. (2012). *Multimedia Konsep & Aplikasi Dalam Pendidikan*. Bandung: Alfabeta.
- Nataliawati, N., Rohman, I., Yuliani, G. (2017). Analysis of Vapor-Pressure Lowering of Solution Concepts As a Basis For Development of Virtual Laboratory and Students' Science Process Skill in Learning Solution Colligative Properties. *International Conference on Education and Science (ICONS 2017)*. 963-978.
- Permana, I. (2010). *Visualisasi Berbantuan Komputer Untuk Meningkatkan Keterampilan Generik Sains dan Kemampuan Berpikir Siswa SMK pada Hidrokarbon*. Tesis SPs UPI Bandung. Tidak Diterbitkan.
- Plass, J. (2012). Investigating the Effectiveness of Computer Simulations for Chemistry Learning. *Journal of Research in Science Teaching*. 49, (3), 394 – 419.
- Riduwan. (2012). *Skala Pengukuran Variabel-variabel Penelitian*. Bandung: Alfabeta.

- Rodrigues, S. (1997). Fitness for Purpose: A Glimpse at When, Why and How To Use Information Technology in Science Lessons. *Australian Science Teachers Journal*, 43(2), 38-39.
- Rohman, I., & Mulyani, S. (2004). *Kimia Fisika I*. Bandung: Jurusan Pendidikan Kimia FPMIPA Universitas Pendidikan Indonesia.
- Roth, W. M. (1994). Experimenting in a constructivist high school physics laboratory. *Journal of Research in Science Teaching*, 31, 197-223.
- Rustaman, N., Dirdjosoemarto, S., Yudianto, S.A., Achmad, Y., Subekti, R., Rochintaniawati, D., & Nurjhani, M. (2005). *Strategi Belajar Mengajar Biologi*. Malang: Universitas Negeri Malang (UM Press).
- Semiawan, C., Tangyong, A.F., Belen, S., Matahelemual, Y., & Suselordjo, W. (1986). *Pendekatan Keterampilan Proses: Bagaimana Mengaktifkan Siswa Dalam Belajar?*. Jakarta: Gramedia.
- Sheehan, M. (2010). Identification of difficult topics in the teaching and learning of Chemistry in Irish schools and development of an intervention programme to target some of these difficulties. Tesis. University of Limerick Ollscoil Luimnigh.
- Sitinjak, D. (2014). *Pengembangan Program Simulasi Materi Kelarutan Dan Hasil Kali Kelarutan Untuk Membangun Pemahaman Konsep Dan keterampilan Proses Sains Siswa*. (Tesis). Universitas Pendidikan Indonesia, Bandung.
- Sukmadinata. (2008). *Metode Penelitian Pendidikan*. Bandung: Universitas Pendidikan Indonesia.
- Swan, A., & O'Donnell, A. (2009). The contribution of a virtual biology laboratory to college student's learning. *Innovations in Education and Teaching International*, 46, 404-419.
- Tarwiyah, I. (2014). *Pengembangan Simulasi Virtual Laboratory Larutan Asam Basa Untuk Membangun Konsep Dan Keterampilan Proses Sains*. (Tesis). Universitas Pendidikan Indonesia, Bandung.
- Tatli, Z. (2013). Effect of a virtual chemistry laboratory on students achievement. *Educational Technology & Society*, 16 (1), 159-170.

- Tatli, Z., & Ayas, A. (2010). Virtual laboratory applications in chemistry education. *Elsevier Procedia Social and Behavioral Sciences*, 9, 938-942.
- Tawil, M. (2011). *Pengembangan Pembelajaran Berbasis Simulasi Komputer pada Perkuliahan Gelombang dan Optika untuk Meningkatkan Keterampilan Berpikir Kreatif Calon Guru Fisika*. Disertasi pada SPS UPI Bandung: tidak diterbitkan.
- Tim Penulis. (2015). *Pedoman Penulisan Karya Ilmiah*. Bandung: Universitas Pendidikan Indonesia.
- Tobin, K. G. (1990). Research on science laboratory activities. In pursuit of better questions and answers to improve learning. *School Science and Mathematics*, 90, 403-418.
- Tsovaltzi, D. (2010). Extending a virtual chemistry laboratory with a collaboration script to promote conceptual learning. *Int. J. Technology Enhanced Learning*, 2, 91-110.
- Tuysuz, C. (2010). The effect of the virtual laboratory on students' achievement and attitude in chemistry. *International Online Journal of Educational Sciences*, 2(1), 37-53.
- Walton, P. H. (2002). On the use of chemical demonstrations in lectures. *The Royal Society Of Chemistry Journal*, 6 (1), 22-27.
- Wena, M. (2011). *Strategi Pembelajaran Inovatif Kontemporer*. Jakarta: Bumi Aksara.
- Whitten. (2014). *Chemistry Tenth Edition*. Amerika: Brooks Cole.
- Widodo, A., & Ramdhaningsih, V. (2006). Analisis kegiatan praktikum biologi dengan menggunakan video. *Metalogika*, 9 (2), 146-158.
- Wu, H. K. (2002). Linking the microscopic view of chemistry to real-life experiences intertextuality in high school science classroom. *Wiley periodical*, 868-891.