

DAFTAR PUSTAKA

- Abao, E. de L., Boholano, H. B., & Bayagbil, F. T. (2015). Engagement to social networking: challenges and opportunities to educator. *European Scientific Journal June 2015 edition*, 11(16), 173-191. Retrieved from <https://eujournal.org/index.php/esj/article/view/5862/5585>
- Adam, A. M. 2017. Guru mesti “update” informasi dan IPTEK. Artikel *Kompas*. Retrieved from <https://edukasi.kompas.com/read/2017/11/24/15300381/gurumesti-update-informasi-dan-iptek>.
- Albu, M. M., Holbert, K. E., Heydt, G. T., Grigorescu, S. D., & Trusca, V. (2004). Embedding remote experimentation in power engineering education. *IEEE Transactions on Power Systems*, 19(1), 139-143. <https://doi.org/10.1109/TPWRS.2003.821020>.
- Avramiotis, S., & Tsaparlis, G. (2013). Using computer simulations in chemistry problem solving. *Chemistry Education Research and Practice*, 14(3), 297-311. <https://doi.org/10.1039/c3rp20167h>.
- Bakar, N., Zaman, H. B., Kamalrudin, M., Jusoff, K., & Khamis, N. (2013). An effective virtual laboratory approach for chemistry. *Australian Journal of Basic and Applied Sciences*, 7(3), 78-84. Retrieved from <http://ajbasweb.com/old/ajbas/2013/special%20issue/78-84.pdf>.
- Balid, W., Abdulwahed, M., & Alrouh I. (2014). Development of an educationally oriented open-source embedded systems laboratory kit: a hybrid hands-on and virtual experimentation approach. *International Journal of Electrical Engineering Education*, 51(4), 340-353. <https://doi.org/10.7227/IJEEE.0006>.
- Barnard, L., Lan, W. Y., To, Y. M., Paton, V. O., & Lai, S. L. (2009). Measuring self-regulation in online and blended learning environments. *The Internet and Higher Education*, 12(1), 1–6. <https://doi.org/10.1016/j.iheduc.2008.10.005>.
- Barnard, L., Paton, O. V., & Lan, W. Y. (2010). Self-regulation across time of first-generation online learners. *ALT-J: Research in Learning Technology*, 18(1), 61-70. <https://doi.org/10.1080/09687761003657572>.
- Bates (Tony), A.W. (2005). *Technology, e-learning, and distance education, second edition*. New York: Routledge.
- Bernard, R. M., Borokhovski, E., Schmid, R. F., Tamim, R. M., & Abrami, P. C. (2014). A meta-analysis of blended learning and technology use in higher

- education: from the general to the applied. *Journal of Computing in Higher Education*, 26(1), 87-122. <https://doi.org/10.1007/s12528-013-9077-3>.
- Boholano, H. B., (2017). Smart social networking: 21st century teaching and learning skills. *Research in Pedagogy*, 7(1), 21-29. <https://doi.org/10.17810/2015.45>
- Borg, W. R. and Gall, M. D. (1983). *Educational research: an introduction, 4th edition*. New York: Longman.
- Box, G. E. P. (1949). A general distribution theory for a class of likelihood criteria. *Biometrika*, 36(3/4), 317. <https://doi.org/10.2307/2332671>.
- Brown, J. D. (2008). Effect size and eta squared. *Shiken: JALT Testing & Evaluation SIG Newsletter*, 12(2), 38-43. Retrieved from <http://hosted.jalt.org/test/PDF/Brown28.pdf>.
- Brown, T. L., Lemay, H. Eugene, B., Bruce E., Murphy, C. J., & Woodward, P. M. (2012). *Chemistry: the central science, twelfth edition*. USA: Pearson Prentice Hall.
- Caroline, K., et.al. (2010). Investigating the effect of 3D simulation-based learning on the motivation and performance of engineering students. *Journal of Engineering Education*, 3(99), 237-251. <https://doi.org/10.1002/j.21689830.2010.tb01059.x>.
- Cengiz. (2010). The Effect of the virtual laboratory on students achievement and attitude in chemistry. *International Online Journal of Education Sciences*, 2(1), 37-53. http://mts.iojes.net/userfiles/Article/IOJES_167.pdf.
- Chang, R., & Overby, J. (2011). *General chemistry: the essential concepts, sixth edition*. New York: McGraw-Hill.
- Chu, S. K. W., Reynolds, R. B., Tavares, N. J., Notari, M., & Lee, C. W. Y. (2017). *21st century skills development through inquiry-based learning*. Singapore: Springer Science+Business Media.
- Cohen, J., Cohen, P., West, Stephen G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioural sciences, third edition*. New Jersey: Lawrence Erlbaum Associates Publishers.
- Dignath, C., & Buttner, G. (2008). Components of fostering self-regulated learning among students: A meta-analysis on intervention studies at primary and secondary school level. *Metacognition and Learning*, 3(3), 231-264. <https://doi.org/10.1007/s11409-008-9029-x>

- Djamarah, S. B. (2002). *Psikologi belajar*. Jakarta: Rineka Cipta.
- Fernandez, M. (2017). Augmented virtual reality: how to improve education systems. *Higher Learning Research Communications*, 7(1), 1–15. <http://dx.doi.org/10.18870/hlrc.v7i1.373>.
- Gabel, D. (1999). Improving teaching and learning through chemistry education research: a look to the future. *Journal of Chemical Education*, 76(4), 548. <https://doi.org/10.1021/ed076p548>.
- Gliem, J.A., & Gliem, R.R. (2003). Calculating, interpreting, and reporting cronbachs' alpha reliability coefficient for likert type scales. *Midwest Research to Practice Conference in Adult, Continuing, and Community Education*, 82-88. Retrieved from <https://scholarworks.iupui.edu/bitstream/handle/1805/344/gliem+&+gliem.pdf?sequence=1>.
- Gyamfi, K. A., Ampiah, J. G., & Agyei, D. D. (2018). Teachers' problems of teaching of oxidation-reduction reactions in high schools. *European Journal of Education Studies*, 5(5), 53-71. <https://doi.org/10.5281/zenodo.1471731>.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis*, (7th ed.). New Jersey: Pearson Prentice Hall.
- Hamalik, O. (2011). *Proses belajar mengajar*. Jakarta: Bumi Aksara.
- Hanafiah & Suhana. (2010). *Konsep strategi pembelajaran*. Bandung: Refika Aditama.
- 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. *Organizacija*, 3(45), 108-116. <https://doi.org/10.2478/v10051-012-0011-7>.
- Jagodzinski, P., & Wolski, R.. (2015). Assessment of application technology of natural user interfaces in the creation of a virtual chemical laboratory. *Journal of Science Education and Technology*, 24(1), 16-28. <https://doi.org/10.1007/s10956-014-9517-5>.
- Jansen, R., Leeuwen, van A., Jassen, J., Kester, L., & Kalz, M. (2016). Validation of the self-regulated online learning questionnaire. *Journal of Computing in Higher Education*, 29(1), 6-27. <https://doi.org/10.1007/s12528-016-9125-x>.
- Johnston, E., Olivas, G., Steele, P., Smith, C., & Bailey, L. (2017). Exploring pedagogical Foundations of existing virtual reality educational applications: a content analysis study. *Journal of Educational Technology Systems*, 46(4), 414-439. <https://doi.org/10.1177/0047239517745560>.

- Johnson, R. A. and Wichern, D. W. (2007). *Applied multivariate statistical analysis, sixth edition*. New Jersey: Pearson Education, Inc.
- Kementerian Pendidikan dan Kebudayaan Republik Indonesia. (2016). *Peraturan Menteri Pendidikan dan Kebudayaan RI Nomor 22, Tahun 2016 tentang Standar Proses Pendidikan Dasar dan Menengah*.
- Kementerian Pendidikan dan Kebudayaan republik Indonesia. (2016). *Peraturan Menteri Pendidikan dan Kebudayaan RI Nomor 23, Tahun 2016 tentang Standar Penilaian*.
- Kementerian Pendidikan dan Kebudayaan republik Indonesia. (2016). *Peraturan Menteri Pendidikan dan Kebudayaan RI Nomor 24, Tahun 2016 tentang Kompetensi Inti dan Kompetensi Dasar Pelajaran pada Kurikulum 2013*.
- Kemp, J.E., & Dayton, D.K. (1985). *Planning and producing instructional media*. Cambridge: Harper & Row Publishers, New York.
- Khattree, R., & Naik, D. N. (2013). *Multivariate data reduction and discrimination with SAS software*. NC: SAS Institute, Inc.
- Kitsantas, A. (2013). Fostering college students' self-regulated learning with learning technologies. *Hellenic Journal of Psychology*, 10(3), 235-252. Retrieved from https://pseve.org/wp-content/uploads/2018/03/Volume10_Issue3_Kitsantas.pdf.
- Klimova, B. F., & Kacetyl, J.. (2014). Hybrid learning and its current role in the teaching of foreign languages. *Procedia Social and Behavioral Sciences*, 182, 477-481. <https://doi.org/10.1016/j.sbspro.2015.04.830>.
- Kniffin, T.C., Carlson, C.R., Ellzey, A., Moul, T.E., Beck, K.B., McDonald, R., & Jouriles, E.N. (2014). Using virtual reality to explore self-regulation in high-risk settings. *Trauma, Violence & abuse*, 15(4), 310-321. <https://doi.org/10.1177/1524838014521501>.
- Kramarski, B., Desoete, A., Bannert, M., Narciss, S., & Perry, N. (2013). New perspectives on integrating self-regulated learning at school. *Education Research International*, 2013, 1-4. <https://doi.org/10.1155/2013/498214>.
- Krathwohl, D. R. (2002). A revision of bloom's taxonomy: an overview. *Theory into Practice*, 41(4), 212-218. https://doi.org/10.1207/s15430421tip4104_2.
- Li, J., Ye H., Tang Y., Zhou Z., & Hu, X. (2018). What are the effects of self-regulation phases and strategies for chinese students? a meta-analysis of two decades research of the association between self-regulation and academic

- performance. *Frontiers in Psychology*, 9(2434), 1-13. <https://doi.org/10.3389/fpsyg.2018.02434>.
- Littlejohn, A., & Pegler, C. (2007). *Preparing for blended e-Learning*. UK: Routledge-Falmer
- Maxwell, S. E., & Delaney, H. D. (2000). *Designing experiments and analyzing data: a model comparison perspective*. New Jersey: Lawrence Erlbaum Associates, Inc., Publishers.
- Means, B. M., Toyama, Y., Murphy, R., & Bakia, M. (2013). The effectiveness of online and blended learning: a meta-analysis of the empirical literature. *Teachers College Record*, 115(3), 1-47. <https://www.tcrecord.org/content.asp?contentid=16882>.
- Mertens, D. M. (2010). *Research and evaluation in educational psychology*. United States of America: SAGE Publication, Inc.
- Myers, B. E. & Dyer, J. E. (2006). Effect of investigative laboratory instruction on content knowledge and science process skill achievement across learning styles. *Journal of Agricultural Education*, 47(4), 52-63. <https://doi.org/10.5032/jae.2006.04052>.
- Nurgiyantoro, B., Gunawan, & Marzuki. (2015). *Statistik terapan*. Yogyakarta: Gajah Mada University Press.
- OECD (2013). *PISA 2012 assessment and analytical framework: mathematics, reading, science, problem solving and financial literacy*. OECD Publishing. Retrieved from <https://www.oecd-ilibrary.org/docserver/9789264190511-en.pdf?expires=1574622154&id=id&accname=guest&checksum=A3D5B128062A48B7D77C1E790520E204>
- Ormrod, J.E. (2006). *Educational psychology: developing learners*. New Jersey: Pearson Merrill Prentice Hall.
- Panadero, E. (2017). A review of self-regulated learning: six models and four directions for research. *Frontiers in Psychology*, 8(422), 1-28. <https://doi.org/10.3389/fpsyg.2017.00422>.
- Pintrich, P. R. (2000). The role of goal orientation in self-regulated learning, in M. Boekaerts, P. R. Pintrich, and M. Zeidner (Eds.). *Handbook of Self-Regulation*. San Diego, CA: Academic Press.
- Pusat Penilaian Pendidikan Kemdikbud. (2018). Laporan Hasil Ujian Nasional. Retrieved from <https://puspendik.kemdikbud.go.id/hasil-un/>

- Puustinen, M., & Pulkkinen, L. (2001). Models of self-regulated learning: a review. *Scandinavian Journal of Educational Research*, 45(3), 269-286. <https://doi.org/10.1080/00313830120074206>
- Ramírez, J., Rico M., Lucazdo, D. R., Lobo, M. B., & Antonio, A. de. (2017). Students' evaluation of a virtual world for procedural training in a tertiary-education course. *Journal of Educational Computing Research*, 56(1), 23-47. <https://doi.org/10.1177/0735633117706047>.
- Schmitz, B., & Wiese, B. S. (2006). New perspectives for the evaluation of training sessions in self-regulated learning: time-series analyses of diary data. *Contemporary Educational Psychology*, 31(1), 64-96. <https://doi.org/10.1016/j.cedpsych.2005.02.002>.
- Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: Appropriate use and interpretation. *Anesthesia & Analgesia*, 126(5), 1763-1768. <https://doi.org/10.1213/ANE.0000000000002864>.
- Schunk, D. H. (2012). *Learning theories: an educational perspective*. United States of America: Pearson Education, Inc.
- Schwartz, R. N., Milne C., Homer, B. D., & Plass, J. L. (2013). Designing and implementing effective animations and simulations for chemistry learning. *American Chemical Society Symposium Series*, 43-76. <https://doi.org/10.1021/bk-2013-1142.ch003>.
- Shahroom, A. A., & Hussin, N., (2018). Industrial revolution 4.0 and education. *International Journal of Academic Research in Business and Social Sciences*, 8(9), 314–319. <https://doi.org/10.6007/IJARBSS/v8-i9/4593>
- Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality (complete samples). *Biometrika*, 52(3/4), 591. <https://doi.org/10.2307/2333709>.
- Siregar, E., & Nara, H. (2011). *Teori belajar dan pembelajaran*. Bogor: Ghalia Indonesia.
- Solikhin, F., Sugiyarto, K. H., Ikhsan, J. (2019). The impact of virtual laboratory integrated into hybrid learning use on students' achievement. *Jurnal Ilmiah Peuradeun*, 7(1), 81-94. <https://doi.org/10.26811/peuradeun.v7i1.268>.
- Soni, S. & Katkar. (2014). Survey paper on virtual lab for e-learnes. *International Journal of Application or Innovation in Enginering & Management (IJAIE)*, 3(1), 108-110. Retrieved from <https://www.ijaiem.org/volume3issue1/IJAIE-2014-01-13-027.pdf>.

- Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences*. London: Lawrence Erlbaum Associates.
- Sumintono, B., Wibowo, S. A., Mislan, N., & Tiawa, D. H. (2012). Penggunaan teknologi informasi dan komunikasi dalam Pengajaran: Survei pada guru-guru sains SMP di Indonesia. *Jurnal Pengajaran Matematika dan Ilmu Pengetahuan Alam*, 17(1), 122-131. <https://doi.org/10.18269/jpmipa.v17i1.251>.
- Susilana, R., & Riyana, C. (2008). *Media pembelajaran*. Bandung: Wacana Prima.
- Syah, M. (2006). Psikologi belajar. Jakarta: Raja Grafindo Persada.
- Tatli, Z. & Ayas, A. (2012). Virtual chemistry laboratory: Effect of constructivist learning environment. *Turkish Online Journal of Distance Education-TOJDE*, 13(1), 189-199. Retrieved from http://tojde.anadolu.edu.tr/makale_goster.php?id=740.
- Thiagarajan, S., Semmel, D. S., & Semmel, M. (1974). *Instructional development for training teachers of exceptional children*. Minneapolis, Minnesota: Leadership Training Institute/Special Education, University of Minnesota.
- Thorne, K. (2003). *Blended learning: How to integrate online and traditional learning*. London: Kogan page.
- Walker, D. F., & Hess, R. D. (1984). *Instructional software: principles and perspectives for design and use*. US: Wadsworth Publishing Company.
- Wandler, J., & Imbriale, W. (2017). Promoting undergraduate student self-regulation in online learning environments. *Online Learning*, 21(2), 1-16. <https://doi.org/10.24059/olj.v21i2.881>.
- Winne, P. H., & Hadwin, A. F. (1998). Studying as self-regulated learning. In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.). *The educational psychology series. Metacognition in educational theory and practice*. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Zhao, Y., and Breslow, L. (2013). Literature review on Hybrid/Blended Learning. *Teaching and Learning Laboratory (TLL)*. Retrieved from https://tll.mit.edu/sites/default/files/library/Blended_Learning_Lit_Review.pdf.
- Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, 81(3), 329-339. <https://doi.org/10.1037/0022-0663.81.3.329>.

Zimmerman, B. (2002). Becoming a self-regulated learner: an overview. *Theory Into Practice*, 41(2), 64-70. https://doi.org/10.1207/s15430421tip4102_2

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: historical background, methodological developments, and future prospects. *American Educational Research Journal*, 45(1), 166-183. <https://doi.org/10.3102/0002831207312909>.