

DAFTAR PUSTAKA

- Aiken, L. R. (1985). Three coedicients for analyzing the reliability and validity of ratings. *Educational and Psychological Measurement*, 45(1), 131-142. <https://doi.org.10.1177/0013164485451012>.
- Al-Momani, F. N. (2016). Assessing the development of scientific literacy among undergraduates college of education. *Journal of Studies in Education*, 6(2), 199-212. <https://doi.org.10.5296/jse.v6i2.9405>.
- Arnold, J. C., Boone, W. J., Kremer, K., & Mayer, J. (2018). Assessment of competencies in science inquiry through the application of rasch measurement techniques. *Education Science*, 8(4), 184-204. <https://doi.org.10.3390/educsci8040184>.
- Bond, T. G. & Fox, C. M. (2015). *Applying the rasch model fundamental measurement in the human science (3rd ed.)*. New York: Routledge.
- Boone, W. J, Staver, J. R., & Yale, M. S. (2014). *Person reliability, item reliability, and more in: Rasch Analysis in the Human Science*. Springer: Dordrecht.
- Brentani, E. & Golia, S. (2007). Unidimensionality in the Rasch model: How to detect and interpret. *Statistica* 67 (3), 253-261. <https://doi.org.10.6092/issn.1973-2201/3508>.
- Cigdemoglu, C., Arslanb, H. O., & Cam, A. (2017). Argumentation to foster pre-service science teachers' knowledge, competency, and attitude on the domains of chemical literacy of acids and bases. *Chemistry Education Research and Practice*, 2(18), 288-303. <https://doi.org.10.1039/C6RP00167J>.
- Cortina, J. M. (2013). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78(1), 98-104. <https://doi.org.10.1037/0021-9010.78.1.98>.
- Cowie, B., & Bell, B. (1999). A model of formative assessment in science education. *Assessment in Education*, 6(1), 101-116. <https://doi.org.10.1080/09695949993026>.
- Downing, S. M. (2004). Reliability: On the reproducibility of assessment data. *Medical Education*, 38(9), 1006-1012. <https://doi.org.10.1111/j.1365-2929.2004.01932.x>.
- Duschl, R. (2008). Science education in three-part harmony: balancing conceptual, epistemic, and social learning goals. *Review of Research in Education*, 32(1), 268-291. <https://doi.org.10.3102/0091732X07309371>.
- Fasasi, R. (2017). Effects of ethnoscience instruction, school location, and parental educational status on learners' attitude towards science. *International Journal of Science Education*, 39(1), 1-17. <https://doi.org.10.1080/09500693.2017.1296599>.

- Fives, H., Huebner, W., Birnbaum, A. N., & Nicolich, M. (2014). Developing a measure of scientific. *Science Education*, 98(4), 549-580. <https://doi.org/10.1002/sce.21115>.
- Glynn, S. M., Brickman, P., Armstrong, N., & Taasoobshirazi, G. (2011). Science motivation questionnaire II: Validation with science majors and nonscience majors. *Journal of Research in Science Teaching*, 48(10), 1159-1176. <https://doi.org/10.1002/tea.20442>.
- Gooding, J., & Metz, B. (2011). From misconceptions to conceptual change. *The Science Teacher*, 78(4), 34-37. Retrieved from <https://eric.ed.gov/?id=EJ921657>.
- Gormally, C., Brickman, P., & Lutz, M. (2012). Developing a test of scientific literacy skills (TOSLS): Measuring undergraduates' evaluation of scientific information and arguments. *CBE-Life Sciences Education*, 11(4), 364-377. <https://doi.org/10.1187/cbe.12-03-0026>.
- Greenstein, L. (2012). *Assessing 21st century skills a guide to evaluating mastery and authentic learning*. New York: Corwin Press.
- Griffard, P. B. & Wandersee, J. H. (2001). The two-tier instrument on photosynthesis: What does it diagnose?. *International Journal of Science Education*, 23(10), 1039-1052. <https://doi.org/10.1080/09500690110038549>.
- Gurel, D. K., Eryilmaz, A., & McDermott, L. C. (2015). A review and comparison of diagnostic instruments to identify students' misconceptions in science. *Eurasia Journal of Mathematics, Science & Technology Education*, 11(5), 989-1008. <https://doi.org/10.12973/eurasia.2015.1369a>.
- Hambleton, R. K. & Swaminathan, H. (1985). *Item response theory: Principles and applications*. New York: Kluwer Nijhof Publishing. <https://doi.org/10.1007/978-94-017-1988-9>.
- Hernandez, K. M., Ikpeze, C., & Kimaru, I. (2015). Perspectives on science literacy: a comparative study of United States and Kenya. *Educational Research International*, 4(2), 25-34. Retrieved from http://fisherpub.sjfc.edu/chemistry_facpub/4.
- Holbrook, J. & Rannikmae, M. (2009). The meaning of science literacy. *International Journal of Environmental & Science Education*, 4(3), 275-288. Retrieved from <http://www.ijese.net/makale/1394>.
- Istiyono E., Dwandaru, W. S. B., Lede, Y. A., Rahayu, F., & Nadapdap, A. (2019). Developing IRT-Based physics critical thinking skill test: a CAT to answer 21st century challenge. *International Journal of Instruction*, 12(4) 267-280. Retrieved from http://e-iji.net/dosyalar/iji_2019_4_17.pdf.
- Jespersen, N. D., Brady, J. E., & Hyslop, A. (2012). *Chemistry the molecular nature of matter (6th ed)*. United States of America: Wiley.

- Kementerian Pendidikan dan Kebudayaan. (2017). *Pedoman dan penilaian gerakan literasi nasional*. Jakarta, September 2017. Jakarta: Kementerian Pendidikan dan Kebudayaan.
- Khoerunnisa, R. F., Murbangun, N., & Sudarmin. (2016). Pengembangan modul IPA terpadu etnosains untuk menumbuhkan minat kewirausahaan. *Journal of Innovative Science Education*, 5(1), 45-53. Retrieved from <https://journal.unnes.ac.id/sju/index.php/jise/article/view/13241>.
- Krause, M., Kienast, S., Witteck, T. & Eilks, I. (2013). On the development and assessment of a computerbased learning and assessment environment for the transition from lower to upper secondary chemistry education. *Chemistry Education Research and Practice*, 14(1), 345-353. <https://doi.org/10.1039/c3rp00071k>.
- Latifah, N. & Fiati, R. (2014). Implementasi sistem penilaian jawaban soal *essay*. *Jurnal SIMETRIS*, 5(1), 19-26. <https://doi.org/10.24176/simet.v5i1.135>.
- Maimoona, .N., Qasim, M. J., Qurrat-ul-ain, L., & Samina, M. (2018). Impact of contextual learning on retention of knowledge. *Pakistan Journal of Physiology*, 14(2), 43-45. Retrieved from <http://www.pps.org.pk/PJP/14-2/Maimoona.pdf>.
- Mao, L., Liu, O. L., Roohr, K., Belur, V., Mulholland, M..., Pallant, A. (2018). Validation of augmented scoring for a formative assessment that employs scientific argumentation. *Educational Assessment*, 23(2), 121-138. <https://doi.org/10.1080/10627197.2018.1427570>.
- Mardapi, D. (2012). *Pengukuran penilaian dan evaluasi pendidikan*. Yogyakarta: Nuha Medika.
- Menteri Pendidikan dan Kebudayaan.(Juni 2016). *Majalah jendela pendidikan dan kebudayaan, empat perbaikan kurikulum 2013. Media komunikasi dan inspirasi jendela pendidikan dan kebudayaan (ed. III)*. Jakarta: Biro Komunikasi dan Layanan Masyarakat (BKLM).
- Menteri Pendidikan dan Kebudayaan. (2017). *Pedoman dan penilaian gerakan literasi nasional*. Jakarta, September 2017. Jakarta: Kementerian Pendidikan dan Kebudayaan.
- Mozeika, D., & Bilbokaite, R. (2011). Teaching and learning method for enhancing 15-16 years old students' knowledge as one of scientific literacy aspect in chemistry: Results based on research and approbation. *The International Journal of Educational Researchers*, 3(1), 1-16. Retrieved from http://ijer.eab.org.tr/1/3/1_mozeika.pdf.
- Mutlu, A. & Sesen, B. A. (2015). Development of a two-tier diagnostic test to assess undergraduates' understanding of some chemistry concepts. *Proceedings of International Conference on New Horizons in Education, Paris*, 174(7), 629-635, <https://doi.org/10.1016/j.sbspro.2015.01.593>.

- Nisa', A., Sudarmin, & Samini. (2015). Efektivitas penggunaan modul terintegrasi etnosains dalam pembelajaran berbasis masalah untuk meningkatkan literasi sains siswa. *Unnes Science Educational Journal*, 4(3), 1049-1056. <https://doi.org/10.15294/usej.v4i3.8860>.
- OECD. (2007). *PISATM 2006 science competencies for tomorrow's world, volume I-analysis*. Paris: OECD Publication.
- OECD. (2010). *PISA 2009 results: executive summary*. Paris: OECD Publishing.
- OECD. (2014). *PISA 2012 results in focus what 15-years-olds know and what they can do with what they know*. Paris: OECD Publishing.
- OECD. (2016). *PISA 2015 results (volume i): excellence and equity in education*. Paris: OECD Publishing. Retrieved from <https://doi.org/10.1787/9789264266490-en>.
- OECD. (2016). *PISA 2015 assessment and analytical framework: science, reading, mathematics and financial literacy*. Paris: PISA, OECD.
- OECD/CERI. Assessment for learning – the case for formative assessment. *OECD/CERI International Conference*. Retrieved from <https://www.oecd.org/site/educeri21st/40600533.pdf>.
- Okwara, K. O. & Upu, F. T. (2017). Effects of ethno-science instructional approach on students' achievement and interest in upper basic science and technology in Bunue State, Nigeria. *International Journal of Science Research in Education*, 10(1), 69-78. Retrieved from [www.ij sre.com/vol.-10\(1\)-okwara---upu.pdf](http://www.ij sre.com/vol.-10(1)-okwara---upu.pdf).
- Oriondo, L. L. & Dallo-Antonio, E. M. (1984). *Evaluating educational outcomes (tests, measurement and evaluation)*. Philippines: Rex Book Store.
- Park, M. & Liu, X. (2019). An investigation of item difficulties in energy aspects across biology, chemistry, environmental science, and physics. *Research in Science Education*, 49(140), 1-18. <https://doi.org/10.1007/s11165-019-9819-y>.
- Rahayu, W., E. & Sudarmin. (2015). Pengembangan modul IPA terpadu berbasis etnosains tema energi dalam kehidupan untuk menanamkan jiwa konservasi siswa. *Unnes Science Education Journal*, 4(2), 919-926. Retrieved from <https://journal.unnes.ac.id/sju/index.php/usej/article/view/7943>.
- Rahayu, S. (2017). Mengoptimalkan aspek literasi dalam pembelajaran kimia abad 21. *Prosiding Seminar Nasional Kimia UNY 2017, Yogyakarta, Ruang Seminar FMIPA UNY, 14 Oktober 2017*.
- Rahmawati, Y., Ridwan, A., & Nurbaity. (2017). Should we learn culture in chemistry classroom? Integration ethnochemistry in culturally responsive teaching. *Proceedings of The 4th International Conferences on Research Implementation and Education of Mathematics and Science, Yogyakarta, 1868(1)*, 1-11. <https://doi.org/10.1063/1.4995108.5>.

- Ratna, K. I. & Arty, I.S.(2019). The reconstruction of pekalongan batik knowledge as scientific knowledge in chemical education. *Proceedings of The Internasional Seminar on Science Education, Yogyakarta, 1233(1)*, 1-13. <https://doi.org/10.1088/1742-6596/1233/1/012027>.
- Rome, L. & Zhang, B. (2018). Investigating the effects of differential item functioning on proficiency classification. *Applied Psychological Measurement, 42(4)*: 259-274. <https://doi.org/10.1177/0146621617726789>.
- Rychen, D. S. & Salganik, L. H. (Eds.) (2003). *Key competencies for a successful life and a well-functioning society*. The State of Washington, USA: Hogrefe & Huber Publisher.
- Saeed, M., Tahir, H., & Latif I. (2018). Teachers' perceptions about the use of classroom assessment techniques in elementary and secondary schools. *Bulletin of Education and Research, 40(1)*, 115-130. Retrieved from http://pu.edu.pk/images/journal/ier/PDF-FILES/10_40_1_18.pdf
- Sahin, A. & Anil, D. (2017). The effects of test length and sample size on item parameters in item response theory. *Educational Sciences: Theory & Practice, 17(1)*, 321-335. <https://doi.org/10.12738/estp.2017.1.0270>.
- Segars, A. H. (1997). Assessing the unidimensionality of measurement: a paradigm and illustration within the context of information systems research. *Omega, 25(1)*, 107-121. [https://doi.org/10.1016/s0305-0483\(96\)00051-5](https://doi.org/10.1016/s0305-0483(96)00051-5).
- Shwartz, Y., Ben-Zvi, R., & Hofstein, A. (2005). The importance of involving high-school chemistry teachers in the process of defining the operational meaning of 'chemical literacy'. *International Journal of Science Education, 27(3)*, 323-344. <https://doi.org/10.1080/0950069042000266191>.
- Soesanti, I. & Syahputra, R. (2016). Batik production process optimization using particle swarm optimization method. *Journal of Theoretical and Applied Information Technology, 86(2)*, 272-278. Retrieved from <http://www.jatit.org/volumes/eightsix2.php>.
- Srikandi, M. M., Sujana, A., & Aeni, A. N. (2017). Pengaruh pembelajaran kontekstual terhadap kemampuan literasi sains berbasis gender pada materi sistem pencernaan. *Jurnal Pena Ilmiah, 2(1)*, 661-670. Retrieved from <http://ejournal.upi.edu/index.php/penailmiah/article/view/10105/6283>.
- Sudarmin. (2014). *Pendidikan karakter, etnosains dan kearifan lokal (konsep dan penerapannya dalam penelitian dan pembelajaran sains (edisi pertama)*. Semarang: Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Negeri Semarang.
- Sudarmin, Febu, R., Nuswowati, M., Sumarni W. (2016). Development of ethnoscience approach in the module theme substance additives to improve the cognitive learning outcome and student's entrepreneurship. *Proceedings of Journal of Physics Conference Series, 824(1)*, 1-14. <https://doi.org/10.1088/1742-6596/824/1/012024>.

- Sudarmin & Asyhar R. (2012). Transformasi pengetahuan sains tradisional menjadi sains ilmiah dalam proses produksi jamu tradisional. *Edu-sains: Jurnal Pendidik Ilmu Pengetahuan Alam*, 1(1), 1-7. Retrieved from <https://online-journal.unja.ac.id/edusains/article/view/788>.
- Sudijono, A. (2009). *Pengantar statistik pendidikan*. Jakarta: Rajawali pers.
- Sujarwanto & Rusilowati, A. (2015). Pengembangan instrumen *performance assessment* berpendekatan *scientific* pada tema kalor dan perpindahannya. *Unnes Science Education Journal*, 4(1), 780-787. Retrieved from <https://journal.unnes.ac.id/sju/index.php/usej/article/view/4998>.
- Sumarni, W., Sudarmin, Rusilowati, A., & Susilaningsih E. (2017). Chemical literacy of theaching candidates studying the integrated food chemistry ethnosciences course. *Journal of Turkish Science Education*, 14(3), 40-72. <https://doi.org/10.12973/tused.10204a>.
- Sumintono , B. & Widhiarso, W. (2014). *Aplikasi model rasch untuk penelitian ilmu-ilmu soasial*. Cimahi: Trim Komunikata Publishing House.
- Sumintono, B. & Widhiarso, W. (2015). *Aplikasi pemodelan rasch pada assessment pendidikan..* Cimahi: Trim Komunikata Publishing House.
- Susanto, B. (22 Maret 2018). Warga bantaran sungai binatur pekalongan keluhkan pencemaran sungai karena pewarna batik. *Tribun Jateng*: online, Retrieved from <http://jateng.tribunnews.com/2018/03/22/warga-bantaran-sungai-binatur-pekalongan-keluhkan-pencemaran-sungai-karena-pewarna-batik>.
- Thummathong, R. & Thathong, K. (2018). Chemical literacy levels of engineering students in Northeastern Thailand. *Kasetsart Journal of Social Sciences*, 39(3), 478-487. <https://doi.org/10.1016/j.kjss.2018.06.009>.
- Tsui, C. & Treagust, D. (2010). Evaluating secondary students' scientific reasoning in genetics using a two-tier diagnostic instrument. *International Journal of Science Education*, 32(8), 1073-1098. <https://doi.org/10.1080/09500690902951429>.
- Vlaardingerbroek, B. (1990). Ethnoscience and science teacher training in Papua New Guinea. *Journal of Education for Teaching*, 16(3), 217-224. <https://doi.org/10.1080/0260747900160302>.
- Wiliam, D. (May 2013). Assessment: the bridge between teaching and learning. *The Alberta Teachers' Association*, 97(4), 2016-2017.
- Yuliana, I. (2017). Pembelajaran berbasis etnosains dalam mewujudkan pendidikan karakter siswa sekolah dasar. *Elementary School Education Journal: Jurnal pendidikan dan Pembelajaran Sekolah Dasar*, 1(2a), 98-106. Retrieved from <http://journal.um-surabaya.ac.id/index.php/pgsd/article/%20download/%201051/730>.

Yusuf, M. (2015). *Asesmen dan evaluasi pendidikan pilar: pilar penyedia informasi dan kegiatan pengendalian mutu pendidikan*. Jakarta: Prenadamedia Group.