DAFTAR PUSTAKA

- Best, J. W., & Kahn, J. V. (2006). *Research in education* (10th ed.). New York: A and B Pearson.
- Beyer, W. H. (2019). Handbook of tables for probability and statistics. Boca Raton: CRP Press. <u>https://doi.org/10.1201/9781351073127</u>
- Bi, M., Zhao, Z., Yang, J., & Wang, Y. (2019). Comparison of case-based learning and traditional method in teaching postgraduate students of medical oncology. *Medical Teacher*, 41(10), 1124–1128. <u>https://doi.org/10.1080/0142159X.2019.1617414</u>
- Bosse, H. M., Schultz, J. H., Nickel, M., Lutz, T., Möltner, A., Jünger, J., & Nikendei, C. (2012). The effect of using standardized patients or peer role play on ratings of undergraduate communication training: a randomized controlled trial. *Patient education and counseling*, 87(3), 300-306. https://doi.org/10.1016/j.pec.2011.10.007
- Brandon, A. F., & All, A. C. (2010). Constructivism theory analysis and application to curricula. *Nursing Education Perspectives*, *31*(2), 89–92.
- Bridges, E. M., & Hallinger, P. (1999). The use of cases in problem based learning. Journal of Cases in Educational Leadership, 2(2), 1–6. https://doi.org/10.1177/155545899900200201

Chang, R. (2010). Chemistry (10th ed.). New York: The McGraw-Hill Companies.

- Chester, V. (2011). Using clinical gait case studies to enhance learning in biomechanics. *Bioscience Education*, 17(1), 1–5. https://doi.org/10.3108/beej.17.6
- Cho, Y. H., Caleon, I. S., & Kapur, M. (2015). Authentic problem solving and learning in the 21st century: Perspectives from Singapore and beyond. Singapore: Springer. https://doi.org/10.1007/978-981-287-521-1
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). New York: Routledge. <u>https://doi.org/10.4324/9781315456539</u>
- Cornely, K. (2003). Content and conflict: The use of current events to teach content in a biochemistry course. *Biochemistry and Molecular Biology Education*, 31(3), 173–176. <u>https://doi.org/10.1002/bmb.2003.494031030214</u>
- Creswell, J. W. (2012). *Education research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). New York: Pearson.
- Dewey, J. (1910). Science as subject-matter and as method. *Science*, *31*(787), 121–127. <u>https://doi.org/10.1126/science.31.787.121</u>

- Fardilha, M., Schrader, M., da Cruz e Silva, O. A. B., & da Cruz e Silva, E. F. (2010). Understanding fatty acid metabolism through an active learning approach. *Biochemistry and Molecular Biology Education*, 38(2), 65–69. <u>https://doi.org/10.1002/bmb.20330</u>
- Finegold, M., & Mass, R. (1985). Differences in the processes of solving physics problems between good physics problem solvers and poor physics problem solvers. *Research in Science & Technological Education*, 3(1), 59–67. <u>https://doi.org/10.1080/0263514850030107</u>
- Fülöp, É. (2021). Developing problem-solving abilities by learning problemsolving strategies: An exploration of teaching intervention in authentic mathematics classes. *Scandinavian Journal of Educational Research*, 65(7), 1309-1326. <u>https://doi.org/10.1080/00313831.2020.1869070</u>
- Garvey, M. T., O'Sullivan, M., & Blake, M. (2000). Multidisciplinary case-based learning for undergraduate students. *European Journal of Dental Education*, 4(4), 165–168. <u>https://doi.org/10.1034/j.1600-0579.2000.040404.x</u>
- Ge, X., & Land, S. M. (2003). Scaffolding students' problem-solving processes in an ill-structured task using question prompts and peer interactions. *Educational Technology Research and Development*, 51(1), 21–38. <u>https://doi.org/10.1007/BF02504515</u>
- Ghanizadeh, A. (2017). The interplay between reflective thinking, critical thinking, self-monitoring, and academic achievement in higher education. *Higher Education*, 74, 101-114. <u>https://doi.org/10.1007/s10734-016-0031-y</u>
- Gijbels, D., Dochy, F., Van den Bossche, P., & Segers, M. (2005). Effects of problem-based learning: A meta-analysis from the angle of assessment. *Review of Educational Research*, 75(1), 27–61. <u>https://doi.org/10.3102/00346543075001027</u>
- Gulacar, O., Eilks, I., & Bowman, C. R. (2014). Differences in general cognitive abilities and domain-specific skills of higher-and lower-achieving students in stoichiometry. *Journal of Chemical Education*, 91(7), 961–968. <u>https://doi.org/10.1021/ed400894b</u>
- Gulacar, O., Overton, T. L., Bowman, C. R., & Fynewever, H. (2013). A novel code system for revealing sources of students' difficulties with stoichiometry. *Chemistry Education Research and Practice*, 14(4), 507–515. https://doi.org/10.1039/C3RP00029J
- Hatch, E., & Farhady, H. (1982). *Research design and statistics for applied linguistic*. Los Angeles: New Burry House Publishers.
- Herreid, C. F. (1997). What is a Case?. *Journal of College Science Teaching*, 27(2), 92.
- Heyworth, R. M. (2010). Procedural and conceptual knowledge of expert and

novice students for the solving of a basic problem in chemistry. *International Journal of Science Education*, 21(2), 195–211. https://doi.org/10.1080/095006999290787

- Ijirana, Gayatri, G., & Absari, M. (2020). Analisis kemampuan pemecahan masalah kimia peserta didik kelas XI di SMAN kota Palu Sulawesi Tengah. *Jurnal Dinamika Pendidikan, 13*(3), 255–263.
- Jeotee, K. (2012). *Reasoning skills, problem solving ability and academic ability: implications for study programme and career choice in the context of higher education in Thailand* (Doctoral dissertation, Durham University).
- Jonassen DH, Hernandez-Serrano J. (2002). Case-based reasoning and instructional design: Using stories to support problem solving. *Educational Technology Research and Development*, 50(2), 65–78. <u>https://doi.org/10.1007/BF02504994</u>
- Joseph, E. V., & Bungihan, M. E. (2019). Problem-based learning approach enhances the problem solving skills in chemistry og high school students. *Journal og Technology and Science Education*, 9(3), 282–294. <u>https://doi.org/10.3926/jotse.631</u>
- Karagozlu, D. (2018). Determination of the impact of augmented reality application on the success and problem-solving skills of students. *Quality and Quantity*, 52(5), 2393–2402. https://doi.org/10.1007/s11135-017-0674-5
- Kolodner, J. L., Camp, P. J., Crismond, Crismond, D., Fasse, B., Gray, J., Holbrook, J., Puntambekar, S., & Ryan, M. (2003). Problem-based learning meets casebased reasoning in the middle-school science classroom: Putting learning by design (tm) into practice. *The journal of the learning sciences*, 12(4), 495-547. https://doi.org/10.1207/S15327809JLS1204_2
- Kurtz, A. K., & Mayo, S. T. (2012). *Statistical methods in education and psychology*. New York: Springer Science & Business Media.
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28(4), 563–575. <u>https://doi.org/10.1111/j.1744-</u> <u>6570.1975.tb01393.x</u>
- Li, S., Ye, X., & Chen, W. (2019). Practice and effectiveness of "nursing case-based learning" course on nursing student's critical thinking ability: A comparative study. *Nurse Education in Practice*, 36, 91–96. https://doi.org/10.1016/j.nepr.2019.03.007
- Lorenzo, M. (2005). The development, implementation, and evaluation of a problem solving heuristis. *International Journal of Science and Mathematics Education*, *3*, 33–58. <u>https://doi.org/10.1007/s10763-004-8359-7</u>
- McCormick, R. (1997). Conceptual and procedural knowledge. *International journal of technology and design education*, 7, 141-159.

https://doi.org/10.1023/A:1008819912213

- Mesthrige, J. W., Lam, P. T. I., Chiang, Y.-H., & Samarasinghalage, T. I. (2021). Effectiveness of case-based learning: Views of construction and real estate students. *International Journal of Construction Education and Research*, 17(4), 318–332. <u>https://doi.org/10.1080/15578771.2020.1758254</u>
- Millard, J. T. (2009). Television medical dramas as case studies in biochemistry. *Journal of Chemical Education*, 86(10), 1216. <u>https://doi.org/10.1021/ed086p1216</u>
- Orgill, M., & Sutherland, A. (2008). Undergraduate chemistry students' perceptions of and misconceptions about buffers and buffer problems. *Chemistry Education Research and Practice*, 9(2), 131–143. <u>https://doi.org/10.1039/B806229N</u>
- Putra, A. A. I. A., Aminah, N. S., Marjuki, A., & Pamungkas, Z. S. (2020). The profile of student's problem solving skill using analytical problem solving test (apst) on the topic of thermodynamic. *Journal of Physics: Conference Series*, 1567(3), 032-082. https://doi.org/10.1088/1742-6596/1567/3/032082
- Polya ,G. (1945). *How to solve it*. New Jersey: Princeton University Press. https://doi.org/10.1515/9781400828678
- Rahman, M. (2019). 21st century skill "problem solving": Defining the concept. Asian Journal of Interdisciplinary Research, 2(1), 71-81. <u>https://doi.org/10.34256/ajir1917</u>
- Rao, C., Prasad, H. L. K., Sajitha, K., Permi, H., & Shetty, J. (2016). Item analysis of multiple choice questions: Assessing an assessment tool in medical students. *International Journal of Educational and Psychological Researches*, 2(4), 201. <u>https://doi.org/10.4103/2395-2296.189670</u>
- Reeff, J. P. (1999). New assessment tools for cross-curricular competencies in the domain of problem solving. <u>URL (31.07. 2006): http://www.ppsw.rug.nl/~</u> <u>peschar/TSE.pdf.</u>
- Reilly R. C. (2010). Participatory case study. In A. J. Mills, G. Durepos, E. Wiebe. (ed.), *Encyclopedia of Case Study Research*. (vol. 2, pp. 658–663). SAGE Publications.
- Shahat, M. A., Ohle, A., Treagust, D. F., & Fischer, H. E. (2013). Design, development and validation of a model of problem solving for Egyptian science classes. *International Journal of Science and Mathematics Education*, 11(5), 1157-1181. <u>https://doi.org/10.1007/s10763-012-9367-7</u>
- Shanta, S., & Wells, J. G. (2022). T/E design based learning: Assessing student critical thinking and problem solving abilities. *International Journal of Technology and Design Education*, 32(1), 267-285. https://doi.org/10.1007/s10798-020-09608-8

- Srisawasdi, N. (2012). Fostering pre-service STEM teachers' technological pedagogical content knowledge: A lesson learned from case-based learning approach. *Journal of The Korean Association for Science Education*, 32(8), 1356–1366. <u>https://doi.org/10.14697/jkase.2012.32.8.1356</u>
- Taber, K. (2002). *Chemical misconceptions: Prevention, diagnosis and cure*. Cambridge: Royal Society of Chemistry.
- Talanquer, V. (2011). Macro, submicro, and symbolic: The many faces of the chemistry "triplet". *International Journal of Science Education*, 33(2), 179-195. <u>https://doi.org/10.1080/09500690903386435</u>
- Thistlethwaite, J. E., Davies, D., Ekeocha, S., Kidd, J. M., MacDougall, C., Matthews, P., Purkis, J., & Clay, D. (2012). The effectiveness of case-based learning in health professional education. A BEME systematic review: BEME Guide No. 23. *Medical Teacher*, 34(6), e421–e444. <u>https://doi.org/10.3109/0142159X.2012.680939</u>
- Trilling, B., & Fadel, C. (2009). 21st century skills: Learning for life in our times. San Francisco: John Wiley & Sons.
- Valdez, J. E., & Bungihan, M. E. (2019). Problem-based learning approach enhances the problem solving skills in chemistry of high school students. *Journal of Technology and Science Education*, 9(3), 282-294. <u>https://doi.org/10.3926/jotse.631</u>
- Van Ausdal, R. G. (1988). Structured problem solving in kinematics. *The Physics Teacher*, 26(8), 518–522. <u>https://doi.org/10.1119/1.2342607</u>
- Williams, B. (2004). The implementation of case-based learning-shaping the pedagogy in ambulance education. *Journal of Emergency Primary Health Care*, 2(3), 577–581. <u>https://doi.org/10.33151/ajp.2.3.286</u>
- Yadav, A., Lundeberg, M., DeSchryver, M., Dirkin, K., Schiller, N. A., Maier, K., & Herreid, C. F. (2007). Teaching science with case studies: A national survey of faculty perceptions of the benefits and challenges of using cases. *Journal of College Science Teaching*, 37(1), 34-38.
- Yalçınkaya, E., & Boz, Y. (2015). The effect of case-based instruction on 10th grade students' understanding of gas concepts. *Chemistry Education Research* and Practice, 16(1), 104-120. <u>https://doi.org/10.1039/C4RP00156G</u>
- Yoo, M. S., & Park, H. R. (2015). Effects of case-based learning on communication skills, problem-solving ability, and learning motivation in nursing students. *Nursing and Health Sciences*, 17(2), 166–172. <u>https://doi.org/10.1111/nhs.12151</u>
- Yu, K.-C., Fan, S.-C., & Lin, K.-Y. (2015). Enhancing Students' Problem-Solving Skills Through Context-Based Learning. *International Journal of Science and Mathematics Education*, 13(6), 1377–1401. <u>https://doi.org/10.1007/s10763-</u>

014-9567-4

- Yuriev, E., Naidu, S., Schembri, L. S., & Short, J. L. (2017). Scaffolding the development of problem-solving skills in chemistry: Guiding novice students out of dead ends and false starts. *Chemistry Education Research and Practice*, 18(3), 486–504. <u>https://doi.org/10.1039/C7RP00009J</u>
- Zhong, L., & Xu, X. (2019). Developing real life problem-solving skills through situational design: A pilot study. *Educational Technology Research and Development*, 67(6), 1529–1545. <u>https://doi.org/10.1007/s11423-019-09691-</u>

