

## DAFTAR PUSTAKA

- Aghakhani, H. and Sadeghi, R. and Gholami, H. (2023). "The Effect of Digital Tools in Problem-Based Learning: A Systematic Review." *Education and Information Technologies* 28(2):1675–93. doi: 10.1007/s10639-022-11412-3.
- Amin, A. and Pratiwi, D. and Fathurrahman, M. (2020). *Metodologi Penelitian Pendidikan*. Deepublish.
- Bandura, Albert. (1997). *Self-Efficacy: The Exercise of Control*. Macmillan.
- Bandura, Albert. (2020). *Self-Efficacy: The Exercise of Control*. New York: W. H. Freeman.
- Barrows, Howard S. (1986). "A Taxonomy of Problem-Based Learning Methods." *Medical Education* 20(6):481–86.
- Basu, Santanu. (2017). "Publication Bias in Meta-Analysis: Detection and Implications." *Journal of Quantitative Methods*.
- Belland, Brian R. and Walker, Andrew E. and Kim, Nam Ju and Lefler, Mason. (2017). "Synthesizing Results from Empirical Research on Computer-Based Scaffolding in STEM Education: A Meta-Analysis." *Review of Educational Research* 87(2):309–44. doi: 10.3102/0034654316670999.
- Belland, Brian R. and Walker, Andrew E. and Kim, Nam Ju. (2017). "A Bayesian Network Meta-Analysis of Problem-Based Learning: Differences across Problem Types, Implementation Types, Disciplines, and Assessment Levels." *Review of Educational Research* 87(1):104–40. doi: 10.3102/0034654316630406.
- Belland, et al. (2020). "Synthesizing Results from Empirical Research on Computer-Based Scaffolding in STEM Education: A Meta-Analysis." *Review of Educational Research* 87(2):309–44. doi: 10.3102/0034654316670999.
- Bong, Mimi and Skaalvik, Einar M. (2003). "Academic Self-Concept and Self-Efficacy: How Different Are They Really?" *Educational Psychology Review* 15(1):1–40.
- Borenstein, Michael and Hedges, Larry V. and Higgins, Julian P. T. and Rothstein, Hannah R. (2021). *Introduction to Meta-Analysis*. 2nd ed. Chichester, UK: John Wiley & Sons.
- Boud, David and Falchikov, Nancy. (2007). "Rethinking Assessment in Higher Education: Learning for the Longer Term."

- Chi, et al. (2014). "The ICAP Framework: Linking Cognitive Engagement to Active Learning Outcomes." *Educational Psychologist* 49(4):219–43.
- Creswell, John W. and Creswell, J. David. (2021). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 5th ed. Thousand Oaks, CA: SAGE Publications.
- Crocetti, Emanuele. (2016). "Systematic Reviews with Meta-Analysis: Why, When, and How?" *European Journal of Developmental Psychology* 13(3):265–67. doi: 10.1080/17405629.2015.1101134.
- Dahlan, M. Sopiudin. (2019). *Meta-Analysis: Langkah-Langkah Praktis Dan Penerapannya*. Jakarta: Epidemiologi Indonesia.
- Ennis, Robert H. (1987). "A Taxonomy of Critical Thinking Dispositions and Abilities." *Teaching Thinking and Problem Solving* 9–26.
- Ertmer, Peggy A. and Simons, Krista D. (2006). "Jumping the PBL Implementation Hurdle: Supporting the Efforts of K–12 Teachers." *Interdisciplinary Journal of Problem-Based Learning* 1(1):5–15.
- Facione, Peter A. (2015). *Critical Thinking: What It Is and Why It Counts*.
- Facione, Peter A. (2020). *Critical Thinking: What It Is and Why It Counts*. Insight Assessment.
- Fitriani and Surya, Edy. (2020). "Pengaruh Model Problem Based Learning Terhadap Hasil Belajar Dan Kemampuan Pemecahan Masalah Matematis Siswa." *Jurnal Pendidikan Matematika*.
- Fitriani, et al. (2024). "Analisis Kemampuan Berpikir Kritis Siswa Dalam Pembelajaran Matematika." *Jurnal Pendidikan Matematika* 18(1):45–57.
- Gomez, E. and Azcona, D. and Griffiths, M. (2021). "Online Collaborative Platforms in Problem-Based Learning: A Systematic Review." *Interactive Learning Environments* 29(7):1015–30. doi: 10.1080/10494820.2019.1609573.
- Gunawan, I. and Sutarto, H. and Widodo, S. (2023). "Problem-Based Learning and Critical Thinking Skills: A Systematic Review." *Journal of Educational Research* 116(2):145–60.
- Harahap, et al. (2023). "The Effect of Problem Based Learning on Students' Critical Thinking Skills in Mathematics Learning." *Journal of Mathematics Education* 14(2):120–32.

- Hasanah, N. and Ningsih, T. (2022). "Pengaruh Problem Based Learning Terhadap Kemampuan Pemecahan Masalah Matematika." *Jurnal Pendidikan Matematika* 16(1):12–24.
- Higgins, Julian P. T. and Thomas, James and Chandler, Jacqueline and Cumpston, Miranda and Li, Tianjing and Page, Matthew J. and Welch, Vivian A. (2022). *Cochrane Handbook for Systematic Reviews of Interventions*. 2nd ed. Chichester, UK: John Wiley & Sons.
- Hmelo-Silver, Cindy E. (2004). "Problem-Based Learning: What and How Do Students Learn?" *Educational Psychology Review* 16(3):235–66.
- Hmelo-Silver, Cindy E. (2013). "Problem-Based Learning: What and How Do Students Learn?" *Educational Psychology Review* 16(3):235–66.
- Hmelo-Silver, et al. (2007). "Scaffolding and Achievement in Problem-Based and Inquiry Learning." *Educational Psychologist* 42(2):99–107.
- Hung, Woei. (2020). "Problem-Based Learning: A Learning Environment for Enhancing Learning Transfer." *New Directions for Teaching and Learning* 2020(163):97–106.
- Hung, Woei. (2021). "Theory to Reality: A Few Issues in Implementing Problem-Based Learning." *Educational Technology Research and Development* 69(2):935–39. doi: 10.1007/s11423-021-09963-1.
- Irfan, Latif and Jailani and Susanti, Dwi. (2022). "Peningkatan Kemampuan Pemecahan Masalah Matematis Dan Self-Efficacy Siswa Melalui Model Pembelajaran Problem Based Learning." *AKSIOMA: Jurnal Program Studi Pendidikan Matematika* 11(3):2142–50.
- Kementerian Pendidikan, Kebudayaan, Riset dan Teknologi. (2022). "Kurikulum Merdeka Sebagai Upaya Pemulihan Pembelajaran."
- Khan. (2020). "Meta-Analysis in Educational Research: Methods and Applications."
- Kim, K. and Lee, H. (2021). "The Effects of Problem-Based Learning on Students' Mathematics Self-Efficacy and Learning Outcomes." *Journal of Educational Psychology* 113(4):732–48.
- Kirschner, Paul A. and Sweller, John and Clark, Richard E. (2006). "Why Minimal Guidance during Instruction Does Not Work." *Educational Psychologist* 41(2):75–86.
- Larasati, R. (2022). *Instrumen Pengkodean Penelitian Meta-Analisis*. Unesa

University Press.

- Latifah, N. and others. (2022). "Systematic Literature Review Dalam Penelitian Pendidikan." *Jurnal Penelitian Pendidikan* 12(2):55–67.
- Lee, H. and Choi, H. (2021). "Fostering Critical Thinking through Problem-Based Learning in Mathematics Education." *Journal of Mathematics Education* 14(3):55–70.
- Lestari, Y. and Pramudiani, P. and Hartati, T. (2021). "Kolaborasi Siswa Dalam Problem Based Learning." *Jurnal Pendidikan Dan Pembelajaran* 27(1):43–56.
- Lestari, Y. and Rahman, A. and Putra, D. (2021). "Implementasi Problem-Based Learning Dalam Pembelajaran Matematika." *Jurnal Pendidikan Matematika* 15(2):134–47.
- Lestari, et al. (2024). "Problem Based Learning Dan Self-Efficacy Dalam Pembelajaran Matematika." *Jurnal Riset Pendidikan Matematika* 11(1):66–79.
- Loyens, Sofie M. M. and Kirschner, Paul A. and Paas, Fred. (2015). "Problem-Based Learning." in *The SAGE Encyclopedia of Educational Technology*. SAGE.
- Loyens, Diana H. J. M. Dolmans and Sofie M. M. (2016). "Deep and Surface Learning in Problem-Based Learning: A Review of the Literature." *Advances in Health Sciences Education* 21(5):1087–1112. doi: 10.1007/s10459-015-9645-6.
- Lu, et al. (2025). "A Meta-Analysis of the Effectiveness of Problem-Based Learning on Critical Thinking." *European Journal of Educational Research*.
- Masek, Alias and Yamin, Siti Hawa. (2021). "The Effect of Problem-Based Learning on Students' Learning Outcomes, Motivation, and Problem-Solving Skills." *Journal of Education and Learning*.
- Merriyana. (2006). "Meta-Analisis Penelitian Pendidikan."
- Nguyen, T. T. and Le, Q. A. and Nguyen, H. T. (2022). "Problem-Based Learning in Mathematics." *International Journal of Instruction* 15(3):287–304.
- Nugroho and others. (2022). "Pengaruh Problem Based Learning Terhadap Kemampuan Berpikir Kritis Dan Self-Efficacy Siswa Dibandingkan Dengan Pembelajaran Ekspositori."

- Nurhayati, et al. (2024). "Persepsi Peserta Didik Terhadap Pembelajaran Matematika Di Sekolah Menengah." *Jurnal Inovasi Pendidikan* 9(2):88–99.
- Pajares, Frank and Miller, M. D. (1994). "Role of Self-Efficacy and Self-Concept Beliefs in Mathematical Problem Solving: A Path Analysis." *Journal of Educational Psychology* 86(2):193–203.
- Paul, Richard and Elder, Linda. (2006). *Critical Thinking: Tools for Taking Charge of Your Learning and Your Life*. 2nd ed. Upper Saddle River, NJ: Prentice Hall.
- Paul, Richard. (2022). *Critical Thinking in the 21st Century*. Rowman & Littlefield.
- Piaget, Jean. (1972). *The Psychology of the Child*. New York: Basic Books.
- Van de Pol, Jan and Zijsling, Daphne. (2020). "Scaffolding in Teacher–Student Interaction: A Decade of Research." *Educational Psychology Review* 32(3):863–87. doi: 10.1007/s10648-020-09520-8.
- Pratiwi, L. and Suryani, D. and Ramadhan, M. (2022). "Tantangan Penerapan Problem Based Learning Dalam Kurikulum Sekolah." *Jurnal Pendidikan Dasar* 13(2):221–30.
- Pratiwi, et al. (2024). "Faktor-Faktor Yang Mempengaruhi Self-Efficacy Matematis Peserta Didik." *Jurnal Cendekia Pendidikan Matematika* 8(1):102–15.
- Rahmatullah, M. and Setiawan, R. and Putri, A. (2023). "Meta-Analysis of Problem-Based Learning Effects on Students' Critical Thinking and Learning Outcomes." *Journal of Educational Research* 115(4):421–39.
- Rahmawati and others. (2023). "The Challenges of Problem-Based Learning in Mathematics Classrooms." *Jurnal Riset Pendidikan Matematika* 10(1):45–56.
- Rao, P. (2023). *Meta-Analysis in Educational Research: Methods and Applications*. Routledge.
- Retnawati, et al. (2018). *Pengantar Analisis Meta Untuk Penelitian Pendidikan*. Parama Publishing.
- Retnawati, Heri, Ezi Apino, Kartianom, Hasan Djidu, and Rizqa D. Anazifa. (2018). *Pengantar Analisis Meta*.
- Richard, J. and Vincent, T. (2020). "Classroom Culture and Collaboration in Problem-Based Learning." *Education and Practice* 12(3):67–79.

- Richard, et al. (2018). "The Role of Structured Collaboration in Problem-Based Learning: Enhancing Communication and Social Skills."
- Ridwan, M. and Sutrisno, D. and Prasetyo, A. (2022). "Desain Meta-Analisis Dalam Penelitian Pendidikan." *Jurnal Evaluasi Pendidikan* 13(2):99–110.
- Rosdiana. (2021). "Meta-Analisis Dalam Penelitian Pendidikan: Pendekatan Sistematis Dan Penggunaan Effect Size."
- Santoso, D. and Pratama, R. (2021). "Evaluasi Pembelajaran Berbasis Masalah Di Sekolah Menengah." *Jurnal Evaluasi Pendidikan* 9(2):110–22.
- Sari, A. and Nurhayati, T. (2022). "Penilaian Autentik Dalam Problem Based Learning." *Jurnal Inovasi Pendidikan* 19(1):50–61.
- Sari, et al. (2023). "Pembelajaran Matematika Dan Kemampuan Pemecahan Masalah Kontekstual Peserta Didik." *Jurnal Pendidikan Matematika Indonesia* 8(2):134–45.
- Savery, John R. (2006). "Overview of Problem-Based Learning." *Interdisciplinary Journal of Problem-Based Learning* 1(1):9–20. doi: 10.7771/1541-5015.1002.
- Savery, John R. (2015). "Overview of Problem-Based Learning: Revisions and Updates." *Interdisciplinary Journal of Problem-Based Learning* 9(1):1–15. doi: 10.7771/1541-5015.1506.
- Schmidt, Henk G. and Rotgans, Jerome I. and Yew, Elaine H. J. (2011). "The Process of Problem-Based Learning: What Works and Why." *Medical Education* 45(8):792–806. doi: 10.1111/j.1365-2923.2011.04035.x.
- Schunk, Dale H. and DiBenedetto, Maria K. (2020). "Motivation and Social Cognitive Theory." *Contemporary Educational Psychology* 60:101832. doi: 10.1016/j.cedpsych.2019.101832.
- Schunk, et al. (2012). *Learning Theories: An Educational Perspective*. 6th ed. Boston, MA: Pearson.
- Schunk, et al. (2020). "Motivation and Social Cognitive Theory." *Contemporary Educational Psychology* 60:101832. doi: 10.1016/j.cedpsych.2019.101832.
- Siegel and others. (2021). "Assessing Publication Bias in Meta-Analysis: Methods and Thresholds for Interpretation."
- Stepien, William J. and Gallagher, Shelagh A. (1993). "Problem-Based Learning: As Authentic as It Gets." *Educational Leadership* 50(7):25–28.

- Sterne, et al. (2011). "Recommendations for Examining and Interpreting Funnel Plot Asymmetry in Meta-Analyses of Randomised Controlled Trials." *BMJ* 343:d4002. doi: 10.1136/bmj.d4002.
- Strobel, Johannes and van Barneveld, Angela. (2009). "When Is PBL More Effective? A Meta-Synthesis of Meta-Analyses Comparing PBL to Conventional Classrooms." *Interdisciplinary Journal of Problem-Based Learning* 3(1):44–58. doi: 10.7771/1541-5015.1046.
- Sugiyono. (2022). *Metode Penelitian Kuantitatif, Kualitatif, Dan R\&D*. Bandung: Alfabeta.
- Sungur, Semra and Tekkaya, Ceren. (2006). "Effects of Problem-Based Learning and Traditional Instruction on Self-Regulated Learning." *The Journal of Educational Research* 99(5):307–17.
- Sungur, Semra and Tekkaya, Ceren. (2020). "Effects of Problem-Based Learning and Traditional Instruction on Self-Regulated Learning." *Journal of Educational Psychology* 95(2):307–15.
- Suparman, A. and Anwar, H. (2023). "Problem-Based Learning Dalam Era Digital." *Jurnal Teknologi Pendidikan* 25(1):33–44.
- Suprpto, et al. (2021). "Kesiapan Guru Dalam Implementasi Problem-Based Learning." *Jurnal Pendidikan Guru* 13(2):121–32.
- Susanti, R. and Wijayanti, D. and Putra, S. (2022). "Peer Review Dan Kolaborasi Dalam Problem Based Learning." *Jurnal Pendidikan Matematika* 18(1):55–65.
- Tan, et al. (2021). *Problem-Based Learning Innovation: Using Problems to Power Learning in the 21st Century*. Singapore: Springer.
- Tan, Oon Seng. (2003). *Problem-Based Learning Innovation*. Cengage Learning.
- Usher, Ellen L. and Pajares, Frank. (2019). "Sources of Self-Efficacy in School." *Review of Educational Research* 89(2):275–302. doi: 10.3102/0034654318819307.
- Usher, et al. (2020). "Sources of Self-Efficacy in Mathematics." *Contemporary Educational Psychology* 60:101830. doi: 10.1016/j.cedpsych.2019.101830.
- Usher, et al. (2022). "Mathematics Self-Efficacy and Student Learning Outcomes." *Educational Psychologist* 57(4):250–67.
- Voogt, Joke and Roblin, Natalia P. (2022). "A Comparative Analysis of

- International Frameworks for 21st Century Competences: Implications for Curriculum and Problem-Based Learning.” *Studies in Educational Evaluation* 74:101171. doi: 10.1016/j.stueduc.2022.101171.
- Widodo, A. and Kurniawan, H. (2021). “Kendala Implementasi Problem-Based Learning Di Sekolah Dasar.” *Jurnal Pendidikan Dasar* 15(2):101–12.
- Yew, Elaine H. J. and Goh, Karen. (2016). “Problem-Based Learning.” *Health Professions Education* 2(2):75–79. doi: 10.1016/j.hpe.2016.01.002.
- Yew, Elaine H. J., and Karen Goh. (2016). “The Impact of PBL on Students’ Critical Thinking: A Longitudinal Study.” *Instructional Science* 44(4):443–66.
- Yew, et al. (2021). “Problem-Based Learning: An Overview of Its Process and Impact on Learning.” *Health Professions Education* 7(1):75–79. doi: 10.1016/j.hpe.2020.02.003.
- Yunita, R. and Sari, M. and Hidayat, T. (2021). “Kategori Ukuran Efek Dalam Meta-Analisis Pendidikan.” *Jurnal Riset Pendidikan Matematika* 8(1):45–56.
- Zimmerman, Barry J. (2000). “Self-Efficacy: An Essential Motive to Learn.” *Contemporary Educational Psychology* 25(1):82–91. doi: 10.1006/ceps.1999.1016.
- Zimmerman, Barry J. (2002). “Becoming a Self-Regulated Learner: An Overview.” *Theory into Practice* 41(2):64–70.