

DAFTAR PUSTAKA

- Abbas, M. L. H. (2019). Identifikasi miskonsepsi mahasiswa Tadris Fisika menggunakan four tier diagnostic test pada mata kuliah Kalkulus II. *Jurnal Matematika Dan Pendidikan Matematika*, 4(1), 7–16.
- Addido, J., Burrows, A. C., & Slater, T. F. (2022a). Addressing pre-service teachers' misconceptions and promoting conceptual understanding through the conceptual change model. *Problems of Education in the 21st Century*, 80(4), 499–515. <https://doi.org/10.33225/pec/22.80.499>
- Addido, J., Burrows, A., & Slater, T. (2022b). The Effect of the Conceptual Change Model on Conceptual Understanding of Electrostatics. *Education Sciences*, 12(10), 696. <https://doi.org/10.3390/educsci12100696>
- Aiken, L. R. (1985). Three Coefficients for Analyzing the Reliability and Validity of Ratings. *Educational and Psychological Measurement*, 45(1), 131–142. <https://doi.org/10.1177/0013164485451012>
- Allen, M. (2025). *Misconceptions in Primary Science* (4th ed.). Open University Press.
- Anderson, L. W., & Krathwohl, D. R. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. Longman.
- Andrade, C. (2021). The Inconvenient Truth About Convenience and Purposive Samples. *Indian Journal of Psychological Medicine*, 43(1), 86–88. <https://doi.org/10.1177/0253717620977000>
- Arikunto, S. (2021). *Dasar-Dasar Evaluasi Pendidikan* (Edisi 3). Bumi Aksara.
- Atchia, S. M. C., & Gunowa, M. (2025). Use of concept cartoons within the conceptual change model to address students' misconceptions in biology: A case study. *Journal of Biological Education*, 59(1), 162–180. <https://doi.org/10.1080/00219266.2024.2308305>
- Badan Standar dan Asesmen Pendidikan Kementerian Pendidikan Kebudayaan Riset dan Teknologi. (2024). *Keputusan Kepala Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Nomor 032/H/KR/2024 tentang Capaian Pembelajaran pada Pendidikan Anak Usia Dini, Jenjang Pendidikan Dasar, dan Jenjang Pendidikan Menengah pada Kurikulum Merdeka*. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.
- Barke, H.-D., Hazari, A., & Yitbarek, S. (2009). *Misconceptions in chemistry: Addressing perceptions in chemical education*. Springer. <https://doi.org/10.1007/978-3-540-70989-3>
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education* (8th ed.). Routledge. <https://doi.org/10.4324/9781315456539>

- Creswell, J. W. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (4th ed.). Pearson.
- Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). SAGE Publications.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297–334. <https://doi.org/10.1007/BF02310555>
- Duit, R., & Treagust, D. F. (2003). Conceptual change: A powerful framework for improving science teaching and learning. *International Journal of Science Education*, 25(6), 671–688. <https://doi.org/10.1080/09500690305016>
- Gilbert, J. K., & Treagust, D. F. (Eds.). (2009). *Multiple representations in chemical education*. Springer. <https://doi.org/10.1007/978-1-4020-8872-8>
- Hayati, M. N., & Riyanta, A. B. (2025). Exploring science teacher prospective misconception in hydrocarbon: A diagnostic three tiers test. *Unnes Science Education Journal*, 14(2), 222–235. <https://doi.org/10.15294/usej.v14i2.22026>
- Heller, A. (2022). Conceptual change in science teaching and learning: The role of pre-instructional conceptions. *Learning to Teach Language Arts, Mathematics, Science, and Social Studies Through Research and Practice*, 11(1).
- Hewson, P. W., & Thorley, N. R. (1989). The conditions of conceptual change in the classroom. *International Journal of Science Education*, 11(5), 541–553. <https://doi.org/10.1080/0950069890110506>
- Istiyani, R., Muchyidin, A., & Raharjo, H. (2018). Analysis of student misconception on geometry concepts using three-tier diagnostic test. *Jurnal Cakrawala Pendidikan*, 37(2), 223–236. <https://doi.org/10.21831/cp.v37i2.14493>
- Karini, R. A., Fikroh, R. A., & Cahyani, V. P. (2022). Identification of students' misconceptions on hydrocarbon material using a four-tier multiple choice diagnostic test. *Jurnal Pendidikan Kimia Indonesia*, 6(2), 79–87. <https://doi.org/10.23887/jpki.v6i2.39022>
- Kurniawan, Y., Suhandi, A., & Hasanah, L. (2016). The influence of implementation of interactive lecture demonstrations (ILD) conceptual change oriented toward the decreasing of the quantity students that misconception on the Newton's first law. *AIP Conference Proceedings*, 1708. <https://doi.org/10.1063/1.4941180>
- Levene, H. (1960). Robust tests for equality of variances. In I. Olkin, S. G. Ghurye, W. Hoeffding, W. G. Madow, & H. B. Mann (Eds.), *Contributions to Probability and Statistics: Essays in Honor of Harold Hotelling* (pp. 278–292). Stanford University Press.
- Maknun, J., & Marwiah, M. (2022). Remediation of Misconceptions Vocational High School Students on the Concept of Static Fluids using the Conceptual

- Change Model. *Journal of Technical Education and Training*, 14(2), 49–56. <https://doi.org/10.30880/jtet.2022.14.02.005>
- Mislawati, M., Lukman, I. R., Masyithah, A., Hayatul, M., Nazwa, M. M., & Sakdiah, H. (2025). Diagnostic Analysis of Students' Hydrocarbon Concept Mastery Using Two-Tier Multiple Choice Test. *Electronic Journal of Education, Social Economics and Technology*, 6(2), 1063. <https://doi.org/10.33122/ejeset.v6i2.1063>
- Munawwarah, M., & Ashari, A. (2025). Unveiling Misconceptions in Chemistry: A Review of Causes, Common Patterns, and Levels of Student Understanding. *Jurnal Studi Guru Dan Pembelajaran*, 8(3), 1765–1778. <https://doi.org/10.30605/jsgp.8.3.2025.6935>
- Nahm, F. S. (2016). Nonparametric statistical tests for the continuous data: the basic concept and the practical use. *Korean Journal of Anesthesiology*, 69(1), 8–14. <https://doi.org/10.4097/kjae.2016.69.1.8>
- Nurrahmah, N. A., & Sukarmin. (2023). Pengembangan E-flipbook Interaktif dengan Strategi Conceptual Change sebagai Media Reduksi Miskonsepsi Peserta Didik pada Materi Laju Reaksi. *PENDIPA Journal of Science Education*, 7(2), 185–194. <https://doi.org/10.33369/pendipa.7.2.185-194>
- Olii, M. D., Bialangi, N., Tangio, J. S., Sihaloho, M., & Kurniawati, E. (2025). Analysis of students' level of understanding of hydrocarbon concepts using a three-level diagnostic multiple-choice approach. *Jambura Journal of Educational Chemistry*, 7(2), 64–71. <https://doi.org/10.37905/jjec.v7i2.33603>
- Pacaci, C., Ustun, U., & Ozdemir, O. F. (2024). Effectiveness of conceptual change strategies in science education: A meta-analysis. *Journal of Research in Science Teaching*, 61(6), 1263–1325.
- Posner, G. J., Strike, K. A., Hewson, P. W., & Gertzog, W. A. (1982). Accommodation of a scientific conception: Toward a theory of conceptual change. *Science Education*, 66(2), 211–227. <https://doi.org/10.1002/sce.3730660207>
- Retnawati, H. (2016). *Analisis Kuantitatif Instrumen Penelitian (Panduan Peneliti, Mahasiswa, dan Psikometrian)*. Parama Publishing.
- Rizqiyyah, F. N., & Novita, D. (2022). Feasibility of students worksheets using conceptual change to remedy misconceptions on chemical bonding material. *Journal of Chemistry Education Research*, 6(1), 1–7.
- Roghdah, S. J., Zammi, M., & Mardhiya, J. (2021). Pengembangan four-tier multiple choice diagnostic test untuk mengetahui tingkat pemahaman konsep peserta didik pada materi termokimia. *Phenomenon: Jurnal Pendidikan MIPA*, 11(1), 57–74. <https://doi.org/10.21580/phen.2021.11.1.8573>
- Samsudin, A., Cahyani, P. B., Purwanto, P., Rusdiana, D., Efendi, R., Aminudin, A. H., & Coştu, B. (2021). Development of a multitier open-ended work and energy instrument (MOWEI) using Rasch analysis to identify students'

- misconceptions. *Cypriot Journal of Educational Sciences*, 16(1), 16–31. <https://doi.org/10.18844/cjes.v16i1.5504>
- Samsudin, A., Zulfikar, A., Saepuzaman, D., Suhandi, A., Aminudin, A. H., Supriyadi, S., & Coştu, B. (2024). Correcting grade 11 students' misconceptions of the concept of force through the conceptual change model (CCM) with PDEODE*E tasks. *Journal of Turkish Science Education*, 21(2), 212–231. <https://doi.org/10.36681/tused.2024.012>
- Shapiro, S. S., & Wilk, M. B. (1965). An analysis of variance test for normality (complete samples). *Biometrika*, 52(3–4), 591–611. <https://doi.org/10.1093/biomet/52.3-4.591>
- Shefityawan, W. B., Prihandono, T., & Lesmono, A. D. (2018). Identifikasi miskonsepsi siswa menggunakan four-tier diagnostic test pada materi optik geometri. *Jurnal Pembelajaran Fisika*, 7(2), 147–153.
- Stepans, J. (2003). *Targeting Students' Science Misconceptions: Physical Science Concepts Using the Conceptual Change Model* (3rd ed.). Showboard.
- Suparman, A. R., Rohaeti, E., & Wening, S. (2024). Student misconception in chemistry: A systematic literature review. *Pegem Journal of Education and Instruction*, 14(2), 238–252. <https://doi.org/10.47750/pegegog.14.02.28>
- Suprpto, N. (2020). Do We Experience Misconceptions?: An Ontological Review of Misconceptions in Science. *Studies in Philosophy of Science and Education*, 1(2), 50–55. <https://doi.org/10.46627/sipose.v1i2.24>
- Swafiyah, B., Asabe Muhammad, B., & Zaharaddeen Yamusa, A. (2022). *Effect of Conceptual Change Instructional Strategy on Chemistry Students' Performance in Acids and Bases Concepts*. <https://ejournal.bumipublikasinusantara.id/index.php/ajsed>
- Vosniadou, S. (2013). *International Handbook of Research on Conceptual Change* (2nd ed.). Routledge. <https://doi.org/10.4324/9780203154472>
- Zulfikar, A., Saepuzaman, D., Novia, H., Setyadin, A. H., Jubaedah, D. S., Sholihat, F. N., Muhaemin, M. H., Afif, N. F., Fratiwi, N. J., Bhakti, S. S., Amalia, S. A., Hidayat, S. R., Nursani, Z., Hermita, N., Costu, B., & Samsudin, A. (2019). Reducing Eleventh-Grade Students' Misconceptions on Gravity Concept using PDEODE*E-Based Conceptual Change Model. *Journal of Physics: Conference Series*, 1204(1). <https://doi.org/10.1088/1742-6596/1204/1/012026>