

## References

- Abrams, E., & Southerland, S. (2001). The how's and why's of biological change: How learners neglect physical mechanisms in their search for meaning. *International Journal of Science Education*, 23(12), 1271–1281.
- Barak, J., Sheva, B., Gorodetsky, M., & Gurion, B. (1999). As 'process' as it can get: Students' understanding of biological processes. *International Journal of Science Education*, 21(12), 1281–1292.
- Cummins, C., & Remsen Jr, J. (1992). The importance of distinguishing ultimate from proximate causation in the teaching and learning of biology. In *Proceedings of the Second International Conference for History and Philosophy of Science in Science Teaching* (Vol. 1, pp. 201–210).
- Dobzhansky, T. (1973). Nothing in biology makes sense except in the light of evolution. *The American Biology Teacher*, 35(3), 125–129.
- Gregory, T. R. (2009). Understanding natural selection: Essential concepts and common misconceptions. *Evolution: Education and Outreach*, 2(2), 156–175.
- Gropengiesser, H., Harms, H., & Kattmann, U. (2016). *Fachdidaktik Biologie [Biology Education]* (Twelfth ed.). Velber: Friedrich Verlag.
- Hammann, M., & Nehm, R. H. (2020). *Teleology and evolution education: Introduction to the special issue*. Springer.
- Jordan, R., Gray, S., Demeter, M., Lui, L., & Hmelo-Silver, C. E. (2009). An assessment of students' understanding of ecosystem concepts: Conflating ecological systems and cycles. *Applied Environmental Education and Communication*, 8(1), 40–48.
- Kalinowski, S. T., Leonard, M. J., & Taper, M. L. (2016). Development and validation of the conceptual assessment of natural selection (CANS). *CBE–Life Sciences Education*, 15(4), ar64.
- Kampourakis, K. (2020). Students' "teleological misconceptions" in evolution education: Why the underlying design stance, not teleology per se, is the problem. *Evolution: Education and Outreach*, 13(1), 1–12.
- Kampourakis, K., & Niebert, K. (2018). Explanation in Biology Education. In *Teaching Biology in Schools* (pp. 236–248). Routledge.
- Mayr, E. (1961). Cause and effect in biology. *Science*, 134(3489), 1501–1506.
- Nadelson, L. S., & Southerland, S. (2012). A more fine-grained measure of students' acceptance of evolution: Development of the Inventory of Student Evolution Acceptance—I-SEA. *International Journal of Science Education*, 34(11), 1637–1666.
- Nesse, R. M. (2013). Tinbergen's four questions, organized: A response to Bateson and Laland. *Trends in Ecology & Evolution*, 28(12), 681–82.

- Olander, C. (2010). *Towards an interlanguage of biological evolution: Exploring students talk and writing as an arena for sense-making*. Göteborgs Universitet.
- Riemeier, T. (2009). Wie erklären Schüler biologische Phänomene?—Eine Analyse von Schülerbeschreibungen und-erklärungen. [How do students explain biological phenomena—An analysis of students’ descriptions and explanations.]. In *Heterogenität erfassen—individuell fördern im Biologieunterricht* (pp. 71–83). Innsbruck: Studienverlag.
- Russ, R. S., Coffey, J. E., Hammer, D., & Hutchison, P. (2009). Making classroom assessment more accountable to scientific reasoning: A case for attending to mechanistic thinking. *Science Education*, 93(5), 875–891.
- Sbeglia, G. C., & Nehm, R. H. (2020). Illuminating the complexities of conflict with evolution: Validation of the scales of evolutionary conflict measure (SECM). *Evolution: Education and Outreach*, 13(1), 1–22.
- Scott, E. E., Anderson, C. W., Mashood, K., Matz, R. L., Underwood, S. M., & Sawtelle, V. (2018). Developing an analytical framework to characterize student reasoning about complex processes. *CBE—Life Sciences Education*, 17(3), ar49.
- Southerland, S. A., Abrams, E., Cummins, C. L., & Anzelmo, J. (2001). Understanding students’ explanations of biological phenomena: Conceptual frameworks or p-prims? *Science Education*, 85(4), 328–348.
- Speth, E. B., Shaw, N., Momsen, J., Reinagel, A., Le, P., Taqieddin, R., & Long, T. (2014). Introductory biology students’ conceptual models and explanations of the origin of variation. *CBE—Life Sciences Education*, 13(3), 529–539.
- Tinbergen, N. (1963). On aims and methods of ethology. *Zeitschrift für Tierpsychologie*, 20(4), 410–433.
- Trommler, F., Gresch, H., & Hammann, M. (2018). Students’ reasons for preferring teleological explanations. *International Journal of Science Education*, 40(2), 159–187.
- Trommler, F., & Hammann, M. (2020). The relationship between biological function and teleology: Implications for biology education. *Evolution: Education and Outreach*, 13, 1–16.