

Collaborative Research: Design and Development of a K-12 STEM Observation Protocol

Complete list of published works:

1. Dare, E. A., Ellis, J. A., Rouleau, M. D., Roehrig, G. H., & Ring-Whalen, E. A. (2022, June). Current practices in K-12 integrated STEM education: A comparison across science content areas and grade-levels (Fundamental). In *Proceedings of the 2022 ASEE Annual Conference and Exposition*. <https://peer.asee.org/40701>
2. Dare, E. A., Hiwatig, B., Keratithamkul, K., Ellis, J. A., Roehrig, G. H., Ring-Whalen, E. A., Rouleau, M. D., Faruqi, F., Rice, C., Titu, P., Li, F., Wieselmann, J. R., & Crotty, E. A. (2021). *Improving STEM education: The design and development of a K-12 classroom observation instrument (RTP)*. In *Proceedings of the 2021 ASEE Annual Conference and Exposition*. <https://peer.asee.org/37307>
3. Dare, E. A., Keratithamkul, K., Hiwatig, B. M., & Li, F. (2021). Beyond content: Exploring the role of STEM disciplines, real-world problem 21st century skills, and STEM careers within Science teachers' conceptions of STEM education. *Education Sciences*, 11(11). <https://doi.org/10.3390/educsci11110737>
4. Dare, E. A., & Ring-Whalen, E. A. (2021). Eliciting and refining conceptions of STEM education: A series of activities for professional development. *Innovations in Science Teacher Education*, 6(2) <https://innovations.theaste.org/eliciting-and-refining-conceptions-of-stem-education-a-series-of-activities-for-professional-development/>
5. Faruqi, F., Karatithamkul, K., Roehrig, G. H., Hiwatig, B. M., Forde, E., & Ozturk, N. (2022, June). Manifestation of Integration into practice: A single case study of an elementary science teacher in action (Research to Practice). In *Proceedings of the 2022 ASEE Annual Conference and Exposition*. <https://peer.asee.org/41230>
6. Forde, E. N., Robinson, L., Ellis, J., & Dare, E. A. (2023). Investigating the presence of mathematics and the levels of cognitively demanding mathematical tasks in integrated STEM units. *Disciplinary and Interdisciplinary Science Education Research*, 5(3), 1-18. <https://doi.org/10.1186/s43031-022-00070-1>
7. Hiwatig, B. M., Roehrig, G. H., Ellis, J. A., & Rouleau, M. D. (2022, June). Examining student cognitive engagement in integrated STEM (Fundamental). In *Proceedings of the 2022 ASEE Annual Conference and Exposition*. <https://peer.asee.org/41220>
8. Robinson, L., & Dare, E. A. (2022, June). How to use the STEM-OP levels to support the engineering design-based lesson plan template in the Framework for P-12 Engineering Learning (Resource Exchange). In *Proceedings of the 2022 ASEE Annual Conference and Exposition*. <https://peer.asee.org/41108>
9. Roehrig, G., Dare, E. A., Ellis, J. A., & Ring-Whalen, E. (2021). Beyond the basics: A detailed conceptual framework of integrated STEM. *Disciplinary and Interdisciplinary Science Education Research*, 3(11). <https://doi.org/10.1186/s43031-021-00041-y>
10. Roehrig, G. H., Dare, E. A., Wieselmann, J. R., & Ring-Whalen, E. A. (2022). The rise of STEM education: STEM curriculum development and implementation. In R. Tierney, F. Rizvi, & K. Ercikan (Eds), *International Encyclopedia of Education (4th edition)*. Elsevier.

11. Roehrig, G.H., Hiwatig, B., & Keratithamkul, K. (2020). The intersections of integrated STEM and socio-scientific issues, In W. Powell (Ed.) *Socioscientific issues-based instruction for scientific literacy development* (pp. 256-278). IGI Global.
12. Roehrig, G. H., Ring-Whalen, E. A., Dare, E. A., Ellis, J. A., & Wieselmann, J. R. (2019). WIP: The Development of a K-12 Integrated STEM Observation Protocol. In *Proceedings of the 2019 ASEE Annual Conference and Exposition*. Tampa, FL: ASEE.
<https://doi.org/10.18260/1-2--33573>
13. Roehrig, G. H., Rouleau, M. D., Dare, E. A., & Ring-Whalen, E. A. (2022). Uncovering core dimensions of K-12 integrated STEM. *Research in Integrated STEM Education, 1*, 1-25.
<https://doi.org/10.1163/27726673-00101004>
14. Sivaraj, R., Ellis, J. A., Wieselmann, J. R., & Roehrig, G. H. (2020). Computational participation and the learner-technology pairing in K-12 STEM education, *Human Behavior and Emerging Technologies, 2*(4), 387-400.
15. Sivaraj, R., Ellis, J., & Roehrig, G. (2019). Conceptualizing the T in STEM: A systematic review. In K. Graziano (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2019* (pp. 2273-2280). Chesapeake, VA: Association for the Advancement of Computing in Education.