Alec M. Bodzin, Ph.D., Professor, Teaching, Learning, & Technology Program
Department of Education and Human Services, Lehigh University

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RESEARCH INTERESTS

Design of immersive virtual reality learning environments; AI in learning; engagement and learning; learning with spatial thinking tools including GIS; learning design; design and implementation of inquiry-based science and environmental curriculum; learning technologies; game-based learning; environmental literacy.

EDUCATION

Ph.D.	North Carolina State University, Science Education Dissertation: *Purposeful Use of a Non-Restrictive, Asynchronous Public Web-Based Forum for Facilitating Reflective Discourse with Preservice Science Teachers. Raleigh, NC: doctoral dissertation.*	1999
M.Ed.	George Washington University, Science Education	1992
B.S.	University of Michigan, Biology and Psychology	1988

CERTIFICATIONS

South Carolina Board of Education Teaching Credential Professional Certificate Endorsements:
K-12 Science

PROFESSIONAL EXPERIENCE

5/14 – present	Professor, Department of Education and Human Services, Lehigh University, Bethlehem, PA.
9/16 – 12/19	Associate Chair, Department of Education and Human Services, Lehigh University, Bethlehem, PA.
6/05 – 4/14	Associate Professor, Department of Education and Human Services, Lehigh University, Bethlehem, PA.
8/99 – 5/05	Assistant Professor, Department of Education and Human Services, Lehigh University, Bethlehem, PA.
8/96 – 5/99	National Science Foundation Graduate Research Trainee in Instructional Technology in Science Education, North Carolina State University, Raleigh, NC.

8/94 – 6/96 Classroom Science Teacher. Ecology and Biology curriculum. 9th grade urban school setting including inclusive classrooms. Columbia High School, Columbia, SC.

8/92 – 8/93 Classroom Science Teacher. Ecology curriculum. 7th grade suburban school setting including inclusive classrooms. Two classes co-taught with a special education teacher. Sandburg Intermediate School, Alexandria, VA.

8/91 – 8/92 Classroom Science Teacher. Ecology curriculum. 7th grade suburban school setting including inclusive classrooms. Lake Braddock Secondary School, Burke, VA.

8/90 - 6/91 Teaching Fellow. Biology curriculum. Centerville Secondary School, Centreville, VA. 10th grade suburban school setting including inclusive classrooms. Two classes co-taught with a special education teacher.

8/88 – 6/89 Classroom Science Teacher, Taborio Secondary School, Kiribati, Central Pacific. US. Peace Corps. Biology and mathematics curriculum, Forms 4 and 5. Rural school setting. All students were English Language Learners.

PUBLICATIONS and CREATIVE ACTIVITIES

(*denotes mentored graduate student)

PUBLICATIONS – BOOKS EDITED

Bodzin, A., Klein, B., and Weaver, S. (2010). *The Inclusion of Environmental Education in Science Teacher Education.* ASTE Series in Science Education. Dordrecht, Netherlands: Springer.

PUBLICATIONS - PEER-REVIEWED BOOK CHAPTERS

Marstellar, R., and Bodzin, A. (2023). Giving online learning the personal touch: The Promoting Evidentiary Reasoning and Self-Regulation Online (PERSON) framework. In F.S. Allaire & J. E. Kilham (Eds.) *Teaching and Learning Online: Science for Secondary Grade Levels*. (pp.107-123). Charlotte, NC: Information Age Publishing.

Marstellar, R., and Bodzin, A. (2023). Using Scaffolding to Develop Evidentiary Reasoning: A Simulation-Based Approach to Teaching Biological Evolution Online. In F.S. Allaire & J. E. Kilham (Eds.) *Teaching and Learning Online: Science for Secondary Grade Levels*. (pp. 309-330). Charlotte, NC: Information Age Publishing.

Bodzin, A. and Popejoy, K. (2023). Commentary: Stream studies are engaging. In S. Jeong, L. Bryan, D. Tippins, and C. Sexton (Eds.) *Navigating the challenges of elementary science teaching and learning: Using case-based pedagogy to understand dilemmas of practice*. (pp. 357-359). Cham, Switzerland: Springer Nature. Invited contribution.

Popejoy, K., Hammond, T., *Malone, D., Morrison, J., Firestone, J., Bodzin, A., *Leeson, D., *Brown, K., Alexander, C., and Weinburgh, M. (2023). Integrating ArcGIS technologies for learning: Socio-Environmental Science Investigations to promote geospatial thinking. In *Theoretical and Practical*

Teaching Strategies for K-12 Science Education in the Digital Age. (pp. 98-115). Hershey PA: IGI Global. DOI: 10.4018/978-1-6684-5585-2.ch006

Bodzin, A. (2022). No way the can happen! Fun with water. In K. Vaidya (Ed.) *Teach science with a sense of humor: Why (and how to) be a funnier and more effective science teacher and laugh all the way to your classroom?* Chapter 5, Kindle Edition format. ISBN 978-1-925128-04-8. Invited chapter.

Wallace, D. E., & Bodzin, A. M. (2019). Using mobile learning and authentic practice in citizen science contexts to foster STEM interest in high school students. In S. E. Hiller, & A. Kitsantas (Eds.), *Enhancing STEM motivation through citizen science programs.* (pp. 271-298). Hauppauge, NY: Nova Science Publishers, Inc. Invited chapter.

*Szmodis, W., *Russell, M., & Bodzin, A. M. (2015). Using local contexts for learning: The Caring for Cambodia approach. In S. Stratton, R. Hagevik, A. Feldman & M. Bloom (Eds). *Educating Science Teachers for Sustainability*. (pp. 363-379). ASTE Series in Science Education. Dordrecht, Netherlands: Springer.

Bodzin, A., Anastasio, D., & Sahagian, D. (2015). Using Web GIS to promote geospatial thinking and reasoning skills. In K. Finson & J. Pedersen (Eds.) *Application of Visual Data in K-16 Science Classrooms*. (pp. 263-284). Charlotte, NC: Information Age Publishing.

Bodzin, A., Anastasio, D., & *Kulo, V. (2014). Designing Google Earth activities for learning Earth and environmental science. In J. MaKinster, N. Trautmann, & M. Barnett (Eds.) *Teaching Science and Investigating Environmental Issues with Geospatial Technology: Designing Effective Professional Development for Teachers*. (pp. 213-232). Dordrecht, Netherlands: Springer. Invited book chapter.

*Kulo, V., Bodzin, A., *McKeon, R., Anastasio, D., *Peffer, T., & Sahagian, D. (2013). The Isle of Navitas: Towards a better understanding of energy and decision-making using GIS. In R. Atkinson (Ed.), *Learning Environments: Technologies, Challenges and Impact Assessment*. (pp. 49-66). Hauppauge, NY: Nova Science Publishers. Invited book chapter.

Hammond, T., Alexander, R. C., and Bodzin, A. (2012). Assessment in authentic environments: Designing instruments and reporting results from classroom based TPACK Research. In Ronau, Rakes, & Niess (Eds.) *Educational Technology, Teacher Knowledge, and Classroom Impact: A Research Handbook on Frameworks and Approaches* (pp. 32-57). Hershey, PA: IGI Global.

Bodzin, A. (2010). Integrating Web-based activities and field-based experiences to investigate environmental issues. In Bodzin, Klein, & Weaver (Eds.) *The Inclusion of Environmental Education in Science Teacher Education* (pp. 323-336). Dordrecht, Netherlands: Springer.

*Peffer, T. & Bodzin. A. (2010). The Value of Non-formal Environmental Education-Based Professional Development in Preservice Science Teacher Preparation. In Bodzin, Klein, & Weaver (Eds.) *The Inclusion of Environmental Education in Science Teacher Education* (pp 323-336). Dordrecht, Netherlands: Springer.

Bodzin, A. (2008). Science inquiry projects on the Web. In R. Bell, J. Guess-Newsome, & J. Luft (Eds.) *Technology in the secondary science classroom* (pp.63-74). Arlington, VA: NSTA Press. Invited book chapter.

PUBLICATIONS - ARTICLES IN REFEREED JOURNALS

Bodzin, A., *Araujo-Junior, R., and *Zhu, J. (in press). Integrating Virtual Reality experiences with preservice and inservice science teachers. *School Science and Mathematics Journal*. https://doi.org/10.1111/ssm.18355

*Ring, S. & Bodzin, A. (in press). Social cognitive career theory in community colleges: Examining self-efficacy, outcome expectations and goals of students pursuing traditional and career and technical associate degrees. *Community College Journal of Research and Practice.* https://doi.org/10.1080/10668926.2025.2491507

*Grossbauer, L., Caskie, G., & Bodzin, A. (in press). A measurement tool for math self-beliefs: Examining invariance across first-generation status and gender. *Journal of First-Generation Student Success.* https://doi.org/10.1080/26906015.2024.2444917

*Leeson, D., Bodzin, A., Hanson, I., Hammond, T., & Popejoy. K. (2025). Ecosystem restoration: Using maps to address environmental issues on campus. *The Science Teacher*, 92(3), 52-57, DOI: 10.1080/00368555.2025.2479368

Bodzin, A., Fu, Q., *Araujo Junior, R., Hammond, T.C., Anastasio, D., and Schwartz, C. (2024). Implementation of a desktop virtual reality field trip in public outreach settings. *Multimedia Tools and Applications, 83,* 55405–55426. https://doi.org/10.1007/s11042-023-17729-0

*Araujo Junior, R., and Bodzin. A. (2024). Effects of a place-based digital gameful learning experience on middle school students' watershed literacy and attitudes about desktop virtual reality gameplay. *Interactive Learning Environments, 32*(4)*,* 1247-1265. DOI: 10.1080/10494820.2022.2118785.

*Glover, K. & Bodzin, A. (2024). 12th grade female student perceived value, achievement, cost and self-regulated engagement associated with serious simulation game level attainment. *Career and Technical Education Research, 49*(1), 2-27. https://doi.org/10.5328/cter49.1.2

Hammond, T., Brown, K., Alexander, C. Weinburgh, M., Popejoy, K., Bodzin, A., Morrison, J. *Malone, D., Firestone, A., Lightner, L.K., and *Leeson, D. (2024). "Off the bench": Three case studies of Geographic Information System (GIS) integration in high school chemistry instruction. *Innovations in Science Teacher Education, 9*(3). Retrieved from https://innovations.theaste.org/off-the-bench-three-case-studies-of-geographic-information-system-gis-integration-in-high-school-chemistry-instruction/

*Leeson, D., Hammond, T.C., Popejoy, K., Bodzin, A., Hardisky, M. and Lew, S. (2022). Eagles and wind turbines: Using maps to protect animals and increase renewable energy use. *The Geography Teacher, 19*(4), 178-182.

Bodzin, A., *Araujo Junior, R., Schwartz, C., Anastasio, D., Hammond, T., and Birchak, B. (2022). Learning about environmental issues with a desktop virtual reality field trip. *Innovations in Science Teacher Education, 7*(1). Retrieved from https://innovations.theaste.org/learning-about-environmental-issues-with-a-desktop-virtual-reality-field-trip/

Bodzin, A., *Araujo Junior, R., Hammond, T., and Anastasio, D. (2021). Investigating engagement and flow with a placed-based immersive virtual reality game. *Journal of Science Education and Technology, 30*(3), 347-360. DOI: 10.1007/s10956-020-09870-4

*Glover, K. & Bodzin, A. (2021). Learner-centric Design of a Hand Hygiene Serious Simulation Game for 12th Grade Emerging Health Professional Students. *TechTrends,* 65(3), 379-393. DOI: 10.1007/s11528-020-00577-2.

Bressler, D., Tutwiler, M.S., & Bodzin, A. M. (2021). Promoting student flow and interest in a science learning game: A design-based research study of School Scene Investigators. *Educational Technology Research & Development,69,* 2789-2811. https://doi.org/10.1007/s11423-021-10039-y

*Glover, K. & Bodzin, A. (2020). Convergent validity testing of a value-achievement-cost motivation survey for 12th grade female career and technical education health sciences students for use in serious simulation games. *Career and Technical Education Research, 45*(2), 39-58.

*Reed, R., and Bodzin, A. (2020). Studying vector borne disease transmission in public health education using a geospatial curriculum approach. *Pedagogy in Health Promotion,62*(2), 88-101. DOI: 10.1177/2373379919827616

*Perugini, S., and Bodzin, A. (2020). Using Web-Based GIS to assess students' geospatial knowledge of hurricanes and spatial habits of mind. *Journal of Geography, 119*(2), 63-73. DOI: 10.1080/00221341.2019.1710764

Bodzin, A., Hammond, T., Fu, Q. and *Farina, W. (2020). Development of instruments to assess students' spatial learning attitudes (SLA) and interest in science, technology and geospatial technology (STEM-GEO). *International Journal of Educational Methodology, 6*(1), 67-81. DOI: 10.12973/ijem.6.1.67. Invited paper.

*Glover, K., and Bodzin, A. (2020). Learner analysis to inform the design and development of a serious game for non-gaming female emerging healthcare pre-professionals. *JMIR Serious Games, 8*(1), e16003. DOI: 10.2196/16003

*Vallera, F., and Bodzin, A.M. (2020). Integrating STEM with AgLIT (Agricultural literacy through innovative technology): The efficacy of a project-based curriculum for upper-elementary students. *International Journal of Science and Mathematics Education, 18*(3), 419-439. DOI: 10.1007/s10763-019-09979-y

*Glover, K., and Bodzin, A. (2019). Psychometric testing of a Value-Achievement-Cost motivation survey for 12th grade health sciences students for use in simulation-based-games. *Simulation & Gaming, 50*(6), 789-811. DOI: 10.1177/1046878119876317

Bressler, D., Bodzin, A.M., Eagan, B. & Tabatabai, S. (2019). Using epistemic network analysis to examine discourse and scientific practice during a collaborative game. *Journal of Science Education and Technology, 28*(5), 533-566. DOI: 10.1007/s10956-019-09786-8

*Marsteller, R., and Bodzin, A.M. (2019). Examining the implementation of an online curriculum designed with the PERSON theoretical framework on student's evidentiary reasoning and self-regulated learning. *Electronic Journal of Science Education, 23*(3), 73-95.

Hammond, T.C., Bodzin, A., Popejoy, K., Anastasio, D., Holland, B., & Sahagian, D. (2019). Shoulder-to-shoulder: Teacher professional development and curriculum design and development for geospatial technology integration for science and social studies teachers. *Contemporary Issues in Technology Education, 19*(2). Retrieved from https://www.citejournal.org/volume-19/issue-2-19/current-

practice/shoulder-to-shoulder-teacher-professional-development-and-curriculum-design-and-development-for-geospatial-technology-integration-with-science-and-social-studies-teachers

Kangas, S., Hammond, T., and Bodzin, A. M., (2019). The promise of geospatial learning for English learners. *TESOL Journal, 10*(2), 1-12. DOI: 10.1002/tesj.422

*Bressler, D., Bodzin, A.M., & Tutwiler, M. (2019). Engaging middle school students with scientific practice with a collaborative mobile game. *Journal of Computer Assisted Learning, 35*(2)*,* 197-207. DOI: 10.1111/jcal.12321

*Carrigan, J., Bodzin, A. M., Hammond, T. C., Rutzmoser, S., Popejoy, K., *Farina, W., Hanson, I. Salter, S., Anastasio, D., Kangas, S., Holland, B. and Sahagian, D. (2019). Investigating urban trees. Exploring the impact of trees around our school with geospatial technologies. *The Science Teacher, 86*(8), 27-35.

Hammond, T.C., Bodzin, A., Anastasio, D., Holland, B., Popejoy, K., Sahagian, D., Rutzmoser, S., *Carrigan, J., & *Farina, W. (2018). "You know you can do this, right?": Developing geospatial technological pedagogical content knowledge (GS-TPACK) and enhancing teachers' cartographic behaviors with Socio-Environmental Science Investigations (SESI). *Cartography and Geographic Information Science, 45*(4), 305-318.

*Szmodis, W., and Bodzin, A. M. (2018). Ready and waiting: How Cambodian primary students' self-perceived skills and aspirations are primed for the field of engineering. *Electronic Journal of Science Education, 22*(3) 1-19.

*Farina, W., and Bodzin, A.M. (2018). The effectiveness of an asynchronous online module on university students' understanding of the Bohr Model of the hydrogen atom. *Journal of Science Education and Technology, 27*(3), 256-269. DOI: 10.1007/s10956-017-9722-0

*Wallace, D. and Bodzin, A.M. (2017). Developing scientific citizenship identity using mobile learning and authentic practice. *Electronic Journal of Science Education, 21*(6), 46-71.

*Vallera, F., & Bodzin, A.M. (2016). An examination of agricultural representation and contexts in upper-elementary science. *Journal of Agricultural Education, 57*(4), 101-118.

Bodzin, A., Anastasio, D., *Sharif, R., & Rutzmoser, S. (2016). Using a Web GIS plate tectonics simulation to promote geospatial thinking. *Journal of Geoscience Education, 64*(4), 278-291.

*Bressler, D., & Bodzin, A. (2016). Investigating flow experience and scientific practices during a mobile serious educational game. *Journal of Science Education & Technology, 25*(5), 795-805. DOI: 10.1007/s10956-016-9639-z

Bodzin, A., Anastasio, D., Sahagian, D., & *Henry, J. B. (2016). A curriculum-linked professional development approach to support teachers' adoption of Web GIS tectonics investigations. *Contemporary Issues in Technology and Teacher Education, 16*(3). Retrieved from http://www.citejournal.org/volume-16/issue-3-16/current-practice/a-curriculum-linked-professional-development-approach-to-support-teachers-adoption-of-web-gis-tectonics-investigations

*Reed, R., and Bodzin, A. M. (2016). Using Web GIS for public health education. *International Journal of Environmental and Science Education, 11*(14), 6314-6333.

Marstellar, R. & Bodzin, A.M. (2015). The effectiveness of an online curriculum on high school students' understanding of biological evolution. *Journal of Science Education and Technology, 24*(6), 803-817. DOI 10.1007/s10956-015-9565-5

Baker, T., Battersby, S., Bednarz, S., Bodzin, A., Kolvoord, R., Moore, S., Sinton, D., Uttal, D. (2015). A research agenda for geospatial technologies and learning. *Journal of Geography, 114*(3), 118-130. DOI: 10.1080/00221341.2014.950684.

Bodzin, A., Fu, Q., *Bressler, D., & *Vallera, F. (2015). Examining the enactment of Web GIS on students' geospatial thinking and reasoning and tectonics understandings. *Computers in the Schools, 32*(1), 63-81.

Bodzin, A., Anastasio, D., Sahagian, D., *Peffer, T., Dempsey, C., and *Steelman, R. (2014). Investigating climate change understandings of urban middle school students. *Journal of Geoscience Education, 62*(3), 417-430.

Bodzin, A., Fu, Q., Kulo, V., and *Peffer, T. (2014). Examining the enactment of a geospatial curriculum design approach on students' geospatial thinking and reasoning. *Journal of Science Education and Technology, 23*(4), 562-574. DOI: 10.1007/s10956-014-9488-6

Bodzin, A., and Fu, Q. (2014). The effectiveness of the geospatial curriculum approach on urban middle level students' climate change understandings. *Journal of Science Education and Technology 23*(4), 575-590. DOI: 10.1007/s10956-013-9478-0

Hammond, T.C., Bodzin, A.M., & *Stanlick, S. (2014). Redefining the longitude/latitude experience with a scaffolded geocache. *The Social Studies*, 105*(5), 237-244.*

*Burrows, J., Bodzin, A., Anastasio, D., Sahagian, D., *Bressler, D., Cirruci, L., Rutzmoser, S. and *Teletzke, A. (2013). Using Web GIS to enhance tectonics learning and geospatial thinking. *Science Scope, 37*(4), 29-37.

*Bressler, D., & Bodzin, A. (2013). A mixed methods assessment of students' flow experience during a mobile augmented reality science game. *Journal of Computer Assisted Learning, 29*(6), (505-517). DOI: 10.1111/jcal.12008

Bodzin, A., Fu, Q., *Peffer, T., and *Kulo, V. (2013). Developing energy literacy in U.S. middle level students using the geospatial curriculum approach. *International Journal of Science Education, 35*(9), 1561-1589. DOI: 10.1080/09500693.2013.769139

*Kulo, V., and Bodzin, A. (2013). The impact of a geospatial technology-supported energy curriculum on middle school students' science achievement. *Journal of Science Education and Technology, 22*(1), 25-36. DOI: 10.1007/s10956-012-9373-0

*Kulo, V., Bodzin, A., *McKeon, R., Cirucci, L., Anastasio, D., Sahagian, D., and *Peffer, T. (2013). The Isle of Navitas: Planning for energy use with Web GIS. *Science Scope*, *36*(6), 30-37.

*Peffer, T., Bodzin, A., and Duffield-Smith, J. (2013). The use of technology by nonformal environmental educators. *The Journal of Environmental Education, 44*(1), 16-37.

*Dempsey, C., Bodzin, A., Anastasio, D., Sahagian, D. and Cirruci, L. (2012). Investigating future climate scenarios: Who will be affected by sea level rise? *Science Scope*, *36*(4), 77-85.

Bodzin, A., *Peffer, T. and *Kulo, V. (2012). The efficacy of educative curriculum materials to support geospatial science pedagogical content knowledge. *Journal of Technology and Teacher Education, 20*(4), 361-386.

Bodzin, A. (2012). Investigating urban eighth grade students' knowledge of energy resources. *International Journal of Science Education, 34*(8), 1255-1275. DOI: 10.1080/09500693.2012.661483

*Dempsey, C., Bodzin, A., Cirruci, L., Anastasio, D. and Sahagian, D. (2012). Reconstructing environmental change using lake varves as a climate proxy. *Science Scope, 35*(7), 42-47.

Bodzin, A. (2011). The implementation of a Geospatial Information Technology (GIT)-supported land use change curriculum with urban middle school learners to promote spatial thinking. *Journal of Research in Science Teaching*, *48*(3), 281-300.

*Kulo, V., and Bodzin, A. (2011). Integrating geospatial technologies in an energy unit. *Journal of Geography 110*(6), 239-251.

Bodzin, A., and Cirruci, L. (2009). Integrating geospatial technologies to examine urban land use change: A design partnership. *Journal of Geography, 108*(4-5), 186-197.

Bodzin, A., and Cirruci, L. (2009). A land use planning simulation using Google Earth. *Science Scope,* 32(7), 30-38.

Hammond, T., and Bodzin, A. (2009). Teaching with Rather than about Geographic Information Systems. *Social Education, 73*(3), 119-123.

Bodzin, A. (2008). Integrating instructional technologies in a local watershed investigation with urban elementary learners. *The Journal of Environmental Education, 39*(2), 47-58.

Bodzin, A., Waller, P., Edwards, L., and Kale, D. (2007). Investigating the use of inquiry and Web-based activities with inclusive biology learners. *The American Biology Teacher*, *69*(5), 371-377.

Bodzin, A., and Anastasio, D. (2006). Using Web-based GIS For Earth and environmental systems education. *The Journal of Geoscience Education, 54(3)*, 295-300.

Bodzin, A. (2005). Implementing Web-based Scientific Inquiry in Preservice Science Methods Courses. *Contemporary Issues in Technology and Teacher Education* [Online Serial], *5*(1). Available: http://www.citejournal.org/vol5/iss1/general/article1.cfm

Bodzin, A., and *Shive, L. (2004). Designing for Watershed Inquiry. *Applied Environmental Education and Communication, 3*(4), 249-258.

Bodzin, A., and *Shive, L. (2004). Watershed Investigations. *Science Scope*, 27(7), 21-23.

*Beerer, K., and Bodzin, A. (2004). How to develop inquiring minds. District implements inquiry-based science instruction. *Journal of Staff Development, 25(4),* 43-47.

*Shive, L. E., Bodzin, A. M., & Cates, W. M. (2004). A national standards-based study of Web-based inquiry in chemistry. *Journal of Chemical Education, 81*(7), 1066-1072.

Bodzin, A., and Cates, W. (2003). Enhancing preservice teachers' understanding of Web-based scientific inquiry. *Journal of Science Teacher Education, 14*(4*)*, 237-257.

Bodzin, A. and *Beerer, K. (2003). Promoting inquiry-based science instruction: The validation of the Science Teacher Inquiry Rubric (STIR). *Journal of Elementary Science Education, 15*(2), 39-49.

Cates, W., Price, B., and Bodzin, A. (2003). Implementing technology-rich curricular materials: Findings from the *Exploring Life* project. *Computers in the Schools, 20*(1/2), 153-169. Also published as a chapter in Technology in Education: A twenty-year prospective [Johnson, D. L., & Maddox, C. D. (2003). Binghamton, NY: Haworth Press.]

Bodzin, A., and Cates, W. (2002). Inquiry *dot* Com. Web-based activities promote scientific inquiry learning. *The Science Teacher, 69*(9), 48-52.

Bodzin, A. and Park, J. (2002). Using a non-restrictive Web-based forum to promote reflective discourse with preservice science teachers. *Contemporary Issues in Technology and Teacher Education, 2*(3). 267-289. Available: http://www.citejournal.org/vol2/iss3/science/article1.cfm. Invited paper.

Bodzin A. and Gehringer, M. (2001) Breaking science stereotypes. *Science and Children, 38*(4), 36-41.

Bodzin, A. and Park, J. (2000). Non-restricted asynchronous Web-based forums: A study of preservice science teachers' attitudes. *International Journal of Educational Telecommunications. 6*(4), 363-392.

Bodzin, A. and Park, J. (2000) Dialogue patterns of preservice science teachers using asynchronous computer-mediated communications on the World Wide Web. *Journal of Computers in Mathematics and Science Teaching, 19*(2), 161-194.

Bodzin, A. and Park, J. (2000). Factors That Influence Asynchronous Discourse With Preservice Teachers on a Public, Web-Based Forum. *Journal of Computing in Teacher Education, 16*(4), 22-30.

Bodzin, A. and Mamlok, R. (2000). STS issues-based approach simulations. *The Science Teacher, 67*(9) 36-39.

Bodzin, A. and Park, J. (1999). An online inquiry instructional system for environmental issues. *Meridian: A Middle School Computer Technologies Journal, 2(2)*, 1999. [Online]. Available: http://www.ncsu.edu/meridian/jul99/coastal/index.html [Included in ERIC Reproduction ED 443668]

Bodzin, A. and Park, J. (1998). A study of preservice science teachers' interactions with a Web-Based forum. *Electronic Journal of Science Education, 3(1)*, 1998. [Online]. Available: http://unr.edu/homepage/jcannon/ejse/ejsev3n1.html.

Bodzin, A. (1997). Incorporating the World Wide Web in the science classroom. *Electronic Journal of Science Education, 1(3),* 1997. [Online]. Available: http://unr.edu/homepage/jcannon/ejse/bodzin.html**.**

PUBLICATIONS - PUBLISHED CONFERENCE PROCEEDINGS - REFEREED

Bodzin, A., *Araujo-Junior, R., Hammond, T., Pan, Z., *Marlatt, M., *Yakub, Z., *Whang, T., *Granberry, H., Neitz, R. and Forster, L. (2025). How Healthy Are Our Streams and River? - Initial headset VR prototype functionality with GIS. In Economou, D., Lazou, C., MacDowell, P., Pedrosa, D., Beck, D., Mystakidis, S., Smith-Nunes, G., Peña-Rios, A. & Richter, J. (Eds.). *Immersive Learning Research Network. Practitioner Proceedings of 11th International Conference, iLRN 2025*, Online & Chicago, Illinois, USA, June 15-19, 2025 (in person) & June 16-18, 2025 (Online). pp.128-133. Immersive Learning Research Network. ISBN 979-8-9929916-0-4

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GIS Storm Sewers Unit. (2008-09). http://www.ei.lehigh.edu/nes/sewers/ Bodzin, A., Carr, J., Hammond, T., & Calario, S. Lead content developer of the instructional design team.

Earth System Science Education at Lehigh University. http://www.ei.lehigh.edu/esse/ Anastasio, D., Bodzin, A., Ramage, J., *Cascione, J., Yu, J., & *Heydenberk, E. (2007). I am the co-Principal Investigator on this project and member of the instructional design team. External validation: NASA Science Mission Directorate - Earth Science Education Products and National Science Digital Library (NSDL), Digital Library for Earth System Science (DLESE).

Carbon Cycle. http://www.ei.lehigh.edu/esse/carbon/ Anastasio, D., Bodzin, A., Ramage, J., *Cascione, J., Yu, J., & *Heydenberk, E. (2007). I am the co-Principal Investigator on this project and member of the instructional design team. External validation: NASA/USRA Earth System Science Education Design Guide for Undergraduate Earth System Science Education.

Remote Sensing. http://www.ei.lehigh.edu/esse/rs/ Anastasio, D., Bodzin, A., Ramage, J., *Cascione, J., Yu, J., & *Heydenberk, E. (2007). I am the co-Principal Investigator on this project and member of the instructional design team. External validation: NASA/USRA Earth System Science Education Design Guide for Undergraduate Earth System Science Education.

LEO EnviroSci Inquiry. (present - 2000). http://www.ei.lehigh.edu/envirosci/. I am project director of this Web site. I have developed a majority of the content, formulated the original instructional design, and have worked with nine graduate student interns to develop various areas of the Website. I also act as subject matter expert for the project as well. External validation: North American Association for Environmental Education (NAAEE); GEM: The Gateway to Educational Materials (U.S. Department of Education).

Geology of the Lehigh Gorge. *Wendell, M, Bodzin, A. & *Bossert, M. (2005). http://www.ei.lehigh.edu/envirosci/geology/gorge/index.html. Assisted in the design and development of this instructional Website. External validation: National Science Digital Library (NSDL), Digital Library for Earth System Science (DLESE).

Stockertown Sinkhole Dilemma. Bodzin, A. & *Castronova, M. (2005). http://www.ei.lehigh.edu/envirosci/enviroissue/sinkholes/. I produced all aspects of this Web site including instructional design, programming, resource development, and content. External validation: National Science Digital Library (NSDL), Digital Library for Earth System Science (DLESE); GEM: The Gateway to Educational Materials (U.S. Department of Education).

Coastal Explorations. Bodzin, A. & *Lemon, C. (2004). http://www.ei.lehigh.edu/envirosci/geology/coast. I produced all aspects of this Web site including instructional design, programming, resource development, and content. External validation: National Science Digital Library (NSDL), Digital Library for Earth System Science (DLESE); GEM: The Gateway to Educational Materials (U.S. Department of Education).

Abandoned Mine Drainage in Pennsylvania. *Brown, K. & Bodzin, A. (2003). http://www.ei.lehigh.edu /envirosci/enviroissue/amd/. Assisted in the design and development of this instructional Website. External validation: National Science Digital Library (NSDL), Digital Library for Earth System Science (DLESE); GEM: The Gateway to Educational Materials (U.S. Department of Education).

Environmental Laws and Regulations in Pennsylvania. *Brown, K. & Bodzin, A. (2003). http://www.ei.lehigh.edu/enviroissue/lawsregs/index.htm. Assisted in the design and development of this

instructional Website. External validation: GEM: The Gateway to Educational Materials (U.S. Department of Education).

Sprawl in the Lehigh River Watershed. *Brown, K. & Bodzin, A. (2003). http://www.ei.lehigh.edu /envirosci/enviroissue/sprawl/index.html. Assisted in the design and development of this instructional Website. Served as content expert for the development of GIS coverages. External validation: National Science Digital Library (NSDL), Digital Library for Earth System Science (DLESE); GEM: The Gateway to Educational Materials (U.S. Department of Education).

Lehigh River Watershed Explorations. Bodzin, A., *Vollmer, V., & *Heydenberk, E. (2002, 2000). http://www.ei.lehigh.edu/envirosci/watershed. I formulated the original instructional design and worked with my graduate students on its creation and coding. External validation: GEM: The Gateway to Educational Materials (U.S. Department of Education).

Geologic Explorations. Bodzin, A. (2002, 2000, 1999). http://www.ei.lehigh.edu/geology/geo/. I produced all aspects of this Web site for the first version including content and instructional design. Worked with two graduate students to produce additional content and a new navigation interface for the second version. External validation: National Science Digital Library (NSDL), Digital Library for Earth System Science (DLESE)*;* GEM: The Gateway to Educational Materials (U.S. Department of Education).

Dissolved Oxygen. *Shive, L. & Bodzin, A. (2002). http://www.ei.lehigh.edu/envirosci/watershed/curricular/oxygen/ Assisted in the design and development of this instructional Website. External validation: GEM: The Gateway to Educational Materials (U.S. Department of Education).

Carolina Coastal Science. Bodzin, A. (2001-1998). http://www.ncsu.edu/coast. I produced all aspects of this Web site including instructional design, programming, resource development, and content. External validation: National Science Digital Library (NSDL), Digital Library for Earth System Education (DLESE), Eisenhower National Clearinghouse, National Marine Educators Association (NMEA), GEM: The Gateway to Educational Materials (U.S. Department of Education), Well Connected Educator, North Carolina Department of Public Instruction, New Scientist Magazine, Carolina Health and Environment Community Center at The Environmental Resource Program at the University of North Carolina - Chapel Hill, LEARN North Carolina.

Which Way Is North? Bodzin, A. (2000, 1999). http://www.ei.lehigh.edu/envirosci/geology/wwn/. I produced all aspects of this Web site including instructional design, programming, resource development, and content. External validation: GEM: The Gateway to Educational Materials (U.S. Department of Education).

Dino Inquiry. Bodzin, A. (2000, 1999). Online available: http://www.ei.lehigh.edu/envirosci/geology/dino/. I produced all aspects of this Web site including instructional design, programming, resource development, and content.

Phenomenal Weather Explorations. Bodzin, A. (2000, 1998). http://www.ei.lehigh.edu/envirosci/weather/phenweather/. I produced all aspects of this Web site including instructional design, programming, resource development, and content.

Science Junction. (2000-1997). http://www.ncsu.edu/sciencejunction. I contributed content and resource development to this Web site and conducted formative and summative evaluations on online collaborative projects and simulations. External validation: GEM: The Gateway to Educational Materials (U.S. Department of Education), North Carolina Department of Public Instruction, LEARN North Carolina.

Genetic Science Learning Center. (1999). http://gslc.genetics.utah.edu/. Eccles Institute of Human Genetics, University of Utah, Salt Lake City, UT. Assisted in instructional design, and formative and summative evaluation of instructional materials.

CREATIVE ACTIVITIES - COMPREHENSIVE PROFESSIONAL RESOURCE WEB SITE PROJECTS

Web-Based Inquiry (WBI) for Learning Science. Bodzin, A. (2002). http://www.lehigh.edu/~amb4/wbi/index.html. I produced this Web site and supplied a substantial amount of its content. External validation: GEM: The Gateway to Educational Materials (U.S. Department of Education).

WebSite Science Resources at Lehigh University. Bodzin, A. (1999-current). Online available: http://www.lehigh.edu/~amb4/websci/. I produced the content of this Web site.

IMSEnet. (1999-1997). http://www.ncsu.edu/imse. I produced this Web site and supplied the majority of its content. Coordinated graphic artist and html programmer. External validation: GEM: The Gateway to Educational Materials (U.S. Department of Education); National Education Association, (NEA), Classroom Connect's Ed's Oasis.

Al Bodzin's Home Page for Science Educators. Bodzin, A. (1996-1999). http://www.ncsu.edu/servit/bodzin/. I produced all aspects of this Web site and supplied all content.

Midlands Improving Math and Science (MIMS) Hub. (1996-1995). http://scssi.scetv.org/mims/. I contributed content for an online database search engine of science and math Web sites.

CREATIVE ACTIVITIES - VALIDATED INSTRUMENT FOR ASSESSING OR CATEGORIZING TECHNOLOGY PRODUCTS

Bodzin, A., Waller, P., Edwards, L., Cates, W.M. & Shive, L. (2004). Reflective Practice Inventories: Science in the Inclusive Classroom. Lehigh University.

Bodzin, A. & Cates, W. (2002). Web-based inquiry for learning science (WBI) instrument manual. Version 1.0. Online available: http://www.lehigh.edu/~amb4/wbi/wbi-v1_0.pdf

CREATIVE ACTIVITIES - INSTRUCTIONAL SOFTWARE and OTHER INSTRUCTIONAL MATERIALS

Anastasio, D., Bodzin, A., Windham, L., & Ramage, J. (2007). Carbon Cycle Content Assessment. In Evaluation Toolkit. NASA/USRA Design Guide for Undergraduate Earth System Science Education for the 21st Century Program. (2007). http://essedesignguide.org/

Bodzin, A. (2000). Coastal Explorations: Carolina Coastal Science. The SERVIT Group, Lehigh University and Shaleo Enterprises. Bethlehem, PA. External validation: Children's Software Review.

Bodzin, A., Grable, L. and Park, J. (2000). Evaluating Science Web Resources. In SCETNet for Physics. A Virtual Physics Department. CD-ROM. Scottish Council of Educational Technology, Glasgow, Scotland.

Park, J. and Bodzin, A. (1999). Science Junction Sampler 1999-2000 CD-ROM. The SERVIT Group, North Carolina State University, Raleigh, NC.

Bodzin, A. and Park, J. (1998). Instructional Materials for Science Education (IMSE) CD-ROM. Version 2. The SERVIT Group, North Carolina State University, Raleigh, NC.

Bodzin, A. and Park, J. (1997). Instructional Materials for Science Education (IMSE) CD-ROM. The SERVIT Group, North Carolina State University, Raleigh, NC

HONORS AND AWARDS

2025 Best Poster Award at the Immersive Learning Research Network (iLRN) Conference in Chicago, Illinois, USA and in VR for Exploring Data-Driven Approaches to Visualize Learners' Engagement Profile in Immersive Gameful Experiences. Pan, Z., *Araujo-Junior, R., *Tran, T., Bodzin, A., and Hammond, T.

2024 Innovation in Non-Formal Education Award at the Immersive Learning Research Network (iLRN) Conference in Glasgow, Scotland, UK and in VR for Designing for Headset VR from a Longer Desktop VR Learning Experience: Watershed Explorers: Industrial History. Bodzin, A., *Araujo-Junior, R., Hammond, T., Pan, Z., Anastasio, D., *Burd, J., *Jhaveri, K., and *Le, Q.

2023 Outstanding Organizing Committee Member Award. Immersive Learning Research Network (iLRN).

2022 Innovation in Higher Education Award at the Immersive Learning Research Network (iLRN) Conference in Vienna, Austria and in VR for The Mystery of Lehigh Gap: Game-based VR for Informal Learning. Bodzin, A., *Araujo Junior, R., *Koelsch, J., *Arnoat Perez, M., *Agarwal, U., *Escobar, M., Schwartz, C., Anastasio, D., Hammond, T., Birchak, B., *Bao, J., *Chen, Y., *Cicero, T., *Hu, X., *Rovella, E. J., *Sary, L., *Silverman, M., and *Whitney, H.

2022 Best Student WIP Academic Paper Award at the Immersive Learning Research Network (iLRN) Conference in Vienna, Austria and in VR for Flood Adventures: A Flood Preparedness Simulation Game. Bodzin, A., *Araujo Junior, R., *Straw, K., *Huang, S., *Zalatan, B., Semmens, K., Anastasio, D., and Hammond, T.

2020 Special Achievement in GIS (SAG) Award. Esri.

2019 Best Poster Award at the Immersive Learning Research Network (iLRN) Conference in London, UK for Lehigh River Watershed VR: The Lehigh Gap Immersive Virtual Field Trip. Araujo Junior, R., Bodzin, A., Hammond, T., Anastasio, D., Rutzmoser, S., Vallera, F., Sadat, B., Yeung, B., and Levy, H.

2019 Award IV: Innovation in Teaching Science Teachers for *A Curriculum-linked Professional Development Approach to Support Teachers' Adoption of Socio-Environmental Science Investigations*. Association for Science Teacher Education.

2018 John C. Park National Technology Leadership Initiative (NTLI) Fellowship. Association for Science Teacher Education.

2017 Lehigh University Perry A. Zirkel Award for Distinguished Teaching in Education

2016 Journal of Geography Award for Best Article for Geography Program Development for *A Research Agenda for Geospatial Technologies and Learning*.

2014 Outstanding Science Teacher Educator of the Year Award. Association for Science Teacher Education.

2012 Outstanding Mentor Award. Association for Science Teacher Education.

2011 article selection from the 2011 volume of the Journal of Research in Science Teaching for the NSTA reading list. *The implementation of a geospatial information technology (GIT)-supported land use change curriculum with urban middle school learners to promote spatial thinking. (2011)*

2009 Journal of Geography Best Secondary School Teaching Article for *Integrating Geospatial Technologies to Examine Urban Land Use Change: A Design Partnership* (2010)

CITE/JTATE Technology Award in the category *Exemplary Use of Technology to Teach Content in a Teacher Education Methods Course*. (2005)

NSF Graduate Research Traineeship in Instructional Technology in Science Education fellowship at North Carolina State University (1996-99)

Outstanding Teacher Award for contributions to the advancement of educational technology, presented by the South Carolina Association For Educational Technology (SCAET), (1995)

RESEARCH FUNDING AND TRAINING GRANTS

COMPETIVELY AWARDED RESEARCH GRANTS

National Science Foundation ECR-EDU Core Research grant. Reasoning about Spatial Relations and Distributions: Supporting STEM Learning in Early Adolescence. Newcombe, N. Sub-contract award to Hammond, T. and Bodzin, A. $185,352 (2023-2027). Role: Senior Personnel.

National Science Foundation Innovative Technology Experiences for Students and Teachers (ITEST) grant. Hammond, T., Popejoy, K., Weinburgh, M., Alexander, C., Morrison, J., and Firestone, J. Collaborative Research: Expanding Socio-Environmental Science Investigations with Geospatial Technologies in High Schools. (2020 - 2026). $2,851,245. Role: Senior Personnel.

National Science Foundation Innovative Technology Experiences for Students and Teachers (ITEST) grant. Bodzin, A., Anastasio, D., Holland, B, Hammond, T., and Popejoy, K. Socio-Environmental Science Investigations (SESI) Using the Geospatial Curriculum Approach with Web GIS. (2016 - 2020). $1,119,794. Principal Investigator.

National Science Foundation Discovery Research K-12 (DR K-12) grant. Bodzin, A., Anastasio, D. and Sahagian, D. Promoting Spatial Thinking with Web-based Geospatial Technologies. (2011-2013). $438,161. Principal Investigator.

Toyota USA Foundation. Bodzin, A., Anastasio, D., and Sahagian, D. Web-enhanced Environmental Literacy and Inquiry Modules (WELIM) for Middle School Learners. (2008-2011). $317,718. Principal Investigator.

Commonwealth of Pennsylvania Department of Community and Economic Development grant. Bodzin, A. & Harmer, A. *Materials Research Science and Engineering Center - Education*. (2007-2008) $121,278. Principal Investigator.

NASA Earth System Science Enterprise (ESSE 21) grant. Anastasio, D., Bodzin, A., Windham, L., and King, M. *Where is the missing carbon? Multidisciplinary Web-based inquiry modules for earth system science instruction*. (2004 – 2006). $96,195. Co-principal Investigator.

National Science Foundation Instructional Materials Development (IMD) grant supplement. Bodzin, A. and Williamson, B. *Investigating Life*. (2003-2004). $11,025. Principal Investigator.

National Science Foundation Instructional Materials Development (IMD) grant. Bodzin, A. and Williamson, B. *Investigating Life*. (2000-2003). $1,007,836. Principal Investigator.

NON-COMPETIVE RESEARCH GRANTS

Bodzin, A. (2003). Pennsylvania Teacher Quality Enhancement Stipend for Technology Support in Teacher Education. $1,000.

SCALE Collaboration grant funded by the NSF Synergy Communities project. Bodzin, A., Curtis, D., Kali, Y. and Linn, M. *Synergy water quality activity design framework*. (2001). $3,500. co- Principal Investigator.

COMPETIVELY AWARDED TRAINING OR EQUIPMENT GRANTS

Northampton County Hotel Tax Program Grant. Bodzin, A. *Watershed Explorers: Industrial History Virtual Reality Experience*. $6,800 (2024).

Keystone Savings Grant. Schwartz, C. and Bodzin, A. *Virtual Reality Learning Experiences for the Lehigh Gap Nature Center*. $2,000 (2023-2024).

The Boeing Company. Bodzin, A. *STEM Environmental Literacy and Inquiry Middle School Curriculum***.** $5,000. (2011-2012).

Pennsylvania Department of Environmental Protection. Bodzin, A. *Climate Change: Environmental Literacy and Inquiry*. $3,480. (2011-2012).

Pennsylvania Department of Environmental Protection. Bodzin, A. *Investigating Energy*. $2,984. (2010-2011).

Pennsylvania Department of Environmental Protection. Bodzin, A. *Sustainable Energy Sources and Technologies*. $3,000. (2009-2010).

NASA Explorer Schools. Cirruci, L., Bodzin, A., Bothwell D., & Santoro, J. *Broughal Middle School NASA Explorer School*. $17,500. (2006-2009).

Bethlehem Education Foundation grant. Bothwell, D., Bodzin, A., & Dologite, L. *Survivor PA II, Rivers and Forests.* $2,000. (2006).

Safari Club International Foundation. Bodzin, A. American Wilderness Leadership School Scholarship. Funded at $1,100. (2006).

Pennsylvania Center for Environmental Education. Bodzin, A. *Environmental education faculty/administrator professional development scholarship*. $1,000. (2005).

Bethlehem Education Foundation grant. Bothwell, D., & Bodzin, A. (*Survivor Pennsylvania*! $4,000. (2005).

Pennsylvania Department of Education. Teacher Quality Enhancement Stipend for Technology Support in Teacher Education (2004). $1,000.

Pennsylvania Department of Education. Pennsylvania Teacher Quality Enhancement Stipend for Technology Support in Teacher Education (2003). $1,000.

Commonwealth of Pennsylvania Department of Environmental Protection Environmental Education grant. Bodzin, A. and Cutcliffe, S**.** *Preparing teachers to deliver effective standards-based environmental education*. $11,000. (2002-2003). Principal Investigator.

Philip Morris Incentive Grants Project. Bodzin, A., Park, J., and Munro, M. *Instructional Materials for Science Educators Resource CD-ROM.* (1997). $5,000. Principal Investigator.

INSTITUTIONAL RESEARCH / EQUIPMENT GRANTS

COE Strategic Research Opportunity Grant. Lehigh University. Bodzin, A., Hammond, T., Pan, Z., and Fu., Q., (2024-current). Immersive Learning with Headset Virtual Reality for Non-Formal Learning. $30,095.

Lehigh University Mountaintop Project Award. Bodzin, A., Hammond, T., Anastasio, A., and Pan, Z. (2018-current). Immersive Virtual Reality (VR) Development of the Lehigh River Watershed. $102,910.

OVPR Faculty Research Grant. Lehigh University. Bodzin, A., Hammond, T., Fu., Q., and Pan, Z. (2023-2024). Immersive Learning With Headset Virtual Reality Game-based Experiences. $5,949.

Lehigh University Faculty International Grant. Bodzin, A. (2022). $1,683.

Lehigh University Futures Ideation Grant. Sahagian, D., Bodzin, A., Brunstein, L., Choi, H., Felzer, B., Freidman, S., Holland, B., Jellison, K., McAndrew, T., Pooley, K.B., Ramage, J., and Wurth, A. (2021-2022). $25,000.

Lehigh University Online Course Development Grant. Columba, L. Bodzin, A., Hammond, T., and Garrigan, S. Teaching, Learning, and Technology Program online course development. (2015). $17,510.

Lehigh University Online Course Development Grant. Bodzin, A., Hammond, T., and Garrigan, S. Teaching, Learning, and Technology Program online course development. (2013-2014). $13,987.

Lehigh University Collaborative Research Opportunity Grant. Cassagrande, D., Hyclack, T., Austin, K., Rutzmoser, S., Friedman, S., Ramage Macdonald, J., Wurth, A., and Bodzin, A. Impacts of Marcellus Shale Gas Development on Quality of Life in Pennsylvania. (2013-2015). $53,073.

Lehigh University's President and Provost's Faculty Development Fund Travel grant. (2000). $1,000.

CONTRACT / CONSULTING WORK

Climate Change Narrative Game Education. Advisory panel member. National Science Foundation Discover Research K-12 Program grant awarded to the University of South Florida (2013-2014).

The Solid Truth About Matter. (2013). Consultant for book in the Capstone Publishing Science Children Book Series during 2011-2012.

The Attractive Truth About Magnetism. (2013). Consultant for book in the Capstone Publishing Science Children Book Series during 2011-2012.

The Shocking Truth About Electricity. (2013). Consultant for book in the Capstone Publishing Science Children Book Series during 2011-2012.

The Gripping Truth About Forces and Motion. (2013). Consultant for book in the Capstone Publishing Science Children Book Series during 2011-2012.

The Case of the Soda Explosion and Other True Science Mysteries for You to Solve. (2013). Consultant for book in the Capstone Publishing Science Children Book Series (2011-2012).

Climate Literacy and Energy Awareness Network (CLEAN) Pathway Project. National Science Foundation. (2010 – 2012).

Crossing Boundaries. Advisory panel member. National Science Foundation ATE Program grant awarded to the Hobart and Smith Colleges. (2009-2012).

Ecology Disrupted. Advisory panel member. National Science Foundation Discover Research K-12 Program grant awarded to American Museum of Natural History. (2007-2010).

GIT Ahead Project, National Visiting Committee. National Science Foundation ATE Program grant awarded to the Finger Lakes Institute. (2006-2009).

Inquiry Science Instruction Observation Protocol (ISIOP) Development Project. National Science Foundation REC Program Evaluation grant awarded to the Education Development Center. (2006-2009).

Nanotechnology K-12 Education Project. PA Materials Research Science and Engineering Center grant awarded to the Lehigh Center for Nanotechnology. (2006).

Da Vinci Teacher Leader Institute. Pennsylvania Department of Education (PDE) Title II Math and Science Partnership grant awarded to the Allentown School District. (2004-2008). Professional development workshop leader.

The Discovery Center of Science and Technology IT Youth Leadership Program. Lucent Foundation Grant. (2000-2003). Program evaluator.

The Discovery Center 2000-2001 Science Enrichment Outreach Program. Lucent Foundation Grant. (2000-2001). Program evaluator.

Lehigh Valley Science Enrichment Pilot Project (LVSEPP). The Discovery Center of Science and Technology. Lucent Foundation Grant. (1999-2000). Program evaluator.

The Clipper Project: A Web-based Research and Development Initiative. Lehigh University, Bethlehem, PA. (1999 - 2000). Grant funded by the Andrew W. Mellon Foundation. Program evaluation.

EDITORIAL REVIEW BOARD MEMBERSHIP FOR SCHOLARLY PUBLICATIONS

Journal of Science Education and Technology (2013 – present).

The Science Teacher. National Science Teachers Association. (2003 - 2025).

Innovations in Science Teacher Education (2016- 2024)

Contemporary Issues in Technology and Teacher Education – Science section. (2004 – 2024).

Elementary Science Education (JSTE section) (2010 – 2014)

Journal of Science Teacher Education (2006 – 2014)

Ad hoc reviewer. Journal of Science Education and Technology. (2012)

The Electronic Journal of Science Education. (1999 – 2007).

Meridian: A Middle School Computer Technologies Journal. (1997-1999).

SCHOLARLY PRESENTATIONS

INVITED PRESENTATIONS, LECTURES, COLLOQUIA, WORKSHOPS, CONFERENCES

Bodzin, A. (October, 2023). *Virtual reality learning for nonformal environmental education.* Presented at Mountain Talk. Lehigh University. Invited presentation.

Bodzin, A. (September, 2023). *VR and Education: The Current Landscape, the Future, and Opportunities for Lehigh.* Presented at the Artificial Intelligence & Virtual Reality for 21st Century Healthcare & Education. Lehigh University. Invited presentation.

Bodzin, A. (February, 2023). *Developing virtual reality learning experiences in partnership with non-formal environmental education and STEM-related centers*. University of Queensland. Invited presentation.

Sahagian, A., Munley, V., and Bodzin, A. (November, 2022). *Our changing planet*. Panel on climate change and the environment. Tau Beta Pi. Invited presentation.

Bodzin, A. (May, 2021). *Writing for conference proposals & journals*. Presented at the Association for Science Teacher Education Graduate Student Forum Mini-in-May Conference. Online. Invited presentation.

Hammond, T., Popejoy, K., *Leeson, D., and Bodzin, A. (March, 2021). *Student data collection with ArcGIS Online*. Presented at the National Council for Geographic Education (NCGE) Webinar workshop. Online. Invited presentation.

Hammond, T., Popejoy, K., *Leeson, D., and Bodzin, A. (February, 2021). *Making maps and conducting spatial analysis online*. Presented at the National Council for Geographic Education (NCGE) Webinar workshop. Online. Invited presentation.

Bodzin, A., Anastasio, A., Sahagian, D., Popejoy, K., Hammond, T., Holland, B., and Rutzmoser, S. (December, 2018). *A Design Partnership for Socio-Environmental Science Investigations*. Presented at the 2018 American Geophysical Union (AGU) annual meeting in Washington, DC. Invited presentation.

Bodzin, A., Popejoy, K., Hammond, T., Anastasio, D., Holland, B., Sahagian, D., Rutzmoser, S., Carrigan, J., and Farina, W. (July, 2018). *Socio-Environmental Science Investigations: Hands-on Active Learning with Geospatial Technologies*. Paper presented at the 2018 Hands-on Science Conference (HSCI) in Barcelona, Spain. Invited presentation.

Bodzin, A. *NSF Careers: Strategies for planning broader impacts with educational outreach activities*. Invited presentation at the NSF Career Workshops – 2016. April 21, 2016.

Bodzin, A. *Using Geospatial Technologies for Environmental Science Literacy and Inquiry.* Invited presentation at the Cary Institute of Ecosystem Studies, Milbrook, NY. September 17, 2015.

Bodzin, A. *The Science of Discovery*. Invited presentation at the Science on the Screen film series. 19th Street Cinema, Allentown, PA. May 6, 2015.

Bodzin, A. *Climate Change and Energy Learning with Geospatial Technologies*. Invited presentation at the Lehigh University Symposium on Teaching and Learning. April, 18, 2013.

Bodzin, A. *NSF Careers: Strategies for planning broader impacts with educational outreach activities*. Invited presentation at the NSF Career Workshops – 2013. April 11, 2013.

Bodzin, A. *STEM Learning with Geospatial Technologies*. Invited presentation at the Transforming STEM: From global agenda to classroom success 2013 Distinguished Lecture Series at Lehigh University. February 5, 2013.

Bodzin, A. *NSF Careers: Strategies for planning broader impacts with educational outreach activities*. Invited presentation at the NSF Career Workshops – 2012. April 2, 2012.

Bodzin, A. *Environmental Literacy for Middle School Students*. Invited presentation at the Lehigh Corporate Committee. April 25, 2011.

Bodzin, A. *A Day in the Life: Research*. Invited presentation at the Dialog Lehigh Workshop – 2011. May 6, 2011.

Bodzin, A. *NSF Careers: Strategies for planning broader impacts with educational outreach activities*. Invited presentation at the NSF Career Workshops – 2011. April 11, 2011.

Bodzin, A. *Using the Web to promote science learning*. One-day workshop presented at the IDEAS Institute at Hofstra University. April 30, 2005.

Bodzin, A. *Implementing Web-based scientific inquiry in preservice science methods courses*. Invited presentation at the 2005 Society for Information Technology and Teacher Education (SITE) 16th Annual International Conference in Phoenix, AZ. March 1-5, 2005.

Bodzin A. *Integrating Web-Based Activities into Elementary Curriculum Workshop*. A one-day workshop for Eisenhower grant funded PIE 2001 participants. Providence, RI. June, 11, 2001.

Bodzin, A. *Using Interactivity on the World Wide Web to Promote Scientific Inquiry.* Invited presentation at Westminister College. Salt Lake City, UT. November. 1, 2000.

Bodzin, A. *Integrating Web-Based Science into Elementary Curriculum*. A one day workshop for Eisenhower grant funded A Bigger SLICE (Science and Learning in the Community Environment) participants. Providence, RI. September, 11, 2000.

Bodzin, A. *Web-based Science Seminar series*. A series of seven topics presented at the Eccles Institute of Human Genetics, University of Utah, Salt Lake City, UT. April, 1999.

Bodzin, A. *Using the Web in K-2 Science Education*. A one day workshop for Eisenhower grant funded SLICE (Science and Learning in the Community Environment) participants. Providence, RI. March 31, 1999.

Bodzin, A. *Integrating Instructional Technology into the Science Classroom.* Presented to the Dillon District Two science faculty, Dillon, SC. February 16, 1998.

REFEREED PRESENTATIONS AT NATIONAL OR INTERNATIONAL MEETINGS

Malone, D.J., Popejoy, K., Morrison, J., Firestone, J.B., Hammond, T., Weinburgh, M., Brown, K., Lightner, L., and Bodzin, A. (April, 2006). Building and sustaining research-practice partnerships in geospatial education: Lessons from a four-year collaboration. Paper to be presented at the 2026 National Association of Research in Science Teaching (NARST) Annual International Conference in Seattle, Washington.

Hammond, T., Popejoy, K., *Quilinquin, E., Bodzin, A., Stefanovich, E., and Hanson, I. (March, 2006). Frequency and focus as determinative? Changes in student attitudes across integrated vs. stand-alone GIS courses. Paper to be presented at the 2026 Society for Information Technology & Teacher Education in Philadelphia, Pennsylvania.

Bodzin, A., *Araujo-Junior, R., and *Zhu, J. (January, 2026). Preparing teachers to integrate virtual reality experiences. Paper to be presented at the Hawaii International Conference on Education (HICE) in Honolulu, Hawaii.

Popejoy, K., Bodzin, A., Hammond, T., and *Quilinquin, E. (January, 2026). Geospatial artificial intelligence (GeoAI) in the STEM classroom: Impact on teaching and learning. Paper to be presented at the Hawaii International Conference on Education (HICE) in Honolulu, Hawaii.

*Haddush, N. & Bodzin, A. (October, 2025). Immersive virtual reality vs. interactive video: Comparing the impact on learning outcomes, motivation, and engagement among college students. Poster presented at the Association for Educational Communications and Technology (AECT) conference in Las Vegas, VV.

Bodzin, A., *Araujo-Junior, R., Hammond, T., Pan, Z., *Marlatt, M., *Yakub, Z., *Whang, T., *Granberry, H., Neitz, R. and Forster, L. (June, 2025). How Healthy Are Our Streams and River? - Initial headset VR prototype functionality with GIS. Paper presented at the 2025 Immersive Learning Research Network (iLRN) Conference in VR and Chicago, Illinois, USA.

Pan, Z., *Araujo-Junior, R., *Tran, T., Bodzin, A., and Hammond, T. (June, 2025). Exploring data-driven approaches to visualize learners' engagement profile in immersive gameful experiences. Paper presented at the 2025 Immersive Learning Research Network (iLRN) Conference in VR and Chicago, Illinois, USA.

*Araujo-Junior, R., Bodzin, A., *Tran, T., Hammond, T., and Pan, Z. (June, 2025). RedCAP + Unity = Immersive data collection. Developing a stealth spatial watershed map Learning task in VR. Paper presented at the 2025 Immersive Learning Research Network (iLRN) Conference in VR and Chicago, Illinois, USA.

Bodzin, A., Boel, C., O'Shea, P. and *Araujo-Junior, R. (June, 2025). Integrating immersive learning experiences in education and training. Panel session presented at the 2025 Immersive Learning Research Network (iLRN) Conference in VR and Chicago, Illinois, USA.

Krüger, J. M., Rende Mendoza, K. Glaser, N. Yang, M., Moeller, K. Bodzin, A., & Queiroz, A. (June, 2025). What Needs to Change in Research on XR in Environmental Education? An Interdisciplinary Panel and Community Discussion Session. Panel session presented at the 2025 Immersive Learning Research Network (iLRN) Conference in VR and Chicago, Illinois, USA. Invited panelist.

Popejoy, K., Costanza, J., Hurley, J., Hardisky, K., Hammond, T., & Bodzin, A. (2025, March). Socio-Environmental science investigations: School-based inquiries with GIS data collection and analysis. NSTA Conference. Philadelphia, PA.

Popejoy, K., Hammond, T., Bodzin, A., Costanza, J., Hardisky, M., & Hanson, I. (2025, March). Integrating geospatial thinking and reasoning activities: Examples from secondary biology, chemistry and environmental science. Presented at the SITE Conference in Orlando, FL.

Bodzin, A., *Araujo-Junior, R., Hammond, T., Pan, Z., Anastasio, D., *Burd, J., *Jhaveri, K., and *Le, Q. (June, 2024). Designing for headset VR from a longer desktop VR learning experience: Watershed Explorers: Industrial History. Paper presented at the 2024 Immersive Learning Research Network (iLRN) Conference in VR and Glasgow, Scotland, UK.

Pan, Z., *Araujo-Junior, R., Bodzin, A., Hammond, T., Anastasio, D., *Chen, N., *Wong, L., *Yee, B., and *Asibuo, P. (June, 2024). Optimizing desktop VR for immersive experiences through user-centered design approach. Paper presented at the 2024 Immersive Learning Research Network (iLRN) Conference in VR and Glasgow, Scotland, UK.

*Cui, Y., *Araujo-Junior, R., & Bodzin, A. (June, 2024). Creating an immersive wayfinding VR experience using design thinking and Uptale. Poster presented at the 2024 Immersive Learning Research Network (iLRN) Conference in VR and Glasgow, Scotland, UK.

*Hu, X., *Zhu, J., *Araujo-Junior, R., *Cicero, T., Bodzin, A., Hammond, T., Anastasio, D., Pan, Z., & Schwartz, C. (June, 2024). Mystery of Lehigh Gap: Interaction and dialogue systems. Poster presented at the 2024 Immersive Learning Research Network (iLRN) Conference in VR and Glasgow, Scotland, UK.

Hammond, T.C., Popejoy, K.L., Bodzin, A.M., Morrison, J.A., Brown, K.A., Weinburgh, M.H., Firestone, J.B., Alexander, R.C., Malone, D.J., *Leeson, D.M. (April, 2024). Advancing teachers' geospatial TPACK via an integrated professional & curriculum development program: A multi-year study. Poster presented at the 2024 American Educational Research Association (AERA) Annual Meeting in Philadelphia, PA.

Bodzin, A., Fu, Q., *Araujo Junior, R., Hammond, T., Anastasio, D., and Schwartz, C. (January, 2024). Learning with a desktop Virtual Reality field trip in public outreach settings. Paper presented at the 2024 Association for Science Teacher Education (ASTE) Annual Meeting in New Orleans, LA.

Weinburgh, M., Brown, K., Alexander, C. Morrison, J. Malone, D., Firestone, A., Lightner, L.K., Popejoy, K., Bodzin, A., Hammond, T. and *Leeson, D. (January, 2024). Using geographic information systems (GIS) in high school chemistry: Three case studies of socio-environmental science instruction. Paper presented at the 2024 Association for Science Teacher Education (ASTE) Annual Meeting in New Orleans, LA.

*Grossbauer, L., Caskie, G., and Bodzin, A, (Aug, 2023). A measurement tool for the impact of self-beliefs upon performance on college math placement exams. Poster presented at The American Psychological Association (APA) Annual Meeting on Washington, DC.

*Araujo Junior, R., Pan, Z., Bodzin, A., Semmens, K., Hammond, T., Anastasio, D., *Sechrist, S., *Lerro, N., *Rubin, E., and *Vogel, J. (May-June, 2023). Flood Adventures: Evaluation of final prototype. Paper presented at the 2023 Immersive Learning Research Network (iLRN) Conference in VR and San Luis Obispo, USA.

Bodzin, A., *Araujo Junior, R., Hammond, T., Anastasio, D., and Schwartz, C. (May-June, 2023). Evaluating the efficacy of a desktop virtual reality field trip for public outreach. Paper presented at the 2023 Immersive Learning Research Network (iLRN) Conference in VR and San Luis Obispo, USA.

*Cicero, T., *Hu, X., *Zhu, J., *Araujo-Junior, R., Bodzin, A., Hammond, T., Anastasio, D. and Pan, Z. (May-June, 2023). Mystery of the Lehigh Gap: Summary of the visual aspects designed and developed for the dialogue system for desktop VR game**.** Poster presented at the 2023 Immersive Learning Research Network (iLRN) Conference in VR and San Luis Obispo, USA.

Hammond, T., Popejoy, K., Bodzin, A., and Leeson, D. (April, 2023). Teachers as curricular innovators with geospatial tools in high school science and social studies. Paper presented at the 2023 American Educational Research Association (AERA) Annual Meeting in Chicago, IL.

Malone, D., Popejoy, K., Weinburgh, M., Brown, K., Firestone, J., Bodzin, A., & Hammond, T. (April, 2023). Using a teacher learning progression of instructional skills to examine geospatial curriculum adoption. Paper presented at the 2023 National Association of Research in Science Teaching (NARST) Annual International Conference in Chicago, IL.

Hammond, T., Popejoy, K., *Leeson, D, and Bodzin, A. (March, 2023). Sequenced instructional templates for curriculum-aligned use of GIS: Bringing GIS adoption "within sight"?. Paper presented at the Society for Information Technology & Teacher Education (SITE) in New Orleans, La.

Bodzin, A., *Araujo Junior, R., Hammond, T., Anastasio, D., Mayer, D., Schwartz, C., Semmens, K., Neitz, R., and Birchak, B. (January, 2023). Watershed Explorers: A digital gameful learning experience. Paper presented at the 2023 Association for Science Teacher Education (ASTE) Annual Meeting in Salt Lake City, UT.

Popejoy, K., Morrison, J. Weinburgh, M., Brown, K., Malone, D., Bodzin, A., Firestone, A., *Leeson, D., Hammond, T. and Alexander, C. (January, 2023). Socio-environmental science investigation to promote geospatial thinking: Integrating ArcGIS digital technologies for learning. Paper presented at the 2023 Association for Science Teacher Education (ASTE) Annual Meeting in Salt Lake City, UT.

Anastasio, D., *Araujo Junior, R., Bodzin, A., Hammond, T., Schwartz, C., Birchak, B., Koelsch, J., and Anoat Perez, M. (October, 2022). The Mystery of the Lehigh Gap: A VR educational game. Poster to be presented at the 2022 Geological Society of America (GSA) annual meeting in Denver, Colorado.

Bodzin, A., *Araujo Junior, R., *Straw, K., *Huang, S., *Zalatan, B., Semmens, K., Anastasio, D., and Hammond, T. (May 2022). Flood Adventures: A flood preparedness simulation game. Paper presented at the 2022 Immersive Learning Research Network (iLRN) Conference in VR and Vienna, Austria.

*Araujo Junior, R., and Bodzin, A. (May, 2022). Supporting watershed literacy with a desktop virtual reality exploration game. Paper presented at the 2022 Immersive Learning Research Network (iLRN) Conference in VR and Vienna, Austria.

Bodzin, A., *Araujo Junior, R., *Koelsch, J., *Arnoat Perez, M., *Agarwal, U., *Escobar, M., Schwartz, C., Anastasio, D., Hammond, T., Birchak, B., *Bao, J., *Chen, Y., *Cicero, T., *Hu, X., *Rovella, E. J., *Sary, L., *Silverman, M., and *Whitney, H. (May, 2002). The Mystery of the Lehigh Gap: Game-based VR for informal learning. Poster presented at the 2022 Immersive Learning Research Network (iLRN) Conference in VR and Vienna, Austria.

Popejoy, K., Leeson, D., Bodzin, A., and Hammond, T. (April, 2022). Retreat to online? Adapting to online professional development and curriculum development to promote geospatial inquiry. Roundtable presented at the 2022 American Educational Research Association (AERA) annual meeting in San Diego, CA and online.

Popejoy, K., Hammond, T. Bodzin, A., Morrison, J.A., and Weinburgh, M. (March, 2022). Advancing teachers' geospatial TPACK: Three universities' professional development initiatives. Paper presented at the 2022 National Association of Research in Science Teaching (NARST) Annual International Conference in Vancouver, Canada.

Bodzin, A., *Araujo Junior, R., Schwartz, C., Anastasio, D., Hammond, T., and Birchak, B. (January, 2022). Learning about environmental issues with a desktop virtual reality field trip. Paper presented at the 2022 Association for Science Teacher Education (ASTE) Annual Meeting in Greenville, SC.

Popejoy, K., Bodzin, A., Hammond, T., and *Leeson, D. (January, 2022). Adapting to online professional development and curriculum development to promote geospatial inquiry. Paper presented at the 2022 Association for Science Teacher Education (ASTE) Annual Meeting in Greenville, SC.

*Glover, K., and Bodzin, A. (January, 2022). Early efficacy testing of a serious simulation game: Non-game-oriented female emerging health professional student perception of cost and design feature preferences. Paper to be presented at the 22nd International Meeting on Simulation in Healthcare (IMSH 2022) in Los Angeles, CA.

Sahagian, D., Bodzin, A., Brunstein, L., Chou, S., Felzer, B., Friedman, S., Jellison, K., McAndrew, T., Ramage, J., Poolet, K., and Wurth, A. (December, 2021). COVID-19 and exacerbated impacts of air pollution and social inequities on public health: A case study of the Lehigh Valley. Poster presented at the 2021 American Geophysical Union (AGU) annual meeting in New Orleans, LA.

Hammond, T.C., Salter, S., Popejoy, K., Bodzin, A., & Leeson, D. (2021, December). Tried and Pretty True! Tactics for Highly Effective Teacher Professional Development With GIS. Presented as a Session at the virtual annual meeting of the National Council for Geographic Education (NCGE).

Bodzin, A., *Araujo Junior, R., Schwartz, C., Anastasio, D., Hammond, T., and Birchak, B. (May, 2021). The Lehigh Gap story: A design partnership for developing an immersive virtual reality field trip. Presentation presented at the 2021 Immersive Learning Research Network (iLRN) Conference online and in VR.

*Araujo Junior, R., Bodzin, A., Hammond, T., Anastasio, D., Lam, B., Mack, J., Meyer, D., Neitz, R., Semmens, K., Schwartz, C., and Slipp, J. (May, 2021). Watershed explorers: Designing a virtual reality game to promote local watershed literacy. Poster presented at the 2021 Immersive Learning Research Network (iLRN) Conference online and in VR.

Hammond, T., Popejoy, K., Bodzin, A., and *Leeson, D. (March, 2021). From virtual to hybrid to virtual and back again: Adapting our model of teacher training and curriculum development for online geospatial inquiry. Presentation presented at the 2021 International Consortium for Research in Science and Mathematics Education (ICRSME) Meeting online.

Popejoy, K., Bodzin, A., and *Leeson, D. (March, 2021). Adapting models of teacher training and curriculum development for online geospatial inquiry in high school science and social studies classrooms. Paper presented at the 2021 Society for Information Technology & Teacher Education (SITE) Annual Meeting online.

Bodzin, A., *Araujo Junior, R., Hammond, T., and Anastasio, D. (January, 2021). Investigating engagement and flow with a placed-based immersive virtual reality game. Paper presented at the 2021 Association for Science Teacher Education (ASTE) Annual Meeting online.

Hammond, T., Popejoy, K., Bodzin, A., *Leeson, D. (November, 2020). Adapting models of teacher training and curriculum development for online geospatial inquiry in high school science and social studies classrooms. Paper presented at the 2020 Innovate Learning Summit online.

*Glover, K., and Bodzin, A. (November, 2020). Learner-centric design of a serious simulation game for 12th grade emerging health professional students. Poster presented at the 2020 Association for Educational Communications & Technology (AECT) virtual convention.

Anastasio, D., Bodzin, A., Hammond, T., *Araujo Junior, R., and *Lam, B. (October, 2020). Immersive virtual reality (IVR) game of the Lehigh River Watershed, PA. Presentation presented at the 2020 Geological Society of America (GSA) annual meeting online.

Bodzin, A., *Araujo Junior, R., Hammond, T., and Anastasio, D. (June, 2020). An immersive virtual reality game designed to promote learning engagement and flow. Paper presented at the 2020 Immersive Learning Research Network (iLRN) Conference online and in VR.

*Araujo Junior, R., and Bodzin, A. (June, 2020). Immersive virtual reality design considerations to promote learning for English language learners. Paper presented at the 2020 Immersive Learning Research Network (iLRN) Conference online and in VR.

*Nester, J., and Bodzin, A. (June, 2020). An immersive virtual reality game designed to assess environmental learning. Poster presented at the 2020 Immersive Learning Research Network (iLRN) Conference online and in VR.

Bodzin, A., Hammond, T., Fu, Q., and *Farina, W. (April, 2020). Optimizing instruments for students' spatial learning attitudes (SLA) and interest in science, technology and geospatial technology (STEM-GEO). Poster accepted at the American Educational Research Association (AERA) annual meeting in San Francisco, CA. Paper available at AERA online repository. Conference cancelled due to COVID19.

Bodzin, A., Firestone, J.B., Lamb, R., and Araujo Junior, R. (January, 2020). Teaching science with immersive virtual reality. Exploratory session presented at the 2020 Association for Science Teacher Education (ASTE) Annual Meeting in San Antonio, TX.

Popejoy, K., Bodzin, A., Hammond, T., Fu, Q., and Farina, W. (January, 2020). The impact of STEM mentors in technology-driven socio-environmental science investigations. Paper presented at the 2020 Association for Science Teacher Education (ASTE) Annual Meeting in San Antonio, TX.

*Glover, K., and Bodzin, A. (January, 2020). Psychometric testing of a Value-Achievement-Cost motivation survey for self-selected 12th grade health sciences students. Poster presented at the 2020 International Meeting on Simulation in Healthcare (IMSH 2020) in San Diego, CA.

Anastasio, A., Bodzin, A., De Araujo Junior, R.M., and Hammond, T.C. (December, 2019). An Immersive virtual reality learning game to explore the Lehigh River watershed, PA. Poster presented at the 2019 American Geophysical Union (AGU) annual meeting in San Francisco, CA.

Hammond, T., and Bodzin, A. (November, 2019). From STEM education to civic engagement: Localized geographic inquiry taking students beyond the classroom. Paper presented at the 2019 College & University Faculty Assembly (CUFA) of the National Council for the Social Studies Annual International Conference in Austin, TX.

Hammond, T., Bodzin, A., and Salter, S. (November, 2019). Geography & civic inquiry: Spatial analysis of the built environment. Paper presented National Council for the Social Studies / National Council for Geographic Education Annual International Conference in Austin, TX.

Hammond, T., Bodzin, A., and Salter, S. (November, 2019). Tools for geographic inquiry: Data to map to story. Paper presented National Council for the Social Studies / National Council for Geographic Education Annual International Conference in Austin, TX.

Hammond, T.C., Popejoy, K., Salter, S., Hanson, I., Bodzin, A., Anastasio, D., Holland, B., Sahagian, D., Rutzmoser, S., Carrigan, J., & Farina, W. (2019, July). *Promoting Geospatial Analysis in High School: Urban Heat Island Investigation*. Presentation at the Esri Education Summit, San Diego, CA.

Hammond, T.C., Farina, W., Bodzin, A., Holland, B., Lopez, E., Carrigan, J., Popejoy, K., Rutzmoser, S., & Salter, S. (2019, July). *Geography and Civics in Action: Studying Zoning and Built Environment with WebGIS.* Presentation at the Esri Education Summit, San Diego, CA.

Salter, S., Bodzin, A., Hammond, T.C., Hanson, I., Farina, W., Junior, R., Fu, Q., Popejoy, K., Anastasio, D., Holland, B., Sahagian, D., & Rutzmoser, S. (2019, July). *Promoting Geospatial Technologies with Socio-Environmental Science Investigations*. Presentation at the Esri Education Summit, San Diego, CA.

Bodzin, A., Araujo Junior, R., Anastasio, D., Hammond, T., Rutzmoser, S., Vallera, F., Lindstrom, E., and Kangas, S. (June, 2019). A virtual reality game to identify locations in the Lehigh River watershed. Poster presented at the 2019 Immersive Learning Research Network (iLRN) Conference in London, UK.

Araujo Junior, R., Bodzin, A., Hammond, T., Anastasio, D., Rutzmoser, S., Vallera, F., Sadat, B., Yeung, B., and Levy, H. (June, 2019). Lehigh River watershed VR: The Lehigh Gap immersive virtual field trip. Poster presented at the 2019 Immersive Learning Research Network (iLRN) Conference in London, UK.

Bodzin, A., Anastasio, D., Hammond, T., Holland, B., and Popejoy, K. (June, 2019). Socio-environmental science investigations using the geospatial curriculum approach with Web Geographical Information Systems. Poster presented at the 2019 NSF ITEST Principal Investigator and Evaluator Summit in Alexandria, VA.

Bodzin, A. (June, 2019). Focus on the environment: Socio-environmental science investigations. Round table presented at the 2019 NSF ITEST Principal Investigator and Evaluator Summit in Alexandria, VA.

Farina, W., and Bodzin, A. (April, 2019). Evaluating the design and learning outcomes of a knowledge integration based online general chemistry unit. Paper presented at the 2019 National Association for Research in Science Teaching (NARST) Annual International Conference in Baltimore, MD.

Bodzin, A., Hammond, T., Fu, Q., Farina, W., and Popejoy, K. (April, 2019). The Implementation of Socio-environmental science investigations using mobile learning and Web GIS: Pilot test findings. Paper presented at the 2019 National Association for Research in Science Teaching (NARST) Annual International Conference in Baltimore, MD.

Hammond, T., and Bodzin, A. (March, 2019). So what happens when the funding runs out? Professional development for sustainable geospatial technology integration initiatives. Paper presented at the 2019 Society for Information Technology & Teacher Education (SITE) Annual Meeting in Las Vegas, NV

Reed, R., and Bodzin, A. (March, 2019). Enhancing public health education through geospatial thinking and reasoning skills using Web GIS mapping. Paper presented at the 70th Annual Conference of the Society for Public Health Education (SOPHE), Salt Lake City, UT.

Bodzin, A., Hanuscin, D., Hermann, R., Jones, M.G., Mensah, F., Pringle, R., Peters-Burton, E. and Schneider, R. (January, 2019). Be an early career STAR: Balancing service, teaching, and research. Workshop presented at the 2019 Association for Science Teacher Education (ASTE) Annual Meeting in Savannah, GA.

Bodzin, A., Popejoy, K., Hammond, T., Anastasio, D., Holland, B., and Sahagian, D. (January, 2019). A design partnership to support teachers' adoption of technology-integrated curriculum. Paper presented at the 2019 Association for Science Teacher Education (ASTE) Annual Meeting in Savannah, GA.

Bodzin, A., Anastasio, D., Vallera, F., Hammond, T., Rutzmoser, S., and Araujo Junior, R. M. (December, 2018). Developing an Immersive virtual reality environment to explore the Lehigh Gap. Presentation presented at the 2018 American Geophysical Union (AGU) annual meeting in Washington, DC.

Sahagian, D., Bodzin, A., Anastasio, A., Popejoy, K., Hammond, T., Holland, B., Rutzmoser, S., Farina, W., Salter, S., and Hanson, I. (December, 2018). Using geospatial technologies inside and outside the high school classroom to enhance understanding of socio-environmental concepts in an urban environment. Poster presented at the 2018 American Geophysical Union (AGU) annual meeting in Washington, DC.

Anastasio, A., Bodzin, A., Carrigan, J., Farina, W., Hammond, T., Holland, B., Araujo Junior, R. M. Popejoy, K., Rutzmoser, S., and Sahagian, D. (December, 2018). Interdisciplinary capstone projects provide authentic career experience during socio-environmental science investigations (SESI) using a geospatial curriculum approach. Poster presented at the 2018 American Geophysical Union (AGU) annual meeting in Washington, DC.

Carrigan, J., Anastasio, D., Bodzin, A., Popejoy, K., Hammond, T., Salter-Burghardt, S., Hanson, I., Rutzmoser, S., and Farina, W., Holland, B., and Sahagian, D. (October, 2018). Local mentor partnership in an urban high school to promote post-secondary career paths. Presentation presented at the 2018 Geological Society of America annual meeting in Indianapolis, IN.

Rutzmoser, S., Bodzin A., Hammond, T., Popejoy, K., Farina, W., Araujo Junior, R.M., Carrigan, J, Hanson, I., and Salter, S. (October, 2018). The Do's and Don'ts - Using GIS Tools in the Secondary Classroom. Presentation presented at the URISA GIS-Pro & CalGIS Conference, Palm Springs CA.

Farina, W., & Bodzin, A. (August, 2018). Developing and evaluating online chemistry instruction using the Knowledge Integration framework. Presentation presented at the 2018 Biennial Conference on Chemical Education conference in South Bend, IN.

Bodzin, A., Anastasio, D., Hammond, T., Holland, B., Popejoy, K., Rutzmoser, S., Sahagian, D., and Fu, J. (May, 2018). Socio-environmental science investigations using the geospatial curriculum approach with Web GIS. Poster presented at the 2018 NSF ITEST Principal Investigator and Evaluator Summit in Alexandria, VA.

Bodzin, A. (May, 2018). Socio-environmental science investigations: Pedagogical frameworks and design principles. Presentation presented in Emerging STEM Evaluation and Research Frameworks session at the 2018 NSF ITEST Principal Investigator and Evaluator Summit in Alexandria, VA.

Bodzin, A. (May, 2018). Culturally relevant curriculum presented in the Expertise Exchange roundtable session at the 2018 NSF ITEST Principal Investigator and Evaluator Summit in Alexandria, VA.

Hammond, T., and Bodzin, A. (March 2018). Articulating a novice-expert paradigm for GIS use in secondary science and social studies classrooms. Paper presented at the 2018 Society for Information Technology & Teacher Education (SITE) Annual Meeting in Washington, DC.

Bodzin, A., Hammond, T., Popejoy, K., Farina, W., Anastasio, D., Holland, B., Carrigan, J., Rutzmoser, S., and Sahagian, D. (March, 2018). A curriculum-linked professional development approach to support teachers' adoption of socio-environmental science investigations. John C. Park NTLI Fellowship award paper presented at the 2018 Society for Information Technology & Teacher Education (SITE) Annual Meeting in Washington, DC. Invited paper.

Bodzin, A., Popejoy, K., Carrigan, J., Rutzmoser, S., Anastasio, D., Hammond, T., Holland, B., Sahagian, D., & Farina, W. (March, 2018). Using Web GIS and iPads for Socio-Environmental Science Investigations. ASTE sponsored session. Presentation presented at the 2018 National Science Teachers Association (NSTA) National Conference on Science Education in Atlanta, GA.

Bressler, D. and Bodzin, A. (March, 2018). Using epistemic network analysis to examine discourse and scientific practice during a mobile AR game. Paper to be presented at the 2018 National Association for Research in Science Teaching (NARST) Annual International Conference in Atlanta, GA.

Bodzin, A., Hammond, T., Popejoy, K., Farina, W., Anastasio, D., Holland, B., Carrigan, J., Rutzmoser, S., and Sahagian, D. (January, 2018). A curriculum-linked professional development approach to support teachers' adoption of socio-environmental science investigations. Paper presented at the 2018 Association for Science Teacher Education (ASTE) Annual Meeting in Baltimore, MD.

Popejoy, K., Hammond, T., Bodzin, A., Farina, W., Anastasio, D., Holland, B., Carrigan, J., and Sahagian, D. (January, 2018). Using GIS tools to investigate socio-environmental science in the secondary classroom: Exploring the urban heat island effect. Experiential session presented at the 2018 Association for Science Teacher Education (ASTE) Annual Meeting in Baltimore, MD.

Farina, W., and Bodzin, A. (January, 2018). The effectiveness of an asynchronous online module on university students' understanding of the Bohr Model of the hydrogen atom. Paper presented at the 2018 Association for Science Teacher Education (ASTE) Annual Meeting in Baltimore, MD.

Marsteller, R., and Bodzin, A. (January, 2018). Teaching evidentiary reasoning online with the PERSON framework. Paper presented at the 2018 Association for Science Teacher Education (ASTE) Annual Meeting in Baltimore, MD.

Reed, R., and Bodzin, A. (January, 2018). Using geospatial thinking and reasoning skills to examine vector borne disease transmission through Web GIS with undergraduate students studying public health. Paper presented at the 2018 Association for Science Teacher Education (ASTE) Annual Meeting in Baltimore, MD.

Wallace, D., and Bodzin, A. (January, 2018). Developing scientific citizenship identity using mobile learning and authentic practice. Paper presented at the 2018 Association for Science Teacher Education (ASTE) Annual Meeting in Baltimore, MD.

Bodzin, A., Carrigan, J., Anastasio, D., Popejoy, K., Hammond, T., Holland, B., Sahagian, D., Rutzmoser, S., and Farina, W. (October, 2017). Socio-environmental science investigations that support NGSS teaching and learning. Presentation presented at the 2017 Geological Society of America annual meeting in Seattle, WA.

Carrigan, J., Bodzin, A., Anastasio, D., Popejoy, K., Hammond, T., Sahagian, D., Holland, B., Rutzmoser, S., and Farina, W. (October, 2017). A professional development approach for teaching socio-

environmental science investigations with mobile geospatial technologies. Poster presented at the 2017 Geological Society of America annual meeting in Seattle, WA.

Bodzin, A. (April, 2017). Using Web GIS and Google Earth to investigate environmental issues. ASTE sponsored session. Paper presented at the 2017 National Science Teachers Association (NSTA) National Conference on Science Education in Los Angeles, CA.

Bodzin, A. Anastasio, D. *Sharif, R. and Rutzmoser, S. (September, 2016). Implementing a Web GIS Plate Tectonics Simulation to Promote Spatial Thinking and Reasoning. Paper presented at the 2016 Geological Society of America annual meeting in Denver, CO.

Bodzin, A. Anastasio, D. Berti, C. and Sahagian, D. (September, 2016). Using Geospatial Technologies to Promote Learning in the Earth Sciences with Preservice Teachers. Poster presented at the 2016 Geological Society of America annual meeting in Denver, CO.

*Vallera, F., and Bodzin, A. (April, 2016). AgLIT (Agricultural Literacy through Innovative Technology): A STEM Integrated, project-based, upper-elementary agricultural literacy curriculum module. Paper presented at the 2016 National Association for Research in Science Teaching (NARST) Annual International Conference in Baltimore, MD.

Bodzin, A., Anastasio, D., *Sharif, R., and Rutzmoser, S. (January, 2016). Designing a Web GIS plate tectonics investigation to promote geospatial thinking. Paper presented at the 2016 Association for Science Teacher Education (ASTE) Annual Meeting in Reno, NV.

*Farina, W., and Bodzin, A. (January, 2016). An asynchronous online module to promote understandings of the Bohr model of the hydrogen atom. Paper presented at the 2016 Association for Science Teacher Education (ASTE) Annual Meeting in Reno, NV.

*Marsteller R., and Bodzin, A. (January, 2016). Scaffolding evidentiary reasoning in an online high school biology curriculum. Paper presented at the 2016 Association for Science Teacher Education (ASTE) Annual Meeting in Reno, NV.

*Reed, R., and Bodzin, A. (January, 2016). Using Web GIS to promote geospatial thinking and reasoning about malaria in the environment. Paper presented at the 2016 Association for Science Teacher Education (ASTE) Annual Meeting in Reno, NV.

Anastasio, D., Bodzin, A., *Sharif, R., and Rutzmoser, S. (November, 2015). Geospatial thinking and reasoning enhanced in a structural geology and tectonics course using Web GIS. Paper presented at the 2015 Geological Society of America annual meeting in Baltimore, MD.

*Wallace, D., Bodzin, A., & Hammond, T. (June, 2015). OhSnap: Using mobile learning technologies and authentic tasks to foster scientific citizenship. Poster presented at the 2015 International Society for Technology in Education (ISTE) conference in Philadelphia, PA.

*Reed, R., and Bodzin, A. (June, 2015). Geospatial thinking and reasoning skills through GIS and public health education. Poster presented at the 2015 International Society for Technology in Education (ISTE) conference in Philadelphia, PA.

Bressler, D. and Bodzin, A. (April, 2015).* Gameful collaborative learning: Better than business-as-usual. Paper presented at the 2015 National Association for Research in Science Teaching (NARST) Annual International Conference in Chicago, IL.

Casagrande, D., Burke, C., Austin, K., Hyclak, T., Pooley, K., Wurth, A., Bodzin, A., Friedman, S., Ramage, J., and Rutzmoser, S. (March, 2015). Well-being while being among wells: Life satisfaction & psychosocial stress in the Pennsylvania Marcellus shale gas boom. Presentation presented at the 2015 Society for Applied Anthropology Annual Meeting in Pittsburgh, PA.

Bodzin, A. (March, 2015). Using educative curriculum materials to support teacher enactment of a geospatial science curriculum. Paper presented at the 2015 Society for Information Technology & Teacher Education (SITE) Annual Meeting in Las Vegas, NV.

Bodzin, A. (January, 2015). Web-based interactive mapping applications for use in science methods courses. Paper presented at the 2015 Association for Science Teacher Education (ASTE) Annual Meeting in Portland, OR.

Bodzin, A., Anastasio, D., & Sahagian, D. (January, 2015). Using Web GIS to promote geospatial thinking and reasoning skills. Paper presented at the 2015 Association for Science Teacher Education (ASTE) Annual Meeting in Portland, OR.

Bressler, D. & Bodzin, A. (January, 2015).* Get in the game! Using a mobile AR game to promote next gen science standards. Paper presented at the 2015 Association for Science Teacher Education (ASTE) Annual Meeting in Portland, OR.

Marsteller, R., and Bodzin, A. (January, 2015).* An Online Instructional Unit for Understanding Biological Evolution. Paper presented at the 2015 Association for Science Teacher Education (ASTE) Annual Meeting in Portland, OR.

Bodzin, A. (January, 2015*).* Science and cultural intersections of the Oregon coast. Workshop presented at the 2015 Association for Science Teacher Education (ASTE) Annual Meeting in Portland, OR.

Anastasio, D., Acuta, L., Rutzmoser, S., Sahagian, D., and Bodzin, A. (October, 2014). Teaching and Learning with Web GIS. Paper presented at the 2014 Geological Society of America annual meeting in Vancouver, British Columbia.

Bodzin, A., Anastasio, D., and Sahagian, D. (August, 2014). Promoting spatial thinking with Web-based geospatial technologies. Poster presented at the 2014 NSF Discovery Research K12 Meeting in Washington, DC.

Bodzin, A. (June, 2014). The effectiveness of the geospatial curriculum approach on urban middle level students' climate change understandings. Invited paper presented at the Science Education and Education and Sustainable Development, 22nd Symposium on Chemistry and Science Education in Bremen, Germany.

Fu, Q., Bodzin, A., and Smith, E. (April, 2014). Latent transition in geospatial thinking and reasoning for tectonics understanding. Paper presented at the 2014 International Objective Measurement Workshop in Philadelphia, PA.

Bodzin, A., Fu, Q., *Bressler, D., and *Vallera, F. (April, 2014). Examining the enactment of Web GIS on students' geospatial thinking and reasoning and tectonics understandings. Paper presented at the 2014 National Association for Research in Science Teaching (NARST) Annual International Conference in Pittsburgh, PA.

*Bressler, D., and Bodzin, A. (April, 2014) Continuing to flow: Student experience during a scaled-up INPLACE mobile game. Paper presented at the 2014 National Association for Research in Science Teaching (NARST) Annual International Conference in Pittsburgh, PA.

*Vallera, F., and Bodzin, A. (April, 2014). Knowledge, skills, or attitudes/beliefs: The context of agricultural Literacy in upper elementary science curricula. Paper presented at the 2014 National Association for Research in Science Teaching (NARST) Annual International Conference in Pittsburgh, PA.

Bodzin, A. (January, 2014). The Effectiveness of Web-based curriculum materials to support enactment of a technology-integrated science curriculum. Paper presented at the 2014 Association for Science Teacher Education (ASTE) Annual Meeting in San Antonio, TX.

Anastasio, D., Bodzin, A., Sahagian, D., and Rutzmoser, S. (December, 2013). Teaching tectonics to undergraduates with Web GIS. Poster presented at the 2013 American Geophysical Union in San Francisco, CA.

Bodzin, A. (October, 2013). Environmental literacy and inquiry: The climate change and energy curriculum. Poster presented at the 2013 North American Association for Environmental Education Conference in Baltimore, MD.

Bodzin, A. (August, 2013). Using Web GIS to support geospatial thinking and reasoning. Presentation presented at the 2013 National Conference on Geography Education in Denver, CO.

Cirucci, L., Bodzin, A., *Teletzke, A., Anastasio, D., Sahagian, D., Rutzmoser, S., *Bressler, D, and *Burrows, J. (April, 2013). Investigating tectonics with Web GIS. Presentation presented at the 2013 National Science Teachers Association (NSTA) National Conference on Science Education in San Antonio, TX.

Bodzin, A., Cirucci, L., *Dempsey, D., Anastasio, D., Sahagian, D., and *Bressler. D. (April, 2013). Investigating climate change issues with Google Earth and Web-based activities. Presentation presented at the 2013 National Science Teachers Association (NSTA) National Conference on Science Education in San Antonio, TX.

Bodzin, A., *Bressler, D., and *Vallera, F. (April, 2013). Teacher enactment of Web GIS tectonics investigations. Poster presented at the 2013 National Association for Research in Science Teaching (NARST) Annual International Conference in Rio Grande, Puerto Rico.

*Bressler, D., and Bodzin, A. (April, 2013). Investigating student flow experience during a mobile augmented reality science game. Paper presented at the 2013 National Association for Research in Science Teaching (NARST) Annual International Conference in Rio Grande, Puerto Rico.

*Vallera, F., and Bodzin, A. (April, 2013). An examination of agricultural literacy content in upper elementary science curricula. Poster presented at the 2013 National Association for Research in Science Teaching (NARST) Annual International Conference in Rio Grande, Puerto Rico.

Bodzin, A., *Telezke, A., Cirucci, L., Bressler, D., Anastasio, D., Sahagian, D., Rutzmoser, S., and *Burrows, J. (January, 2013). Using Web GIS to support the teaching and learning of tectonics. Experiential session presented at the 2013 Association for Science Teacher Education (ASTE) Annual Meeting in Charleston, SC.

*Dempsey, C., Bodzin, A., Peffer, T., Anastasio, D., Sahagian, D., Cirucci, L., and *Bressler, D. (January, 2013). Environmental Literacy and Inquiry: The climate change curriculum. Experiential session presented at the 2013 Association for Science Teacher Education (ASTE) Annual Meeting in Charleston, SC.

*Peffer, T., and Bodzin, A. (January, 2013). Addressing middle school science teachers' conceptions of climate change. Poster presented at the 2013 Association for Science Teacher Education (ASTE) Annual Meeting in Charleston, SC.

Anastasio, D., Sahagian, D., Bodzin, A., *Telezke, A., Rutzmoser, S., Cirucci, L., *Bressler, D and *Burrows, J. (December, 2012). Teaching and learning tectonics with Web GIS. Abstract presented at the 2012 American Geophysical Union in San Francisco, CA.

Sahagian, D., Anastasio, D.J., Bodzin, A, Cirucci, L., *Bressler, D., Dempsey, C., and *Peffer, T. (December, 2012). Assessing climate misconceptions of middle school learners and teachers. Poster presented at the 2012 American Geophysical Union in San Francisco, CA.

Bodzin, A., *Bressler, D., *Dempsey, C., Sahagian, D., Anastasio, D., *Peffer, T. and Cirucci, L. (November, 2012). A curriculum approach using Google Earth and Web-based interactivities to promote climate change understandings. Paper presented at the 2012 Geological Society of America annual meeting in Charlotte, NC.

Bodzin, A., Sahagian, D., Anastasio, D., *Bressler, D., *Kulo, V., Peffer, T., Dempsey, C., and *Cirucci, L. (November, 2012). Environmental Literacy and Inquiry: A geospatial curriculum to support middle school teachers and students. Paper presented at the 2012 Geological Society of America annual meeting in Charlotte, NC.

*Burrows, J., Bodzin, A., Anastasio, D., Sahagian, D., Rutzmoser, S., *Bressler, D., Cirucci, L., and *Telezke, A. (November, 2012). Using Web GIS to enhance tectonics learning and geospatial thinking. Paper presented at the 2012 Geological Society of America annual meeting in Charlotte, NC.

Bodzin, A., *Cirucci, L., Kulo, V., *Dempsey, C., Anastasio, D., and Sahagian, D. (July, 2012). Teaching and learning about energy resources with Web GIS. Paper presented at the 2012 Esri Education GIS Conference in San Diego, CA.

Cirucci, L., Bodzin, A., *Teletzke, A., Anastasio, D., Sahagian, D., Rutzmoser, S. and *Bressler, D. (July, 2012). Enhancing tectonics learning with Web GIS. Paper presented at the 2012 Esri Education GIS Conference in San Diego, CA.

Bodzin, A. (2012, June). Promoting spatial thinking with Web-based geospatial technologies. Poster presented at the NSF 2012 Discovery Research PI meeting in Arlington, VA.

Zalles, D., Short, J., Duggan-Haas, D., Bodzin, A., Krumhansl, R., Wyner, Y., Berkowitz, A., & Almquist, H. (2012, June). Using scientific data sets to teach STEM topics, support student learning, and develop an understanding about the nature of science. Symposium presented at the 2012 NSF Discovery Research PI meeting in Arlington, VA.

Bodzin, A., *Kulo, V., & *Peffer, T. (2012, January). The effectiveness of educative curriculum materials as a form of science teacher professional development for a geospatial technologies–integrated energy resources curriculum. Paper presented at the 2012 Association for Science Teacher Education (ASTE) Annual Meeting in Clearwater Beach, FL.

Bodzin, A., *Peffer, T., & *Kulo, V. (2012, January). The impact of a geospatial technologies-integrated curriculum to promote energy literacy. Paper presented at the 2012 Association for Science Teacher Education (ASTE) Annual Meeting in Clearwater Beach, FL.

Bodzin, A., Fu, Q., & *Peffer, T. (2012, January). Investigating curriculum enactment with a GT-supported science curriculum on students' geospatial thinking and reasoning. Paper presented at the 2012 Association for Science Teacher Education (ASTE) Annual Meeting in Clearwater Beach, FL.

*Peffer, T., Bodzin, A., & *Kulo, V. (2012, January). Effectiveness of a geospatial science-technological pedagogical content knowledge model. Paper presented at the 2012 Association for Science Teacher Education (ASTE) Annual Meeting in Clearwater Beach, FL.

Bodzin, A., *Peffer, T., Klein, B. & Weaver, S. (2012, January). Myakka River State Park field trip: Incorporating environmental field trip pedagogy into science teacher professional development. Workshop presented at the 2012 Association for Science Teacher Education (ASTE) Annual Meeting in Clearwater Beach, FL.

Anastasio, D.J., Bodzin, A.M., *Peffer, T., Sahagian, D., Cirucci, L. (2011, December). The effectiveness of a geospatial technologies-integrated curriculum to promote climate literacy. EOS Transactions, American Geophysical Union, Fall Meeting Supplement 92 (52) ED21A-0568.

Dempsey, C., *Bodzin, A.M., Sahagian, D.L., Anastasio, D.J., *Peffer, T., Cirucci, L. (2011, December). Investigating climate change issues with web-based geospatial inquiry activities. EOS Transactions, American Geophysical Union, Fall Meeting Supplement 92 (52) ED21C-0591.

*Teletzke, A., *Kulo, V., Bodzin, A., Anastasio, D., Sahagian, D., & *McKeon, R. (2011, October). Designing learning activities to teach spatially with Web GIS. Abstracts with programs v. 42 (7), Paper No.163-3. Presentation presented at the 2011 Geological Society of America Annual Conference in Minneapolis, MN.

Bodzin, A., *Kulo, V., Cirucci, L., Anastasio, D., Sahagian, D., & *Peffer, T. (2011, June). Teaching "spatially" with geospatial learning technologies to investigate environmental issues. Presentation presented at the 2011 International Society for Technology in Education (ISTE) Annual Conference in Philadelphia, PA.

*Kulo, V., Bodzin, A., Cirucci, L., Anastasio, D., Sahagian, D., & *Peffer, T., (2011, June). Integrating geospatial technologies with inquiry-based learning to investigate energy. Presentation presented at the 2011 International Society for Technology in Education (ISTE) Annual Conference in Philadelphia, PA.

Bodzin, A. (2011, April). What do eighth grade students know about energy resources? Paper presented at the 2011 National Association for Research in Science Teaching (NARST) Annual Meeting in Orlando, FL.

*Kulo, V., & Bodzin, A. (2011, April). Integrating geospatial technologies in an inquiry energy unit with urban middle school students. Paper presented at the 2011 National Association for Research in Science Teaching (NARST) Annual Meeting in Orlando, FL.

*Peffer, T., & Bodzin, A. (2011, April). An examination of nonformal environmental educators' technology use to promote Earth and environmental science learning. Paper presented at the 2011 National Association for Research in Science Teaching (NARST) Annual Meeting in Orlando, FL.

Bodzin, A., *Kulo, V., & *Peffer, T. (2011, January). Educative curriculum materials as science teacher professional development for environmental curriculum adoption. Paper presented at the 2011 Association for Science Teacher Education (ASTE) Annual Meeting in Minneapolis, MN.

*Peffer, T., Bodzin, A., & Kulo, V. (2011, January). The geospatial science technological pedagogical content knowledge PD model: First year implementation findings. Paper presented at the 2011 Association for Science Teacher Education (ASTE) Annual Meeting in Minneapolis, MN.

*Peffer, T., Bodzin, A., *Kulo, V., *McKeon, R., Anastasio, D., & Sahagian, D. (2010, September). Innovative investigations of energy issues with instructional and geospatial technologies. Paper presented at the 2010 North American Association for Environmental Education (NAAEE) Annual Conference in Buffalo, NY.

Peffer, T., Bodzin, A., Kulo, V., Sahagian, D., & Anastasio, D. (2010, September). The personal energy audit: Examine, analyze and reduce your energy use. Paper presented at the 2010 North American Association for Environmental Education (NAAEE) Annual Conference in Buffalo, NY.

*Peffer, T., Bodzin, A, & Duffield-Smith, J. (2010, September). The state of technology use in nonformal environmental education settings. Paper presented at the 2010 North American Association for Environmental Education (NAAEE) Research Symposium in Buffalo, NY.

Bodzin, A. (2010, March). Investigating the implementation of a land use change curriculum with urban middle school learners. Paper presented at the 2010 National Association for Research in Science Teaching (NARST) Annual Meeting in Philadelphia, PA.

Bodzin, A. (2010, March). Watershed investigations with urban elementary learners: Intersection between environmental and science education. Invited paper in the Environmental Education strand symposium. Paper presented at the 2010 National Association for Research in Science Teaching (NARST) Annual Meeting in Philadelphia, PA.

*Peffer, T., Bodzin, A., & *Kulo, V. (2010, March). Design, implementation, and assessment of a geospatial science-technological pedagogical content knowledge professional development model. Interactive poster presented at the 2010 National Association for Research in Science Teaching (NARST) Annual Meeting in Philadelphia, PA.

*Kulo, V., Bodzin, A., Anastasio, D., *Peffer, T., Sahagian, D., & Cirucci, L. (2010, March). Examining the implementation of a Geospatial Information Technologies-supported energy unit in an urban middle school. Paper presented at the 2010 National Association for Research in Science Teaching (NARST) Annual Meeting in Philadelphia, PA.

MaKinster, J.G., Stylinski, C. D., McAuliffe, C., Barnett, M., Trautmann, N., Bodzin, A., & Yatnall, L. (2010, March). Research on Teaching and Learning Science with Geospatial Technologies. Symposium

presented at the 2010 National Association for Research in Science Teaching (NARST) Annual Meeting in Philadelphia, PA.

Bodzin, A. (2010, March). Investigating land use change environmental issues with Google Earth and satellite imagery. Presentation presented at the 2010 National Science Teachers Association (NSTA) National Conference on Science Education in Philadelphia, PA.

*Peffer, T., Bodzin, A., *Kulo, V., Sahagian, D., Anastasio, D., & Cirruci, L. (2010, March). The Personal Energy Audit activity: Analyzing personal energy use, resource availability, and conservation practices. Presentation presented at the 2010 National Science Teachers Association (NSTA) National Conference on Science Education in Philadelphia, PA.

*Kulo, V., Bodzin, A., Anastasio, D., Cirruci, L. Sahagian, D., & *Peffer, T. (2010, March). Using Google Earth to Investigate Energy Resources. Presentation presented at the 2010 National Science Teachers Association (NSTA) National Conference on Science Education in Philadelphia, PA.

Bodzin, A. (2010, January). Hybrid approach to integrating Web-based activities and field experiences to investigate environmental Issues. Paper presented at the 2010 Association for Science Teacher Education (ASTE) Annual Meeting in Sacramento, CA.

*Peffer, T., Bodzin, A., *Kulo, V., & Cirruci, L. (2010, January). The Environmental Literacy and Inquiry (ELI) professional development model: Enhancing the teaching and learning of energy with technology-integrated professional development. Poster session presented at the 2010 Association for Science Teacher Education (ASTE) Annual Meeting in Sacramento, CA.

*McKeon, R., *Kulo, V., Anastasio, D., Bodzin, A., *Peffer, T. & Sahagian, D. (2009, October). The Isle of Navitas: Towards a better understanding of energy and decision-making using GIS. Poster presented at 2009 Geological Society of America Annual Meeting in Portland, OR.

*Kulo, V., Cates, W., & Bodzin, A. (2009, October). Designing for Geospatial Information Technologies. Paper presented at the 2009 Association for Educational Communications and Technology (AECT) in Louisville, KY.

Bodzin, A., & Cirucci, L. (2009, June). Teaching "spatially" with Google Earth to investigate land use issues. Paper presented at the 2009 National Educational Computing Conference (NECC) in Washington, DC.

Kulo, V., Bodzin, A., *Peffer, T., Anastasio, D., & Sahagian, D. (2009, June). Using GIS in the classroom to investigate energy. Paper presented at the 2009 National Educational Computing Conference (NECC) in Washington, DC.

*Peffer, T., & Bodzin, A. (2009, January). The value of non-formal environmental education-based professional development in preservice science teacher preparation. Paper presented at the 2009 Association for Science Teacher Education (ASTE) Annual Meeting in Hartford, CT.

Bodzin, A., Cirucci, L., & Maher, P. (2008, March). Promoting Earth System Science Education: A School/University/NASA Explorer School Partnership. Paper presented at the 2008 National Science Teachers Association (NSTA) National Conference on Science Education in Boston, MA.

Bodzin, A., & Cirucci, L. (2008, March). Integrating Technology-based Tools to Investigate Environmental Change. Paper presented at the 2008 National Science Teachers Association (NSTA) National Conference on Science Education in Boston, MA.

Bodzin, A., & Cirucci, L. (2008, January). Integrating geospatial technologies to examine urban land use change: A design partnership. Paper presented in the multiple paper set, *Professional Development Models Using Geospatial Technologies* (Trautmann, Bodzin, Blank, & MaKinster) at the 2008 Association for Science Teacher Education (ASTE) Annual Meeting in St. Louis, MO.

Bodzin, A. (2008, January). Introduction to using geospatial technologies to promote spatial thinking. Workshop presented at the 2008 Association for Science Teacher Education (ASTE) Annual Meeting in St. Louis, MO.

Bodzin, A. (2007, September). Biology Exploring Life: Implementation findings in inclusive classrooms. Poster session presented at the 2007 National Science Foundation Discovery Research K-12 PI Meeting in Arlington, VA.

Bodzin, A. & Anastasio, D. (2007, January). Integrating environmental education content and pedagogy into preservice science teacher education. Paper presented at the 2007 Association for Science Teacher Education (ASTE) Annual Meeting in Clearwater Beach, FL.

Bodzin, A. (2007, January). Teaching environmental issues: Integrating field-based experiences and Web-based inquiry activities. Paper presented in the multiple paper set, *Integrating Environmental Education Content and Pedagogy into Preservice Science Teacher Education* (Klein, Bodzin, & Weaver) at the 2007 Association for Science Teacher Education (ASTE) Annual Meeting in Clearwater Beach, FL.

Bodzin, A., Anastasio, D., *Cascione, J. Ramage, J., Yu, Z. & *Heydenberk, E. (October, 2006). Designing Web-based activities to promote inquiry in Earth, environmental, and Earth systems science education. Poster session presented at the 2006 Geological Society of America Annual Meeting in Philadelphia, PA.

*Cascione, J., Bodzin, A., Anastasio, D., Ramage, J., Yu, Z. & *Heydenberk, E. (October, 2006). Engaging learners with a Web-based instruction to the carbon cycle. Poster session presented at the 2006 Geological Society of America Annual Meeting in Philadelphia, PA.

Bodzin, A. (April, 2006). Environmental inquiry: Web-based activities to support environmental studies. Presentation presented at the 2006 National Science Teachers Association (NSTA) National Conference on Science Education in Anaheim, CA.

Bodzin, A. (2006, January). Integrating online digital resources to enhance science teaching and learning. Presentation presented at the 2006 Association for Science Teacher Education (ASTE) Annual Meeting in Portland, OR.

Bodzin, A. (2005, November). *Promoting environmental literacy with Web-based activities*. Presentation to be presented at the 2005 North American Association for Environmental Education (NAAEE) Annual Meeting in Albuquerque, NM.

Bodzin, A. (2005, August). *Using Web-based GIS and other resources to promote Web-based inquiry*. Workshop presentation at the 2005 NASA Earth System Science Education for 21st Century meeting, Fairbanks, AK.

Bodzin, A. (2005, July). *Using the Web to promote inquiry in marine science*. Presentation presented at the 2005 National Marine Educators Association Conference (NMEA) in Maui, HI.

Bodzin, A. & *Shive, L. (2005, June). *Using the Web to promote environmental studies*. Presentation presented at the 2005 National Educational Computing Conference (NECC) in Philadelphia, PA.

Bodzin, A., Edwards, L., Waller, P. & Shive, L. (2005, April). *A study of inclusive learners using a Web-integrated biology curriculum*. Paper presented at the 2005 National Association for Research in Science Teaching (NARST) Annual Meeting in Dallas, TX.

Baird, B., Bodzin, A., Courson, S., Smith, R., Eick, C., & Brownstein, E. (2005, January). *Syllabus sharing – Secondary methods courses*. Session presented at the 2005 Association for the Education of Teachers in Science (AETS) Annual International Conference in Colorado Springs, CO.

Bodzin, A. (2005, January). *Using Web-based GIS to promote inquiry and environmental literacy*. Paper presented at the 2005 Association for the Education of Teachers in Science (AETS) Annual International Conference in Colorado Springs, CO.

Bodzin, A. & Cates, W. (2004, May). *Summative evaluation of the Biology: Exploring Life Curriculum*. Poster session presented at the 2004 National Science Foundation K-12 Math, Science, and Technology Curriculum Developers Conference in Washington, DC.

Edwards, L., Kale, D., Bodzin, A., Waller, P., & *Shive, L. (2004, April). *Promoting Science Learning for ALL Students in Inclusive Classrooms.* Paper presented at the 2004 Council for Exceptional Children (CEC) Annual Convention in New Orleans, LA.

Bodzin, A., Waller, P., Edwards, L., Kale, D. & *Shive, L. (2004, April). *Let's talk about integrating technology in inclusive science classrooms.* Paper presented at the 2004 National Science Teachers Association (NSTA) Annual Meeting in Atlanta, GA.

Waller, P., Bodzin, A., Kale, D & Edwards, L. (2004, April). *Inclusion students have inquiring minds!* Paper presented at the 2004 National Science Teachers Association (NSTA) Annual Meeting in Atlanta, GA.

Bodzin, A., & Barnhardt, G. (2004, April). *Biology online: The realities of integrating Web-based curricula in the biology classroom.* Presentation presented at the 2004 National Science Teachers Association (NSTA) Annual Meeting in Atlanta, GA.

Bodzin, A., Waller, P., Edwards, L., *Shive, L., & Kale, D. (2004, January). *Classroom Instruction with Technology for Inclusion: The Science Instructional Practices Inventory*. Paper presented at the 2004 Association for the Education of Teachers in Science (AETS) Annual International Conference in Nashville, TN.

*Beerer, K., & Bodzin, A. (2004, January). *Promoting Inquiry-Based Science Instruction With the Science Teacher Inquiry Rubric (STIR)*. Paper presented at the 2004 Association for the Education of Teachers in Science (AETS) Annual International Conference in Nashville, TN.

*Shive, L., & Bodzin, A. (2004, January). *What Matters in the Classroom: A Model of Teacher and Contextual Influences on Science Literacy*. Paper presented at the 2004 Association for the Education of Teachers in Science (AETS) Annual International Conference in Nashville, TN.

Waller, P., Bodzin, A., Edwards, L., & Kale, D. (2004, January). *Web-based curricular innovations with diverse learners: Stories from a university/school partnership*. Paper presented at the 2004 Association for the Education of Teachers in Science (AETS) Annual International Conference in Nashville, TN.

Bodzin, A., Cates, W., Price, B., & Pratt, K. (2003, June). *Implementing a Web-integrated high school biology program*. Web poster session presented at the 2003 National Educational Computing Conference (NECC) in Seattle, WA.

Bodzin, A. (2003, March). *Web-based inquiry for learning science*. Paper presented at the 2003 National Science Teachers Association (NSTA) Annual Meeting in Philadelphia, PA.

*Shive, L. & Bodzin, A. (2003, March). *The best of both worlds: Using authentic data and the World Wide Web to promote inquiry*. Paper presented at the 2003 National Science Teachers Association (NSTA) Annual Meeting in Philadelphia, PA.

Edwards, L., Bodzin, A., Waller, P., & Kale, D. (2003, March). *Promoting scientific literacy for ALL students: A framework for including students with learning disabilities in a Web-enhanced biology classroom*. Presentation presented at the 2003 National Science Teachers Association (NSTA) Annual Meeting in Philadelphia, PA.

Waller, P., Kale, D., Bodzin, A., & Edwards, L., (2003, March). *Professional partnerships: Using a Web-enhanced biology program in a team-taught-inclusion biology classroom*. Paper presented at the 2003 National Science Teachers Association (NSTA) Annual Meeting in Philadelphia, PA.

Bodzin, A., Cates, W., & Price, B. (2003, March). *Formative evaluation of the Exploring Life curriculum: Year two implementation fidelity findings*. Paper presented at the 2003 National Association for Research in Science Teaching (NARST) Annual Meeting in Philadelphia, PA.

Bodzin, A., & Cates, W. (2003, January). *Preparing preservice science teachers to understand Web-based inquiry*. Paper presented at the 2003 Association for the Education of Teachers in Science (AETS) Annual International Conference in St. Louis, MO.

*Shive, L. & Bodzin, A. (2003, January). *Partnering in watershed inquiry*. Paper presented at the 2003 Association for the Education of Teachers in Science (AETS) Annual International Conference in St. Louis, MO.

Bodzin, A., Price, B., Cates, W., Heyden, R., and Weidenaar, J. (2002, June). *Developing A Web-Enhanced high school biology program*. Web poster session presented at the 2002 National Educational Computing Conference (NECC) in San Antonio, TX.

Price, B., Cates, W., & Bodzin, A. (2002, June). *Challenges in implementing technology-rich curricular high school biology materials: First year findings from the Exploring Life project*. Paper presented at the National Educational Computing Conference in San Antonio, TX.

Bodzin, A., Price, B. Cates, W. Williamson, B. and Campbell, N. (2002, April). *Formative evaluation of the design and development of a Web-based biology curriculum: Y1 findings*. Paper presented at the National Association for Research in Science Teaching Annual Meeting in New Orleans, LA.

*Shive, L., Bodzin, A., and Cates, W., (2002, April). *The status of Web-based inquiry for secondary school chemistry*. Paper presented at the National Association for Research in Science Teaching Annual Meeting in New Orleans, LA.

Bodzin, A. (2002, April). *Designing a flexible Web-based instructional system for watershed exploration and inquiry*. Poster session in Poster/Symposium session The Role of Customization in Shaping Innovative Science Curricula: Implications for Design, Practice, and Professional Development (Baumgartner, E. chair) presented at the American Education Research Association (AERA) in New Orleans, LA.

Bodzin, A., Williamson, B. and Price, B. (2002, March). *Learning biology with a Web-enhanced curriculum*. Presentation session presented at the 2002 National Science Teachers Association (NSTA) National Convention in San Diego, CA.

Bodzin, A. (2002, January). *Teaching science methods courses with Web-enhanced activities*. Demonstration session presented at the 2002 Association for the Education of Teachers in Science (AETS) Annual International Conference in Charlotte, NC.

Bodzin, A. (2002, January). *Using Web-based portfolios to assess preservice science teachers*. Poster session presented at the 2002 Association for the Education of Teachers in Science (AETS) Annual International Conference in Charlotte, NC.

Cates, W. and Bodzin, A. (2001, November). *Designing for Web-based scientific inquiry: Research findings into practice*. Paper presented at the Association for Educational Communications and Technology (AECT) annual meeting in Atlanta, GA.

Bodzin, A., Price, B. and Heyden, R. (2001, November). *A formative evaluation approach to guide the development of a Web-text biology curriculum*. Paper presented at the National Association of Biology Teacher's annual meeting (NABT) in Montreal, Quebec.

Bodzin, A. and Bothwell, D. (2001, June). *LEO EnviroSci Inquiry: Making a vision into a reality*. Paper presented at the National Educational Computing Conference (NECC) in Chicago. IL.

*Heist, M. and Bodzin, A. (2001, June). *Effectively integrate existing Web sites into a traditional curriculum*. Web poster session presented at the National Educational Computing Conference (NECC) in Chicago. IL.

Bodzin, A., Cates, W., and *Vollmer, V. (2001, March). *Codifying Web-based inquiry activities: Preliminary instrument development*. Paper presented at the National Association for Research in Science Teaching Annual Meeting in St. Louis, MO.

Bodzin, A. (2001, March). *Collaborative inquiry about the process of researching while teaching*. Invited participant. Symposium presented at the National Association for Research in Science Teaching Annual Meeting in St. Louis, MO.

Bodzin, A., and Park, J. (2001, March). *The SciTeach Forum: Preservice science teachers using asynchronous computer-mediated communications on the World Wide Web*. NSTA/NARST poster session presented at the National Science Teachers Association (NSTA) National Convention in St. Louis, MO.

Bodzin, A., *Heist, M., and Park, J. (2001, March). *Enhancing science learning with visual Web-based instructional resources*. Presentation presented at the National Science Teachers Association (NSTA) National Convention in St. Louis, MO.

*Heist, M. and Bodzin, A. (2001, March). *Making the A-list: Biology Web-based activities that really work in the classroom*. Presentation presented at the National Science Teachers Association (NSTA) National Convention in St. Louis, MO.

Bodzin, A. (2001, March). *Designing Web-based inquiry simulations: Carolina Coastal Science*. Paper presented at the Society for Information Technology and Teacher Education (SITE) 12th Annual Conference in Orlando, FL.

Bodzin, A. (2001, March). *Factors that promote and inhibit discourse with preservice teachers on a non-restrictive, public Web-based forum*. Paper presented at the Society for Information Technology and Teacher Education (SITE) 12th Annual Conference in Orlando, FL.

*Derham, C., and Bodzin, A. (2001, March). *Scoring for preservice teachers' Electronic portfolios: Issues of feasibility and reliability*. Paper presented at the Society for Information Technology and Teacher Education (SITE) 12th Annual Conference in Orlando, FL.

Bodzin, A. (2000, November). *Formative evaluation for a Web-based biology curriculum*. Invited speaker. Presentation at the Learning Strategies for Science Education Websites meeting, Salt Lake City, UT.

Bodzin, A. (2000, November). *Evaluation of Internet science programs*. Chair of panel discussion at the Learning Strategies for Science Education Websites meeting, Salt Lake City, UT.

Bodzin, A. (2000, November). *QuickTime Virtual Reality in instructional science*. Presentation at the Learning Strategies for Science Education Websites meeting, Salt Lake City, UT.

Bodzin, A. (2000, April). *Using critical incidents in science teaching to promote Web-based discourse with preservice science teachers*. Paper presented at the National Association for Research in Science Teaching Annual Meeting, New Orleans, LA.

Bodzin, A. (2000, January). *Preservice science teachers and Internet telecommunications tools: Issues to consider*. Paper presented at the Association for the Education of Teachers in Science (AETS) Annual Meeting in Akron, OH.

Bodzin, A., Wilson, E. Hug, B. (2000, January). *A collaboration between scientists and a science educator developing Web-based curricular activities*. Paper presented at the Association for the Education of Teachers in Science (AETS) Annual Meeting in Akron, OH.

Park, J., Bodzin, A., Grable, L., and Cleveland, A. (2000, January*). "Doing science" online with the Science Junction*. Presentation at the Association for the Education of Teachers in Science (AETS) Annual Meeting in Akron, OH.

Bodzin, A. (1999, November). *How can the Internet best encourage inquiry-oriented science?: Carolina Coastal Science*. Invited speaker. Presentation at the Science Education Website Developers meeting, Salt Lake City, UT.

Bodzin, A. (1999, November). *Science and social perspctives: Carolina Coastal Science*. Invited speaker. Presentation at the Science Education Website Developers meeting, Salt Lake City, UT.

Park, J., Grable, L., Bodzin, A., Cleveland, A., and Haase, D. (1999, October). *Developing a science inquiry-based Web site: The Science Junction*. Paper presented at WebNet 99 – World Conference on the WWW and Internet, Honolulu, HI.

Bodzin, A. and Park, J. (1999, March). *Reflective discourse in a non-restrictive, asynchronous Web-based forum with preservice science teachers.* Paper presented at the National Association of Research in Science Teaching (NARST) Annual Meeting in Boston, MA.

Park, J., Grable L., Bodzin, A., and Cleveland, A. (1999, March). *Implementing new science standards with NCSU's Science Junction*. Presentation at the National Science Teachers Association (NSTA) National Convention in Boston, MA.

Bodzin, A. (1999, March). *Carolina Coastal Science: Engaging students with online inquiry.* Presentation at the National Science Teachers Association (NSTA) National Convention in Boston, MA. March 25-28, 1999.

Park, J., Grable L., Bodzin, A., Cleveland, A., and Haase, D. (1999, March). *Using Web resources to promote hands-on collaborative science inquiry: The Science Junction*. Paper presented at the Society for Information Technology and Teacher Education (SITE) 10th Annual Conference in San Antonio, TX.

Bodzin, A. (1999, January). *An online inquiry instructional system for science education.* Paper presented at the Association for the Education of Teachers in Science (AETS) Annual Meeting in Austin, TX.

Bodzin, A. and Park, J. (1998, October). *The SciTeach Forum - barriers to preservice teachers.* Paper presented at the Tel-Ed '98 Conference in New Orleans, LA.

Bodzin, A. (1998, September). *The SciTeach Forum - benefits and barriers.* Paper presented at the Mid-Atlantic Association of Educators of Teachers of Science (MAAETS) Annual Meeting in Chapel Hill, NC.

Bodzin, A., Park, J., and Grable, L. (1998, June). *Training teachers with a CD-ROM and a WWW support network.* Paper presented at the National Educational Computing Conference (NECC) in San Diego, CA.

Bodzin, A. *Using a Web forum as a support network for preservice science teachers.* Paper presented at the National Science Teachers Association (NSTA) National Convention in Las Vegas, NV. April 16-19, 1998.

Bodzin, A. and Park, J. *The effects of preservice science teachers engaging in an electronic community.* Paper presented at the Society for Information Technology and Teacher Education (SITE) 9th Annual Conference in Washington, DC. March 10-14, 1998.

Bodzin, A., Grable, L., and Park, J. *Teaching instructional materials to science educators with a CD-ROM and a World Wide Web support network.* Presentation at the Association for the Education of Teachers in Science (AETS) Annual Meeting in Minneapolis, MN. January 8-11, 1998.

Bodzin, A., Park, J. and Grable, L. *Compiling a CD-ROM: Issues to consider.* Invited paper presented at the American Association of Physics Teachers (AAPT) Winter Meeting in New Orleans LA. January 3-8, 1998.

REFEREED PRESENTATIONS AT REGIONAL AND STATE MEETINGS

Araujo Junior, R. M., Bodzin, A., Hammond, T., Popejoy, K., Anastasio, D., Holland, B., Sahagian, D., Rutzmoser, S., Carrigan, J., and Farina, W. (February, 2019). Geospatial inquiry & civic buildup with SESI. Integrating curricula with geospatial technologies. Presentation at the Pennsylvania Educational Technology Expo and Conference (PETE&C) annual meeting in Hershey, PA.

Bodzin, A., (2015, October). Web-based mapping applications for teaching science. Presentation presented at the 2015 Teaching, Learning & Teaching Summit in Bethlehem, PA.

*Sharif, R., Anastasio, D., Rutzmoser, S., and Bodzin, A. (2015, March). Geospatial thinking and reasoning enhanced in a structural geology course using WebGIS, as validated by content experts. Poster presented at the Geological Society of America Northeast Section Annual Meeting in Mount Washington, New Hampshire.

Bodzin, A., (2014, October). Tablet friendly science resources. Presentation presented at the 2014 Mobile Learning & Teaching Summit in Bethlehem, PA.

*Wallace, D., & Bodzin, A., (2014, October). Affordances of mobile learning technologies in the environmental sciences. Presentation presented at the 2014 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in New York City, NY.

Bodzin, A., Cirucci, L., Anastasio, D., Sahagian, D., *Bressler, D, *Burrows, J., and Rutzmoser, S., (November, 2013). Integrating Web GIS in Earth science curriculum to investigate tectonics. Presentation presented at the 2013 National Science Teachers Association (NSTA) Regional Conference on Science Education in Charlotte, NC.

Bodzin, A., & *Bressler, D. (2013, October). Using Web GIS in science teacher education. Presentation presented at the 2013 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Bressler, D., & Bodzin, A. (2013, October). Transforming a "tried and true" science lab into an INPLACE mobile game. Presentation presented at the 2013 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Reed, R. & Bodzin, A. (2013, October). Using Web GIS to investigate public health science issues. Presentation presented at the 2013 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Marsteller, R., *Farina, W. & Bodzin, A. (2013, October). Teaching science online: Critical issues for student learning. Roundtable session presented at the 2013 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Symodis, W. & Bodzin, A. (2013, October). Promoting education for sustainable development in Cambodia through informal science learning. Roundtable session presented at the 2013 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

Bodzin, A. (2013, March). Environmental Literacy and Inquiry: Investigating Climate Change and Energy Issues. Presentation presented at the 2013 Pennsylvania Association of Environmental Educators Annual Meeting in Bushkill, PA.

Bodzin, A., *Bressler, D., & *Vallera, F. (2012, October). A geospatial curriculum design approach with Web GIS. Presentation presented at the 2012 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Bressler, D., & Bodzin, A. (2012, October). Using a forensics mobile augmented reality science mystery game to engage students. Presentation presented at the 2012 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Vallera, F. & Bodzin, A. (2012, October). An examination of agricultural literacy content in upper elementary science curricula. Presentation presented at the 2012 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

Bodzin, A., *Bressler, D., *Vallera, F., & *Peffer, T. (2011, October). Teaching "spatially" with Web GIS. Presentation presented at the 2011 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Bressler, D. & Bodzin, A. (2011, October). Bad News in Bethlehem: A Handheld Augmented Science Reality Game. Paper presented at the 2011 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Peffer, T., & Bodzin, A. (2011, October). Effective professional development in science education: Addressing teachers beliefs. Roundtable session at the 2011 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Vallera, F., & Bodzin, A. (2011, October). Agricultural education: What do science teachers need to know? Roundtable session at the 2011 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Cornwall, NY.

*Kulo, V., Cirucci, L., and Bodzin, A. (2011, June). Using geospatial technologies to investigate energy. Presentation presented at the 2011 EnergyPath Meeting in Center Valley, PA.

Bodzin, A., (2010, October) Conceptual framework for the National Science Education Framework draft. Implications for Science Teacher Education. Presentation session at the 2010 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Dingman's Ferry, PA.

*Peffer, T., and Bodzin, A., (2010, October) Sustainable professional development for science teachers: Critical issues for success. Roundtable session at the 2010 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Dingman's Ferry, PA.

Bodzin, A., *Peffer, T., and *Kulo, V. (2009, October) The role of educative curriculum materials in science teacher professional development. Paper presented at the 2009 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Dingman's Ferry, PA.

*Peffer, T., and Bodzin, A., (2009, October) Personal energy audit: Helping teachers and students understand the implications of personal energy consumption. Presentation session at the 2009 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Dingman's Ferry PA.

*Bressler, D. and Bodzin, A. (2009, October). Learning goes mobile: m-Learning in formal and informal science education. Presentation presented at the 2009 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Dingman's Ferry, PA.

Cirruci, L. and Bodzin, A. (2008, December). Integrating technology-based tools to investigate environmental change. Presentation session presented at the 2008 Pennsylvania Science Teachers Association Annual Meeting in Hershey, PA.

Bodzin, A. (2008, October) Teaching and learning with Google Earth and remotely sensed imagery to investigate land use change. Presentation session presented at the 2008 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Dingman's Ferry PA.

Bodzin, A., Klein, B. S., and Weaver, S.D. (2008, October). Keynote Panel: Overcoming Barriers to Including Environmental Education in Preservice Science Education. Panerl session presented at the 2008 Association for Science Teacher Education Northeast Region (NE-ASTE) Annual Meeting in Dingman's Ferry PA.

*Wendell, M., Pazzaglia, F.J., Anastasio, D.J., and Bodzin, A.M. (2006, March). A new geologic map of the Lehigh Gorge State Park and development of a Web inquiry-based learning model for middle school geoscience education. Poster to be presented at the Geological Society of America Northeast Section 41st Annual Meeting in Harrisburg, PA.

Bodzin, A. (2004, October). *A Web-enhanced approach to teaching an environmental education methods course*. Presentation session presented at the 2004 Association for the Education of Teachers in Science Northeast Region (AETS-NE) Conference, October 14-15, 2004 in Syracuse, NY.

Bodzin, A., *Shive, L. and *Brown, K. (2003, December). *Using the Internet to meet PA Environment and Ecology Standards*. Presentation session presented at the 2003 Pennsylvania Science Teachers Association annual meeting (PSTA) in Hershey, PA.

*Shive, L. & Bodzin, A. (2003, December). *What good is student water quality data?* Presentation session presented at the 2003 Pennsylvania Science Teachers Association annual meeting (PSTA) in Hershey, PA.

Waller, P., Bodzin, A., *Shive, L. and Edwards, L. (2003, December). *Using inquiry in an inclusive classroom*. Presentation session presented at the 2003 Pennsylvania Science Teachers Association annual meeting (PSTA) in Hershey, PA.

*Lemon, C., Waller, P., and Bodzin, A. (2003, December). *The role of technology in a pre-teacher's classroom*. Presentation session presented at the 2003 Pennsylvania Science Teachers Association annual meeting (PSTA) in Hershey, PA.

Bodzin, A. (2002, November). *LEO EnviroSci Inquiry: A Web-based resource for learning environmental science*. Presentation presented at the 2002 Pennsylvania Alliance for Environmental Education annual meeting (PAEE) in Lancaster, PA.

Bodzin, A. (1999, December). *Coastal Explorations: Using a CD-ROM and the Internet to explore coastal issues*. Paper presented at Pennsylvania Science Teachers Association (PSTA) Annual Convention, Hershey, PA.

Bodzin, A. (1999, December). *Using Web-based interactivity to promote scientific inquiry*. Paper presented at Pennsylvania Science Teachers Association (PSTA) Annual Convention, Hershey, PA.

Park, J., Grable L. and Bodzin, A. (1999, November). *What's new in Science Junction?* Presented at the North Carolina Science Teachers Association (NCSTA) 31th Annual Conference in Greensboro, NC.

Bodzin, A., Park, J. and Grable, L. (1999, March). *NCSU's Science Junction: Online science activities to engage students.* Presentation at the North Carolina Association for Educational Communications and Technology (NCAECT) Annual Meeting in Durham, NC.

Bodzin, A. (1999, February). *Carolina Coastal Science: Environmental inquiry online!* Presented at the North Carolina Environmental Education (NCEE) Conference in Research Triangle Park, NC.

Bodzin, A., Park, J., and Grable, L. (1998, December). *Engage students actively in "doing and thinking" with the World Wide Web.* Presentation at the North Carolina Educational Technology Conference (NCECT) in Greensboro, NC

Park, J., Bodzin, A., and Grable, L. (1998, December). *NCSU's Science Junction: Online science for North Carolina students and educators.* Presentation at the North Carolina Educational Technology Conference (NCECT) in Greensboro, NC

Park, J., Bodzin, A., Slusher, J. and Cleveland, A. (1998, December). *Using interactive Web-based solar eclipse simulations to explore the earth, moon and sun movements.* Presentation at the North Carolina Educational Technology Conference (NCETC) in Greensboro, NC

Bodzin, A. *Multimedia extravaganza of science happenings.* (1998, November). Invited speaker. Presentation at the South Carolina Science Council '98 Conference (SC2) in Greenville, SC.

Bodzin, A., Spence, L. and Kube, J. (1998, November). *Carolina Coastal Science - an inquiry-based Web site.* Presented at the North Carolina Science Teachers Association (NCSTA) 30th Annual Conference in Greensboro, NC.

Park, J., Bodzin, A., Grable L. and Cleveland, A.. (1998, November). *Science Junction: Learn and collaborate with the Web*. Presented at the North Carolina Science Teachers Association (NCSTA) 30th Annual Conference in Greensboro, NC.

Bodzin, A., Grable, L., and Park, J. (December, 1997). *IMSEnet: Teaching instructional materials to science educators with a CD-ROM and a World Wide Web support network*. Presented at the North Carolina Educational Technology Conference (NCETC) in Greensboro, NC.

Bodzin, A. (November, 1997). *The IMSE CD-ROM demonstration*. Presentation at the South Carolina Science Council (SC2) Fall Conference in Charleston, SC

Bodzin, A., Grable, L., and Park, J. (November, 1997). *Website Science: Using IMSEnet in the classroom*. Paper presented at the North Carolina Science Teachers Association 29th Annual Conference in Greensboro, NC.

Grable, L., Bodzin, A., Anderson, A. and Park, J. (November, 1997). *www.teach.science: An inservice technology workshop for science teachers*. Paper presented at the North Carolina Science Teachers Association 29th Annual Conference in Greensboro, NC.

Bodzin, A. (December, 1996). *Awesome WWW resources for science educators*. Paper presented at the 1996 North Carolina Educational Technology Conference in Greensboro, NC. December 1-5, 1996.

Bodzin, A. (November, 1996). *Internet resources for science teachers*. Paper presented at the 1996 National Science Teachers Association (NSTA) Southern Area Convention in Atlanta, GA.

Bodzin, A., Mountfield, L., and Rinehart, B. (1995, October). *Academic resources on the World Wide Web (WWW).* Presentation at the 1995 South Carolina Council on Educational Collaboration: 21st Century Connections Conference in Columbia, SC

Bodzin, A. (1995, October). *World Wide Web for the Educator*. Paper presented at the 1995 South Carolina Association for Educational Technology Conference (SCAETC) in Columbia, SC.

ORGANIZED OR CHAIRED SESSIONS / COLLOQUIA / WORKSHOPS / CONFERENCES

Bodzin, A., Cirruci, L., and Anastasio, D. *Tectonics Web GIS Investigations*. A 2-day professional development institute presented to 15 Lehigh Valley middle school teachers and science supervisors. September 24-25, 2012.

Bodzin, A., and Cirruci, L. *Climate Change and You*. A 1-day professional development institute presented to 14 Lehigh Valley middle school teachers and science supervisors. November 8, 2011.

Bodzin, A., Cirruci, L., Dempsey, C., Sahagian, D. and Peffer, T. *Climate Change Laboratories*. A 1-day professional development institute presented to 14 Lehigh Valley middle school teachers and science supervisors. October 21, 2011.

Bodzin, A., Cirruci, L. and Peffer, T. *Weather and Climate Change*. A 1-day professional development institute presented to 14 Lehigh Valley middle school teachers and science supervisors. October 14, 2011.

Bodzin, A. *Adapting labs for inquiry.* A 1-day professional development session presented to 13 Nitschmann middle school science teachers. December 8, 2010.

Bodzin, A. *Assessment for science learning.* A 1-hour professional development session presented to 9 Broughal middle school science teachers. November 16, 2010.

Bodzin, A. *Adapting labs for inquiry.* A 1-hour professional development session presented to 9 Bethlehem Area School District middle school science teachers. November 16, 2010.

Bodzin, A. *Designing science investigations to incorporate inquiry.* A 1/2-day professional development session presented to 13 Nitschmann middle school science teachers. October 29, 2010.

Bodzin, A., Kulo, V., Cirruci, L. and Peffer, T. *Renewable energy resources laboratories*. A 1-day professional development institute presented to 16 Lehigh Valley middle school teachers and science supervisors. October 11, 2010.

Bodzin, A., Kulo, V., Cirruci, L. and Peffer, T. *The Isle of Navitas: Energy policy and socioscientific issues*. A 1/2-day professional development institute presented to 18 Lehigh Valley middle school teachers, science supervisors, and technology integration specialists. September 28, 2010.

Bodzin, A., Kulo, V., Cirruci, L. and Peffer, T. *Investigating geothermal and fossil fuel energy with geospatial learning technologies*. A 1/2-day professional development institute presented to 18 Lehigh Valley middle school teachers, science supervisors, and technology integration specialists. September 21, 2010.

Bodzin, A. *Designing science activities to incorporate inquiry.* A 1-hour professional development session presented to 7 Nitschmann middle school science teachers. September 15, 2010.

Bodzin, A., Kulo, V., Cirruci, L. and Peffer, T. *Investigating wind, hydroelectric, and tidal energy with geospatial learning technologies*. A 1/2-day professional development institute presented to 18 Lehigh Valley middle school teachers, science supervisors, and technology integration specialists. September 15, 2010.

Bodzin, A. *What is inquiry-based science?* A 2-hour professional development session presented to 10 Nitschmann middle school science teachers. September 8, 2010.

Bodzin, A., Kulo, V., Cirruci, L. and Peffer, T. *Exploring solar energy with geospatial learning technologies*. A 1/2-day professional development institute presented to 18 Lehigh Valley middle school teachers, science supervisors, and technology integration specialists. September 7, 2010.

Bodzin, A., Cirucci, L., DeLeo, G. & Shameem, A. *Inquiry-based laboratories*. A 1-day professional development IPDS institute presented to 6 Broughal middle school science teachers. November 25, 2009.

Survival Series-Publishing Panel. Lehigh University. Symposium to COE graduate students. November 17, 2009.

Bodzin, A. *Exploring renewable energies with Google Earth*. Three 1.5-hour workshops at the Da Vinci Teacher Leadership Institute Fall Colloquium 2009 presented to 40 K-8 school teachers. November 7, 2009.

Bodzin, A., Kulo, V., and Peffer, T. *The Isle of Navitas*. A 1-day professional development institute presented to 5 Bethlehem Area School district middle school teachers. October 12, 2009.

Bodzin, A., Kulo, V., and Peffer, T. *Energy*. A 1-day professional development institute presented to 3 Bethlehem Area School district middle school teachers. September 17, 2009.

Bodzin, A. *Exploring watersheds with GIS*. Three 1.5-hour workshops at the Da Vinci Teacher Leadership Summer Institute presented to 46 K-8 school teachers. August 5, 2009.

Bodzin, A. & Fullmer, E. *Fossil Fuels*. Three 1.5-hour workshops at the Da Vinci Teacher Leadership Summer Institute presented to 46 K-8 school teachers. August 11, 2009.

Bodzin, A., Kulo, V., Cirruci, L., and Peffer, T. *Energy*. A 3-day professional development institute presented to 5 Bethlehem Area School district middle school teachers. July 21 -23, 2009.

Bodzin, A. *K-8 Web-based resources for biological sciences*. Two one-hour workshops at the Da Vinci Teacher Leadership Institute Spring Colloquium 2009 presented to 40 K-8 school teachers. April 18, 2009.

Bodzin, A. *Human genetics: Is the dominant trait most prevalent*? Two one-hour workshops at the Da Vinci Teacher Leadership Institute Spring Colloquium 2009 presented to 40 K-8 school teachers. April 18, 2009.

Bodzin, A. Using Google Earth to investigate land use change. A one-hour CHOICES professional development workshop at Lehigh University presented to 10 middle school teachers. April 3, 2009.

Science Symposium Panel. Parkland School District. Symposium to 60 teachers and administrators of the K-12 Science Curriculum Committee. March 13, 2009.

Bodzin, A. *Understanding by Design for curricular planning*. A two-hour professional development workshop at the Bethlehem Area School District presented to twenty-five science and social studies middle school teachers and administrators. February 13, 2009.

Bodzin, A. *Environmental Literacy*. A one-presentation at the HI-Neighbors lecture series presented to sixty people. February 2, 2009.

Bodzin, A. *Active Ecological Simulations*. A one-hour workshop at the Da Vinci Teacher Leader Institute Fall Workshop in Life Science presented to twenty K-8 school teachers. November 8, 2008.

Bodzin, A. *Designing engaging inquiry and meaningful assessments*. One three-hour workshop at the Da Vinci Teacher Leader Institute Spring Colloquium in Physical Science presented to 15 elementary school teachers. Arpil 12, 2008.

Bodzin, A. *Web-based resources for elementary physical sciences*. Four one-hour workshops at the Da Vinci Teacher Leadership Institute Fall Retreat 2007 presented to 95 elementary school teachers. November 10, 2007.

Bodzin, A. Spatial thinking tools in education. Presented at the Lehigh College of Education's Student Life Enhancement Committee Tuesday Tea. October 16, 2007.

Bodzin, A. Environmental Initiative white paper: Promoting environmental literacy in school settings. Presented at the Lehigh Environmental Initiative faculty lunch, September 20, 2007.

Bodzin, A. *Engaging water activities for K-6 learners.* Four one and a half hour workshops at the Da Vinci Teacher Leader Institute Spring 2007 Colloquium in Earth Sciences presented to 90 elementary school teachers. April 21, 2007.

Bodzin, A. *Online curricular materials to promote Web-based inquiry*. A two-hour CHOICES professional development workshop at Lehigh University presented to 10 middle school teachers. March 30, 2007.

Bodzin, A. *Using the Web to promote inquiry*. A one-day NASA Explorer School workshop at Broughal Middle School presented to 15 middle school science, social studies, and technology teachers. November 22, 2006.

Bodzin, A. & Fullmer, E. *Extreme geology: Literacy connections*. Two two-hour workshops at the DaVinci Teacher Leadership Institute Fall Retreat 2006 presented to 56 elementary school teachers. November 13, 2006.

Sweeney, B. & Sweeney, B. *BioBlitz*. One day-long workshop at the 13th Annual Delaware River Watershed Education Youth Eco-Leadership Summit presented to 60 middle school students. April 30 – May 2, 2006.

Bodzin, A. *How do I integrate online digital resources to enhance teaching and learning about the environment?* Four One-hour workshops at the DaVinci Teacher Leadership Institute Spring 2006 Colloquium presented to 60 elementary school teachers. April 29, 2006.

Bodzin, A. *Environmental education simulations for elementary school learners*. Two two-hour workshops at the DaVinci Teacher Leadership Institute Fall Retreat 2005 presented to 60 elementary school teachers. November 4, 2005.

Bodzin, A. *Science activities for preschool learners*. A three-hour workshop at the Allentown Jewish Community Center presented to 42 preschool teachers. November 12, 2005.

Bodzin, A. *Using digital probeware for water quality data collection*. Two one hour workshops at the 12th Annual Delaware River Watershed Education Youth Eco-Leadership Summit presented to 12 middle school students and 9 high school students. April 31 – May 2, 2005.

Bodzin, A. *Web-based Inquiry*. Two two-hour workshops at the DaVinci Teacher Leadership Institute Spring Retreat 2005 presented to 60 elementary school teachers. February 26, 2005.

Bodzin, A. *Using technology to teach science*. A three-hour workshop at Lehigh Carbon Community College. February 21, 2005.

Bodzin, A. *Probes and computers*. Three one-hour workshops at the DaVinci Teacher Leadership Institute Fall Retreat 2004 presented to 40 elementary school teachers. November 6-7, 2004.

Bodzin, A. *Inquiry-based science for elementary education*. Two-week workshop at the DaVinci Teacher Leadership Institute Summer 2004 presented to 44 elementary school teachers. August 9-20, 2004.

Bodzin, A. *Using digital probeware for water quality data collection*. Two one hour workshops at the 11th Annual Delaware River Watershed Education Youth Eco-Leadership Summit presented to 16 middle school students and 10 high school students. April 25-27, 2004.

Bodzin, A. *Environmental careers*. A one-hour workshop at the 11th Annual Delaware River Watershed Education Youth Eco-Leadership Summit presented to 16 middle school students. April 25-27, 2004.

Bodzin, A. *Interdisciplinary activities that meet the PA Environment & Ecology Standards*. A three-hour professional development workshop presented to 47 secondary science and social studies teachers in the Northampton Area School District. January, 12, 2004.

Bodzin, A. *LEO EnviroSci Inquiry*. A two-hour professional workshop at the Delaware Watershed Youth Summit for ACT 48 credit. April 27-29, 2003.

Bodzin, A. *Environmental careers*. A one-hour workshop at the 10th Annual Delaware River Watershed Education Youth Eco-Leadership Summit presented to 14 high school students. April 27-29, 2003.

Bodzin A., Price, B., Heist, M., and Williamson, B. *Exploring Life Workshop*. A one day workshop funded by the National Science Foundation. National Association of Biology Teachers Conference, Montreal, Quebec, November 7, 2001.

Bodzin, A., Boult, T., Knecht, K., McLaughlin, T., Woodburn, C. and Zukoski, M. *The Information & Communication Technologies Scholars Program, Summer Experience*. A one week workshop presented to seventeen Freedom High School students. July 16-20, 2001.

Bodzin A., Price, B., Heist, M., Bothwell, D. and Williamson, B. *Exploring Life Workshop*. A three day workshop funded by the National Science Foundation. Lehigh University, Bethlehem, PA. July 11-13, 2001.

Bodzin, A. *LEO EnviroSci Inquiry*. Presentation at the Synergy workshop. Northwestern University, Evanston Il. June 25, 2001.

Bodzin A., Price, B., Heist, M., Bothwell, D. and Williamson, B. *Exploring Life Workshop*. A one day workshop funded by the National Science Foundation. National Education Computer Conference, Chicago, Il. June 24, 2001.

Bodzin A., Price, B. and Heist, M. *Exploring Life Workshop*. A one day workshop funded by the National Science Foundation. National Science Teachers Association annual meeting, St. Louis, MO. March 23, 2001.

Bodzin, A. *Exploring Life: Evaluation to Guide Development of a Web-enhanced Biology Curriculum*. Presented to the College of Education faculty at Lehigh University, Bethlehem, PA. April 6, 2001.

Bodzin A., Price, B. and Peebles, P. *Exploring Life Workshop*. A one day workshop funded by the National Science Foundation. National Association of Biology Teachers annual meeting, Orlando, FL. October 26, 2000.

Bodzin A., Price, B. Williamson, B. and Eldert, S. *Exploring Life Workshop*. A two day workshop funded by the National Science Foundation. Lehigh University, Bethlehem, PA. August 15 and 16, 2000.

Bodzin, A. *Internet Resources for Environmental Science.* Presented at the Advanced Placement Environmental Science Summer Institute, North Carolina State University, Raleigh, NC. June 30, 1999.

Bodzin, A. *Internet Resources for Environmental Science.* Presented at the Advanced Placement Environmental Science Summer Institute, North Carolina State University, Raleigh, NC. August 4, 1998.

Bodzin, A. *Developing Web-based Educational Materials.* Presented at the Carolina Environmental Casebook Institute: NC's Hog Industry, UNC-CH Environmental Resource Program, Chapel Hill, NC. July 13, 1998.

Bodzin, A. *Coastal Science Computer Simulation.* Presented at the Environmental/Earth Science Share-A-Thon, North Carolina State University, Raleigh NC. June 10, 1998.

Bodzin, A. and Park, J. *Online Science Inquiry Simulations and Resources.* Presented to the North Carolina State University Math and Science Club, Raleigh NC. February 12, 1998.

Bodzin, A. *IMSE CD-ROM: Integrating WWW Datasets and Video into Science Instruction.* Presented to the North Carolina State University Math and Science Club, Raleigh NC. December 4, 1997.

Bodzin, A. and Park, J. *MEGA training: Integrating Technology and Teaching Using IMSEnet and the IMSE CD-ROM.* A one-day workshop for MEGA - Middle School Global Educators. College of Education and Psychology, North Carolina State University, Raleigh, NC. October 14, 1997.

Bodzin, A. *Incorporating WWW Science Datasets and CD-ROMs into Environmental Science Curricula.* Presented at the Advanced Placement Environmental Science Institute, North Carolina State University, Raleigh NC. August 7, 1997.

Bodzin, A. *Writing Web Pages.* Presented to science summer camp participants at The Science House, North Carolina State University, Raleigh, NC. July 30, 1997.

Bodzin, A. and Creighton, L. *Incorporating the WWW into Science and Math Curricula.* Presented to the science and math faculty at Cary Academy, Cary, NC. July 28, 1997.

Bodzin, A., Grable, L., and Park, J. *Website Science: Making IMSE Work in the Classroom.* A two week workshop for high school science teachers. The Science House, North Carolina State University, Raleigh, NC. July 14-25, 1997.

Bodzin, A. and Grable, L. *Using the IMSE CD-ROM with the World Wide Web.* Presented to participants at the EMPOWER! workshop at The Science House, North Carolina State University, Raleigh, NC. July 9, 1997.

Bodzin, A. *The IMSE CD-ROM.* Presented at NC Sea Grant's Operation Pathfinder Summer Institute, North Carolina State University, Raleigh, NC. June 30, 1997.

Bodzin, A. and Grable, L. *www.teach.science: Surf and Master the Web.* A four session workshop for science teachers grades 4-12. The Science House, North Carolina State University, Raleigh, NC. March 1997.

Bodzin, A. *K-12 Internet Resources on the World Wide Web.* A one day learning styles workshop. Richland School District 1, Columbia, SC. March 1996.

Bodzin, A. *Science Internet Resources on the World Wide Web.* A one day learning styles workshop. Richland School District 1, Columbia, SC. March 1996.

Bodzin, A. *Interactive HyperCard Simulations for the Science Classroom.* Presented at the Midlands Improving Math and Science 1995 Spring Technology Fair, Columbia, SC. April 1995.

TEACHING AND RESEARCH ADVISING

COURSES TAUGHT
Lehigh University (1999 – present)

- Pre-Professional Seminar (2025). Enrollments: 6 students.
- Overview of Teaching and Learning (2025-2014). Enrollments: 12-30 students. Online course

- Curriculum Design and Innovation (2011, 2009, 2007). Enrollments: 14-16 students.
- Environmental Education/Environmental Issues (2024, 2022-2017, 2015 – 2003). Enrollments: 9-14 students. Web-based/field-based course.
- Science in Elementary Education (2015-1999). Enrollments: 6-17 students. Web-enhanced course.
- Science in Middle and High School Education (2025-2024, 2022, 2021, 2012, 2011, 2004-1999). Enrollments: 6-15 students. Web-enhanced course.
- Intern Teaching Supervision (2016, 2007, 2005, 2004, 2000, 1999). Enrollments: 5-9 students.
- Classroom Management and Assessment (2008, 2007, 2006, 2005). Enrollments: 9-25 students.
- Intern Teaching Seminar (2007-05, 2000, 2001). Enrollments: 4-33 students. Web-enhanced course.
- Participation in Teaching (2006, 2005, 2000). Enrollments: 3-18 students.
- Designing for K-12 Teaching and Learning (2006). Enrollments: 14 students.

INNOVATIVE COURSE / CURRICULUM DEVELOPMENT

Web-based / field based course development: Environmental Education/Environmental Issues. (2013-2003).
Designed and developed a series of online modules for course. Modules included: Environmental education essentials; Environmental literacy; Environmental literacy and Inquiry; Teaching and learning about environmental issues; Activity selection for environmental education; Geospatial technologies in environmental education; Designing and implementing water quality curricular projects; Environmental laws and regulation; and Case studies in the Lehigh Valley area. Students completed online course modules during the course. Five full-day Fridays of the course was field-based and included a canoe water quality sampling field trip on the Lehigh River and van trips to areas of environmental impacts in the Lehigh River watershed. Development and use of the following curriculum Web sites:
Climate Change. http://www.ei.lehigh.edu/eli/cc/
Energy. http://www.ei.lehigh.edu/eli/energy
Environmental Issues: Land Use Change. http://www.ei.lehigh.edu/eli/luc
LEO EnviroSci Inquiry http://www.ei.lehigh.edu/envirosci/.
Stockertown Sinkhole Dilemma. http://www.ei.lehigh.edu/envirosci/enviroissue/sinkholes/.
Abandoned Mine Drainage in Pennsylvania.
http://www.ei.lehigh.edu /envirosci/enviroissue/amd/
Environmental Laws and Regulations in Pennsylvania.
http://www.ei.lehigh.edu/enviroissue/lawsregs/index.htm
Sprawl in the Lehigh River Watershed.
http://www.ei.lehigh.edu /envirosci/enviroissue/sprawl/index.html
Lehigh River Watershed Explorations. http://www.ei.lehigh.edu/envirosci/watershed

Web-based GIS Coverages (2017-2003).
Designed a series GIS Web-based maps to be used for Web-based inquiry activities in Lehigh courses. I worked with my LEO (Lehigh Earth Observatory) intern Nina Fink to develop the coverages.

Coverages available online at: http://www.ei.lehigh.edu/envirosci/watershed/gis/investigations.html

- WBI activity coverage: Why does the Lehigh River flow along the specific course that it does? Has its course or pattern of flow changed over time?
- WBI activity coverage: Where have people concentrated their settlements and conducted their activities during human history in the Lehigh River watershed?
- WBI activity coverage: Which part of the Lehigh River watershed is the best place to build your new home?
- WBI activity coverage: What are some natural processes in the Lehigh River watershed and how do human actions modify them?
- WBI activity coverage: What is sprawl and how has it affected the Lehigh River watershed?
- WBI activity coverage: In what ways are different parts of society in the Lehigh River watershed economically interdependent today? What role do science and technology play in this interdependence? How would this interdependence have been different 150 years ago?
- WBI activity coverage: What environmental issues should planners consider when designing and locating a site for a new information technology company that will create jobs for 7000 new workers in the Lehigh River watershed? Build a case for the site you think will do the least damage to the watershed.

Web-enhanced course development – TLT 436/TBTE 446 Science in Mid Level & High School Education. TLT 426/*TBTE 426 Science in Elementary Education.* Available online through Lehigh University's Coursesite Website. Web-based learning activities. Specific technologies used to enhance learning for science education learning include development and use of Web GIS and MyWorld GIS investigations, development and use of Google earth investigation, Web-based QuickTime Virtual Reality, video delivery through MPEG clips, development of Web-based data collection forms, Pasco probeware and GPS data collection protocols, interface with USGS real-time data. Development and use of the following curriculum Web sites to highlight using educative curriculum materials to promote content learning, and teaching with technology to diverse learners:
Climate Change. http://www.ei.lehigh.edu/eli/cc/
Energy. http://www.ei.lehigh.edu/eli/energy
Environmental Issues: Land Use Change. http://www.ei.lehigh.edu/eli/luc
Tectonics Web GIS investigations: http://www.ei.lehigh.edu/learners/tectonics
EnviroSci Inquiry: http://www.ei.lehigh.edu/envirosci/

Water Quality Data Retrieval PHP coded database. (2002).
Interactive Web-based data retrieval system developed with an undergraduate computer science student. My students use probeware to collect water quality data. The data is submitted to this database. Learners can selectively query the database by selecting fields of interest. Data can be ordered based on the user's query. Data can be exported by into excel files for further manipulation.

Web-enhanced course development – TBTE 464/Educ 414 Intern Teaching Seminar. Available online through Lehigh University's Blackboard Website. Digital portfolio template development. Web-based learning activities used in course instruction.

The Science Teaching Forum. (1997- 2005). http://www.ncsu.edu/sciteach. Creator and moderator of this Web-based forum used by preservice and inservice science teachers for discussion of science teaching and technology issues from remote geographic locations.

ADVISING RESEARCH DIRECTION

Dissertations

Chair:

• Nesreen Haddush (01/2025 – current). Chair, Dissertation Committee. Exploring generative AI in higher education: Integration strategies, learning outcomes, and applications in college courses.

• Jason Slipp (01/2025 – current). Chair, Dissertation Committee. An investigation the components of transformative sustainability education in higher education.

• Steven Ring (10/2024 – current). Chair, Dissertation Committee. Selection and determination of structured post-secondary workforce education paths through measurement of self-efficacy, outcome expectations and goal orientation.

• Robson Junior (08/2022 – 04/2025). Chair, Dissertation Committee. Investigating a digital gameful learning experience in virtual reality to support lifelong learning: Watershed Explorers – Riverine Environmental Issue.

• Lisa Grossbauer (01/2023 – 11/2023). Chair, Dissertation Committee. Calculus Gate: The impact of self-beliefs and high school math experience upon performance on college math placement exams.

• Sam Perugini (08/2019 – 05/22). Chair, Dissertation Committee. GIS and hurricane Irma: Using a Web GIS activity to assess students' hurricane knowledge and spatial habits of mind.

• Kevin Glover (12/2019 – 05/21). Chair, Dissertation Committee. Design, development, and early efficacy testing of a hand hygiene serious simulation game for 12th grade female career and technical education health science students.

• William Farina (01/2018 – 05/21). Chair, Dissertation Committee. The effectiveness of an online chemistry unit utilizing a modified knowledge integration instructional design framework.

• Whitney Szmodis (01/2018 – 03/2021). Chair, Dissertation Committee. Exploring the relationship between social, cognitive, and environmental factors in the underrepresentation of female population in STEM fields.

• Duane Wallace (01/2017 – 04/2018). Chair, Dissertation Committee. Creating citizen science identity: Growing conservation and environmentally-minded STEM interest thorough mobile learning and authentic practice.

• Rajika Reed (01/2016 – 04/2017). Chair, Dissertation Committee. Using geospatial thinking and reasoning skills to examine vector borne disease transmission through Web GIS in undergraduate students studying public health.

• Robert Marsteller (01/2016 – 04/2017). Chair, Dissertation Committee. Making online learning personal. Evolution, evidentiary reasoning, and self-regulation in an online curriculum.

• Farah Vallera (01/2014 – 11/2015). Chair, Dissertation Committee. Weaving more than fibers: Integrating a fully-STEM-focused, project-based agricultural literacy module into elementary curricula.

• Denise Bressler (2013 – 2014). Chair, Dissertation Committee. Is it all in the game? Flow experience and scientific practices during an INPLACE mobile game.

• Louise Shive (2002 – 2005). Chair, Dissertation Committee. *What matters in the classroom: A structural model of standards-based scientific literacy*.

• Karen Beerer (2001 – 2004). Co-chair, Dissertation Committee. *The effects of professional study groups on teacher's transfer of training into classroom and students' science achievement*.

Member:

• Doug Leeson (11/25 – current). Member, Dissertation Committee. Designing socially valid professional development to improve scientific literacy knowledge and practices

• Jae Hyung Ahn (09/22 – 05/24). Member, Dissertation Committee. STEM interest and achievement in high school freshmen with ADHD: Multisystemic predictors.

• Shamiel Marthinus (07/23 – 11/2023). Member, Dissertation Committee. A socio-scientific measurement of energy literacy among high school Physical-and Life Sciences teachers in the Western Cape province. Stellenbosch University.

• Kristin Yudt (10/2018 – 12/2018). Member, Dissertation Committee. The effect of blended learning in preservice elementary mathematics teachers' performance and attitude.

• Daria Kuscenko (01/2017 – 11/2017). Member, Dissertation Committee. Supporting collaborative writing in secondary Language Arts: A revision decision model intervention.

• Ali Shameem (09/2015 – 12/2016). Member, Dissertation Committee. Influence of culture on teachers' attitudes toward technology.

• Valerie Holt (2011 – 2013). Member, Dissertation Committee. Graduate education: Identifying core competencies and training strategies for interdisciplinary research collaboration.

• Violet Kulo (2008 – 2011). Member, Dissertation Committee. The effects of GIS-supported Web-based inquiry on middle school student science achievement.

• Yamil Sanchez. (2008 – 2010). Member, Dissertation Committee. Promoting Motivation Through Mode of Instruction: The Relationship Between Use of Affective Teaching Techniques And Motivation To Learn Science

• Sally Heistand Moritz. (2004 – 2008). Member, Dissertation Committee. Computer Science Design of object-based solutions in expert systems.

• Shahida Parvez. (2004 – 2007). Member, Dissertation Committee. *A Pedagogical framework for integrating individual learning style into an intelligent tutoring system*.

• Carol Derham (2001 – 2003). Member, Dissertation Committee. *The digital portfolio assessment of teaching competencies (D-PATCO): Initial development and validation*.

• Pat Metheus (1999 – 2003). Member, Dissertation Committee. *The relationship between participation in student-centered discussions and the academic achievement of fifth-grade science.*

Doctoral Qualifying Projects

Chair:
• Julian Snow (09/2023 – 10/2025). Chair, Qualifying Project Committee. Text generative AI in higher education: Exploring faculty thoughts and beliefs.

• Nesreen Haddush (09/2023 – 10/2024). Chair, Qualifying Project Committee. Immersive Virtual Reality vs. interactive video: Comparing the impact on learning outcomes, motivation, and engagement.

• Steven Ring (09/2023 – 09/2024). Chair, Qualifying Project Committee. Social cognitive career theory in community colleges: Examining self-efficacy, outcome expectations and goals of students pursuing traditional and career and technical associate degrees.

• Jason Slipp (01/2023 – 09/2024). Chair, Qualifying Project Committee. Exploring the Burns model of sustainability pedagogy and faculty development: The impact of ecological design on course design and teaching strategies.

• Lisa Grossbauer (01/2022 – 012/2022). Chair, Qualifying Project Committee. Calculus Gate: The impact of self-beliefs and high School math experience upon performance on college math placement exams.

• Robson Junior (08/2020 – 01/2022). Chair, Qualifying Project Committee. Investigating the effect of a desktop virtual reality game on middle school students learning outcomes.

• Kevin Glover (05/2018 – 04/2019). Chair, Qualifying Project Committee. Psychometric testing of a Value-Achievement-Cost motivation survey for 12th grade emerging health professional students.

Sam Perugini (03/2018 – 05/2019). Chair, Qualifying Project Committee. GIS and Hurricane Irma: Using a Web-based GIS activity to assess students' hurricane knowledge and spatial habits of mind.

• Duane Wallace (09/2015 – 12/2016). Chair, Qualifying Project Committee. It's not just another App with MobiLAP: Understanding how mobile learning and authentic practice develops scientific citizenship in ninth and tenth grade students.

• William Farina (05/2015 – 01/2017). Chair, Qualifying Project Committee. The effectiveness of an asynchronous online module on university students' understanding of the Bohr Model of the hydrogen atom.

• Rajika Reed (09/2014 – 01/2016). Chair, Qualifying Project Committee. Measuring geospatial thinking and reasoning skills in high school through public health education using GIS mapping.

• Whitney Szmodis (09/2014 – 01/2016). Chair, Qualifying Project Committee. An assessment of learners and beliefs in an engineering design curriculum at a Cambodian school.

• Robert Martseller (01/2014 – 01/2015). Chair, Qualifying Project Committee. The Effectiveness of an Online Instructional Unit on High School Students' Understanding of Biological Evolution.

• Farah Vallera (2012 – 2014). Chair, Qualifying Project Committee. An examination of agricultural literacy concepts in upper elementary science curricula.

• Denise Bressler (2012 – 2013). Chair, Qualifying Project Committee. An assessment of learner engagement during a mobile augmented reality science game.

Member:

• Ruth Wells (12/2024 – current). Member, Qualifying Project Committee. Spatial skills development through game-based learning.

• Jillian Boshkowski (01/2024 – current). Member, Qualifying Project Committee. Exploring social validity and factors associated with implementation of Lexia Core5.

• Allen Taylor (11/2023 – current). Member, Qualifying Project Committee. Researching the design and development of co-designed LADs for nursing education.

• Douglas Leeson (05/2022 – 05/2023). Member, Qualifying Project Committee. Secondary science teachers' disciplinary literacy beliefs and practices.

• Katrina Stenson (11/2018 – 08/2019). Member, Qualifying Project Committee. Instructing English learners in the secondary mathematics classroom: Factors influencing teacher self-efficacy.

• Jessie Findora (03/2018 – 02/2019). Member, Qualifying Project Committee. The impact of multicultural literacy fiction on intergroup empathy.

• Daria Kuscenco (08/2015 – 09/2016). Member, Qualifying Project Committee. Writing walkthroughs: Promoting transfer from collaborative to independent writing

• Ali Shameem (2010 – 2011). Member, Qualifying Project Committee. Maldives' teachers' attitudes towards technology.

• Cynthia Adams (2009 – 2013). Member, Qualifying Project Committee. Classroom response systems and higher order learning: Possible bridge for science gender gap?

• Jim Puglia. (2009 – 2013). Member, Qualifying Project Committee. Middle school collaborative learning and usages patterns with Google documents and sites

• Tamara Peffer. (2007 – 2010). Member, Qualifying Project Committee. Technology use in informal environmental education settings.
Peffer, T., Bodzin, A., and Duffield-Smith, J. (2013). The use of technology by nonformal environmental educators. *The Journal of Environmental Education, 44*(1), 16-37.

• Matt Wendell. (2003 – 2005). Member, Master's thesis committee. Earth and Environmental Science. *Bedrock mapping and structural analysis of a section of the Lehigh Gorge though the Unionville Anticline*.

ADVISING OTHER THAN RESEARCH DIRECTION

M.Ed. and M.A. students:
Fall 1999 - Summer 2000 – 9 students
Fall 2000 - Summer 2001 – 21 students
Fall 2001 - Summer 2002 – 27 students
Fall 2002 - Summer 2003 – 25 students
Fall 2003 – Summer 2004- 28 students
Fall 2004 - Summer 2005- 44 students
Fall 2005 - Summer 2006- 32 students
Fall 2006 - Summer 2007- 30 students
Fall 2007 - Summer 2008- 32 students
Fall 2008 - Summer 2009- 22 students
Fall 2009 - Summer 2010- 25 students
Fall 2010 - Summer 2011- 36 students
Fall 2011 - Summer 2012 - 38 students
Fall 2012 – Summer 2013 - 41 students
Fall 2013 – Summer 2014 - 31 students
Fall 2014 – Summer 2015 - 21 students
Fall 2015 – Summer 2016 - 17 students
Fall 2016 – Summer 2017 - 19 students
Fall 2017 – Summer 2018 - 20 students
Fall 2018 – Spring 2019 - 13 students
Fall 2019 – Spring 2020 - 14 students
Fall 2020 – Spring 2021 - 14 students
Fall 2021 – Spring 2022 - 16 students
Fall 2022 – Spring 2023 - 30 students
Fall 2023 – Spring 2024 - 22 students
Fall 2024 – Spring 2025 - 17 students
Fall 2025 - Spring 2026 - 18 students

B.A. or B.S./M.Ed Students:
Fall 2000 - Summer 2001 – 18 students
Fall 2001 - Summer 2002 – 17 students
Fall 2002 - Summer 2003 - 21 students
Fall 2003 – Summer 2004 – 13 students
Fall 2004 - Summer 2005 - 18 students
Fall 2005 - Summer 2006 - 32 students
Fall 2006 - Summer 2007 - 21 students
Fall 2007 - Summer 2008 - 24 students
Fall 2007 - Summer 2009 - 12 students
Fall 2009 - Summer 2010 - 9 students
Fall 2010 - Summer 2010 - 12 students
Fall 2010 - Summer 2011 - 12 students
Fall 2011 - Summer 2012 - 14 students
Fall 2012 – Summer 2013 - 14 students
Fall 2013 – Summer 2013 - 7 students
Fall 2014 – Summer 2015 - 8 students

Fall 2015 – Summer 2016 - 4 students
Fall 2016 – Summer 2017 - 6 students
Fall 2017 – Summer 2018 - 2 students
Fall 2018 – Spring 2019 - 3 students
Fall 2019 – Spring 2020 - 4 students
Fall 2020 – Spring 2021 - 4 students
Fall 2021 – Spring 2022 - 6 students
Fall 2022 – Spring 2023 - 12 students
Fall 2023 – Spring 2024 - 8 students
Fall 2024 – Spring 2025 - 7 students
Fall 2025 – Spring 2026 - 8 students

SERVICE

SERVICE - UNIVERSITY

Service to University:

8/24 – present	Member, *Faculty Personnel Committee*
11/24 – 5/25	Member, *Educational Innovation Search Committee*
7/23 – 5/25	Member, *Lehigh Research IT Task Force - LIRA COI module implementation,* College of Education Rep.
2/22 – 4/22	Member, *Frank Hook Award Committee*
11/21- 2/22	Member, *Chemical & Biological Engineering Search Committee*
8/16 – 5/22	Member, Lehigh Sustainability Council
9/13 – 5/19	Member, *Educational Policy Committee*, College of Education Rep., Lehigh University
9/17 – 5/19	Member, *Online Learning Policy Committee,* Ed Pol rep
1/17 – 12/19	Member, *Lyterati Strategy Committee*
5/18 – 7/19	Member, *College of Arts and Sciences Dean Search Committee*
11/12 – 8/19	Member, Information Systems Steering Committee (ISSC)
1/17 – 12/17	Member, P.C. Rossin College of Engineering and Applied Science Envisioning Team
3/16 - 12/16	Member, *Academic Infrastructure Working Group*, Lehigh University
6/13 – 7/16	Chair, Lehigh Environmental Advisory Group (LEAG)
4/10 – 5/14	Member, Academic Symposium Planning Committee
8/11 – 5/14	Member, Library Users Committee
9/11 – 5/13	Member, Lehigh Environmental Advisory Group (LEAG)
10/08 – 12/11	Member, Advisory Council on Information Services (ACIS), Lehigh University
8/11 – 12/11	Member, Faculty Financial Planning and Operations Committee
12/09 – 11/10	Member, Working Group on Industry Sponsored Research, Lehigh University
9/08 - 5/09	COE representative to the P.C. Rossin College of Engineering and Applied Science.
9/05 – 12/07	Member, *Graduate Research Committee*, College of Education Rep., Lehigh University
9/07 – 12/07	Chair, *Graduate Student Life Committee*, *Graduate Research Committee*, Lehigh University
9/07 – 5/08	Graduate Research Committee representative *to Standing of Graduate Student (SOGS) Committee*, Lehigh University

9/06 – 5/07	Chair, *Curriculum Committee*, *Graduate Research Committee*, Lehigh University
9/04 – 5/06	Member, College of Education representative to the College of Arts and Sciences, Lehigh University
9/05 – 5/06	*Member, Lecture Series on Evolution Committee*
9/04 – 5/05	Member, *Educational Policy Committee*, College of Education Rep., Lehigh University
5/00 – 5/04	Chair, *Nominations Committee,* College of Education Rep., Lehigh University.

Service to College:

8/24 – Current	Co-chair, COE Diversity Committee
8/24 – 12/24	Member, COE Tenure and Promotion Committee
8/21 – 5/24	Chair, COE Tenure and Promotion Committee
1/22 – 5/22	Member, COE Mentoring Committee
9/19 – 5/20	COE Tenure and Promotion Guidelines Committee
11/18 – 12/19	Comparative and International Education (CIE) Program Director
9/18 – 12/19	COE Mentoring Committee – ex-officio member
9/17 – 12/19	COE CLAD
9/15 – 5/17	Member, *COE Strategic Planning Committee*
1/14 – 5/16	Co-organizer, Teaching, Learning, & Technology Summit
1/16 – 3/16	Member, Educational Leadership Professor of Practice review committee
5/15 – 12/15	Co-Chair*, Teaching, Learning and Technology program search committee*
8/12 – 12/15	Program Director, *Teaching, Learning and Technology program*
8/13 – 12/13	*Chair, TLT Professor of Practice Review Committee*
1/11 – 8/12	Member, *SPED/TLT Transition Working Group Committee*
9/10 – 4/11	Member, *Search Committee: Teaching, Learning and Technology program faculty position*
9/10 – 5/11	Chair, *COE Garden Curriculum Committee*
9/10 – 5/11	Member, *COE Garden Committee*
11/10 – 5/11	Member, *Research Intensive Graduate College of Education Goal Committee*
8/11 – 12/11	Member, *Search Committee: Teaching, Learning and Technology program Professor of Practice position*
8/08 – 12/10	Member, *Teacher Certification Curriculum Committee* (TCCRC)
8/09 – 5/10	Member, *Search Committee: Teaching, Learning and Technology program faculty position*
9/05 – 6/09	Member, *Promotion and Tenure Committee*
8/09 – 12/09	Liaison, COE Performance Activity Report
8/08 – 4/09	Member, *Search Committee: Special Education program faculty position*
9/06 – 5/07	Member, *Search Committee: Transcultural, Comparative, and International Education*.
10/02 – 5/06	Member, *Learning Science and Technology Doctoral Program Committee.*
9-05 – 5/06	Member, *Teaching, Learning, & Technology Merger Committee*
11/03 – 5/04	Member, *Search Committee: College of Education Associate Dean*.
10/02 – 5/03	Member, *Enrollment Management Committee, Technology-based Teacher Education Program*.
10/01 – 5/02	Member, *Search Committee: Technology-based Teacher Education Program*.
10/00 – 4/01	Member, *Search Committee: Technology-based Teacher Education Program*.

Service to interdisciplinary programs:

8/11 – 8/18	Member, *Lehigh Environmental Initiative Executive Committee*

8/10 – 6/18	Director, *Lehigh Environmental Initiative Broader Impacts and Outreach*
8/10 – 5/12	Member, *Lehigh Environmental Initiative Curriculum Committee*
8/09 – 5/10	Member, *Lehigh Environmental Initiative Executive Committee*
8/07 – 5/10	Chair of *Lehigh Environmental Initiative Education and Outreach Committee*
11/03 – 5/09	Member, *Lehigh Environmental Initiative Steering Committee*
9/02 – 7/07	Chair of *Lehigh Environmental Initiative LEO and Synergistic Opportunities Committee*
9/05 – 5/06	Member, *Lehigh Environmental Initiative Curriculum Committee*
9/03 – 5/04	Member, *Search Committee: Lehigh Environmental Initiative Director*.
5/02 – 12/03	Task Force Leader, *Lehigh Environmental Education Task Force.*
1/00 – 5/01	Member, *Lehigh Environmental Initiative Curriculum Committee*
9/99 – 5/01	Member, *LEO Operating Board,* Lehigh University.
5/00 – 10/00	Member, Lehigh Workshop on Environmental Science/Technology/Studies Committee.

SERVICE - PROFESSIONAL

Offices and committee memberships held in professional organizations:

9/22 – present	Member, Immersive Learning Research Network (iLRN) International Conference Organizing Committee
9/22- present	Registration Chair, Immersive Learning Research Network (iLRN) International Conference
1/22 – 1/24	Member, Association for Science Teacher Education Publications Committee
2/22 – 5/22	Immersive Learning Research Network (iLRN) 2021 International Conference Program Committee Member.
2/21 – 6/21	Immersive Learning Research Network (iLRN) 2021 Co-director House of Nature.
2/21 – 5/21	Immersive Learning Research Network (iLRN) 2021 International Conference Program Committee Member.
2018 – 2022	Member, Association for Science Teacher Education Oversight Committee
2002 – 2015	Key Leader, NSTA (National Science Teachers Association) Science Matters/ Building a Presence for Science.
4/13 – 3/16	Member, External Policy and Relations Committee, National Association for Research in Science Teaching
2011 – 2015	Organizer, Association for Science Teacher Education Environmental Education Forum – sponsored field trip
1/12 – 1/13	Member, Association for Science Teacher Education Executive Committee
1/12 – 1/13	Chair, Association for Science Teacher Education Publications Committee
1/10 – 1/13	Board Member At Large, Association for Science Teacher Education
9/12 – 12/12	Chair, CITE Science Education Section Editor Search Committee, Association for Science Teacher Education
1/12 – 9/12	Chair, Journal of Science Teacher Education Editor Search Committee, Association for Science Teacher Education
2/09 – 2/12	Member, The American Association for the Advancement of Science (AAAS) Committee on Opportunities in Science (COOS).
1/10 – 12/11	Co-chair, Association for Science Teacher Education Publications Committee
10/09 – 9/11	Member, Association for Science Teacher Education Committee on Regional Units

10/09 – 9/11	Director, Association for Science Teacher Education NorthEast Region (NE-ASTE)
1/07 – 10/10	Chair, Association for Science Teacher Education NorthEast Region (NE-ASTE) Annual Meetings 2008, 2009, 2010.
1/07 – 1/10	Co-chair, Association for Science Teacher Education (ASTE) Environmental Education forum.
1/05 – 1/08	Member, Association for Science Teacher Education (ASTE) Technology Committee.
1/04 – 1/05	Co-chair, Association for the Education of Teachers in Science (AETS) Committee on Technology Enhancement for Teacher Education.
6/03 – 1/07	Member, ASTE (formerly AETS) Inclusive Science Education Forum.
1/02 – 12/03	Member, AETS Committee on Technology Enhancement for Teacher Education.
1998-1999	Member, AETS Electronic Communications Committee.

Other non-university committees, commissions, panels, etc.:

12/22 – ongoing	Personnel Committee, Lehigh Gap Nature Center
1/22 – ongoing	Board Member, Lehigh Gap Nature Center
7/11 – 5/14	Education Committee member. Wildlands Conservancy.
9/09 – 8/12	Advisory Board member. Crossing Boundaries. National Science Foundation ATE Program grant awarded to the Hobart and Smith Colleges. (2009-2012).
1/8 - 5/10	Advisory Board member. Refining, Operationalizing, and Describing Scientific Inquiry Instructional Practice Using the Inquiry Science Instruction Observation Protocol (ISIOP): A National Field-test with Collaborating Evaluators. National Science Foundation REESE program.
9/07 – 8/10	Advisory Board member. Ecology Disrupted. National Science Foundation Discover Research K-12 Program grant awarded to American Museum of Natural History.
6/06 – 5/09	Advisory Board member. GIT Ahead Project, National Visiting Committee. National Science Foundation ATE Program grant awarded to the Finger Lakes Institute.
11/2003	Member, National Science Foundation Instructional Material Development Proposal Review Panel.
9/99 – 8/04	Education Committee Member, The Discovery Center of Science and Technology, Bethlehem, PA.
10/01	Panel member, National Science Foundation Teacher Enhancement Proposal Review Panel.
9/99 – 5/02	Advisory board member, Middle Educators Global Activities (MEGA), North Carolina State University, Raleigh, NC
3/99 – 12/01	Advisory Council Member, Amoco Interactive Web site focusing on Families Exploring Mathematics and Science in Everyday Life, Georgia State University.

Other:

11/25	Proposal reviewer. Immersive Learning Research Network (iLRN) 2026 International Conference.
11/24	Proposal reviewer. Immersive Learning Research Network (iLRN) 2025 International Conference.
11/23	Proposal reviewer. Immersive Learning Research Network (iLRN) 2024 International Conference.

7/23	Proposal reviewer. Association for Science Teacher Education (ASTE) 2024 Annual Meeting.
11/22	Proposal reviewer. Immersive Learning Research Network (iLRN) 2023 International Conference.
8/22	Proposal reviewer. Association for Science Teacher Education (ASTE) 2023 Annual Meeting.
2/21 – 3/21	Proposal reviewer. Immersive Learning Research Network (iLRN) 2022 International Conference.
2/22	Book chapter reviewer, Immersive Education: Designing for Learning
8/21-9/21	Association for Science Teacher Education (ASTE) Position Statement on Environmental and Sustainability Education Review Panel Member.
8/21	Proposal reviewer. Association for Science Teacher Education (ASTE) 2022 Annual Meeting.
2/21 – 5/21	Proposal reviewer. Immersive Learning Research Network (iLRN) 2021 International Conference.
5/21	Book chapter reviewer. Teaching and Learning Online: Science for Secondary Grade Levels.
8/20	Proposal reviewer. Association for Science Teacher Education (ASTE) 2021 Annual Meeting.
6/20	Immersive Learning Research Network (iLRN 2020) Program Committee Member.
8/19	Proposal reviewer. Association for Science Teacher Education (ASTE) 2020 Annual Meeting.
5/19	National Science Foundation EHR/DRL proposal reviewer
9/18	Proposal reviewer. National Association for Research in Science Teaching (NARST) 2019 Annual Meeting.
8/18	Proposal reviewer. Association for Science Teacher Education (ASTE) 2019 Annual Meeting.
8/17	Proposal reviewer. Association for Science Teacher Education (ASTE) 2018 Annual Meeting.
10/16	Routlege. Book proposal reviewer.
8/16	Proposal reviewer. Association for Science Teacher Education (ASTE) 2017 Annual Meeting.
2/16	National Science Teachers Association NSTA Press book proposal series reviewer.
1/16	National Science Foundation DRK-12 proposal reviewer
9/15	Proposal reviewer, National Association for Research in Science Teaching 2016 Annual Meeting, Educational Technology strand
8/15	Proposal reviewer. Association for Science Teacher Education (ASTE) 2016 Annual Meeting.
1/15	National Science Foundation ITEST proposal reviewer
9/14	Proposal reviewer, National Association for Research in Science Teaching 2015 Annual Meeting, Educational Technology strand
8/14	Proposal reviewer. Association for Science Teacher Education (ASTE) 2015 Annual Meeting.
9/13	Proposal reviewer, National Association for Research in Science Teaching 2014 Annual Meeting, Environmental Education strand
8/13	Proposal reviewer. Association for Science Teacher Education (ASTE) 2014 Annual Meeting.
8/12	Proposal reviewer, National Association for Research in Science Teaching 2013 Annual Meeting, Technology strand

7/12	Proposal reviewer. Association for Science Teacher Education (ASTE) 2013 Annual Meeting.
8/11	Proposal reviewer, National Association for Research in Science Teaching 2012 Annual Meeting, Environmental Education strand
7/11	Proposal reviewer. Association for Science Teacher Education (ASTE) 2012 Annual Meeting.
8/10	Proposal reviewer, National Association for Research in Science Teaching 2011 Annual Meeting, Environmental Education strand
7/10	Proposal reviewer. Association for Science Teacher Education (ASTE) 2011 Annual Meeting.
6/10	Textbook prospectus reviewer, *The world at their fingertips: International perspectives on teaching and learning with GIS in secondary schools*, Springer
8/09	Proposal reviewer, National Association for Research in Science Teaching 2010 Annual Meeting, Environmental Education strand
7/09	Proposal reviewer. Association for Science Teacher Education (ASTE) 2010 Annual Meeting.
10/08	Textbook prospectus reviewer, *Think Globally, Teach Locally*, SAGE Publications
7/08	Proposal reviewer. Association for Science Teacher Education (ASTE) 2009 Annual Meeting.
8/08	Proposal reviewer, National Association for Research in Science Teaching 2009 Annual Meeting, Environmental Education strand
3/08	Grant proposal reviewer, Discovery Research program, National Science Foundation
12/07	Textbook reviewer, *Readings in Science Methods, K-8*, An NSTA Press Journals Collection, NSTA Press
7/07	Proposal reviewer. Association for Science Teacher Education (ASTE) 2008 Annual Meeting - technology sessions.
8/07	Proposal reviewer, National Association for Research in Science Teaching 2008 Annual Meeting, Technology strand
2/07	Textbook reviewer, *The Essentials of Science Classroom Assessment*, SAGE Publications
10/06	Proposal reviewer, Society for Information Technology Education 2007 Annual Meeting, Science Education Strand.
7/06	Proposal reviewer. Association for Science Teacher Education (ASTE) 2007 Annual Meeting - technology sessions.
11/05	Textbook reviewer, Science in the Secondary School, Allyn & Bacon.
10/05	Proposal reviewer, Society for Information Technology Education 2006 Annual Meeting, Science Education Strand.
9/05	Proposal reviewer, National Association for Research in Science Teaching 2006 Annual Meeting, Educational Technology Strand.
9/05	Textbook reviewer, Elementary *Secondary science teaching methods: Constructing scientific knowledge (1st ed,)*, Wadsworth.
7/05	Proposal reviewer. Association for Science Teacher Education (ASTE) 2006 Annual Meeting - technology sessions.
3/05	Textbook reviewer, *Teaching about Environmental Issues*, Pennsylvania Center for Environmental Education.
1/05	Textbook Reviewer, Elementary *Science methods: A constructivist approach (4th ed,)*, Wadsworth.
11/04	Textbook reviewer, NETS-S Curriculum Series: Science Units for Grades 9-12, International Society for Technology in Education (ISTE).

10/04	Guest Reviewer, Journal of Behavioral Education
10/04	Proposal reviewer, National Association for Research in Science Teaching 2005 Annual Meeting, Educational Technology Strand.
9/04	Proposal reviewer. Association for the Education of Teachers in Science (AETS) 2005 Annual Meeting - technology sessions.
5/04	Textbook reviewer, Elementary science methods textbook, Wiley.
10/03	Proposal reviewer, National Association for Research in Science Teaching 2004 Annual Meeting, Educational Technology Strand.
10/02	Proposal reviewer, National Association for Research in Science Teaching 2003 Annual Meeting, Educational Technology Strand.
11/01	Proposal reviewer, National Association for Research in Science Teaching 2002 Annual Meeting, Educational Technology Strand.
1996 – 2001	Web Forum Moderator, The Science Teaching (SciTeach) Forum, North Carolina State University, 1996-2001.

PROFESSIONAL MEMBERSHIPS (Current)

Immersive Learning Research Network (iLRN)