

## HEATHER TOOMEY ZIMMERMAN, PH.D.

Learning, Design, and Technology program • Penn State University  
College of Education • 305c Keller Building • University Park, PA 16802

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PROFESSIONAL WEBSITE: <http://sites.psu.edu/heatherzimmerman/>

RESEARCH GROUP WEBSITE: <http://sites.psu.edu/augmentedlearning/>

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### EDUCATION

**UNIVERSITY OF WASHINGTON:** Ph.D. Learning Sciences, College of Education.

*Thesis:* Everyday science and science every day: Science-related talk and activities across settings

- *Learning in Informal and Formal Environments* (LIFE) Center, graduate researcher; *Center for the Advancement of Engineering Education* (CAEE), graduate researcher; *Sustaining and Supporting Teachers*, graduate assistant and graduate researcher

**UNIVERSITY OF WASHINGTON:** M.A. Museology.

*Thesis:* A museum education model and case study reflecting science education reform

- Volunteer-led Investigations in Neighborhood Ecology, graduate assistant

**CORNELL UNIVERSITY:** B.S. Science Communication.

*Honor:* Cornell Tradition Fellow.

### PROFESSIONAL APPOINTMENT

**PENN STATE UNIVERSITY,** College of Education

*Associate Professor of Education,* Learning, Design, and Technology

2014 – present

*Assistant Professor of Education,* Learning, Design, and Technology

2008 - 2014

### PUBLICATIONS

#### JOURNALS ARTICLES, PEER-REVIEWED

Zimmerman, H. T., & Weible, J. L. (2017). Learning in and about rural places: Connections and tensions between students' everyday experiences and environmental quality issues in their community. *Cultural Studies of Science Education*. 12(1), 7–31. DOI: 10.1007/s11422-016-9757-1.

McClain, L. R., & Zimmerman, H. T. (2016). Memories on the Trail: Families Connecting Their Prior Informal Learning Experiences to The Natural World During Nature Walks. *Journal of Interpretation Research*. 21(2), 21-42.

Weible, J. L., & Zimmerman, H. T. (2016). Science curiosity in learning environments: Developing an attitudinal scale for research in schools, homes, museum, and the community. *International Journal of Science Education*. 38(8), 1235-1255. DOI: 10.1080/09500693.2016.1186853

McClain, L. R., & Zimmerman, H. T. (2016). Technology-mediated engagement with nature: Sensory and social engagement with the outdoors supported through an electronic trailguide. *International Journal of Science Education*. 6(4), 385-399. DOI: 10.1080/21548455.2016.1148827.

Zimmerman, H. T., & McClain, L. R. (2016). Family learning outdoors: Guided participation on a nature walk. *Journal of Research in Science Teaching*, 53(6), 919–942. DOI: 10.1002/tea.21254.

Land, S. M., & Zimmerman, H. T. (2015). Socio-technical dimensions of an outdoor mobile learning environment: A three-phase design-based research investigation. *Educational Technology Research & Development*. 63(2), 229-255. DOI: 0.1007/s11423-015-9369-6.

Underlined name = Penn State student-researcher working with Heather Zimmerman

- Zimmerman, H. T., Land, S. M., McClain, L. R., Mohney, M. R., Choi, G. W., & Salman, F. H. (2015). Tree Investigators: Supporting families' scientific talk in an arboretum with mobile computers. *International Journal of Science Education*. 5(1), 44-67. DOI: 10.1080/21548455.2013.832437.
- McClain, L. R., & Zimmerman, H. T. (2014). Prior experiences shaping family science conversations at a nature center. *Science Education*. 98(6), 1009-1032. DOI: 10.1002/sce.21134.
- Gamrat, C., Zimmerman, H. T., Dudek, J., & Peck, K. (2014). Personalized workplace learning: A digital badging space for science teacher professional development. *British Journal of Educational Technology*. 45(6), 1136-1148. DOI:10.1111/bjet.12200.
- Zimmerman, H. T., & Land, S. M. (2014). Facilitating place-based learning in outdoor informal environments with mobile computers. *TechTrends*. 58(1), 77-83. DOI: 10.1007/s11528-013-0724-3.
- Zimmerman, H. T., & Bell, P. (2014). Where young people see science: Everyday activities connected to science. *International Journal of Science Education*. 4(1), 25-53. DOI: 10.1080/21548455.2012.741271.
- Zimmerman, H. T., Gamrat, C., & Hooper, S. (2014). Connecting out-of-school time learning to home: Digital postcards from summer camp. *TechTrends*. 58(2), 87-92. DOI: 10.1007/s11528-014-0739-4.
- Land, S. M., & Zimmerman, H. T. (2014). Synthesizing perspectives on augmented reality and mobile learning. *TechTrends*. 58(1), 2-5. DOI: 10.1007/s11528-013-0724-3.
- Zimmerman, H. T., & McClain, L. R. (2014). Understanding intergenerational learning in environmental education programs. *Studies in Educational Evaluation*. 20(2), 177-201. DOI: 10.1016/j.stueduc.2013.09.007.
- Zimmerman, H. T., & McClain, L. R. (2014). Intergenerational learning at a nature center: Families using prior experiences and participation frameworks to understand raptors. *Environmental Education Research*. 20(2), 177-201. DOI: 10.1080/13504622.2013.775219.
- Zimmerman, H. T., McClain, L. R., & Crowl, M. (2013). Understanding how families use magnifiers during nature center walks. *Research in Science Education*. 43(5), 1917-1938. DOI: 10.1007/s11165-012-9334-x.
- Zimmerman, H. T. (2012). Participating in science at home: Recognition work and learning in biology. *Journal of Research in Science Teaching*. 49(5), 597-630. DOI: 10.1002/TEA-21014.
- Zimmerman, H. T., Perin, S., & Bell, P. (2010). Parents, science, and interest: A framework to understand the role of parents in the development of youth's interests. *Museum & Social Issues*. 5(1), 67-86. DOI: 10.1179/msi.2010.5.1.67.
- Zimmerman, H. T., Reeve, S., & Bell P. (2010). Family sense-making practices in science center conversations. *Science Education*. 94 (3), 478-505. DOI: 10.1002/sce.20374.
- Zimmerman, H. T., Reeve, S., & Bell P. (2008). Distributed expertise in a science center: Social and intellectual role-taking by families. *Journal of Museum Education*, 33(2), 143-152. DOI: 10.1179/jme.2008.33.2.143.
- Zimmerman, H. T., & Martell, S. T. (2008). The intersection of museums and the learning sciences. *Journal of Museum Education*, 33(2), 101-106. DOI: 10.1179/jme.2008.33.2.101.

#### **LEARNING SCIENCES CONFERENCE PROCEEDINGS, PEER-REVIEWED**

- Land, S. M., Zimmerman, H. T., Maggiore, C., Kim, S. H. and Briskin, J. (2017, forthcoming). Collaborative sense making in a tablet-mediated informal, place-based learning environment. *Proceedings of the Twelfth Conference on Computer Supported Collaborative Learning*.
- Kim, S. H. & Zimmerman, H. T., (2017, forthcoming). Collaborative argumentation during a making and tinkering afterschool program with squishy circuits. *Proceedings of the Twelfth Conference on Computer Supported Collaborative Learning*.

- Zimmerman, H. T., Land, S. M., Maggiore, C., Ashely, R. W. & Millet, C. (2016). Designing outdoor learning spaces with iBeacons: Combining place-based learning with the Internet of Learning Things. *Proceedings of the Twelfth International Conference for the Learning Sciences*. (Pp. 942-945). Designing outdoor learning spaces with iBeacons: Combining place-based learning with the Internet of Learning Things
- Choi, G. W., Land, S. M., & Zimmerman, H. T., (2016). Educational affordances of tablet-mediated collaboration to support distributed leadership in small group outdoor activities. *Proceedings of the Twelfth International Conference for the Learning Sciences*. Pp. 882-885.
- Zimmerman, H. T., Land, S. M., Mohney, M. R., Maggiore, C., Kim, S. H., Choi, G. W., Jung, Y. J. & Dudek, J. (2015). Using augmented reality to support observations about trees during summer camp. *Proceedings of the Interaction Design and Children*. Pp. 395-398.
- Gamrat, C., & Zimmerman, H. (2015). An Online Badging System Supporting Educators' STEM Learning. In D. Hickey, J. Jovanovi, S. Lonn, & J. E. Willis (Eds.) *Proceedings of the 2nd International Workshop on Open Badges in Education* (pp. 12–23). Poughkeepsie: CEUR Workshop Proceedings. Retrieved from <http://ceur-ws.org/Vol-1358/>.
- Zimmerman, H. T., Land, S. M., Seely, B. J., Mohney, M. R., Choi, G. W., & McClain, L. R. (2014). Supporting conceptual understandings outdoors: Findings from the Tree Investigators mobile project. *Proceedings of the Eleventh International Conference for the Learning Sciences*. Vol 2, Pp. 1067-1071.
- Salman, F. H., Zimmerman, H. T., & Land, S. M., (2014). Collective problem solving in a technologically mediated science learning experience: A case study in a garden. *Proceedings of the Eleventh International Conference for the Learning Sciences*. Vol. 1, Pp. 378-384.
- Luce, M., Goldman, S., Levinson, A., Umphress, J., Jipson, J., Callanan, M., Zimmerman, H. T., Eberbach, C., Tzou, C., & Siyahhan, S. (2014). Research and design of learning experiences for families. *Proceedings of the Eleventh International Conference for the Learning Sciences*. Pp. 1-8.
- Zimmerman, H. T., Land, S. M., McClain, L. R., Mohney, M. R., Choi, G. W., & Salman, F. H. (2013). Supporting science practices outdoors with mobile devices: Findings from the Tree Investigators augmented reality project. In M. Kapur, M. Nathan, & N. Rummel (Eds.), *Learning across Levels of Space, Time, and Scale: Proceedings of the Tenth Conference on Computer Supported Collaborative Learning*. 2, 381-382. Retrieved from <http://www.isls.org/cscl2013/>.
- Weible, J. L., & Zimmerman, H. T., (2013). Examining high school students' individual learning from collaborative projects related to alternative Energy. In M. Kapur, M. Nathan, & N. Rummel (Eds.), *Learning across Levels of Space, Time, and Scale: Proceedings of the Tenth Conference on Computer Supported Collaborative Learning*. 2, 185-188. Retrieved from <http://www.isls.org/cscl2013/>.
- Zimmerman, H. T., Kanter, D. E., Ellenbogen, K., Lyons, L., Zuiker, S. J., Satwicz, T., Martell, S. T., Hsi, S., & Smith, B. K. (2010). Technologies and tools to support informal science learning. *Proceedings of the Ninth International Conference for the Learning Sciences*, 2, 260-266.
- Bricker, L. A., Zimmerman, H. T., Reeve, S., Bell, P., & Barron, B. (2010). Understanding families' educational decision-making along extended learning pathways. *Proceedings of the Ninth International Conference for the Learning Sciences 2010*, 2, 142-148.
- Bricker, L.A., Bell, P., Reeve, S., Barron, B., Pinkard, N., Gomez, K., Martin, C. K., Lee, A., Chen, M., Zimmerman, H. T., Tzou, C. T., Scalone, G., Hoadley, C., Honwad, S., Mertl, V., McCarthy, L., Stevens, R., Levias, S., Feinstein, N., & Azevedo, F. (2008). Mapping the learning pathways and processes associated with the development of expertise and learner identities. In (Eds.), *Proceedings of the Eighth International Conference for the Learning Sciences 2008*, 3, 206-213. Retrieved from <http://www.isls.org/icls2008/>.
- Bell, P., Bricker, L. A., Lee, T. R., Reeve, S., & Zimmerman, H. T. (2006). Understanding the cultural foundations of children's biological knowledge: Insights from everyday cognition research. In S. A. Barab, K. E. Hay & D. Hickey (Eds.), *Proceedings of the Seventh International Conference of the*

*Learning Sciences* (pp. 1029-1035). Mahwah, NJ: LEA.

Zimmerman, H. T. (2004). A case study of a family's digital technology use. In Bell, P., Stevens, R., & Satwicz, T. (Eds.). (2004). *Keeping Learning Complex: Proceedings of the Fifth International Conference of the Learning Sciences*. (p. 646) Mahwah, NJ: Lawrence Erlbaum Associates.

### BOOK CHAPTERS & PUBLICATIONS, NON-PEER REVIEWED

Zimmerman, H. T., & Weible, J. L. (2017). Inquiry-based learning. In K. Peppler (Ed.) *Sage Encyclopedia of Out-of-School Learning*. (pp. 368-372) Thousand Oaks, CA: Sage Reference. DOI: 10.4135/9781483385198.n144

Zimmerman, H. T. (2017). Everyday expertise (Funds of knowledge). In K. Peppler (Ed.) *Sage Encyclopedia of Out-of-School Learning*. (pp. 267-268) Thousand Oaks, CA: Sage Reference. DOI: 10.4135/9781483385198.n105

Zimmerman, H. T., & Weible, J. L. (2017). Extending and enriching science practices: Shared engagement in field-based environmental sciences. In D. Stroupe (Ed.) *Reframing science teaching and learning: Students and teachers co-constructing science practices in and out of school*. (pp. 23-41) New York: Routledge.

Zimmerman, H. T., & Land, S. M. (2017). Integrating mobile computers into informal science education. In P. Patrick (Ed.), *Preparing Informal Science Educators*. (Series: Contemporary Trends and Issues in Science Education.) (pp.169-183) Heidelberg, Germany: Springer.

Zimmerman, H. T. (2017). Distributed design processes and design principle outcomes: Elements needed for successful design-based research projects. In A. A. Carr-Chellman & G. Rowland (Eds.) *Classic Dialogues: Exploring the Field of Educational Technology*. New York: Routledge.

Gamrat, C. & Zimmerman, H. T. (2016). Teacher Learning Journeys: A Design Case Study of a Learner-Centered STEM Digital Badging System. In L. Muilenburg & Z. Berge (Eds.) *Digital Badges in Education: Trends, Issues, and Cases*. (pp. 215- 225) New York: Routledge (Taylor and Francis).

Zimmerman, H. T., & Weible, J. L. (2016). Learning about water quality issues with an action-oriented, place-based pedagogy. *Green Teacher*. 11, 30-33.

McClain, L. R., & Zimmerman, H. T. (2016). Mobile devices as tools supporting learning across formal and informal settings. In L. Avraamidou & W.-M. Roth (Eds.). *Intersections of Formal and Informal Science*. New York: Routledge.

Zimmerman, H. T., Land, S. M., & Jung, Y. J. (2016). Using augmented reality to support children's situational interest and science learning during context-sensitive informal mobile learning (pp. 101-120). In A. Peña-Ayala (Ed.), *Mobile, ubiquitous, and pervasive learning: Advances in Intelligent Systems and Computing*, 406. (pp. 101-119) Cham, Switzerland: Springer International. DOI: 10.1007/978-3-319-26518-6\_4.

Land, S. M., Zimmerman, H. T., Choi, G. W., Seely, B. J., & Mohney, M. R. (2015). Design of mobile learning for outdoor environments. In M. Orey, & R. M. Branch (Eds.), *Educational Media and Technology Yearbook 39*. Cham, Switzerland: Springer. DOI: 10.1007/978-3-319-14188-6\_8

Zimmerman, H. T. (2014). Hobbies. In D. Gunstone (Ed.) *Encyclopedia of Science Education*. Dordrecht, NL: Springer Reference. ISBN 978-94-007-2151-7.  
<http://www.springerreference.com/docs/html/chapterdbid/303146.html>

Land, S. M., Smith, B. K., & Zimmerman, H. T. (2013). Mobile technologies as tools for augmenting observations and reflections in everyday informal environments. In J. M. Spector, B.B. Lockee, S.E. Smaldino, & M. Herring (Eds.), *Learning, problem solving and mind tools: Essays in honor of David H. Jonassen*. (pp. 214-228). New York: Routledge.

Bell, P., Bricker, L. A., Reeve, S., Zimmerman, H. T., & Tzou, C. (2013). Discovering and supporting successful learning pathways of youth in and out of school: Accounting for the development of

Underlined name = Penn State student-researcher working with Heather Zimmerman

everyday expertise across settings. In B. Bevan, P. Bell, R. Steven, & A. Razfar (Eds.), *LOST: Learning about Out of School Time Opportunities*. Dordrecht: Springer. ISBN 978-94-007-4303-8. Dio: 10.1007/978-94-007-4304-5\_9

- Zimmerman, H. T., & Bell, P. (2012). Everyday expertise: Learning within and across formal and informal settings. In S. M. Land & D. Jonassen (Eds.), *Theoretical foundations of learning environments* (2<sup>nd</sup> ed., pp. 224-241). New York: Routledge. ISBN: 978-0-415-89422-7.
- Zimmerman, H. T. (October 2012). How new family learning research can inform innovative programming. *ASTC Dimensions*. 14(5), 47–50. (Invited.)
- McKay, S., Thurlow, C., & Zimmerman, H. T. (2005). Wired whizzes or techno-slaves? Young people and their emergent communication technologies. In Williams, A. & Thurlow, C. (eds), *Talking adolescence: Perspectives on communication in the teenage years* (pp. 185-203). New York: Peter Lang.
- Bell, P., Zimmerman, H. T., and Clark, T. H. (2006). Technical report: *Recommended fieldwork & analysis equipment for video-based ethnographic research*. Retrieved from: [www.life-slc.org](http://www.life-slc.org).

### SELECTED PRESENTATIONS (2012-2017), REFEREED

- Kim, S. H. & Zimmerman, H. T. (2017, April). *Engineering argumentation during a making and tinkering afterschool program with squishy circuits*. 2017 Annual Meeting of the American Educational Research Association. San Antonio, TX.
- Jung, Y. J. & Zimmerman, H. T. (2017, April). *Exploring children's interest by using video data in a science museum*. 2017 Annual Meeting of the American Educational Research Association. San Antonio, TX.
- Choi, G. W., Land, S. M., & Zimmerman, H. T., (2017, April). *Scaffolding problem solving with mobile devices in an outdoor environment*. 2017 Annual Meeting of the American Educational Research Association. San Antonio, TX.
- Jung, Y. J. Zimmerman, H. T., Galinsky, P. & Perez-Edgar, K (2017, April). *Using video and eye-tracking methods to investigate children's situational interest in a science museum*. 2017 Annual Meeting of the American Educational Research Association. San Antonio, TX.
- Kim, S. H. & Zimmerman, H. T. (2016, October). *Design principles for making and tinkering*. 2016 Annual Meeting of the Association for Educational Communications and Technology (AECT), Las Vegas, NV.
- Weible, J. L. & Zimmerman, H. T. (2016, October). *Social tagging as a support for collaborative sensemaking in high school science*. 2016 Annual Meeting of the Association for Educational Communications and Technology (AECT), Las Vegas, NV.
- Land, S.M., Zimmerman, H. T., Millet, C., Choi, G.W., & Briskin, J. (2016, April). *Transforming outdoor places into learning spaces: Using iBeacons to support observations within informal science settings*. 2016 Annual Meeting of the American Educational Research Association. Washington, D.C.
- Gamrat, C., & Zimmerman, H. T. (2016, April). *Supporting Educators' STEM Learning Within a Personalized Badging System*. 2016 Annual Meeting of the American Educational Research Association. Washington, D.C.
- Zimmerman, H. T. & Land, S. M. (2016, April). *Tablet-mediated collaboration during informal knowledge-building activities: Scaffolding collaborative sense-making and coordination of scientific evidence*. 2016 Annual Meeting of the American Educational Research Association. Washington, D.C.
- Eppley, K., Zimmerman, H. T., & Weible, J. L. (2016, April). *Why Do Rural Schools Matter? Social Justice and Rural Education*. 2016 Annual Meeting of the American Educational Research Association. Washington, D.C.

- Weible, J. L. & Zimmerman, H. T. (2016, April). *Measuring science curiosity in learning environments: Developing an attitudinal scale*. National Association for Research in Science Teaching (NARST) 2016 Annual Meeting Baltimore, MD.
- McClain, L. R., & Zimmerman, H. T. (2016, April). *Technology-mediated engagement with nature: Design guidelines for self-guiding, outdoor-based mobile learning programs*. National Association for Research in Science Teaching (NARST) 2016 Annual Meeting Baltimore, MD.
- Land, S.M., Zimmerman, H. T., Briskin, J., & Millet, C. (2015, November). *Using iBeacons and mobile technologies to support learning in outdoor community spaces*. In Presidential Emerging Technologies Showcase. 2015 Annual Meeting of the Association for Educational Communications and Technology (AECT), Indianapolis, IN.
- Land, S.M., Zimmerman, H. T., Choi, G.W., Maggiore, C., Seely, B. J., & Jung, Y. J. (2015, November). *Designing mobile applications for informal science learning outdoors*. 2015 Annual Meeting of the Association for Educational Communications and Technology (AECT), Indianapolis, IN.
- Land, S. M., Zimmerman, H. T., Seely, B. J., Mohney, M. R., Dudek, J., Jung, Y., & Choi, G. W. (2015, April). *Photo-capture and annotations supporting observations in outdoor mobile learning*. 2015 Annual Meeting of the American Educational Research Association. Chicago, IL.
- Salman, F. H., Borge, M., & Zimmerman, H. T. (2015, April). *Collective problem solving in a girls' digital storytelling: Democratizing learning design through makerspaces*. 2015 Annual Meeting of the American Educational Research Association. Chicago, IL.
- Zimmerman, H. T. & Land, S. M. (2015, April). *Socio-technical dimensions of an outdoor mobile learning environment for families thinking about life cycles*. 2015 Annual Meeting of the American Educational Research Association. Chicago, IL.
- Zimmerman, H. T., & Weible, J. L. (2015, April). *Students' epistemic engagement in a field-based environmental sciences watershed investigation*. 2015 Annual Meeting of the American Educational Research Association. Chicago, IL.
- Zimmerman, H. T., & Weible, J. L. (2015, April) *Integrating digital photography in field-based environmental sciences to support understandings of watershed health* in the symposium, "Reorganizing Contexts of Practice for Equitable Science Learning". National Association for Research in Science Teaching (NARST) 2015 Annual Meeting Chicago, IL.
- Zimmerman, H. T. & Land, S. M. (2015, April). *Participation in an outdoor mobile learning environments with digital photography* in the paper set "Science Needs a Marketing Make-Over: Playful Learning in Formal and Informal Science Education". National Association for Research in Science Teaching (NARST) 2015 Annual Meeting Chicago, IL.
- McClain, L. R., & Zimmerman, H. T. (2014, April). *Technology and nature: The successes and difficulties for designing an e-trailguide for an informal, outdoor educational space*. 2014 Annual Meeting of the American Educational Research Association. Philadelphia, PA.
- Weible, J. L., & Zimmerman, H. T. (2014, April). *Supporting participation in science practices: Using social bookmarking to make sense of alternative energy*. 2014 Annual Meeting of the American Educational Research Association. Philadelphia, PA.
- Zimmerman, H. T., Land, S. M., McClain, L. R., Mohney, M. R., Choi, G. W., & Salman, F. H. (2014, April). *Tree Investigators: Supporting families' scientific talk in an arboretum with mobile computers*. 2014 Annual Meeting of the American Educational Research Association. Philadelphia, PA.
- Zimmerman, H. T., Land, S. M., McClain, L. R., Mohney, M. R., Choi, G. W., Salman, F. H., & Seely, B. J. (2014, April). *Mobile devices supporting families' scientific talk related to trees*. National Association for Research in Science Teaching (NARST) 2014 Annual Meeting, Pittsburgh, PA.
- Zimmerman, H. T., & Weible, J. L. (2014, April). *Learning in and about rural places: Connecting students' everyday experiences to science practices in the environmental sciences*. 2014 Annual Meeting of the American Educational Research Association. Philadelphia, PA.

- Zimmerman, H. T. (2014, March). *Public meanings of science concepts*. Invited session. National Association for Research in Science Teaching (NARST) 2014 Annual Meeting, Pittsburgh, PA.
- Gamrat, C., & Zimmerman, H. T. (2014, March). *A personalized digital badging space for science teacher professional development*. National Association for Research in Science Teaching (NARST) 2014 Annual Meeting, Pittsburgh, PA.
- Weible, J. L., & Zimmerman, H. T. (2014, March). *Using student-created videos about alternative energy to support argumentation in high school science classrooms*. National Association for Research in Science Teaching (NARST) 2014 Annual Meeting, Pittsburgh, PA.
- McClain, L. R., & Zimmerman, H. T. (2014, March). *Enabling Scientific Observations of the Natural World Using an e-Trailguide*. National Association for Research in Science Teaching (NARST) 2014 Annual Meeting, Pittsburgh, PA.
- McClain, L. R. & Zimmerman, H. T. (2013, October). *Parental influence and role modeling of environmental ethos for children*. North American Association for Environmental Education (NAAEE). Baltimore, MD.
- Crowl, M., & Zimmerman H. T. (2013, July). *Connecting science museum programs to youth's interests using front-end evaluation*. Visitor Studies Association (VSA) Annual Conference. Milwaukee, WI.
- Zimmerman, H. T. (2013, April). *Recognizing science: Seeing one's self in science and engineering practices*. National Association for Research in Science Teaching (NARST) Annual Meeting, Rio Grande, Puerto Rico.
- McClain, L. R., & Zimmerman, H. T. (2013, April). *Families' science conversations at a nature center: Prior learning experiences as shapers of new knowledge*. National Association for Research in Science Teaching (NARST) Annual Meeting, Rio Grande, Puerto Rico.
- Weible, J. L., & Zimmerman, H. T. (2013, April). *Web 2.0 tools to support participation in science practices: Students use of podcasts for argumentation*. Annual Meeting of the American Educational Research Association (AERA). San Francisco, CA.
- Zimmerman, H. T., & McClain, L. R. (2013, April). *Participating in science outdoors: Families working with scientific tools on nature walks*. Annual Meeting of the American Educational Research Association (AERA). San Francisco, CA.
- Mohney, M. R., Zimmerman, H. T. & Land, S. M. (2012, June). *Mobile computing and augmented reality to support learning about horticulture*. North American Colleges and Teachers of Agriculture Annual Conference. River Falls, WI.
- Zimmerman, H. T., McClain, L. R., & Crowl, M. (2012, March). *Understanding how families use observational tools during nature center hikes*. National Association of Research in Science Teaching (NARST) Annual Meeting. Indianapolis, IN.

## TEACHING EXPERIENCE

**PENN STATE UNIVERSITY**, College of Education  
*Assistant and Associate Professor of Education*

Aug. 2008 - present

- *Residential instruction*: Design-based research methods; Video research methods; Learning sciences seminar (co-taught with Dr. Richard Duschl and Dr. Julia Plummer); Theoretical learning foundations; Qualitative research II; Informal learning research seminar; and Research apprenticeship.
- *Online instruction*: Integrating mobile technologies into learning environments; Research apprenticeship.

UNIVERSITY OF WASHINGTON, COLLEGE OF EDUCATION

<i>Co-Instructor</i> , Ethnography of Human Development and Learning seminar	2008
<i>Teaching Assistant</i> , Elementary Science Methods, K-6 science education	2003
<i>Teaching Assistant</i> , TLP middle school science & math certification	2002 – 2003
UNIVERSITY OF WASHINGTON-BOTHELL, Department of Education	
<i>Adjunct</i> , Learning with Technology in Homes, Communities, and Schools course	2006
PACIFIC SCIENCE CENTER	
<i>Camp-in Workshop Lead</i>	2001 - 2002
<i>Family Programs Supervisor &amp; Mercer Slough Wetland Ecology Instructor</i>	1995 - 1999
BURKE MUSEUM OF NATURAL HISTORY AND CULTURE	
<i>Education/ Research Assistant</i> , Education and Anthropology Divisions	1994 - 1995
ROCHESTER MUSEUM & SCIENCE CENTER	
<i>Instructor/Lead Demonstrator</i> , Interpretation Division	1993 - 1994

### FUNDED PROJECTS - EXTERNAL

#### STEM Pillars: Supporting Rural Communities with Science Stories, Experts, and Inquiry Activities

- Sponsor: Institute of Museum and Learning Services
- Role: Primary Investigator / Project Director.
- Collaborators: Drs. Lucy McClain (Co-PI), Michele Crowl (Co-PI), and Susan Land
- Funding period: December 2016 – November 2018; Award: \$ 588,893

#### Using a Personalized Genetics and Genealogy Approach to Improve Learning Outcomes in the Health Sciences in Middle School-Aged Youth

- Sponsor: Robert Wood Johnson Foundation
- Role: Collaborator / Researcher.
- Collaborators: Dr. Nina G. Jablonski (PI, Penn State), Dr. Henry Louis Gates, Jr. (Co-PI, Harvard University), University of South Carolina, and American Museum of Natural History
- Funding period: July 2015 - June 2018; Award: \$ 343,752

#### Collaborative Research: Building Capacity and Collaboration at the Intersection of the Learning Sciences and Informal Science Education

- Sponsor: *National Science Foundation* award via a subcontract.
- Role: Project management team.
- Collaborators: Dr. Sandra Toro Martell (PI) and Dr. Leslie Rupert Herrenkohl
- Funding period: September 2008 to August 2010; Award: \$248,446, (\$72,886 subcontract)

### FUNDED PROJECTS - INTERNAL

#### Developing a Culturally-Responsive Model for University-Sponsored Summer Camps: Investigating Adolescents' Learning with a Personalized Genetics and Genealogy Approach

- Sponsor: The Social Science Research Institute at Penn State University
- Role: PI. Project Director / Researcher. Collaborators: Dr. Nina Jablonski (co-PI, Co-director), Dr. Elizabeth 'Biz' Wright, and Dr. Jennifer L. Shields
- Funding period: April 2017 - April 2018; Award: \$13,811

#### Using iBeacons, Mobile Technologies, and Multi-TouchFoil Displays to Support New Forms of

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**Community Engagement and Learning in Penn State Public Places**

- Sponsor: The Center for Online Innovation in Learning (COIL) at Penn State University
- Role: Co-PI. Project Co-Director and Researcher. Collaborator: Dr. Susan M. Land (PI, Director) and Chris Millet (Co-PI)
- Funding period: January 2015- December 2016; Award: \$46,500

**Tree Investigators: Using Augmented Reality and Mobile Computers Outdoors**

- Sponsor: The Center for Online Innovation in Learning (COIL) at Penn State University
- Role: PI. Project Director / Researcher. Collaborator: Dr. Susan M. Land (Co-PI, Co-director)
- Funding period: January 2014- June 2015; Award: \$19,928

**Lifelong Learning Landscape (L3): Exploring the Intersection of Higher Education, Professional Development, Social Networking, and Digital Badges**

- Sponsor: The Center for Online Innovation in Learning (COIL) at Penn State University
- Role: Researcher. Collaborators: Christopher Gamrat (PI), Dr. Kyle Peck (co-PI), Keith Duclos, Information Technology Services, Continuing Education, Alumni Career Services.
- Funding period: January - December 2013; Award: \$48,448

**Mobile Devices to Develop and Research Augmented Reality Learning Environments**

- Sponsor: Educational Technology Service at Penn State University
- Role: Co-Director / Researcher. Collaborator: Dr. Susan M. Land (co-director)
- Funding period: March 2011 – July 2012; Award: \$4,064.95 (In-kind equipment)

**Learning Sciences Collaborative Consortium**

- Sponsor: Social Science Research Institute at Penn State University
- Role: Researcher / Management Team member
- Collaborators: Dr. Rick Duschl (PI), Dr. Lynn Liben (Co-PI), Dr. Deb Smith, Dr. Carla Zembal-Saul, Dr. Brian Smith, and Dr. P. Karen Murphy
- Funding period: March 2009 – September 2010; Award: \$5,000

**Learning Across Science Settings**

- Sponsor: Research Initiation Grant at the College of Education, Penn State University
- Role: Director / Lead Researcher
- Funding period: May 2009- June 2010; Award: \$9,000

**AWARDS**

- *2016-2017 Fellowship, Lemelson Center for the Study of Invention and Innovation* of the National Museum of American History, Smithsonian Institution, Washington, D.C.
  - Designing Educational Supports for Family Learning during Spark!Lab Inventing Activities
- *2015 AERA SIG-IT Best Paper Award* for the paper:
  - Land, Zimmerman, Seely, Mohny, Dudek, Jung, & Choi, (2015). *Photo-capture and annotations supporting observations in outdoor mobile learning*
- *2011-2012 Outstanding Researcher* from the Penn State's College of Education
- *2010 Outstanding Doctoral Research Award* from the National Association for Research in Science Teaching for *Everyday science and science every day*
- *2010 Early Career ISLS Workshop* at the International Conference of the Learning Sciences
- Informalscience.org *Dissertation Spotlight* for Fall 2008
- *ISLS Doctoral Consortium at the ICLS Conference*

## SERVICE ACTIVITIES

### PROFESSIONAL SERVICE

- Leadership in Professional Education Research Associations
  - Interactive Events, Chair. *International Society of Learning Sciences*. 12<sup>th</sup> Annual Conference of Computer Supported Collaborative Learning. 2016-2017.
  - Secretary/Treasurer of the *Informal Learning Environments Research* special interest group (SIG- ILER) of American Educational Research Association (AERA). 2012- 2015, *Elected*. Past Secretary/Treasurer 2015-2016, *Appointed*.
  - Co-coordinator of *Science Learning in Informal Contexts Strand*. Member, Program Committee. National Association of Research in Science Teaching (NARST). 2011- 2013.
  - *Learning Impacts Inquiry Group* member. Center for the Advancement of Informal Science Education (CAISE).
- Sustained Editorial Work for Peer-Reviewed Journals
  - *Science Education*, Virtual Special Issue, Guest Editor, 2011-2015
  - *TechTrends*, Special Issue, Guest Editor, 2013-2014
  - *Journal of Museum Education*, Special Issue, Guest Editor, 2007-2008
- Journal Reviewer for Peer-Reviewed Journals (since 2012)
  - *Science Education* – 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016
  - *Journal of the Learning Sciences* – 2014, 2015, 2016
  - *Journal of Research on Science Teaching* – 2013, 2014, 2015
  - *Research in Science Education* – 2014, 2015
  - *Journal of Science Education and Technology* – 2013, 2014
  - *Studies of Educational Evaluation* – 2013 (special issue)
  - *Cultural Studies of Science Education* – 2012 (special issue)
- Assisting Informal Learning Institutions to Apply Research to Practice
  - Content committee member, *Discovery Space of Central PA*.
  - Advisor, *Metaphor-Based Learning of Physics Concepts Through Whole-Body Interaction in a Mixed Reality Science Center Exhibit*, a National Science Foundation research and development project, with the Museum of Science and Industry in Florida
  - Moderator, *Web Forums: Informal Science Education & Learning Sciences (2009-10) - Facilitating Informal Science Learning: What do you we know that works? and Intersections between the learning sciences and informal science education*.
- Sustained Partnerships with School Teachers to Apply Research to Practice
  - *At Penn State*: Worked with 9<sup>th</sup> grade biology teachers to intertwine community connections, ecology content, science practices, and technology in a 3-week watershed unit.
  - *At the University of Washington*: Worked with 4<sup>th</sup> and 5<sup>th</sup> grade teachers to collaboratively design and conduct research on science learning (microbiology) in their elementary school.
- Service to the Federal Government
  - Advisor, *Lemelson Center for the Study of Invention and Innovation*, Places of Invention exhibition. Smithsonian Institute, National Museum of American History
  - Reviewer, *National Science Foundation* grant panel reviews for Division on Research on Learning in Formal and Informal Settings (DRL) – 2014, 2015, 2016

Underlined name = Penn State student-researcher working with Heather Zimmerman

- Reviewer, *Institute of Museum and Library Services*, proposal reviewer - 2016
- Conference Organizer
  - *Building Capacity and Collaboration at the Intersection of the Learning Sciences and Informal Science Education* with Dr. Sandra Toro and Dr. Leslie R. Herrenkohl.
- Conference Proposal Reviewer
  - AERA: Panel reviewer - Division C, Section 4 – Science - 2009; 2014; Learning Sciences SIG-2009, 2012, 2013, 2014, 2015; Informal Learning Environments Research SIG - 2009, 2012, 2013, 2014, 2015.
  - NARST: Informal Learning strand and Cultural, Social, and Gender Issues strand - 2006, 2007, 2008, 2009, 2011, 2012, 2013, 2014, 2015.
  - ISLS: Paper reviewer: ICLS - 2008, 2010, 2014, 2016; CSCL – 2013, 2015; CSCL Meta-reviewer – 2017.

#### **UNIVERSITY-LEVEL SERVICE AT PENN STATE**

- Interdisciplinary research advancement initiatives at Penn State University
  - *Learning Sciences Collaborative Consortium; Apps for Education Faculty Research; Center for Pollinator Research; Center-in-Development for the Study of Human Evolution and Variation* (on-going)
- Educational outreach at Penn State University
  - *Shaver's Creek Environmental Center* (2008- present); *Day Educational Planning Committee*, Arboretum at Penn State (2011, 2012, 2013, 2014, 2015, 2016); *Educational/Interpretive Gardens work group* for the Children's Garden in the H.O. Smith Botanic Gardens, Arboretum at Penn State
- Search committee for Penn State University Early Childhood Education
  - Member. Director of Early Child Care Programs and Service, Office of Human Resources, *Search committee* (2014-2015)
- Faculty Governance, Curriculum, and Admission at Penn State University level
  - Member. Lion Path GRADS Advisory Committee (2015 – 2016)

#### **COLLEGE-LEVEL SERVICE AT THE PENN STATE COLLEGE OF EDUCATION**

- Administrative Leadership – appointed
  - Professor-in-Charge. Learning, Design, and Technology program. (2015-2016)
- Search Committees for the College of Education – appointed
  - Including: Department Head, Learning and Performance Systems Department; Assistant/Associate Professor of Education, Learning Sciences; Open Rank Professor of Education, Innovative Research Methods - Educational Psychology, Counseling, and Special Education (2010; 2012; 2013; 2014;2015)
- Faculty Governance – elected
  - Elected representative from the Learning & Performance Systems department, *Faculty Council*, College of Education. (2012- 2014)
- Committees – appointed
  - Including: *College Learning Sciences Taskforce* (2015 – present); *Committee on Graduate Studies & Research Policy* (2014-2015); Krause Innovation Studio (2013 – present); *LDT Program-Schreyer Honors College IUG and Undergraduate Involvement in Research committee* (2010- present); *Program Graduate Assistantship committee* (2012 - present); *College Faculty Policies regarding Syllabi, Academic Integrity, and Related Issues* (2013); *College Academic Integrity Committee* (December 2012)