

VITA
 BINGHAMTON UNIVERSITY
 DEPARTMENT OF TEACHING, LEARNING AND EDUCATION LEADERSHIP
 COLLEGE OF COMMUNITY AND PUBLIC AFFAIRS

Amber Simpson
 Associate Professor

EDUCATION:

College/University	Degree/Year	Major/Minor
Clemson University	PhD/2015	Curriculum & Instruction: Mathematics Education
Lincoln Memorial University	EdS/2009	Educational Administration & Supervision
Lincoln Memorial University	MEd/2007	Curriculum & Instruction
East Tennessee State University	BS/2005	Mathematics, Secondary Education

PROFESSIONAL/ACADEMIC EXPERIENCE:

Dates of Employment	Employer	Position(s) held/Time in rank
August 2023-present	Binghamton University	Co-Assistant Director; Institute of Justice and Well-being
August 2022-present	Binghamton University	Associate Professor
August 2017-July 2022	Binghamton University	Assistant Professor/five years
August 2016-May 2017	Indiana University	Visiting Assistant Professor/ one year
August 2015-July 2016	Indiana University	Visiting Research Associate/ one year
August 2011-May 2015	Clemson University	Graduate Research Assistant/ two years
August 2006-July 2011	Morristown Hamblen High School East	Teacher/five years

PUBLICATION AND RESEARCH ACTIVITY:

Works published:

Articles in refereed journal:

Bharaj, P. K., **Simpson, A.**, Jacobson, E., Linder, S. (2023). Exploring the association of prospective teachers' beliefs with their prior experiences as mathematics learners. *Investigations in Mathematics Learning*. [Advanced Online Publication]. <https://doi.org/10.1080/19477503.2023.2224653>

Simpson, A., McCann, J., & Miroff, L. (2023). Learners' perspectives on ARCH + STEM: Integration of archaeology and Indigenous knowledges with western knowledges of STEM. *Education Sciences*, 23, Article 450. <https://doi.org/10.3390/educsci13050450>

Lesseig, K., Slavit, D., & **Simpson, A.** (2023). Transdisciplinary STEM: Examples of student thinking within non-formal learning experiences. *Education Sciences*, 13, Article 435. <https://doi.org/10.3390/educsci13050435>

Simpson, A., Kastberg, S., & Williams-Pierce, C. (2023). Norms and collaboration in hybrid making spaces. *The Journal of Educational Research*, 116(3), 134-146. <https://doi.org/10.1080/00220671.2023.2207191>

Simpson, A., & Knox, P. N. (2022). Children's engineering identity development within an at-home engineering program during COVID-19. *Journal of Pre-College Engineering Education Research (J-PEER)*, 12(2), Article 2. <https://doi.org/10.7771/2157-9288.1345>

Knox, P., **Simpson, A.**, Yang, J., & Maltese, A. (2022). Exploring caregiver influence on child creativity and innovation in an out-of-school engineering program. *Thinking Skills and Creativity*, 45. <https://doi.org/10.1016/j.tsc.2022.101064>

Slavit, D., Lesseig, K., & Simpson, A. (2022). An analytic framework for understanding student thinking in STEM contexts. *Journal of Pedagogical Research*, 6(2), 132-148. <https://dx.doi.org/10.33902/JPR.202213536>

Simpson, A., & Kastberg, S. (2022). Mathematical practices for making: Legitimizing youth's informal ways of doing mathematics. *Journal of Humanistic Mathematics*, 12(1), pp. 40-75. <https://doi.org/10.5642/jhummath.202201.05>

Simpson, A., Zhong, Q., & Maltese, A. (2022). Spontaneous mathematical moments between caregiver and child during an engineering design project. *Early*

Childhood Education Journal. [Advanced online publication].
<https://doi.org/10.1007/s10643-021-01296-w>

Simpson, A., & Feyereabend, M. (2022). Tug-of-war: The pull of formal institutional practices and structures and the desire for personal change. *International Journal of Science and Mathematics Education*, 20, 149-168. doi: 10.1007/s10763-020-10139-w [5-year Impact Factor: 2.281]

Humburg, M., Tan, V., Maltese, A. V., **Simpson, A.,** & Danish, J. (2021). Making for learning: A class designed for engaging educators in designing maker-focused activities. *Information and Learning Sciences*. [Advanced online publication]. doi: 10.1108/ILS-08-2020-0191

Simpson, A., Morales-Collazo, J., Zilvinskis, J., & Maltese, A. (2021). Professionals' identification within and across science, technology, engineering, and mathematics (STEM) fields. *Journal of Career Development*, 48(6), 942-956. doi: 10.1177/0894845320913112 [5-year Impact Factor: 3.133]

McGowan-Bucci, K., & **Simpson, A.** (2021). Concurrent enrollment in the student voice. *Community College Journal of Research and Practice*. [Advanced online publication]. doi: 10.1080/10668926.2021.1912674

Tyminski, A. M., **Simpson, A.,** Land, T. J., Drake, C., & Dede, E. (2020). Prospective elementary mathematics teachers noticing of children's fraction multiplication strategies. *Journal of Mathematics Teacher Education*. doi: 10.1007/s10857-020-09472-2 [5-year Impact Factor: 2.893]

Bronstein, L., Kida, L., Garton, M., & **Simpson, A.** (2020). Binghamton University Community Schools: Building university-assisted community schools in small cities, towns, and rural communities. *Universities and Community Schools*, 10(1), 18-33.

Simpson, A., & Bouhafa, Y. (2020). Youths' and adults' identity in STEM: A systematic literature review. *Journal of STEM Education Research*, 3, 167-194. doi: 10.1007/s41979-020-00034-y

Simpson, A., Burris, A., & Maltese, A. V. (2020). Youth's engagement as scientists and engineers in an after-school tinkering program. *Research in Science Education*, 50(1), 1-22. doi: 10.1007/s11165-017-9678-3 [5-year Impact Factor: 4.021]

Wilkins-Yel, K.G., **Simpson, A.,** & Sparks, P. (2019). Journey towards resiliency: Experiences of early career women in STEM. *Journal of Women and Minorities in Science and Engineering*, 25(4), 353-368.

Anderson, A., Goeke, M., **Simpson, A.**, & Maltese, A. V. (2019). Where should learners struggle? *Connected Science Learning*, 1(12). Retrieved at <https://www.nsta.org/connected-science-learning/connected-science-learning-october-december-2019/where-should-learners>

Simpson, A., Anderson, A., & Maltese, A. V. (2019). Caught on camera: Youth and educators' noticing of and responding to failure within making contexts. *Journal of Science Education and Technology*, 28(5), 480-492. doi: 10.1007/s10956-019-09780-0 [5-year Impact Factor: 3.396]

Simpson, A., & Maltese, A. V. (2019). Developing and using low-cost MAKEngineering kits for youth engagement. *Teacher Librarian*, 46(5), 14-17.

Lyons, R., Genareo, V., **Simpson, A.**, Foegen, A., Stecker, P. M., & Olson, J. (2019). Monitoring student progress in algebra: Development and evaluation of an online professional development system. *Learning Disabilities: A Contemporary Journal*, 17(1), 77-94. [2019 Impact Factor: 1.486]

Jacobson, E. D., & **Simpson, A.** (2019). Elementary preservice teachers' conceptions of multidigit number: Exemplifying a replication framework for mathematics education. *Mathematics Education Research Journal*, 31, 67-88. doi: 10.1007/s13394-018-0242-x

Sang, W., & **Simpson, A.** (2019). The maker movement: A global movement for educational change. *International Journal of Science and Mathematics Education*, 17(1), 65-83. doi: 10.1007/s10763-019-09960-9 [5-year Impact Factor: 2.281]

Simpson, A. (2019). Being "challenged" and masking my own uncertainty: My parallel journey with elementary prospective teachers. *Studying Teacher Education*, 15(2), 217-234. doi: 10.1080/17425964.2019.1587608 [Impact Factor: 0.925]

Simpson, A. (2018). Making the invisible visible: Affordances and hindrances of using tangible objects in identity research. *The Qualitative Report*, 23(12), 2973-2988. doi: 10.46743/2160-3715/2018.3621

Maltese, A., **Simpson, A.**, & Anderson, A. (2018). Failing to learn: The impact of failures during making activities. *Thinking Skills and Creativity*, 30, 116-124. doi: 10.1016/j.tsc.2018.01.003 [Impact Factor: 3.106]

Linder, S. M., & **Simpson, A.** (2018). Towards an understanding of early childhood mathematics education: A systematic review of the literature. *Contemporary Issues in Early Childhood*, 19(3), 274-296. doi: 10.1177/1463949117719553

Simpson, A., Bannister, N. & Matthews, G. (2017). Cracking her codes: Understanding shared technology resources as positioning artifacts for power and status in CSCL environments. *International Journal of Computer-Supported Collaborative Learning, 12*, 221-249. doi: 10.1007/s11412-017-9261-y [5-year Impact Factor: 4.966]

Simpson, A., & Haltiwanger, L. (2017). “This is the first time I’ve done this”: Exploring secondary preservice mathematics teachers’ noticing of students’ mathematical thinking. *Journal of Mathematics Teacher Education, 20*(4), 335-355. doi: 10.1007/s10857-016-9352-0 [5-year Impact Factor: 2.893]

Simpson, A., & Maltese, A. V. (2017). “Failure is a major component of learning anything.”: The role of failure in the career development of STEM professionals. *Journal of Science and Technology Education, 26*(2), 223-237. doi: 10.1007/s10956-016-9674-9 [5-year Impact Factor: 3.396]

Foegen, A., Stecker, P. M., Genareo, V. R., Lyons, R., Olson, J. R., **Simpson, A.,** ..., Jones, R. (2017). Using an online tool for learning about and implementing algebra progress monitoring. *Teaching Exceptional Children, 49*(1), 106-114. doi: 10.1177/0040059916674327

Simpson, A., & Quigley, C. (2016). Member checking process with adolescent students: Not just reading a transcript. *The Qualitative Report, 21*(2), 376-392. doi: 10.46743/2160-3715/2016.2386

Simpson, A., & Che, M. (2016). A phenomenological study of middle grade female and male students’ single-sex mathematical experiences. *Research in Middle Level Education Online, 39*(2), 1-13. doi: 10.1080/19404476.2016.1138727

Simpson, A., & Linder, S. M. (2016). The indirect effect of children’s gender on early childhood educators’ mathematical talk. *Teaching and Teacher Education, 54*, 44-53. doi: 10.1016/j.tate.2015.11.011 [Impact Factor: 3.272]

Simpson, A., Che, M., & Bridges, W. (2016). Girls’ and boys’ academic self-concept in science in single-sex and coeducational classes. *International Journal of Science and Mathematics Education, 14*(8), 1407-1418. doi: 10.1007/s10763-015-9676-8 [5-year Impact Factor: 2.281]

Hall, A., & **Simpson, A.** (2016). Working to improve the quality of care for young children in one community organization. *Journal of Community Engagement and Higher Education, 8*(4), 39-52.

Linder, S. M., Rembert, K., **Simpson, A.,** & Ramey, D. (2016). A mixed methods investigation of early childhood professional development for providers and

recipients in the United States. *Professional Development in Education*, 42(1), 123-149. doi: 10.1080/19415257.2014.978483 [2019 Impact Factor: 1.531]

Hall, A., **Simpson, A.**, Guo, Y., & Wang, S. (2015). Examining the effects of preschool writing instruction on emergent literacy skills: A systematic review of the literature. *Literacy Research and Instruction*, 54(2), 115-134. doi: 10.1080/19388071.2014.991883

Simpson, A., Mokalled, S., Ellenburg, L., & Che, S. M. (2015). A tool for rethinking teachers' questioning. *Mathematics Teaching in the Middle School*, 20(5), 294-302.

Simpson, A., & Cole, M. W. (2015). More than words: A literature review of language of mathematics research. *Educational Review*, 67(3), 369-384. doi: 10.1080/00131911.2014.971714 [5-year Impact Factor: 3.281]

Simpson, A., & Linder, S. M. (2014). An examination of mathematics professional development opportunities in early childhood settings. *Early Childhood Education Journal*, 42(5), 335-342. doi: 10.1007/s10643-013-0612-7 [5-year Impact Factor: 1.947]

Simpson, A., Blethen, J., & Mokalled, S. (2014). Mathematical modeling of a function. *MathMate*, 36(2), 10-16.

Haltiwanger, L., & **Simpson, A.** (2013). Beyond the write answer: Mathematical connections. *Mathematics Teaching in the Middle School*, 18(8), 492-498.

Book Chapter:

Simpson, A., Maltese, A., Anderson, A., & Sung, E. (2020). Failures, errors and mistakes: A systematic review of the literature. In C. H. Mayer & E. Vanderheiden (Eds.), *Mistakes, Errors and Failures Across Cultures: Navigating Potentials* (pp. 347-362). Cham, Switzerland: Springer International.

Simpson, A., Barnes, J., & Maltese, A. (2019). A shared language: Two worlds speaking to one another through making and tinkering activities. In A. Sahin & M. Mohr-Schroeder (Eds.), *Myths and Truths: What has years of K-12 STEM education research taught us?* (pp. 228-247).

Linder, S. M., & **Simpson, A.** (2018). Connecting the mathematics identity of early childhood educators to classroom experiences for young children. In V. Kinear, M. Y. Lai, & T. Muir (Eds.), *Forging Connections in Early Mathematics Teaching and Learning* (pp. 155-172). Singapore: Springer.

Tyminski, A. M., Land, T. J., Drake, C., Zambak, V. S., & **Simpson, A.** (2014). Pre-service elementary mathematics teachers' emerging ability to write problems

to build on children's mathematics. In J. Lo, K. R. Leatham, & L. R. Van Zoest (Eds.), *Research Trends in Mathematics Teacher Education*. New York, NY: Springer.

Encyclopedia Entry:

Simpson, A., & Fridrich, M. (2023). Connecting play to STEM concepts, practices and processes: Review of research on play within STEM learning environments. In R. J. Tierney, F. Rizvi, & K. Erkican (Eds.), *International Encyclopedia of Education* (4th ed., pp. 164-176). Elsevier Inc.
<https://doi.org/10.1016/B978-0-12-818630-5.13060-X>

Conference Proceedings:

Simpson, A., & Knox, P. (2022). *A study of problem exploration heuristics of families*. Proceedings of the 129th meeting of the American Society for Engineering Education, Minneapolis, MN. <https://peer.asee.org/40414>

Simpson, A., Sun, J., & Yang, J. (2022). *Caregiver-child communication of STEM concepts with engineering design tasks*. Proceedings of the 129th meeting of the American Society for Engineering Education, Minneapolis, MN. <https://peer.asee.org/40648>

Knox, P., Paul, K., Kim, J., Yang, J., Werfelli, S., **Simpson, A.,** & Maltese, A. (2022). *Parental perspectives: Examining caregiver experiences and perceptions of growth and learning within an out-of-school elementary engineering program*. Proceedings of the 129th meeting of the American Society for Engineering Education, Minneapolis, MN. <https://peer.asee.org/41907>

Simpson, A., Williams-Pierce, C., Shokeen, E., Katirci, N., Soto, H., Baker, J., DeLiema, D., Kapur, M., Ellis, A., Lockwood, E., Plaxco, D., Alibali, M., & Ramirez, D. (2022). The nature(s) of embodied mathematical failure. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.), *Proceedings of the 16th International Conference of the Learning Sciences* (pp. 1787-1793). International Society of the Learning Sciences.

Knox, P., Werfall, S., & **Simpson, A.** (In Press). *Exploring child creative habits of mind in an out-of-school engineering program*. Proceedings of the American Society of Engineering Education St. Lawrence Section. ASEE.

Shokeen, E., **Simpson, A.,** Williams-Pierce, C., Katirci, N. (2021). *Use of zig-zag to represent mathematical thinking about angle*. In D. Olanoff, K. Johnson, & S. Spitzer (Eds.), Proceedings of the 43rd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 323-324). Philadelphia, PA.

Simpson, A., Kim, J., & Yang, J. (2021). *Caregiver-child interactions: Informal ways of doing mathematics during engineering tasks*. In D. Olanoff, K. Johnson, & S. Spitzer (Eds.), Proceedings of the 43rd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 807-811). Philadelphia, PA.

Simpson, A., Kastberg, S., & Williams-Pierce, C. (2021). *Perspective taking and the construction of an intersubjective view*. In D. Olanoff, K. Johnson, & S. Spitzer (Eds.), Proceedings of the 43rd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 1897-1898). Philadelphia, PA.

Williams-Pierce, C., Katirci, N., **Simpson, A.,** Shokeen, E., & Bih, J. (2021). *Revealing mathematical activity in non-formal learning spaces*. In D. Olanoff, K. Johnson, & S. Spitzer (Eds.), Proceedings of the 43rd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 1830-1838). Philadelphia, PA: PME-NA.

Simpson, A., Yang, J., Knox, P. N., & Maltese, A. V. (2021). *Caregivers' multiple roles in supporting their child through an engineering design project*. Proceedings of the 128th meeting of the American Society for Engineering Education, Virtual Conference. <https://peer.asee.org/36786>

Simpson, A., & Maltese, A. V., & Yang, J., & Kim, J., & Knox, P. N., & Kim, S. H., & Farfan D'Souza, N. (2021). *Insights from engineering a community-family partnership project*. Proceedings of the 128th meeting of the American Society for Engineering Education, Virtual Conference. <https://strategy.asee.org/3734>

Kim, J., & **Simpson, A.** (2021). *STEM moments in the family context throughout engineering design challenge activities*. Proceedings of the 128th meeting of the American Society for Engineering Education, Virtual Conference. <https://peer.asee.org/37726>

Simpson, A., Katirci, N., Shokeen, E., Bih, J., Williams-Pierce, C. (2021). *Representational fluency of angle during an educational robotics task*. In E. de Vries, Y. Hod, & J. Ahn (Eds.), Proceedings of the Annual Meeting of the International Society of Learning Sciences (pp. 529-532). Bochum, Germany.

Simpson, A., & Zhong, Q. (2020). *Spontaneous mathematical moments between caregiver and child during an engineering design project*. In Sacristán, A. I., Cortés-Zavala, J. C. & Ruiz-Arias, P. M. (Eds.). Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 1424-1428). Mexico: PME-NA. <https://doi.org/10.51272/pmena.42.2020>

Satayam, V. R., **Simpson, A.**, DiNapoli, J., & Yao, X. (2020). *Building a robot: making mathematics visible in a non-formal STEM learning environment*. In Sacristán, A. I., Cortés-Zavala, J. C. & Ruiz-Arias, P. M. (Eds.). *Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 2353-2354). Mexico: PME-NA. <https://doi.org/10.51272/pmena.42.2020>

Plaxco, D., Reimer, P. Williams-Pierce, C., Ellis, A., Molitoris-Miller, S., **Simpson, A.**, Zandieh, M., Mauntel, M., & Dogan, M. F. (2020). *Mathematical play: across ages, context, and content*. In Sacristán, A. I., Cortés-Zavala, J. C. & Ruiz-Arias, P. M. (Eds.). *Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 178-180). Mexico: PME-NA. <https://doi.org/10.51272/pmena.42.2020>

Shokeen, E., Katirci, N., Bih J., **Simpson, A.**, & Williams-Pierce, C. (2020). *Unpacking Mathematical Play within Makerspaces using Embodied Cognition*. In P. Mirza-Babaei, V. McArthur, V. V. Abeele, & M. Birk (Eds.). *Proceedings of the 2020 Annual Symposium on Computer-Human Interaction in Play (CHIPLAY)*. Virtual Event Canada: Association for Computing Machinery.

Simpson, A., Williams-Pierce, C., & Kastberg, S. (2020). *When figured worlds fracture: A collaborative environment splintered by a non-collaborative tool*. In M. Gresalfi & I.S. Horn (Eds.), *Proceedings of the 14th International Conference of the Learning Sciences* (Vol. 3, pp. 1673-1676). Nashville, TN: International Society of the Learning Sciences.

Simpson, A., Anderson, A., Maltese, A. V., & Goeke, M. (2018). *"I'm going to fail": How youth interpret failure across contextual boundaries*. In J. Kay & R. Luckin (Eds.), *Proceedings of the 13th International Conference of the Learning Science* (Vol. 2, pp. 981-984). London, United Kingdom: University College London.

Bannister, N., Arbaugh, F., & **Simpson, A.** (2016). *Pressing methodological boundaries: Analyzing PCK using frame alignment processes*. *Proceedings of the 38th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, Tucson, AZ: University of Arizona.

Simpson, A., & Che, S. M. (2015). *Use of I-poems to uncover adolescents' dynamic mathematic identity within single-sex and coeducational classes*. In K. Beswick, K. Muir, & J. Wells (Eds.), *Proceedings of the 39th annual meeting of the International Group for the Psychology of Mathematics Education* (Vol. 4, pp. 177-184). Hobart, Australia.

Che, S. M., & **Simpson, A.** (2015). *Discursive acts of power: A critical analysis of single-sex and coeducational mathematics classes*. In K. Beswick, K. Muir, & J. Wells (Eds.), Proceedings of the 39th annual meeting of the International Group for the Psychology of Mathematics Education (Vol. 1, p. 153). Hobart, Australia.

Simpson, A., Kombe, D., Che, M., & Bridges, W. (2014). *Adolescent students' perceptions of mathematics and science as a gendered domain*. Proceedings of the 38th annual meeting of the International Group for the Psychology of Mathematics Education and the 36th annual conference of the North American Chapter of the Psychology of Mathematics Education. Vancouver, Canada.

Haltiwanger, L., & **Simpson, A.** (2014). *Secondary mathematics preservice teachers' noticing of students' mathematical thinking*. Proceedings of the 41st annual meeting of the Research Council on Mathematics Learning. San Antonio, TX.

Linder, S. M., & **Simpson, A.** (2013). *Student teaching experiences and early childhood mathematics pedagogical beliefs: Identifying barriers to success*. Proceedings of the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Chicago, IL: University of Illinois at Chicago.

Simpson, A., & Linder, S. (2013). *Investigating providers and recipients' perceptions of early childhood professional development in mathematics*. Proceedings of the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Chicago, IL: University of Illinois at Chicago.

Articles in non-refereed journals:

Simpson, A., & Knox, P. (2020). Getting kids – and their caregivers – to practice STEM at home. *The Conversation*

Boes, L., Stath, H., **Simpson, A.** (2018) Math by the month: Animals of the world. *Teaching Children Mathematics*, 24(4), 226-227.

Simpson, A., Monroe, J., & Raquet, J. (2015). Math by the month: Board game frenzy. *Teaching Children Mathematics*, 22(2), 74-75.

Simpson, A. (2015). Math by the month: Working with wheels!. *Teaching Children Mathematics*, 21(9), 528-529.

Simpson, A., & Short, A. (2014). Math by the Month: Described by numbers. *Teaching Children Mathematics*, 21(2), 82-83.

GRANTS

Funded Grants

Funding Agency: Institute for Justice & Well-being
Title: MAKEngineering Kits: Professional Growth in Elementary Engineering Education
Role: Principal Investigator
Amount Awarded: \$5,000
Submitted: April 2023

Funding Agency: Institute for Justice & Well-being
Title: STEM Workforce Development Through After School Programming and Mentoring
Role: Co-Principal Investigator
Collaborator: Dr. Nicole Fenty, Department of TLEL
Amount Awarded: \$5,000
Submitted: April 2023

Funding Agency: College of Community and Public Affairs Research Excellence Award
Title: Utilizing the Remind App to Engage Families in Engineering Talk
Role: Principal Investigator
Amount Awarded: \$4260
Submitted: February 2022

Funding Agency: United States Department of Defense: GenCyber Grants Program
Title: Binghamton University GenCyber Teacher Camp
Role: Co-Principal Investigator; K-12 Pedagogical Expert
Collaborators: Dr. Ping Yang, Computer Science, Binghamton University; Dr. Guanhua Yan, Computer Science, Binghamton University
Amount Awarded: \$136,615
Submitted: April 2022

Funding Agency: National Science Foundation: Advancing Information STEM Learning (AISL)
Title: Collaborative Research: Complicating Notions of Failure in Informal Maker Education Contexts through Reflective Professional Learning
Role: Principal Investigator
Collaborators: Dr. Adam Maltese, Indiana University; Alice Anderson, Minneapolis Institute of Art
Amount Awarded: \$1,454,326
Submitted: November 2019

Funding Agency: National Science Foundation: Advancing Information STEM Learning (AISL)

Title: The Timelessness of Science: Multidisciplinary STEM Learning Through Archaeology Advanced Informal Science Learning Program, Pilots and Feasibility Studies

Role: Co-Principal Investigator

Collaborators: Dr. Laurie Miroff and Dr. Nina Versaggi, Public Archaeology Facility, Binghamton University; Lynda Carroll, Co-Director of the Community Archaeology Program, Binghamton University; Luann Kida, Community Schools Director

Amount Awarded: \$295,951

Submitted: November 2019

Funding Agency (Subrecipient Award): Indiana University, National Science Foundation: Rapid Response Research (RAPID)

Title: CoBuild-19: RAPIDly building a collaborative network of informal learning organizations

Role: Co-Principal Investigator

Collaborators: Dr. Adam Maltese, Indiana University; Ariel Zych, Friday Institute

Amount Awarded: \$10,010

Submitted: March 2020

Funding Agency: National Science Foundation: Innovative Technology Experiences for Students and Teachers (ITEST)

Title: Strategies: Engineering a Community-Family Partnership: Developing a Program aimed at Making and Design Practices in Home Environments

Role: Principal Investigator

Collaborator: Dr. Adam Maltese, Indiana University

Amount Awarded: \$326,575

Submitted: September 2017

Funding Agency: College of Community & Public Affairs (CCPA) Research Excellence

Title: In Transition: A Self-Study of Instructional Practices as an Informal Educator

Role: Principal Investigator

Amount Awarded: \$1,865

Submitted: October 2017

Funding Agency: Binghamton University: Interdisciplinary Collaboration Grants (ICG) Program;

Title: Coding is Lit: Building 21st Century Literacy Skills with Underrepresented Groups

Role: Co-Principal Investigator

Collaborators: Dr. Nicole Fenty, TLEL, Binghamton University; Dr. Manuel Smeu, Physics, Binghamton University; Dr. Erin Washburn, University of North Carolina at Charlotte

Amount Awarded: \$10,000
Submitted: April 2019

Funding Agency: Binghamton University Organized Research Center
Title: Center for Information Assurance and Cybersecurity (CIAC)
Role: Faculty Participant
Amount Awarded: \$60,000
Submitted: April 2019

Funding Agency: Institute of Museum and Library Services
Title: MAKEngineering Bags: A library program to engage families in making activities
Role: Co-Principal Investigator
Collaborator: Dr. Adam Maltese, Indiana University
Amount Awarded: \$24,999
Submitted: January 2017

Funding Agency: National Science Foundation: Early-concept Grants for Exploratory Research (EAGER) program
Title: Collaborative Research: EAGER: MAKER: Studying the Role of Failure in Design and Making
Role: Co-Principal Investigator
Collaborators: Dr. Adam Maltese, Indiana University; Alice Anderson, Minneapolis Institute of Art
Amount Awarded: \$186,412
Submitted: January 2016

PRESENTATIONS:

Peer-Reviewed International Conference Presentations:

Penney, L., Paul, K., Sun, J., Maltese, A., & **Simpson, A.** (2023). At-home engineering: Caregivers' support during problem-solving. Presentation at the 17th annual meeting of the Internal Society of Learning Sciences: Montreal, Canada.

Shokeen, E., **Simpson, A.**, Katirci, N., & Williams-Pierce, C. (2023). Youth embodied communication and collaboration in making. Presentation at the 17th annual meeting of the Internal Society of Learning Sciences: Montreal, Canada.

Simpson, A., Williams-Pierce, C., Shokeen, E., Katirci, N., Soto, H., Baker, J., DeLiema, D., Kapur, M., Ellis, A., Lockwood, E., Plaxco, D., Alibali, M., & Ramirez, D. (2022). The nature(s) of embodied mathematical failure. Symposium at the 16th annual meeting of the Internal Society of Learning Sciences: Hiroshima, Japan.*

Simpson, A., Katirci, N., Shokeen, E., Bih, J., Williams-Pierce, C. (2021). *Representational fluency of angle during an educational robotics task*. 15th Annual Meeting of the International Society of Learning Sciences: Bochum, Germany.*

Maltese, A., Yang, J., **Simpson, A.,** Knox, P., & Kim, J. (2020). *What does computer science and maker education look like in 2030? Engaging families in authentic design: Are they doing STEM?* Symposium presentation at the 14th annual meeting of the International Conference of the Learning Sciences: Nashville, TN.*

Simpson, A., Williams-Pierce, C., & Kastberg, S. (2020). *When figured worlds fracture: A collaborative environment splintered by a non-collaborative tool*. Short paper presentation at the 14th annual meeting of the International Conference of the Learning Sciences: Nashville, TN.*

Maltese, A., Anderson, A., **Simpson, A.,** & Sung, E. (2019). *How to increase the “failure friendliness” of maker activities*. Presentation at the annual research meeting of the European Association for Research on Learning and Instruction: Aachen, Germany.

Simpson, A., Anderson, A., Maltese, A., & Goeke, M. (2018). *“I’m going to fail”: How youth interpret failure across contextual boundaries*. Short paper to be presented at the 13th annual meeting of the International Conference of the Learning Sciences: London, UK.

Peer-Reviewed National Conference Presentations:

Slavit, D., Lessig, K., & **Simpson, A.** (2023). *Claim making as a tool for analyzing student thinking in STEM contexts*. Empirical Research Report to be presented at the 45th annual North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA): Reno, NV.

Anderson, A., Todd, K., Adisa, Z. & **Simpson, A.** (2023). *Found poetry methodology*. XX presentation at the Visitors Studies Association Virtual Conference.

Paul, K., Kim, J., Maltese, A. V., & **Simpson, A.** (2023). *Caregivers’ roles in supporting children’s engagement in engineering activities at home*. Paper to be presented at the 130th meeting of the American Society for Engineering Education, Baltimore, MD.

Maltese, M., Kim, J., Paul, K., & **Simpson, A.** (2023). *Making families aware of engineering through the public library (Work in Progress)*. Paper to be presented at the 130th meeting of the American Society for Engineering Education, Baltimore, MD.

Tan, J., **Simpson, A.**, Knox, P., Werfelli, S., Maltese, A. V. (2023). *Developing habits of mind through family engineering at home*. Paper to be presented at the 130th meeting of the American Society for Engineering Education, Baltimore, MD.

Knox, P., **Simpson, A.**, & Maltese, A. V. (2023). *Fortitude in frustration, failure: Exploring emotional responses within an at-home elementary engineering program*. Paper presented at the 130th meeting of the American Society for Engineering Education, Baltimore, MD.

Werfelli, S., Knox, P., Paul, K., **Simpson, A.**, & Maltese, A. V. (2023). *Children's identity conception in engineering activities in the home environment*. Poster to be presented at the 130th meeting of the American Society for Engineering Education, Baltimore, MD.

Anderson, A., Todd, K., **Simpson, A.**, & Adisa, A. (2023). *Found poetry methodology*. Paper to be presented at the Visitor Studies Association Virtual Conference.

Borowski, R., & **Simpson, A.** (2023). *Bodies in flight: A Storytelling collaborative autoethnography of our bodies in academic spaces*, Presentation at the International Conference of Qualitative Inquiry. Urbana-Champaign, IL.

Simpson, A., & Kim, S. H. (2023). *Epistemic supports of parents during an engineering task within home environments*. Paper presented at the annual research meeting of the American Educational Research Association: Chicago, IL.

Osterhout, A., **Simpson, A.**, Anderson, A., & Maltese, A. V. (2023). *The failure-learning process in informal museum education: A multiple case study*. Paper presented at the annual research meeting of the American Educational Research Association: Chicago, IL.

Slavit, D., Eronen, L., Lesseig, K., & **Simpson, A.** (2023). *Elementary students' thinking in an escape room scenario: The role of claim making*. Poster presented at the annual research meeting of the American Educational Research Association: Chicago, IL.

Simpson, A., Kastberg, S., & Tyminski, A. (2022). *Math in the making! Developing informal and humanistic math practices within play-making activities*. Workshop presentation at the annual meeting and exhibition of the National Council of Teachers of Mathematics: Los Angeles, CA.

Simpson, A., Kastberg, S., & Tyminski, A. (2022). *Seeing and representing our world through data and drawings*. Burst presentation at the annual meeting and exhibition of the National Council of Teachers of Mathematics: Los Angeles, CA.

Kastberg, S., **Simpson, A.,** & Tyminski, A. (2022). *Representing and solving addition and subtraction story problems in PK-grade 2*. Workshop presentation at the annual meeting and exhibition of the National Council of Teachers of Mathematics: Los Angeles, CA.

Kastberg, S., Tyminski, A., & **Simpson, A.** (2022). *Creating, describing, and defining patterns to support visuospatial reasoning*. Burst presentation at the annual meeting and exhibition of the National Council of Teachers of Mathematics: Los Angeles, CA.

Tyminski, A., Kastberg, S., & **Simpson, A.** (2022). *Activities for developing place value and base-10 understanding in PK-2*. Workshop presentation at the annual meeting and exhibition of the National Council of Teachers of Mathematics: Los Angeles, CA.

Tyminski, A., Kastberg, S., & **Simpson, A.** (2022). *Developing ideas of length in PK-grade 2: Ideas and activities*. Burst presentation at the annual meeting and exhibition of the National Council of Teachers of Mathematics: Los Angeles, CA.

Simpson, A., & Knox, P. (2022). *A study of problem exploration heuristics of families*. Paper presented at the 129th meeting of the American Society for Engineering Education, Minneapolis, MN.

Simpson, A., Sun, J., & Yang, J. (2022). *Caregiver-child communication of STEM concepts with engineering design tasks*. Paper presented at the 129th meeting of the American Society for Engineering Education, Minneapolis, MN.

Knox, P., Paul, K., Kim, J., Yang, J., Werfelli, S., **Simpson, A.,** & Maltese, A. (2022). *Parental perspectives: Examining caregiver experiences and perceptions of growth and learning within an out-of-school elementary engineering program*. Poster presentation at the 129th meeting of the American Society for Engineering Education, Minneapolis, MN.

Knox, P., **Simpson, A.,** Bertolone-Smith, C., & Dsouza, N. F. (2022). *Exploring familial influence and engagement through joint activity in an at-home engineering program*. Paper presentation presented at the annual research meeting of the American Educational Research Association: San Diego, CA.

Shokeen, E., Katirci, N., **Simpson, A.,** & Williams-Pierce, C. (2022). *Embodied communication and collaboration within making activities*. Poster presentation at the annual research meeting of the American Educational Research Association: San Diego, CA.

Katirci, N., Shokeen, E., **Simpson, A.**, & Williams-Pierce, C. (2022). *Attending to the missing role of gestures in representational fluency*. Roundtable presentation presented at the annual research meeting of the American Educational Research Association: San Diego, CA.

Knox, P., & **Simpson, A.** (2022). *Research adaptation and adjustments in an informal engineering learning program*. Paper presentation presented at the annual research meeting of the American Educational Research Association: San Diego, CA.

Maltese, A., & **Simpson, A.** (2022). *Innovative approaches to theorizing and studying family STEM learning*. Symposium presentation at the annual research meeting of the National Association for Research and Science Teaching: Vancouver, BC.

Miroff, L. E. **Simpson, A.**, Versaggi, N., Carroll, L., & Kida, L. (2022). *Multidisciplinary STEM learning through archaeology*. Roundtable presentation presented at the annual Association for Science Teacher Education (ASTE) conference: Greenville, SC.

Shokeen, E., **Simpson, A.**, Williams-Pierce, C., Katirci, N. (2021). *Use of zig-zag to represent mathematical thinking about angle*. Poster presentation presented at the 43rd annual North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA): Philadelphia, PA.

Simpson, A., Kim, J., & Yang, J. (2021). *Caregiver-child interactions: Informal ways of doing mathematics during engineering tasks*. Research brief presentation presented at the 43rd annual North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA): Philadelphia, PA.

Simpson, A., Kastberg, S., & Williams-Pierce, C. (2021). *Perspective taking and the construction of an intersubjective view*. Poster presentation presented at the 43rd annual North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA): Philadelphia, PA.

Williams-Pierce, C., Katirci, N., **Simpson, A.**, Shokeen, E., & Bih, J. (2021). *Revealing mathematical activity in non-formal learning spaces*. Research report presentation presented at the 43rd annual North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA): Philadelphia, PA.

Simpson, A., Yang, J., Knox, P., & Maltese, A. (2021). *Caregivers' multiple roles in supporting their child through an engineering design project*. Paper presented at the annual American Society for Engineering Education virtual conference: Long Beach, CA.

Simpson, A., Maltese, A., Yang, J., Kim, J., Knox, P., D'Souza, N. F., & Kim, S. H. (2021). *Insights from engineering a community-family partnership project*. Poster presented at the annual American Society for Engineering Education virtual conference: Long Beach, CA.

Kim, J., & **Simpson, A.** (2021). *STEM moments in the family context throughout engineering design challenge activities*. Paper presented at the annual American Society for Engineering Education virtual conference: Long Beach, CA.

Simpson, A., Signe, K., Williams-Pierce, C. (2021). *When activity systems fracture: Emergent tensions within a collaborative activity*. Roundtable presentation presented at the annual research meeting of the American Educational Research Association virtual conference: Orlando, FL.

Hu, Z., & **Simpson, A.** (2021). *"Feeling like a square peg in a round hole": Dissonance in STEM professionals' identity*. Roundtable presentation presented at the annual research meeting of the American Educational Research Association virtual conference: Orlando, FL.

Knox, P., Yang, J., **Simpson, A.,** & Maltese, A. (2021). *Familiar faces and places: Family and community impact on ideation in the engineering design process*. Roundtable presentation presented at the annual research meeting of the American Educational Research Association virtual conference: Orlando, FL.

Katirci, N., Shokeen, E., Williams-Pierce, C., & **Simpson, A.** (2021). *Making with math: Extending a mathematical play framework to informal makerspaces*. Roundtable presentation presented at the annual research meeting of the American Educational Research Association virtual conference: Orlando, FL.

Fenty, N., **Simpson, A.,** Washburn, E., Hu, Z., & Pierce, A. (2021). *Coding is lit: Building critical thinking skills in preschool age children*. Paper to be presented at the annual research meeting of the American Educational Research Association virtual conference: Orlando, FL.

Fenty, N., & **Simpson, A.** (2021). *Coding is lit: Building 21st century literacies with preschool children in inclusive settings*. Paper presented at the 2021 Council for Exceptional Children Learning Interactive Virtual Event.

Shokeen, E., Katirci, N., Bih, J., **Simpson, A.,** & Williams-Pierce, C. (2020). *Unpacking mathematical play within makerspaces using embodied cognition*. Paper presented at the annual CHI PLAY virtual conference: Ottawa, Canada.

Simpson, A., & Zhong, Q. (2020). *Spontaneous mathematical moments during caregiver and child during an engineering design project*. Brief research report at

the 42nd annual meeting of the Psychology of Mathematics Education – North American Chapter: Mazatlán, Mexico.

Satyam, V. R., **Simpson, A.**, DiNapoli, J., Yao, X. (2020). *Building a robot: Making mathematics visible in a non-formal STEM learning environment*. Poster presentation at the 42nd annual meeting of the Psychology of Mathematics Education – North American Chapter: Mazatlán, Mexico.

Simpson, A., & Feyerabend, M. (2020). *In transition: A self-study of instructional practices as an informal educator*. Roundtable presentation at the annual research meeting of the American Educational Research Association: San Francisco, CA.*

Aqazade, M., Bofferding, L. C., Richardson, S. E., **Simpson, A.** (2020). *Promoting curiosity and wonder through family mathematics and science nights*. Individual session presentation at the annual research meeting of the Association of Mathematics Teacher Educators: Phoenix, AZ.

Williams-Pierce, C., Plaxco, D., Reimer, P. N., **Simpson, A.**, Orrill, C. H., Burke, J., . . . Dogan, M. F. (2019). *Mathematical play: Across ages, context, and content*. Working group presentation at the annual research conference of the Psychology of Mathematics Education – North American Chapter: St. Louis, MS.

Anderson, A., Goeke, M., Maltese, A., **Simpson, A.**, & Sung, E. (2019). *Studying the role of failure in making and design*. Video presentation at the 2019 STEM for All Video Showcase. Retrievable at:
<https://stemforall2019.videohall.com/presentations/1436>

Morales Collazo, J., **Simpson, A.**, Zilvinskis, J., & Maltese, A. (2019). *A landscape of how professionals identify themselves in STEM fields*. Roundtable presentation presented at the annual research meeting of the American Educational Research Association: Toronto, Canada.

Bouhafa, Y., & **Simpson, A.** (2019). *Youths' and Adults' Identity in STEM and the Learning Environment: A Systematic Review*. Paper presented at the annual research meeting of the American Educational Research Association: Toronto, Canada.

Anderson, A., **Simpson, A.**, & Maltese, A. (2019). *Are students emotional when they fail during making? Evidence from various settings*. Structured poster presentation presented at the annual research meeting of the American Educational Research Association: Toronto, Canada.

Maltese, A., Ryoo, J., **Simpson, A.**, Qian, M., Paul, K., Anderson, A., & Brahm, L. (2019). *MakEval: Mixed-methods approaches to evaluating making in schools*.

Symposium presentation presented at the annual research meeting of the American Educational Research Association: Toronto, Canada.

Maltese, A., **Simpson, A.**, & Anderson, A. (2019). *Learning while failing during maker activities*. Structured poster presentation presented at the annual research meeting of the American Educational Research Association: Toronto, Canada.

Simpson, A., Burris, A., & Maltese, A. (2018). *Youth's engagement as mathematicians in an afterschool making program*. Poster presentation presented at the 40th annual meeting of PME-NA: Greenville, SC.

Li, Y., Gumbiner, L. M., Wilkins-Yel, K. G., Cheng, J., **Simpson, A.** (2018). *Examining factors in promoting STEM interest and persistence among women of color in STEM*. Poster Presentation at the annual research convention of the American Psychology Association, San Francisco, CA.

Maltese, A., **Simpson, A.**, Ryoo, J., Anderson, A., & Qian, M. (2018). *MakEval: Developing a set of tools to evaluate the benefits of making*. In structured poster presentation entitled "Measuring Making: Methods, Tools, and Strategies for Capturing Learning, Participation, and Engagement in Maker Activities" at the annual research meeting of the American Educational Research Association, New York City, NY.

Jacobson, E. D., Willey, C. J., & **Simpson, A.** (2018). *Noticing bias: Teachers' attribution of mathematical competence and instructional response relative to perceived student identity*. Paper to be presented at the annual research meeting of the American Educational Research Association, New York City, NY.

Wilkins-Yel, K., G., Sparks, P., & **Simpson, A.** (2018). *Resilient coping strategies among women in engineering*. Paper to be presented at the annual research meeting of the American Educational Research Association, New York City, NY.

Simpson, A., Anderson, A., & Maltese, A. (2018). *Caught on camera: Adolescent and educator's noticing of and response to failure within making contexts*. Paper to be presented at the annual research meeting of the American Educational Research Association, New York City, NY.

Maltese, A. V., & **Simpson, A.** (2018). *Ending the search for triggers of STEM interest*. Poster presented at the annual research meeting of the American Educational Research Association, New York City, NY.

Simpson, A., & Maltese A. V. (2018). *How to develop a low-cost MAKEngineering kit*. Presentation at the How-to Festival of the annual meeting of the Public Library Association, Philadelphia, PA.

Simpson, A. (2018). *Being “challenged” and masking my own uncertainty: My parallel journey with elementary prospective teachers*. Paper presented at the annual research meeting of the Association of Mathematics Teacher Educators, Houston, TX.

Simpson, A. (2017). *Voice mappings: A Kaleidoscopic view of identity*. Paper presented at the Thirteenth International Congress of Qualitative Inquiry, Champaign-Urbana, IL.

Simpson, A., & Sang, W. (2017). *Function of makerspaces: Learning and engaging with others through making*. Poster presentation at the annual research meeting American Educational Research Association, San Antonio, TX.

Simpson, A., & Maltese, A. V. (2017). *STEM identity: How professionals in STEM position their work*. Roundtable presentation at the annual research meeting American Educational Research Association, San Antonio, TX.

Maltese, A. V., Wohlwend, K., **Simpson, A.**, & Chamberlain, J. (2017). *Examining portrayals of STEM in early childhood television programming*. Paper presentation at the annual research meeting American Educational Research Association, San Antonio, TX.

Hall, A., & **Simpson, A.** (2017). *Crossing the boundaries between knowledge and practice through a university and out-of-school collaboration*. Poster presentation at the annual research meeting American Educational Research Association, San Antonio, TX.

Simpson, A., Ratliff, C., & Maltese, A. V. (2017). *Maker educators: Encouraging active, creative, and self-directed students through making in school settings*. Poster presentation at the annual research meeting of the National Association for Research in Science Teaching, San Antonio, TX.

Simpson, A., Maltese, A. V., & Burris, A. (2017). *Youth engagement as scientists and engineers within a making-related after-school program*. Paper at the annual research meeting of the National Association for Research in Science Teaching, San Antonio, TX.

Maltese, A. V., & **Simpson, A.** (2017). *The role of failure in the development of STEM professionals*. Poster presentation at the annual research meeting of the National Association for Research in Science Teaching, San Antonio, TX.

Bannister, N., Arbaugh, F., & **Simpson, A.** (2017). *The role of reification in analyzing teacher learning*. Paper to be presented at the annual research meeting of the National Council of Teachers of Mathematics, San Antonio, TX.

Bannister, N., Arbaugh, F., & **Simpson, A.** (2016). *Pressing methodological boundaries: Analyzing PCK using frame alignment processes*. Paper to be presented at the 38th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Tucson, AZ.

Simpson, A. (2016). *Are adolescents' views of mathematics changing?* Research presentation for the annual research meeting of the National Council of Teachers of Mathematics, San Francisco, CA.

Matthews, G., Bannister, N., & **Simpson, A.** (2016). *Cracking her codes: Investigating technology boundary objects using interaction analysis*. Discussion session for the annual research meeting of the National Council of Teachers of Mathematics, San Francisco, CA.

Lyons, R., Genareo, V. R., **Simpson, A.**, & Cook, M. (2016). *Engaging the public in scientific research: Public perceptions on motivations to contribute*. Roundtable Presentation for the annual meeting of the American Educational Research Association, Washington, DC.

Linder, S. M., & **Simpson, A.** (2016). *Examining the effects of mathematics professional development in child care settings*. Paper for the annual meeting of the American Educational Research Association, Washington, DC.

Simpson, A., & Che, S. (2015). *Use of I-poems to uncover adolescents' dynamic mathematics identity within single-sex and coeducational classes*. Research report for the annual meeting of the International Group for the Psychology of Mathematics Education, Hobart, Australia.

Che, S., & **Simpson, A.** (2015). *Discursive acts of power: A critical analysis of single-sex and coeducational mathematics classes*. Short oral for the annual meeting of the International Group for the Psychology of Mathematics Education, Hobart, Australia.

Tyminski, A. M., Dede, E., **Simpson, A.**, Land, T. J., & Drake, C. (2015). *Prospective elementary teachers' professional noticing of children's fraction strategies*. Brief Research Report for the 37th annual meeting of the Psychology of Mathematics Education - North American Chapter. East Lansing, MI.

Simpson, A., Che, S., & Bridges, W. (2015). *Students' perceptions of science in single-sex and coeducational science classes in the United States*. Paper accepted for the annual meeting of the National Association for Research in Science Teaching. Chicago, IL.

Simpson, A., & Haltiwanger, L. (2015). *Exploring secondary preservice mathematics teachers' noticing of students' mathematical thinking*. Paper

accepted for the annual meeting of the American Educational Research Association. Chicago, IL.

Simpson, A. & Linder, S. M. (2015). *The indirect effect of children's gender on early childhood educators' mathematical talk*. Paper accepted for the annual meeting of the American Educational Research Association. Chicago, IL.

Stecker, P. M., **Simpson, A.**, Lyons, R., Genareo, V., & Foegen, A. (2015). *Teacher use and satisfaction with online professional development for algebra progress monitoring*. Poster presented at the annual meeting of the Pacific Coast Research Conference. Coronado, CA.

Haltiwanger, H., & **Simpson, A.** (2015). *Developing secondary mathematics preservice teachers abilities to interpret and respond to students' mathematical thinking*. Paper presented at the annual meeting of the Association of Mathematics Teacher Educators. Orlando, FL.

Linder, S. M., & **Simpson, A.** (2015). *Connecting methods courses and practicum experiences in early childhood mathematics*. Paper presented at the annual meeting of the Association of Mathematics Teacher Educators. Orlando, FL.

Simpson, A., Kombe, D., Che, M., & Bridges, W. (2014). *Adolescent students' perceptions of mathematics and science as a gendered domain*. Poster presented at the annual meeting of the International Group for the Psychology of Mathematics Education, Vancouver, Canada.

Simpson, A., & Che, M. (2014). *A phenomenological study of middle grade female and male students' single-sex mathematical experiences*. Paper presented at the annual meeting of the American Educational Research Association. Philadelphia, PA.

Linder, S. M., & **Simpson, A.** (2014). *Is it enough? Examining opportunities for early childhood educators to engage in mathematics professional development*. Paper presented at the annual meeting of the American Educational Research Association. Philadelphia, PA.

Linder, S. M., Rembert, K., **Simpson, A.**, & Ramey, D. (2014). *Recipient perceptions of early childhood professional development*. Paper presented at the annual meeting of the American Educational Research Association. Philadelphia, PA.

Kombe, D., **Simpson, A.**, & Che, M. (2014). *Single-sex classes and middle grades students' mathematics self concept*. Poster presented at the annual meeting of the National Council of Teachers of Mathematics Research Conference. New Orleans, LA.

Haltiwanger, L., & **Simpson, A.** (2014). *Examining preservice teachers professional noticing*. Paper presented at the annual meeting of the Research Council on Mathematics Learning. San Antonio, TX.

Linder, S. M., Rembert, K., **Simpson, A.**, & Ramey, D. (2013). *Investigating facilitator perceptions of quality and impact of early childhood professional development*. Paper presented at the annual meeting of the National Association of Early Childhood Teacher Educators. Washington D.C.

Linder, S. M., & **Simpson, A.** (2013). *Student teaching experiences and early childhood mathematics pedagogical beliefs: Identifying barriers to success*. Paper presented at the annual meeting of Psychology of Mathematics Education - North American Chapter. Chicago, IL.

Simpson, A., & Linder, S. M. (2013). *Investigating providers and recipients perceptions of early childhood professional development in mathematics*. Poster presented at the annual meeting of Psychology of Mathematics Education - North American Chapter. Chicago, IL.

Linder, S. M., & **Simpson, A.** (2013). *Investigating the influence of early childhood student teaching experiences on mathematics pedagogical beliefs*. Paper presented at the annual meeting of the American Educational Research Association. San Francisco, CA.

Linder, S. M., Rembert, K., **Simpson, A.**, Ramey, D., Brown, B., D'Amico, L., & Miller, K. M. (2013). *Examining professional development for the early care workforce: A multiphase mixed methods exploration*. Poster presented at the annual meeting of the American Educational Research Association. San Francisco, CA.

Linder, S. M., & **Simpson, A.** (2013). *Mathematics pedagogical beliefs and early childhood student teaching*. Poster presented at the annual meeting of the National Council of Teachers of Mathematics. Denver, CO.

Linder, S. M., & **Simpson, A.** (2012). *Examining changes in preservice teacher beliefs relating to early childhood mathematics pedagogy as a result of student teaching*. Paper presented at the annual meeting of the National Association of Early Childhood Teacher Educators. Atlanta, GA.

State Conference Presentation:

Fridrich, M., & **Simpson, A.** (2023). "Where are the toys?" Integrating play-making space into formal school setting. Workshop to be presented at the annual New York Association for Education of Young Children. Verdon, NY.

Knox, P., Werfall, S., & **Simpson, A.** (2022). *Exploring child creative habits of mind in an out-of-school engineering program*. Presentation at the St. Lawrence Region of the American Society for Engineering Education. Syracuse, NY.

Colquhoun, A., & **Simpson, A.** (2021). *Unplugged activities: Building the seeds of algebraic thinking*. Presentation at the Association of Mathematics Teachers of New York State virtual conference.

Anderson, E., Lee, Y., & **Simpson, A.** (2019). *Preparing the next generation of school professionals through community-university partnerships*. Presentation at Central/Western Region Community-School Technical Assistant Center. Binghamton, NY.

Simpson, A., & Maltese, A. (2017). *Youth and educators' response to FAILURES within STEM activities*. Presentation at the third annual Indiana STEM Education Conference. West Lafayette, IN.

Maltese, A., & **Simpson, A.** (2016). *Promoting STEM-related practices with a focus on the engineering design process*. Presentations accepted at the Indiana STEM Education Conference. West Lafayette, IN.

Simpson, A., & Haltiwanger, L. (2014). *Developing an equitable lens for teaching mathematics*. Presentation at annual meeting of the South Carolina Council of Teachers of Mathematics. Myrtle Beach, SC.

Haltiwanger, L., & **Simpson, A.** (2014). *Making sense of students' work: Looking for understanding*. Presentation at annual meeting of the South Carolina Council of Teachers of Mathematics. Myrtle Beach, SC.

Local Conference Presentation:

Katirci, N., Shokeen, E., Simpson, A., & Williams-Pierce, C. (2022). *Attending to the missing role of gestures in representational fluency*. Lightning talk and poster presented at the 2022 Human-Computer Interaction Lab Symposium. University of Maryland, College Park.

Simpson, A. (2018). *Panel: Success and challenges in engagement/outreach*. Binghamton University Community-Engaged Research and Outreach Conference. Binghamton, NY.

PROFESSIONAL/SERVICE ACTIVITIES:

PROFESSIONAL/ACADEMIC ACTIVITIES:

Research participant and Field tester, Boston University National Science Foundation grant (DUE-1625784), The Elementary Pre-service Teachers Mathematics Project (EMP), Summer 2018 – Spring 2020

Service, Teaching, & Research (STaR) Fellow, Funded through the Association of Mathematics Teacher Educators, 2019

Binghamton University I-Corps: NSF Innovative Corps Program, September 2022-December 2022

TEACHING:

Courses Taught:

Undergraduate

Making and Tinkering for Youth Engagement and Professional Learning
Education Minor Internship
Social Context for Learning I
Social Context for Learning II

Graduate

Curriculum and Teaching in Mathematics
Mathematics Content for Secondary Teaching
Elementary School Mathematics: Content/Methods

Doctoral

Philosophical & Social Issues in Education

SERVICE:

PROFESSIONAL SERVICE & MEMBERSHIPS:

Editorial Board

Review Editor, *Frontiers in Education*

Guest Editor

Education Sciences, STEM education: Current trends, perspectives, and narratives
Frontiers in Education, Mathematical thinking, practices, and processes in
mathematics learning environments

Grant Review

National Science Foundation, March 2021

Conference Reviews & Committees

- Proposal review, North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA) Research Conference, 2013-present
- Proposal review, Research Council on Mathematics Learning (RCML) Research Conference, 2013-present
- Proposal review, Association of Mathematics Teacher Educators (AMTE) Conference, 2013-Present
- Proposal review, American Education Research Association (AERA) Conference, 2017-Present
- Program committee, Psychology of Mathematics Education-North American Chapter 2017 annual conference, Indianapolis, IN
- Strand leader, Inservice Teacher Education & Professional Development, Psychology of Mathematics Education-North American Chapter 2017 annual conference, Indianapolis, IN
- Strand leader, Curriculum and Related Factors, Psychology of Mathematics Education-North American Chapter 2018 annual conference, Greenville, SC
- Proposal review, FabLearn Conference, 2019
- Proposal review, American Society for Engineering Education (ASEE) Conference, 2021
- Proposal review, International Society of the Learning Sciences (ISLS) Conference, 2021-present

Manuscript Reviews

- Manuscript review, *Teaching Children Mathematics*, 2017-2019
- Manuscript review, *Journal of Mathematics Teacher Education*, 2018
- Manuscript review, *Field Methods*, 2018
- Manuscript review, *Research in Science Education*, 2019
- Manuscript review, *Mathematical Thinking and Learning*, 2019
- Manuscript review, *Learning, Culture and Social Interactions*, 2019
- Manuscript review, *PLOS ONE*, 2020
- Manuscript review, *Mathematical Thinking and Learning*, 2020
- Manuscript review, *International Journal of STEM Education*, 2020
- Manuscript review, *Journal of Mathematics Teacher Education*, 2020
- Manuscript review, *Mathematics Teacher: Learning and Teaching Pre-K-12*, 2020
- Manuscript review, *International Journal of STEM Education*, 2020
- Manuscript review, *Research in Science Education*, 2020
- Manuscript review, *Science Education*, 2020
- Manuscript review, *Journal of Pre-College Engineering Education Research (J-PEER)*, 2020
- Manuscript review, *Journal of Mathematics Teacher Education*, 2020
- Manuscript review, *Mathematics Teacher: Learning and Teaching Pre-K-12*, 2020
- Manuscript review, *Journal of STEM Education Research*, 2020
- Manuscript review, *Mathematical Thinking and Learning*, 2020
- Manuscript review, *International Journal of STEM Education*, 2021
- Manuscript review, *Mathematics Teacher: Learning and Teaching Pre-K-12*, 2021

Manuscript review, *Cognition and Instruction*, 2021
Manuscript review, *Visitor Studies*, 2021
Manuscript review, *Journal for STEM Education Research*, 2021
Manuscript review, *International Journal of STEM Education*, 2021
Manuscript review, *International Journal of Science and Mathematics Education*, 2021
Manuscript review, *Mathematics Teacher: Learning and Teaching Pre-K-12*, 2022
Manuscript review, *Research in Science Education*, 2022
Manuscript review, *Science Education*, 2022
Manuscript review, *Journal for STEM Education Research*, 2022
Manuscript review, *The High School Journal*, 2022
Manuscript review, *Frontiers in Psychology*, 2022
Manuscript review, *International Journal of Science and Mathematics Education*, 2022
Manuscript review, *Journal of Women and Minorities in Science and Engineering*, 2022
Manuscript review, *International Journal of Qualitative Methods*, 2022
Manuscript review, *TESOL Quarterly*, 2022
Manuscript review, *Journal for STEM Education Research*, 2022
Manuscript review, *Canadian Journal of Education*, 2022
Manuscript review, *Journal for STEM Education Research*, 2022
Manuscript review, *Frontiers in Psychology*, 2023
Manuscript review, *Research in Science Education*, 2023
Manuscript review, *Educational Technology Research and Development*, 2023
Manuscript review, *Early Childhood Education Journal*, 2023
Manuscript review, *Frontiers in Education*, 2023
Manuscript review, *Frontiers in Education*, 2023
Manuscript review, *Education Sciences*, 2023
Manuscript review, *Frontiers in Psychology*, 2023
Manuscript review, *Early Childhood Education Journal*, 2023

COMMUNITY SERVICE:

Professional Development:

Binghamton University Campus Preschool, *Making and tinkering: Building upon what you already do*, 2018
Broome County Teacher Center, *Addition & subtraction story problems*, 2018
Broome County Teacher Center, *Conceptual understanding of fractions*, 2018
Binghamton University – Master Teacher Program, *Interpretation and equivalence of fractions*, 2018
Binghamton University – Master Teacher Program, *Fraction addition and subtraction*, 2019
Binghamton University – Master Teacher Program, *Fraction multiplication*, 2019
Binghamton University – Master Teacher Program, *Fraction division*, 2019
Union-Endicott Teacher Center, *Making & tinkering 101*, 2019

- Binghamton University – Master Teacher Program, *Thinking differently of mathematics through making and tinkering*, 2019
- Union-Endicott Teacher Center, *How do we interact with kids?: Responding to failure*, 2019
- Binghamton University – Master Teacher Program, *Developing and implementing rich mathematical tasks*, 2019
- Binghamton University – Master Teacher Program, *Whole number operations: Addition*, 2019
- Binghamton University – Master Teacher Program, *Whole number operations: Subtraction*, 2019
- Binghamton University – Master Teacher Program, *Whole number operations: Multiplication*, 2019
- Binghamton University – Master Teacher Program, *Whole number operations: Division*, 2019
- Binghamton University – Master Teacher Program, *Two-dimensional shapes: Attributes*, 2020
- Binghamton University – Master Teacher Program, *Two-dimensional shapes: Angles, area, and perimeter*, 2020
- Binghamton University – Master Teacher Program, *Three-dimensional shapes*, 2020
- Binghamton University – Master Teacher Program, *Measurement*, 2020
- Binghamton University – Master Teacher Program, *Mathematical technologies to promote conceptual understanding*, 2020
- Binghamton University – Master Teacher Program, *Caregivers as mathematical partners*, 2020
- Binghamton University – Master Teacher Program, *Social justice mathematics lessons*, 2020
- Binghamton University – Master Teacher Program, *Interpretation and equivalence of fractions*, 2021
- Binghamton University – Master Teacher Program, *Fraction addition and subtraction*, 2021
- Binghamton University – Master Teacher Program, *Fraction multiplication*, 2021
- Binghamton University – Master Teacher Program, *Fraction division*, 2021
- Binghamton University – Master Teacher Program, *Engaging in research practices*, 2021

Science, Technology, Engineering, and Mathematics (STEM) Events:

- Fenton Free Library, *Family STEAM Nights*, January 2018 – July 2018
- Vestal Hills Elementary School, *Making and tinkering internship*, February 2018 – May 2018
- Boland Park in Binghamton, *Math & movement*, September 2018
- Vestal Hills Elementary School, *Family STEAM night*, October 2018
- Seton Catholic School, *Seton Catholic STEAM night*, February 2019
- Vestal Hills Elementary School, *Family reading – STEAM night*, February 2019
- Lee Barta Community Center, *Spring break STEM*, April 2019

Vestal Hills Elementary School, *Family STEAM night*, April 2019
Sci Girls Conference, *Make & take session*, April 2019
W.A. Olmstead Elementary School, *Spring fling*, May 2019
Vestal Hills Elementary School, *Maker Mondays*, February – May 2019
Your Home Library, *Fall into STEAM*, September 2019
Your Home Library, *Family engineering design challenge*, November 2019
Your Home Library, *Winter STEAM Projects*, December 2019
Lee Bartle Community Center, *Resourceful STEAM program*, October –
December 2019
Elderwood Assisted Living Community, *Play with Robots*, January 2020
Binghamton University Virtual Girl Scouts Event, *Build a Crane*, September
2020
Caryl E. Adams Primary School, *Engineering Challenge*, September 2022
Oxford Academy School District, *Engineering Afterschool Program*, January
2022-June 2022

Invited Talks

CoCo Seminar Series, Binghamton University, *Making and tinkering: Connecting the dots in K-12 STEM Education*, 2018
Binghamton University Community-Engaged Research and Outreach Conference, *Panel: Success and challenges in engagement/outreach*, 2018
BearChat: Education Minor at Binghamton University, *Making and tinkering: Way to revolutionize education?*, 2019
University of Arkansas, *Rethinking education through making and tinkering: The possibilities and the tensions*, 2020
Center for Learning & Teaching, Binghamton University, *Perspectives on mentoring and working with graduate students: A panel of faculty and students*, 2020
Association for Women in Mathematics, Kutztown University; *Being and becoming a mathematician: Early learning experiences*, 2021
International Online conference on Mathematics Education, Yildiz Technical University, *Panel: STEM educational approach*, 2021
Let us Dream conference, Binghamton University; *Small things: Let us dream! Ensuring access and equity for all*, 2021.
Center for Learning & Teaching, Binghamton University, *Structuring group work in a synchronous and in-person environment*, 2022.
Montclair State University, Mathematics Education Doctoral Seminar, *Math in the making*, 2022