GINA NAVOA SVAROVSKY

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University of Notre Dame
Center for STEM Education
Institute for Educational Initiatives

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EDUCATION AND PROFESSIONAL PREPARATION

University of Wisconsin - Madison

Ph.D. in Educational Psychology, Learning Sciences Area — 2009

M.S. in Educational Psychology, Learning Sciences Area — 2003

University of Notre Dame

M.Ed, concurrent with teaching experience — 2001

B.S. in Chemical Engineering — 1999

PROFESSIONAL APPOINTMENTS AND EXPERIENCE

Faculty Director, *University of Notre Dame* — 2022 – Present
Center for Broader Impacts

Associate Professor of the Practice, *University of Notre Dame* — 2019 – Present
Center for STEM Education

IEI Fellow, *University of Notre Dame* — 2006 – Present
Institute for Educational Initiatives

Senior Advisor to the Director, *University of Notre Dame* — 2022 – 2023
Institute for Educational Initiatives

Director of Program Evaluation and Research, *University of Notre Dame* — 2016 – 2022
Institute for Educational Initiatives

Assistant Professor of the Practice, *University of Notre Dame* — 2014-2019
Center for STEM Education and College of Engineering

Senior Evaluation and Research Associate, *Science Museum of Minnesota* — 2010-2014
Department of Evaluation and Research in Learning

Assistant Researcher, *University of Wisconsin* — 2010-2012
Wisconsin Center for Educational Research, Epistemic Games Research Group

Faculty of Supervision and Instruction, *University of Notre Dame* — 2006-2009
ACE Teaching Fellows, M.Ed. Program

Researcher and Project Manager, *University of Wisconsin* — 2002-2009
Wisconsin Center for Educational Research, Epistemic Games Research Group
Digital Zoo Project

Research Fellow, *Academic Advanced Distributed Learning Co-laboratory* 2004-2006
Games and Professional Practice Simulations (GAPPS) Collaborative

Project Assistant, *University of Wisconsin* 2001-2005
Wisconsin Center for Educational Research,
Center for the Integration of Research, Teaching, and Learning (CIRTL)

Physics Teacher, *St. Petersburg Catholic High School* 1999-2001

FUNDED PROJECTS

November 2023 – June 2026. Wellbeing Informed by Science and Evidence in Indiana (WISE Indiana) Task Order 044; $678,654. *Division of Mental Health and Addiction, Behavioral Health Workforce Recruitment & Retention Innovation: Community of Practice.* Principal Investigator.

May 2023 – April 2026. National Science Foundation Award Number 2302070, $599,239. *RET Site: Biologically Inspired Computing Models, Systems, and Applications*. Co-Principal investigator, with Dr. Michael Niemier as PI.

January 2022 – June 2024. University of Notre Dame, *Moment to See, Courage to Act Planning Grant*, $50,000. *Center for Broader Impacts.* Faculty Lead.

July 2021 – June 2024. National Science Foundation Award Number 2108330, $377,179. *Collaborative Research: Characterization and Optimization of N-Heterocyclic Carbene Functionalized Nanoparticle Systems.* Co-principal investigator, with Dr. Jon Camden (University of Notre Dame) as PI.

January 2021 – August 2022. University of Notre Dame, Resilience and Recovery Grant Program $10,000. *Supplemental Funding for Early Childhood Engineering Education Research.* Principal investigator.

October 2019 – September 2024. National Science Foundation Award Number 1930848, $478,805. *Design and Development: Research Exploring Activity Characteristics and Heuristics for Early Childhood Engineering (REACH-ECE).* Principal investigator, with Dr. Scott Pattison (TERC), Amy Corbett (Metropolitan Family Service), and Maria Eugenia Perdomo (Metropolitan Family Service) as Co-PIs.

September 2019 – August 2025. National Science Foundation Award Number 1906409, $1,704,073. *Head Start on Engineering: Developing a Learning Community to Study and Support Family-level Interest in Engineering.* Co-principal investigator with Dr. Scott Pattison (TERC) as PI.

February 2019 – January 2021. National Science Foundation Award Number 1902536, $75,000. *Storybook STEM: Professional Convening for Cross-Sector Understanding of Children's Literature as a Tool for Supporting Informal STEM Learning.* Co-principal investigator with Dr. Scott Pattison (TERC) as PI.

August 2017 – September 2018. University of Notre Dame, Institute for Educational Initiatives Seed Grant for IEI Fellows, $5,000. *Head Start on Engineering 2.0.* Principal investigator.

June 2017 – May 2020. National Science Foundation Award Number 1709566, $473,565. *Analytical applications of surface-enhanced hyper-raman scattering*. Co-principal investigator with Dr. Jon Camden (University of Notre Dame) as PI.

September 2015 – August 2018. National Science Foundation Award Number DRL-1515628, $299,070. *Head Start on Engineering.* Co-principal investigator with Dr. Scott Pattison (Institute for Learning Innovation) as PI.

October 2013 – September 2018. National Science Foundation Award Number DRL-1323584, $899,738. *Making Connections: Exploring culturally relevant maker experiences through an iterative, cross-institutional approach.* Co-principal investigator with Dr. Marjorie Bequette (Science Museum of Minnesota) as PI.

October 2011 – December 2015. National Science Foundation Award Number HRD-1136253, $524,718. *Gender Research on Adult-child Discussions in Informal Engineering Environments (GRADIENT).* Principal Investigator, with Dr. Monica Cardella (Purdue University) as co-PI.

PEER-REVIEWED JOURNAL ARTICLES

Key to authors: ***(*)*** *undergraduates;* ***(+)*** *community partners*

Gura, A. Z., **Svarovsky, G.N.,** Wagner, C., Boyd, H., & Brookshire, J. (In press). *Overcoming obstacles to broader impacts implementation.* Submitted to the Journal of Community Engagement and Scholarship.

Pynes, D. A., Kloser, M., Wagner, C., Szopiak, M., Wilsey, M., **Svarovsky, G. N.,** & Trinter, C. (In press). Bridging theory and practice: A framework for STEM teacher leadership. *School Science and Mathematics.*

Pattison, S., **Svarovsky, G.N.,** Ramos-Montañez, S., Burgos, V.L., Santiago, A. **(+),** De Los Santos, S. (2023). Family-Centered Research: Reflections from a Zoom-based Recording Method of Families Learning Together at Home. *Educational Researcher, 52(9).* https://doi-org/10.3102/0013189X2312045

Kowalski, M. J., Dallavis, J. W., Ponisciak, S. M., & **Svarovsky, G.** (2023). Measuring Students' Sense of School Catholic Identity. *Journal of Catholic Education*, *26*(1), 83-101.

Manuel, M., Gottlieb, J., **Svarovsky, G.,** & Hite, R. (2023). The Intersection of Culturally Responsive Pedagogy and Engineering Design in Secondary STEM. *Journal of Pre-College Engineering Education Research (J-PEER), 12*(2), Article 11. https://doi.org/10.7771/2157-9288.1380

Pattison, S., Ramos-Montañez, S., & **Svarovsky, G.** (2022). Family values, parent roles, and life challenges: Parent reflections on the factors shaping long-term interest development for young children and their families participating in an early childhood engineering program. *Science Education*, *106*(6), 1568-1604.

Pattison, S., **Svarovsky, G.,** Ramos-Montanez, S., Gontan, I., Weiss, S., Benne, M. **(+)**, Nuñez, V. **(+)**, Corrie, P. **(+)**, & Smith, C. **(+)** (2020). Understanding Early Childhood Engineering Interest Development as a Family-Level Systems Phenomenon: Findings from the Head Start in Engineering Project. *Journal of Pre-college Engineering Education Research, 10*(1), 6.

Kowalski, M. J., Macaluso, K., & **Svarovsky, G**. (2020). The Alliance for Catholic Education: how this programme supports Catholic schools in the USA (2007–2020+). *International Studies in Catholic Education, 12*(1), 74-86.

Svarovsky, G. N., Wagner, C., & Cardella, M. E. (2018). Exploring moments of agency for girls during an Engineering Activity. *International Journal of Education in Mathematics, Science and Technology*, *6*(3), 302-319.

Pattison, S., **Svarovsky, G.,** Gontan, I., Corrie, P. **(+)**, Benne, M. **(+)**, Weiss, S., Nuñez, V. **(+)**, & Ramos-Montanez, S. (2017). Head Start on Engineering: Teachers, informal STEM educators, and learning researchers collaborating to engage low income families with engineering. *Connected Science Learning*, *4*(1).

Svarovsky, G. N. (2011). Exploring complex engineering learning over time with Epistemic Network Analysis. *Journal of Pre-college Engineering Education Research*, 1(2), 19-30.

Shaffer, D.W., Hatfield, D., **Svarovsky, G.N.,** Nash, P., Nulty, A., Bagley, E., Franke, K., Rupp, A.A., Mislevy, R. (2009). Epistemic Network Analysis: A prototype for 21st Century assessment of learning. *The International Journal of Learning and Media, 1*(2).

Svarovsky, G. N., & Shaffer, D. W. (2007). SodaConstructing knowledge through exploratoids. *Journal of Research in Science Teaching*, *44*(1), 133-153.

MANUSCRIPTS UNDER REVIEW

*Key to authors: **(*)** undergraduates; **(+)** community partners*

Pattison, S., Ramos-Montañez, S., López Burgos, V., Tominey, S., Quijano, M.**(+)**, **Svarovsky, G**.. (Under review). *Whole Child, Whole Family, Whole Community: Developing Shared Problems of Practice with Latine Families Related to STEM Learning in Early Childhood.* Submitted to the American Educational Research Journal.

Pattison, S., Ramos-Montañez, S., Burgos, V.L., **Svarovsky, G.N.,** Douglass, A.**(+)**, Allen, J. **(+)**, Wagner, C., Santiago, A. **(+)**, & Reyes, N. (Under review). *"Agentic Interest Development: How Spanish- and English-Speaking Families from Low-Income Communities Leverage STEM Programs to Support Their Goals and Interests.* Submitted to the Journal of Research on Science Teaching.

Pattison, S., **Svarovsky, G.N.,** Ramos-Montañez, S., Burgos, V.L., Santiago, A. De Los Santos, S. (Under review). *"Activity Design Principles to Support Engineering Engagement for Families with Preschool-Age Children from Low-Income English- and Spanish-Speaking Communities.* Submitted to the Journal of Pre-college Engineering Education Research.

INVITED PAPERS AND PRESENTATIONS

Svarovsky, G.N., Pattison, S.A., Allen, J. **(+)**, Lockwood, S. **(+)**, O'Malley, S. **(+)**, & Quijano, M. **(+)** (2024, June). *Conducting NSF-Funded Research Together on Early Engineering Experiences: Perspectives from Community Partners.* Invited presentation sponsored by the ASEE Commission on P-12 Engineering Education, the ASEE Community Engagement Division, and the ASEE Equity, Culture, & Social Justice in Education Division. 2024 American Society for Engineering Education (ASEE) Annual Conference & Exposition, Portland, OR.

Svarovsky, G.N., Goodrich, V.E., & Wagner, C.W. (2024, June). *Developing meaningful and effective proposal plans for broader impacts for P-12 audiences.* Invited presentation sponsored by the ASEE Commission on P-12 Engineering Education, the ASEE Community Engagement Division, and the ASEE Faculty Development Division. 2024 American Society for Engineering Education (ASEE) Annual Conference & Exposition, Portland, OR.

Svarovsky, G.N., Clark, P.L., & Hollocher, H. (2024, May). *Introduction to the University of Notre Dame Center for Broader Impacts: Mission, Vision, and Structure*. Invited presentation (virtual) to The Research University Civic Engagement Network (TRUCEN).

Svarovsky, G. N. (2024, February). *Equity-focused STEM Teacher PD for middle school teachers and early childhood educators.* Invited presentation to the National Academies of Sciences, Engineering, and Medicine PreK-12 STEM Education Innovations Committee. Meeting 3 (virtual). https://www.nationalacademies.org/event/41205_02-2024_prek-12-stem-education-innovations-committee-meeting-3

Cardella, M., **Svarovsky, G. N.,** & Pattison, S. (2020). *Engineering Education in Pre-Kindergarten Through Fifth Grade: An Overview.* Commissioned paper by the Committee on Enhancing Science and Engineering in Prekindergarten through Fifth Grade at The National Academies of Sciences, Engineering, and Medicine.

PEER-REVIEWED CONFERENCE PROCEEDINGS

Svarovsky, G. N., Wagner, C., Lettau, M. **(*)**, Marfo, K. **(*)**, Pattison, S., Ramos-Montañez, S., López Burgos, V., Corbett, A. R. **(+)**, Quijano, M. D. **(+)**, & Contreras, D. **(+)** (2024). *Supporting Early Childhood Educators in Implementing and Adapting Research-based Engineering Activities Designed for Families.* Paper presented at 2024 ASEE Annual Conference & Exposition, Portland, OR., June 2024. **Best Paper in Division – Honorable Mention.**

Wagner, C., **Svarovsky, G.N.,** Lettau, M. **(*)**, Marfo, K. **(*)**, Ortiz, A.L. **(*)**, Ryan, D., Pattison, S.A., Ramos-Montañez, S., Burgos, V.L.; De Los Santos, S., Quijano, M. **(+)**, & Corbett, A. **(+)** (2023). *Exploring the Nature of Engineering During Home-based Engineering Activities Designed for Spanish- and English-speaking Families with Young Children.* Paper presented at the American Society for Engineering Education Annual Conference and Exposition, Baltimore, MD., June 2023. **Best Paper in Division – Honorable Mention.**

Pattison, S.A., Ramos-Montañez, S., Burgos, V.L.; **Svarovsky, G.N.,** Wagner, C., Douglass, A. **(+)**, & Allen, J. **(+)** (2023). *Family Voices: Learning from Families with Preschool-Age Children from Historically Marginalized Communities to Expand our Vision of Engineering.* Paper presented at the American Society for Engineering Education Annual Conference and Exposition, Baltimore, MD., June 2023.

Pattison, S., **Svarovsky, G.N.,** Corbett, A. **(+)**, Perdomo, M.E. **(+)**, Ramos-Montañez, S., Wagner, C., Burgos, V.L., De Los Santos, S. (2022). *Playful Materials Catalyze Imaginative Play and Shift the Nature of Engineering Design for Preschool-age Children and Their Families*. Poster presented at Society for Research in Child Development: Learning through Play and Imagination, St. Louis, MO., April 2022.

Pattison, S., **Svarovsky, G.N.,** Ramos-Montañez, S., Wagner, C., Corbett, A. **(+)**, Perdomo, M.E. **(+)**, Burgos, V.L., De Los Santos, S. (2022). *Activity Design Principles that Support Family-Based Engineering Learning in Early Childhood.* Paper presented at the National Association for Research in Science Teaching Annual Conference, Vancouver, B.C., March 2022.

Pattison, S., Ramos-Montañez, S., Santiago, A. **(+)**, **Svarovsky, G.N.,** Douglass, A. **(+)**, Nuñez, V. **(+)**, Allen, J. **(+)**, Wagner, C. (2022). *Interest Catalysts: The Unique Ways Families Connect with Program Experiences to Support Long-Term STEM Interest Pathways in Early Childhood.* Paper presented at the National Association for Research in Science Teaching Annual Conference, Vancouver, B.C., March 2022.

Cardella, M. E., **Svarovsky, G. N.,** Pattison, S. (2021). *Defining "Engineering" for Informal Learning Environments: An Empirically-Grounded Framework and Equity Implications*. Paper presented at the (virtual) American Educational Research Association Annual Meeting, April 2021.

Pattison, S., Ramos- Montañez, S., & **Svarovsky, G.** (2020). *Early Childhood Engineering: Supporting Engineering Design Practices with Young Children and Their Families.* Paper presented at the National Association for Research in Science Teaching Annual Conference, Portland, OR, March 2020.

Pattison, S., **Svarovsky, G.,** & Ramos- Montañez, S. (2020). *Storybooks and STEM: Using Books as a Tool to Support Early Childhood Family STEM Learning.* Paper presented at the National Association for Research in Science Teaching Annual Conference, Portland, OR, March 2020.

Pattison, S., Weiss, S., Ramos- Montañez, S., Gontan, I., **Svarovsky, G.,** Greenough Corrie, P. **(+)**, Bennie, M. **(+)**, Núñez, V. **(+)**, & Smith, C. **(+)** (2018). *Engineering in early childhood: Describing family-level interest development systems.* Paper presented at the National Association for Research in Science Teaching Annual Conference, Atlanta, GA, April 2018.

Svarovsky, G., Pattison, S., Verbeke, M., Benne, M. **(+)**, and Greenough Corrie, P. **(+)** (2017). *Head Start on Engineering: Early findings (work in progress).* Proceedings of the 124th American Society of Engineering Education Annual Conference & Exposition, Columbus, OH, June 2017.

Svarovsky, G., Bequette, M., and Causey, L. (2017). *Making Connections: Challenging the perceived homogeneity of making.* Proceedings of the 124th American Society of Engineering Education Annual Conference & Exposition, Columbus, OH, June 2017.

Svarovsky, G., Cardella, M., Dorie, B., and King, Z. (2017). *Productive forms of facilitation for young girls during engineering activities within informal learning settings.* Paper presented at the American Educational Research Association Annual Meeting, April 2017, San Antonio, TX.

Pattison, S., **Svarovsky, G.,** Greenough Corrie, P. **(+)**, Benne, M. **(+)**, Nunez, V. **(+)**, Dierking, L., and Verbeke, M. (2016). *Conceptualizing early childhood STEM interest development as a distributed system: A preliminary framework.* Paper presented at the National Association for Research in Science Teaching Annual Conference, Baltimore, MD, April 2016.

Svarovsky, G. N., Bequette, M. B., and Causey, L. (2016). *Making Connections: Exploring culturally embedded making practices and perceptions (work in progress).* Proceedings of the 123rd American Society of Engineering Education Annual Conference & Exposition, New Orleans, LA, June 2016.

Dorie, B.L., Cardella, M.E., and **Svarovsky, G.** (2015). *Engineering Together: Context in Dyadic Talk During an Engineering Task.* Proceedings of the 122nd American Society of Engineering Education Annual Conference & Exposition, Seattle, WA, June 2015.

Dorie, B.L., Cardella, M.E., and **Svarovsky, G.** (2014). *Capturing the design behaviors of a young children working with a parent.* Proceedings of the 121st American Society of Engineering Education Annual Conference & Exposition, Indianapolis, IN June 2014.

Cardella, M., **Svarovsky, G.N.,** Dorie, B. (2013). *Gender research on adult-child interactions in informal engineering environments (GRADIENT): Early findings.* Proceedings of the 120th ASEE Annual Conference & Exposition, June 2013, Atlanta, GA.

Svarovsky, G. N., and Cardella, M.E. (2013). *Gender Research on Adult-child Discussions in Informal Engineering Environments (GRADIENT): Early Findings from the Preschool Playdates Context.* Paper presented at the American Educational Research Association Annual Meeting, April 2013, San Francisco, CA.

Svarovsky, G. N. (2010). Exploring and Assessing Engineering Epistemic Frames in Authentic Engineering Learning Environments for Girls. Paper presented at the *International Conference of Learning Sciences Engineering Workshop*, June 2010, Chicago, IL.

Svarovsky, G. N., & Shaffer, D. W. (2006). The hidden workhorses: Design meetings and design notebooks as tools for reflection in the engineering design course. *Proceedings of the 36th ASEE/IEEE Frontiers in Education Conference*, October 2006, San Diego, CA.

Svarovsky, G. N., & Shaffer, D. W. (2006). SodaConstructing an understanding of physics: Technology-based engineering activities for middle school students. *Proceedings of the 36th ASEE/IEEE Frontiers in Education Conference*, October 2006, San Diego, CA.

Svarovsky, G. N., & Shaffer, D. W. (2006). Berta's Tower: Developing conceptual physics understanding one exploratoid at a time. *Proceedings of the International Conference of the Learning Sciences,* June 2006, Bloomington, IN.

Svarovsky, G. N., & Shaffer, D. W. (2006). Engineering girls gone wild: Developing an engineering identity in Digital Zoo. *Proceedings of the International Conference of the Learning Sciences,* June 2006, Bloomington, IN.

Schoepke, J., & **Svarovsky, G. N.** (2005). *A Question of Fit Between Today's Graduate Student and Tomorrow's Tech-Savvy Professor: The Lessons Learned from the Teaching with Technology Course.* Paper presented at the 11th International Conference on Human-Computer Interaction, Las Vegas, NV.

Svarovsky, G. N., and Shaffer, D.W. (2004). *Berta's Tower: Understanding physics through virtual engineering.* Proceedings of the International Conference of the Learning Sciences, June 2004, Santa Monica, CA.

Svarovsky, G. N., and Shaffer, D.W. (2003). *Berta's Tower: An expert-novice study investigating ideas in the domain of physics and the practice of engineering.* Paper presented at the American Educational Research Association Annual Meeting, April 2003, Chicago, IL.

BOOK CHAPTERS

Svarovsky, G. N. (2019). Early STEM experiences in museums. In L. Cohen and S. Waite-Stupaiansky (Eds.*), STEM for early childhood learners: How Science, Technology, Engineering, and Mathematics strengthen learning.* New York, NY: Routledge.

Svarovsky, G. N. (2014). Engineering learning in museums and other designed settings: Towards a theoretical framework. In Strobel, J., Purzer, S. & Cardella, M. (Eds.) *Engineering in Pre-College Settings: Research into Practice*. Purdue University Press, West Lafayette, Indiana.

MAJOR EVALUATION REPORTS AND BROAD DISSEMINATION EFFORTS

Pattison, S., Ramos Montañez, S., Svarovsky, G., & Tominey, S. (2022). *Engineering for equity: Exploring the intersection of engineering education, family learning, early childhood, and equity*. https://blog.terc.edu/engineering-for-equity

Pattison, S., Ramos- Montañez, S., & Svarovsky, G. N. (2021, December). *Engineering for Equity: Re-envisioning Engineering Education.* TERC. https://blog.terc.edu/engineering-for-equity-7 and https://blog.terc.edu/engineering-for-equity-8.

Pattison, S., Svarovsky, G. N., & Ramos- Montañez, S (2021, April). *Storybook STEM: Children's literature as a tool for supporting equitable STEM learning for families.* Hands On: A Magazine for Mathematics and Science Educators; Spring 2021. TERC. Cambridge, MA.

Pattison, S., & Svarovsky, G.N. (2021, January 15). *Sharpening Our Focus on Equity: Reflections from the Storybook STEM Project.* Center for the Advancement of Informal Science Education (CAISE). https://www.informalscience.org/news-views/sharpening-our-focus-equity-reflections-storybook-stem-project

Pattison, S., Callanan, M., Katz, P., Huerta Migus, L., Ramos-Montañez, S., Svarovsky, G. N., Takeuchi, L. (2020, April 22). *Four Principles for Supporting Family Learning During the Global Health Crisis: Research-Based Reflections for Teachers and Educators*. Center for the Advancement of Informal Science Education (CAISE). https://www.informalscience.org/news-views/four-principles-supporting-family-learning-during-global-health-crisis-research-based-reflections

Svarovsky, G.N., Goss, J., Kollman, E.K. (2015). *Public Reach Estimations for the NISE Network.* University of Notre Dame, Notre Dame, IN. Available at http://informalscience.org/public-reach-estimations-nise-network.

Svarovsky, G. N., Tranby, Z., Cardiel, C., Auster, R., and Bequette, M. (2015). *Summative study of NanoDays 2014 Events*. Science Museum of Minnesota, St. Paul, MN. Available at http://informalscience.org/summative-study-nanodays-2014-events.

Svarovsky, G. N., Goss, J., Ostgaard, G., Reyes, N., Cahill, C., Auster, R., and Bequette, M. (2013). *Summative study of the Nano mini-exhibition*. Science Museum of Minnesota, St. Paul, MN. Available at http://informalscience.org/summative-study-nano-mini-exhibition.

Alexander, J.M., Svarovsky, G.N., Goss, J., Rosino, L., Mesiti, L.A., LeComte-Hinely, J., & Reich, C. (2012). *A study of communication in the Nanoscale Informal Science Education Network (Year 6).* Museum of Science, Boston. Available at http://informalscience.org/study-communication-nanoscale-informal-science-education-network-year-6.

Bequette, M.B., Svarovsky, G.N., Ellenbogen, K.M. (2011). *Year 5 summative evaluation of exhibits and programs within the Nanoscale Informal Science Education Network.* Science Museum of Minnesota, St. Paul, MN. Available at http://informalscience.org/year-5-summative-evaluation-exhibits-and-programs.

SELECTED PRESENTATIONS

Through the Looking Glass: How the engineering assets of young children and their families can reframe and reshape our conceptions of engineering. With Scott A. Pattison, Monica Cardella, Ximena Dominguez, Merredith Portsmore, & Smirla Ramos-Montañez. Panel presented at the American Society for Engineering Education Annual Conference and Exposition, June 2023, Baltimore, MD.

Framing STEM as a Force for Good. (2020). With Christine Trinter and Matthew Kloser. Opening plenary session, Excellence in Teaching Conference, February, 2020, Notre Dame, IN.

The Process Behind the Graphs: Key Considerations When Developing Data Dashboards. (2019). Workshop presented at the National Catholic Education Association Annual Convention, April 2019, Chicago, IL.

Developing Data Dashboards for Different Programs Across a Service Organization. (2018). With Ryan Woodbury. Presented at Evaluation 2018 (Annual meeting of the American Evaluation Association), Cleveland, OH.

Cultivating Evaluative Thinking in a Service Organization. (2018). With Monica Kowalski. Presented at Evaluation 2018 (Annual meeting of the American Evaluation Association), Cleveland, OH.

Visualizing Data for Justice and Equity. (2018). With Ryan Woodbury. Presented at Evaluation 2018 (Annual meeting of the American Evaluation Association), Cleveland, OH.

Developing Data Dashboards. Invited panelist. Program Evaluation Series, University of Notre Dame, Laboratory for Economic Opportunity. October 2018.

Svarovsky, G.N. and Kirkland, P.K. (2018). *Designing and Implementing Teacher Professional Development that Connects Social Justice and STEM Integration.* Proceedings of the 1st Annual CoNECD conference, Washington, DC.

Ehsan, H., Cardella, M.E., and Svarovsky, G.N. (2018). *Engineering and Computational Thinking Among Families Engaging With an Exhibit at a Science Center.* Poster presented at the AERA 2018 Annual Meeting, New York, NY.

Realizing the Potential and Promise of STEM. Invited keynote presentation. STEMM Co-lab Workshop. Christian Brothers University & Christian Brothers High School, Memphis, TN. November 2015.

Making Connections: Fostering Change at the Science Museum of Minnesota. With Lauren Causey and Marjorie Bequette. Annual Conference of the Visitor Studies Association. Indianapolis, IN. July 2015.

Exploring the Role of Museums in Broadening Participation in Engineering. Invited keynote presentation. Purdue University Department of Engineering Education Graduate Seminar. April 2014.

Collaborative Family Learning at Engineering Studio: Design, Facilitation, and Evidence. With Keith Braflaadt and Bette Schmitt. Association of Science and Technology Centers Annual Conference, Albuquerque, NM. October 2013.

Encouraging Visitor STEM Decision Making Using Public Engagement with Science. With Larry Bell, Elizabeth Kunz Kollmann, Patrice Legro, and Kirsten Ellenbogen. Association of Science and Technology Centers Annual Conference, Albuquerque, NM. October 2013.

Engineering Conversations Between Preschool Girls and Their Parents. With Monica Cardella. Visitor Studies Association Conference, Milwaukee, WI. July 2013.

Investigating Learning Within Making, Engineering, and Design-Based Activities. With Lisa Sindorf, Nina Hido, and Anna Lindgren-Streicher. Visitor Studies Association Conference, Milwaukee, WI. July 2013.

Pushing Our Boundaries: Teaming Up to Get More Accomplished. With Sarah Cohn, Elizabeth Kunz Kollmann, Liz Rosino, and Chris Cardiel. Visitor Studies Association Conference, Milwaukee, WI. July 2013.

Conversations Between Girls and their Parents During Informal Engineering Activities. With Zdanna Tranby and Monica Cardella. Visitor Studies Association Conference, Raleigh, NC. July 2012.

Distributed Evaluation: Moving Towards Richer and More Meaningful Institutional Collaboration. With Jane M. Alexander, Juli Goss, Liz Rosino, and Jenna LeComte-Hinely. Visitor Studies Association Conference, Raleigh, NC. July 2012.

It's all connected: Using epistemic network analysis to assess engineering learning in out-of-school contexts. Invited keynote presentation. Purdue University Department of Engineering Education Graduate Seminar. March 2011.

Theory Based Games. Invited workshop with David Hatfield, Elizabeth Sowatzke Bagley, Aran Nulty, Padraig Nash, and David Shaffer. International Conference of the Learning Sciences, Utrecht, Netherlands. June 2008.

Digital Zoo: Building the next generation of engineers, Games, Learning, and Society Conference. Madison, WI. June 2006.

Digital Zoo: The use of engineering design notebooks during epistemic game play. Games, Learning, and Society Conference. Madison, WI. June 2005.

From explanatoids to exploratoids: Developing physics knowledge through virtual engineering, Annual Meeting of the National Association for Research in Science Teaching (NARST). Dallas, TX. April 2005.

Preparing Future Faculty to Teach Effectively with Technology. With Alan Wolf. Educause Midwest Regional Conference, Chicago, IL. March 2005.

Research training: the graduate student perspective. Invited panel with Lawrence Casper, Lester Gerhardt, Cindy Atman, Les Sims, John Brighton, and Rob Marley. American Society of Engineering Education Annual Meeting. Salt Lake City, UT. June 2004.

COURSES AND PROFESSIONAL DEVELOPMENT PROGRAMS FOR IN-SERVICE EDUCATORS

Learning in Informal Environments *(University of Notre Dame, ESS Supplementary Major)* 2016 – Present

Engineering Methods for Middle School Teachers 2023 – Present
(University of Notre Dame, Center for STEM Education)

Introduction to Engineering for Early Childhood Educators 2014–2023
(University of Notre Dame, Center for STEM Education)

STEM Integration *(University of Notre Dame, Center for STEM Education)* 2014–2022

Introduction to Engineering Systems *(University of Notre Dame, First Year Engineering Program)* 2014-2016

Introduction to Teaching – Historical Perspectives *(University of Notre Dame, ACE)* 2007-2009

Clinical Seminar in Teaching *(University of Notre Dame, ACE)* 2006-2009

Supervised Teaching *(University of Notre Dame, ACE)* 2006-2009

Effective Teaching with Technology *(University of Wisconsin-Madison)* 2005

Teaching with Technology *(University of Wisconsin-Madison)* 2004

PROFESSIONAL AND ADMINISTRATIVE SERVICE

Proposal reviewer for the National Science Foundation

Manuscript reviewer: American Educational Research Journal, Journal of Engineering Education, Advances in Engineering Education, Visitor Studies

Conference proposal reviewer: Annual meeting of the National Association for Research in Science Teaching, Annual Meeting of the American Educational Research Association, Annual Conference of the American Society for Engineering Education

NARST Engineering Education Research Interest Group (RIG) 2024 – 2027
Chair-Elect (24-25), Chair (25-26), Immediate Past Chair (26-27)

Faculty Advisor, Irish FIRST Undergraduate Robotics Mentoring Club 2024 – Present

Editorial Board, Journal of Pre-college Engineering Education Research 2022 – Present

Search Committee Member, Hackett Family Director of the IEI 2024

Presenter, Our Futures Weekend, Office of the Provost 2024
Session Title: Fostering Faculty Research Trajectories and Impact at Notre Dame

IEI Faculty Committee Member 2022 – 2024

Search Committee Chair, Science Education Faculty 2022 – 2023

Faculty Lead, Center for Broader Impacts Planning Committee 2021 – 2022

IEI Strategic Planning Committee Member 2021 – 2022

Search Committee Member, Math Education Faculty 2021 – 2022

Search Committee Chair, Mary Ann Remick Leadership Program Director 2020 – 2021

Associate Editor, Journal of Pre-college Engineering Education Research 2018 – 2022

Executive Committee Member, University of Notre Dame, Alliance for Catholic Education 2018 – 2022

Search Committee Member, Math Education Faculty 2016 – 2017

Search Committee Member, Faculty of Supervision and Instruction 2015 – 2016

Board Member, Visitor Studies Association. Communications Committee Chair 2013-2015

Planning Committee, Games, Learning, and Society Conference 2004-2006

Games and Professional Practice Simulations (GAPPS) Collaborative 2004-2006

Educational Psychology Student Association, University of Wisconsin-Madison 2005-2006
Department of Educational Psychology

Student Affairs Committee, University of Wisconsin-Madison 2002-2005
Department of Educational Psychology

ADVISORY BOARD AND SUBJECT MATTER EXPERT ROLES

Advisory Board, *Facilitating Constructive Engineering Talk* Project, NSF Award # 2415813 2024 – present

Advisory Board, *Eradicate the Gate: Empowering Learners and Equalizing Assessment in K-12 Engineering Education* Project, NSF Award #2339619 2024 – present

Advisory Board, *Watermarks* Project, NSF Award #2115637 2022 – present

Advisory Board, *Investigating Pre-College Predictors and Post-Secondary Effects of Course-based Undergraduate Research Experiences in Texas* Project, NSF Award #2201863 2022 – present

Invited Subject Matter Expert, National Youth Engineering Symposium 2024

Advisory Committee, *Lilly Girls and Young Women in STEM Initiative at The Children's Museum in Indianapolis* 2020 – 2023

Advisor and Subject Matter Expert, *Engineering is Elementary Families* Curriculum 2019 – 2022

Advisory Board, *Building More Inclusive Makerspaces to Support Informal Engineering Learning Experiences,* NSF Award # 1906884 2019 – 2022

Advisory Board, *Designing Biomimetic Robots* Project, NSF Award #1742127 2018 – 2023

Advisor, *Engineering for Equity* project, TERC 2020 – 2022

Invited Panelist, Center for the Advancement of Informal STEM Education (CAISE) 2018
Convening of the Evaluation and Measurement Taskforce, August 2018

Committee of Visitors, *Chemattitudes* Project, NSF Award #1612482 2016 – 2021

Committee of Visitors, *NASA Space and Earth Science ISE Network,* NASA Cooperative Agreement Numbers NNX16AC67A and 80NSSC18M0061 2016 – 2021

Advisory Board, *Integrated STEM and Computing Learning*, NSF Award #1543175 2015-2017

Engineering Content Expert, Smithsonian Science Education Center Curriculum 2015

Advisory Board, *Designing Our World* Project, NSF Award #132230 2013-2017

UNDERGRADUATE AND GRADUATE STUDENT ADVISING

Member, Dissertation Committee for Mariam Manuel (Curriculum and Instruction), Texas Tech University, 2018 – 2019

Member, Dissertation Committee for Brianna Dorie Brinkman (Engineering Education), *Conversation analysis of engineering parents' occupational knowledge, attitudes, and beliefs.* Purdue University, 2015.

Advisor, Glynn Family Honors Program Thesis for Marisa Lucht, *XX Does Not Compute: The Key Factors Affecting Female Disengagement in Computing*, University of Notre Dame, 2018.

Advisor, Glynn Family Honors Program Thesis for Catherine Wagner, *Persistence through leadership in STEM: A study examining parent interactions with girls during an engineering activity*, University of Notre Dame, 2017.

Undergraduate Researchers: Mia Lettau (2022-2024), Kimberly Marfo (2022-2024), Andrea Ortiz (2022), Delaney Ryan (2022-2024); Maria Padilla (2020), Kaileigh Perrier (2020); Elizabeth Dolan (2016-2018), Alejandra Bautista-Mata (2016), Hannah Gillespie (2016).

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Educational Research Association (AERA)

American Society for Engineering Education (ASEE)

American Evaluation Association (AEA)

National Association for Research in Science Teaching (NARST)

AWARDS AND HONORS

Future Faculty Partner, University of Wisconsin-Madison Teaching Academy

Spencer Doctoral Research Program and Fellowship

Notre Dame Arts & Letters and Science Honors Program