

Dept. Engineering Ed.  
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# Corey Schimpf

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## Education

- PhD, School of Engineering Education, Purdue University. **Aug 2015**  
*Dissertation: Scaffolding Early Engineering Design Learning with a Videogame: Exploring Minecraft's Influence on Design Ideation.*
- MA, Sociology, Purdue University **May 2010**  
*Thesis: Bringing Social Psychology into Agent-Based Modeling*
- BA, Sociology, Kent State University (Summa Cum Laude) **May 2008**

## Positions

### Current

2020 to Present, Assistant Professor of Engineering Education, University at Buffalo, SUNY

### Previous

- 2017 to 2020, Research Scientist, The Concord Consortium  
2015 to 2017, Postdoctoral Researcher, The Concord Consortium  
2014 & 2017, Analytical Consultant, Kimberly Clark Corporation

## Publications

### Articles

- Schimpf, C., & Goldstein, M. (2022). Large Data for Design Research (LaDDR): An educational technology framework for studying design activity using a big data approach. *Frontiers in Manufacturing Technology*, 25
- Schimpf, C., & Castellani, B. (2022). Approachable modeling and smart methods: a new methods field of study. *International Journal of Social Research Methodology*, 1-15.
- Purzer, S., Schimpf, C., Quintana, J., & Sereviene, E. (2022). An Engineering Design Review Coaching Tool for Supporting Student Reasoning. *The Science Teacher*.
- Schimpf, C., & Beddoes, K. (2021). Designing equitable and inclusive visualizations: An underexplored facet of best practices for research and publishing. *Journal of Engineering Education*, 110(2), 289-293.
- Magana, A. J., Chiu, J., Ying Seah, Y., Bywater, J. P., Schimpf, C., Karabiyik, T., ... & Xie, C. (2021). Classroom orchestration of computer simulations for science and engineering learning: a multiple-case study approach. *International Journal of Science Education*, 1-32.
- Schimpf, C., Barbrook-Johnson, P., & Castellani, B. (2021). Cased-based modelling and scenario simulation for ex-post evaluation. *Evaluation*, 27(1), 116-137.
- Schimpf, C. & Castellani, B. (2020). COMPLEX-IT: A Case-Based Modeling and Scenario Simulation Platform for Social Inquiry. *Journal of Open Research Software*, 8(1): 25.
- Rahman, M.H., Schimpf, C., Xie, C., & Sha, Z. (2019). A CAD-Based Research Platform for Data-Driven Design Thinking Studies. *Journal of Mechanical Design*, 141(12): 121102.

Barbrook-Johnson, P., Schimpf, C. & Castellani, B. (2019). Reflections on the use of complexity-appropriate computational modeling for public policy evaluation in the UK. *Journal on Policy and Complex Systems*, 5 (1). pp. 55-70.

Castellani, B., Barbrook-Johnson, P., & Schimpf, C. (2019). Case-based methods and agent-based modelling: bridging the divide to leverage their combined strengths. *International Journal of Social Research Methodology*.

Chao, J., Xie, C., Massicotte, J., Schimpf, C., Lockwood, J., Huang, X. & Beaulieu, C. (2018). Solarize Your School: A Solar Energy System Design Challenge. *The Science Teacher*.

Xie, C., Schimpf, C., Chao, J., Nourian, S. & Massicotte, J. (2018). Learning and teaching engineering design through modeling and simulation on a CAD platform. *Computer Applications in Engineering Education*, 1-17.

Main, J. B., & Schimpf, C. (2017). The Underrepresentation of Women in Computing Fields: A Synthesis of Literature Using a Life Course Perspective. *IEEE Transactions on Education*, PP(99): 1-9.

Beddoes, K., & Schimpf, C. (2016). What's wrong with fairness? How discourses in higher education literature support gender inequalities. *Discourse: Studies in the Cultural Politics of Education*, 1-10.

Pawley, A. L., Schimpf, C., & Nelson, L. (2016). Gender in Engineering Education Research: A Content Analysis of Research in JEE, 1998–2012. *Journal of Engineering Education*, 105(3), 508-528.

Schimpf, C., Mercado Santiago, M., Hoegh, J., Banerjee, D. & Pawley, A. (2013). STEM Faculty and Parental Leave: Understanding an Institution's Policy within a National Policy Context through Structuration Theory. *International Journal of Gender Science and Technology* 5(2), 79-101.

### *Conference Proceedings*

Hess, J. L., & Fila, N. D., & Schimpf, C. T., & Godwin, A., & Sanders, E. A. (2023), *Board 203: A Research Study on Assessing Empathic Formation in Engineering Design* Paper presented at 2023 ASEE Annual Conference & Exposition, Baltimore , MD.

Schimpf, C. T., & Swenson, J. E. S., & Burris, C. (2023), *Addressing Engineers and Stakeholders Social and Institutional Power in an Human-Centered Design Capstone Course* Paper presented at 2023 ASEE Annual Conference & Exposition, Baltimore , MD.

Schimpf, C. T., & Komolafe, E., & Swenson, J. E. S. (2023), *Exploring how Students Grapple with Agency in Open-Ended Engineering Problems* Paper presented at 2023 ASEE Annual Conference & Exposition, Baltimore , MD.

Schimpf, C., & Swenson, J. (2022). Reimagining faculty, student and community interactions in capstone: A synthesis of liberative pedagogies, citizen engineering and human-centered design. In *2022 IEEE Frontiers in Education Conference (FIE)* (pp. 1-5). IEEE.

Sánchez-Peña, M., Schimpf, C., & Cruz, J. M. (2022). Diversity dynamics modeled as a complex system in institutional contexts. In *2022 IEEE Frontiers in Education Conference (FIE)* (pp. 1-5). IEEE.

Schimpf, C & Singh, T. (2022). Exploring how students attend to the nature and dynamics of complexity in their design problems. *129<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Minneapolis, MN.

Schimpf, C & Olewnik, A. (2022). Surfacing Students Design Problem Understanding through System Mapping: A Novice-Expert Comparison. *129<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Minneapolis, MN.

Beddoes, K. & Schimpf, C. (2021). What's wrong with grit? – Considerations and Better Alternatives for Engineering Education Research. Presented at Research in Engineering Education Symposium and Australasian Association of Engineering Education Conference, Perth Australia.

Schimpf, C. (2021). Engineering in Videogames: A Case Study of Iconoclasts Narrative and Interactive Portrayal of Engineers. *128<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Virtual Online.

Hess, J. Carrillo-Fernandez, A., Fila, N. & Schimpf, C. Exploring how Empathy Manifests with/for Teammates in a Junior-Level Biomedical Engineering Course. *128<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Virtual Online.

Schimpf, C, Goldstein, M.H., & Xie, C. (2020). Reflection in Time: Using Data Visualization to Identify Student Reflection Modes in Design. *127<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Virtual Online.

Goldstein, M.H. & Schimpf, C. (2020). Understanding How High School Students Approach Systems Design. *127<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Virtual Online.

Schimpf, C., Huang, X., Xie, C., Sha, Z., & Massicotte, J. (2019). Developing Instructional Design Agents to Support Novice and K-12 Design Education. *126<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Tampa, FL.

Dixon, C., Schimpf, C., & Hsi, S. (2019). Beyond Trial & Error: Iteration-to-Learn using Computational Paper Crafts in a STEAM Camp for Girls. *126<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Tampa, FL.

Dixon, C., Schimpf, C., & Hsi, S. (2019). The Card-Board DIY Microcontroller for Use with Paper Mechatronics (Resource Exchange). *126<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Tampa, FL.

Main, J. B., Ramirez, N. & Schimpf, C. (2018). Student Career Decision Making Approaches and Development of Professional Engineering Trajectories. *125<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Salt Lake City, UT.

Schimpf, C., Goldstein, M.H., Chao, J., Purzer, S., Adams, R. & Xie, C. (2018). A Markov Chain Method for Modeling Students' Behavior. *125<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Salt Lake City, UT.

Schimpf, C., Sleezer, R.J. & Xie, C. (2018). Visualizing Design Team Analytics for Representing and Understanding Design Teams' Process. *125<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Salt Lake City, UT.

Schimpf, C. & Xie, C. (2017). Characterizing Students' Micro-Iterations Strategies through Data-Logged Design Actions. *124<sup>th</sup> ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Columbus, OH.

Schimpf, C., Andronicos, A. & Main, J. (2015). Using life course theory to frame women and girls' trajectories toward (or away) from computing: Pre high-school through college years. Presented at the Frontiers in Education Conference, El Paso, TX.

Beddoes, K., Schimpf, C & Pawley, A. (2015). Gender and Department Heads: An Empirically-Inspired Literature Review. 122th ASEE Annual Conference & Exposition. Presented at the American Society for Engineering Education Annual Conference, Seattle, WA.

Beddoes, K. & Schimpf, C. (2015). Undisciplined Epistemology: Conceptual Heterogeneity in a Field in the Making. 122th ASEE Annual Conference & Exposition. Presented at the American Society for Engineering Education Annual Conference, Seattle, WA.

Schimpf, C. & Main, J. (2014). The Distribution of Family Friendly Benefits Policies across Higher Education Institutions: A Cluster Analysis. *121th ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Indianapolis, IN.

Beddoes, K., Schimpf, C. & Pawley, A. (2014). New Metaphors for New Understandings: Ontological Questions about Developing Grounded Theories in Engineering Education. 121th ASEE Annual Conference & Exposition. Presented at the American Society for Engineering Education Annual Conference, Indianapolis, IN.

Schimpf, C., Ricco, G. & Ohland, M. (2013). The Dynamics of Attracting Switchers: A Cross-disciplinary Comparison. *120th ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Atlanta, GA.

Beddoes, K., Schimpf, C. & Pawley, A. (2013). Engaging Foucault to Better Understand Underrepresentation of Female STEM Faculty. 120th ASEE Annual Conference & Exposition. Presented at the American Society for Engineering Education Annual Conference, Atlanta, GA.

Ferguson, D.M., Cawthorne, J.E., Schimpf, C. & Cardella, M. (2013). Learning Strategies and Learning Traits Critical to Practicing Engineers after College. 120th ASEE Annual Conference & Exposition. Presented at the American Society for Engineering Education Annual Conference, Atlanta, GA.

Schimpf, C., Mercado Santiago, M. & Pawley, A. (2012). Access and Definition: Exploring how STEM Faculty, Department Heads, and University Policy Administrators Navigate the Implementation of a Parental Leave Policy. 119th ASEE Annual Conference & Exposition. Presented at the American Society for Engineering Education Annual Conference, San Antonio, TX.

Chen, X., Sambamurthy, N., Schimpf, C. Xian, H. & Madhavan, K. (2011). Weighted Social Tagging Research Methodology for Determining Systemic Trends in Engineering Education Research. *118th ASEE Annual Conference & Exposition*. Presented at the American Society for Engineering Education Annual Conference, Vancouver, Canada.

### *Book Chapters*

Schimpf, C., Purzer, S., Quintana, J., Sereiviene, E., & Xie, C. (2022). "What does it mean to be Authentic? Challenges and Opportunities Faced in Creating K-12 Engineering Design Projects with Multiple Dimensions of Authenticity" in *Design Thinking: Research, Innovation, and Implementation*, Sanzo, K. Eds. Information Age Publishing.

Castellani, B., Schimpf, C. & Haffery, F. (2013). "Medical Sociology and Case-Based Complexity Science: A User's Guide", pp 734-754 in *Medicine and Complexity Science*, Stumberg, J.P. Eds. Berlin: Springer.

### **Funded Projects**

#### **Invited Talks & Popular Media Contributions**

Schimpf, C. (2019). Automating Detection of Engineering Design Practices in Energy3D:

Integrating Human and Machine Intelligence. *@Concord* 24(2), 8-9.

Guzey, S., & Purzer, S. (Facilitators). Douglas, K., Pellegrino, J., Schimpf, C., Wendell, K., Watkins, J. (Panelists). (2019). Integrating Science and Engineering with a Focus on Evidence of Student Learning. National Association for Research in Science Teaching Conference.

Schimpf, C. (2018). Big Data and AI in Education: A Sociological Analysis. Invited Presentation for *Sociology of Education, University of Massachusetts Lowell*. February 2018.

### **Professional Service**

- Program Chair for the Design in Engineering Education Division of the American Society of Engineering Education Annual Conference, 2021-2022
- Program Chair-Elect for the Design in Engineering Education Division of the American Society of Engineering Education Annual Conference, 2020-2021
- Director for the Design in Engineering Education Division of the American Society for Engineering Education Annual Conference, 2018-2019.
- Panelist for National Science Foundation Grant Review, 2018, 2020.
- Reviewer: Journal of Engineering Education, Computer Applications in Engineering Education, International Journal of Gender, Science & Technology, International Journal of Social Research Methods, American Society for Engineering Education, International Design Engineering Technical Conference & Frontiers in Education.