

# DAY W GREENBERG

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As Research Investigator in the University of Michigan School of Education, I study justice-oriented youth learning and development in STEM within research-practice partnerships (RPPs) with youth learning institutions and community organizations. Using design-based, critical ethnographic, and participatory approaches and methods, I explore learning and development as a connected phenomenon, centering youth efforts within contexts of racism, cis/het patriarchy, and multigenerational poverty. Working with science/STEM centers and community groups for 13 years as practitioner and for 9 years as researcher and designer, I bring expertise in studying and co-designing to support youth and community STEM learning efforts. This includes developing new design and analytic models to advance educational missions, and establishing new institutional structures to scale-up impact. I seek a university position to expand this work.

## EDUCATION

- 2019      **PhD – Educational Psychology and Educational Technology**  
College of Education, Michigan State University  
*Dissertation Title: Critical Participatory Explorations of Youth STEM Pathways*
- 2010      Bachelor of Science in Journalism and Environmental Science  
Northwestern University

## CAREER

- 2020-Present **Research Investigator, Learning Sciences (Research Scientist, Research Faculty)**  
Educational Studies Department  
University of Michigan School of Education
- 2019-2020    **Postdoctoral Research Fellow**, University of Michigan School of Education

## CURRENT GRANTS

- 2021      **Co-PI**, National Science Foundation ECR CORE Grant “Building a Learning Model of Youths’ Community-Based Critical Data Practices” – *Recently Awarded*
- 2021      **Co-PI of Sub-Grant**, National Science Foundation Collaborative Grant “Research in Service to Practice: Critical, Connected Co-Making with Youth and Families” – *Recently Awarded*

## PEER-REVIEWED PUBLICATIONS (FIRST AUTHOR)

- 2020      Greenberg, D., Calabrese Barton, A., Turner, C., Hardy, K., Roper, A., Williams, C., Herrenkohl, L. R., Davis, E. A., & Tasker, T. (2020). Community Infrastructuring as Necessary Ingenuity in the COVID-19 Pandemic. *Educational Researcher*, 0013189X20957614.  
<https://doi.org/10.3102/0013189X20957614>
- 2020      Greenberg, D., Calabrese Barton, A., Tan, E., Archer, L. (2020). Redefining Entrepreneurialism in the Maker Movement: A Critical Youth Approach. *Journal of the Learning Sciences*, 0(0), 1–40.  
<https://doi.org/10.1080/10508406.2020.1749633>
- 2020      Greenberg, D. (2020). Critical participatory co-analysis: a new opportunity for the field. *Published*

*Proceedings of the International Conference of the Learning Sciences, ICLS.*

- 2020 Greenberg, D., Balzer, M., Calabrese Barton, A., Tan, E., YAC Youth. (2020). "We're the Bosses": Youth Action Council Designs an Equitable Makerspace. *Giving Student Voice Due Weight: Possibilities and challenges in USA and New Zealand*, Eds. Hogg, L, Stock, K, Evensen, C.
- 2017 Greenberg, D., & Calabrese Barton, A. (2017). "For Girls to Feel Safe": Community Engineering for Sexual Assault Prevention. *Girlhood Studies*, 10<sup>th</sup> Anniversary Edition. 10(2).  
<https://doi.org/10.3167/ghs.2017.100203>

#### **PEER-REVIEWED PUBLICATIONS (COLLABORATIVE)**

- 2021 Calabrese Barton, A., Greenberg, D., Turner, C., Riter, D., Perez, M., Tasker, T., Jones, D., Herrenkohl, L. R., & Davis, E. A. (2021). Youth Critical Data Practices in the COVID-19 Multipandemic. *AERA Open*, 7, 23328584211041630. <https://doi.org/10.1177/23328584211041631>
- 2021 Calabrese Barton, A., Greenberg, D., Kim, W. J., Brien, S., Roby, R., Balzer, M., Turner, C., & Archer, L. (2021). Disruptive moments as opportunities towards justice-oriented pedagogical practice in Informal Science Learning. *Science Education*. <https://doi.org/10.1002/sce.21682>
- 2020 Calabrese Barton, A., Balzer, M., Calabrese Barton, B., Kim, W. J., Brien, S., Greenberg, D. (2020). Practices for Social-Spatial Justice: A Community Project for Reclaiming the Local Science Center. *Published Proceedings of the International Conference of the Learning Sciences, ICLS.*
- 2020 Calabrese Barton, A., Tan, E., Roby, R., & Greenberg, D. (2020). Twinning iterative design with community cultural wealth: Toward a locally-grounded, expansive maker culture. *Published Proceedings of the International Conference of the Learning Sciences, ICLS.*
- 2018 Shin, M., Greenberg, D., Restrepo Nazar, C. (2018). "'We Want a Makerspace!': Youth Participatory Action Research Toward the Design of Equity-Oriented Making." *STEM-Rich Maker Learning: Designing for Equity with Youth of Color*, Eds. Calabrese Barton, A. & Tan, E. Teachers College Press, 34-61. 9780807759233.
- 2017 Calabrese Barton, A., Tan, E., & Greenberg, D. (2017). The Makerspace Movement: Sites of Possibilities for Equitable Opportunities to Engage Underrepresented Youth in STEM. *Teachers College Record*, 119(6). <http://www.tcrecord.org/library/Abstract.asp?ContentId=21785>

#### **ADDITIONAL PUBLICATIONS**

- 2021 Calabrese Barton, A., Greenberg, D., Herrenkohl, L. R., Tasker, T., Davis, E. Turner, C... Siciliano, P. (2021). Attending to political and ethical dimensions of remote research methods. In Takeuchi, L., Martin, C. K., & Barron, B., *Learning together: Adapting methods for family and community research during a pandemic*. Retrieved from [joanganzcooneycenter.org/publication/learning-together/](http://joanganzcooneycenter.org/publication/learning-together/)
- 2021 Calabrese Barton, A., Balzer, M., Kim, W. J., Brien, S., Greenberg, D., McPherson, N., Archer, L., & Members of the Youth Action Council, Impression 5 Science Center. (2021). Working Towards Justice: Reclaiming our Science Center. In B. Bevan & B. Ramos (Eds.), *Theorizing Equity in the Museum: Integrating Perspectives from Research and Practice*. Routledge.
- 2021 Greenberg, D., & Calabrese Barton, A. (2021). Justice-Oriented Pedagogies for Informal Science Learning. *The Center for Advancement of Informal Science Education (CAISE)*.  
[www.informalscience.org/news-views/justice-oriented-pedagogies-informal-science-learning](http://www.informalscience.org/news-views/justice-oriented-pedagogies-informal-science-learning)
- 2021 Calabrese Barton, A., & Greenberg, D. (2021, June 15). No Learning Lost Here: Youth Critical Data

Practices in the COVID-19 Multi-Pandemic. *Sesame Workshop, Joan Ganz Cooney Center*.  
<https://joanganzcooneycenter.org/2021/06/15/no-learning-lost-here/>

- 2019 Greenberg, D. (2019). *Critical Participatory Explorations of Youth STEM Pathways*. Dissertation, Michigan State University, 22618647. Advisor, Dr. Angela Calabrese Barton. ProQuest Dissertations & Theses Global.
- 2017 Greenberg, D. (2017). Why Science Teachers Should Care About Social Justice. Research to Practice Series, *I Wonder... Rediscovering School Science*, 1(3), 70-73.
- 2015 Dawson, E., Calabrese Barton, A., Dierking, L., Greenberg, D., Archer, L., & Seakins, A. (2015). *Pathways in informal science learning*. [http://discovery.ucl.ac.uk/1472921/1/Dawson\\_Pathways-brief---Youth-Equity-Pathways-in-ISL.pdf](http://discovery.ucl.ac.uk/1472921/1/Dawson_Pathways-brief---Youth-Equity-Pathways-in-ISL.pdf)
- 2015 Archer, L., Seakins, A., Dawson, E., Calabrese Barton, A., Greenberg, D., & Dierking, L. (2015). *Youth equity pathways in informal science learning*. <http://discovery.ucl.ac.uk/1472923/>
- 2015 Dawson, E., Dierking, L., Archer, L., Calabrese Barton, L., Greenberg, D., & Seakins, A. (2015). *Research & practice agenda: equity pathways in informal STEM learning*. [discovery.ucl.ac.uk/1472924/1/Dawson\\_R%26P-agenda---Youth-Equity-Pathways-in-ISL.pdf](http://discovery.ucl.ac.uk/1472924/1/Dawson_R%26P-agenda---Youth-Equity-Pathways-in-ISL.pdf)

#### INVITED TALKS

- 2021 Kafai, Y., Greenberg, D., Calabrese Barton, A., Turner, C., Riter, D., Herrenkohl, L... Slotta, J. (2021). Learning rapidly: Youth data activism in the 2020 multi-pandemic. In Panel Symposium, Learning and Teaching about COVID-19: Engaging Students, Teachers, and Families in Understanding Infectious Disease Epidemiology. *ISLS 2021 Panel on COVID-19 in K-12 Education*.
- 2021 Greenberg, D., Ransom, K. (2021). Experiences from the Field. Invited Guest Speakers, *Research Integrity Training Workshop*. University of Michigan Educational Studies Department.
- 2020 Greenberg, D. (2020). Guest Lecturer. STEM Learning and Equity Issues in Context: Citizen Science, Project-Based learning, and Community-Engaged Making. Masters Course: Early Childhood STEM Education, Mercer University.
- 2019 Community-Engaged Research Methods and Methodology. Invited Panel Member along with Victoria Hand, Susan Jurow, and Enrique Lopez. STEM Education Seminar Series, University of Colorado Boulder.
- 2018 Greenberg, D. (2018). Critical Participatory Research with Youth Partners. Invited Panel Member, Invited Panel Session on Science Identities Research, International Committee, American Educational Research Association, New York.
- 2016 Greenberg, D. (2016). Integrating Engineering in Science Classrooms with NGSS. Guest Lecturer. Masters Course TE 861B: Inquiry, Nature of Science, and Science Teaching. Michigan State University Master of Arts Program in Teaching and Curriculum.
- 2016 Greenberg, D. (2016). Equity and Technology Use for Learning in STEM. Invited Speaker. Meeting of Tomorrow's Educators for the Advancement of Multiculturalism, Michigan State University
- 2016 Greenberg, D., Nazar, C.R., Shin, M., Keenan, S. (2016). Equity and Science Education. Teacher Education Showcase, Michigan State University.
- 2015 Greenberg, D., Blair, D., Heeter, C. (2015). Informal Learning. MAET - The Bridge: An EPET Webinar Series. Invited guests in Sept 11, 2015 webinar. <http://bridge.educ.msu.edu/?p=360>

- 2015 Calabrese Barton, A., Birmingham, D., Shin, M., Greenberg, D., Nazar, C.R. (2015). Youth as Teacher Educators: The GET City Collaborative. Teacher Education Showcase, Michigan State University.

#### REFEREED CONFERENCE PRESENTATIONS & SESSIONS ORGANIZED

- 2021 Greenberg, D., Calabrese Barton, A., Herrenkohl, L., Tasker, T., Davis, B. (2021). Letting the How-and-Why Dictate the What: Attending to Political and Ethical Dimensions of Remote Research Methods. In Symposium, Remote Research Methods to Understand How Families and Educators Are Navigating Youth Learning During the Pandemic. American Educational Research Association, online.
- 2021 Greenberg, D., Calabrese Barton, A., Davis, B. (2021). Remote Methods, Long-term Commitments. In Symposium, *Engaging science education research and praxis for the good of the "public" amid global pandemics*. National Association of Research in Science Teaching, online.
- 2021 Greenberg, D., Jones, D. (2021). Attending to political and ethical dimensions of remote research methods. In Symposium, *Studying youth and family learning during the COVID-19 pandemic*. Connected Learning Summit 2021, online.
- 2020 Greenberg, D. (2020). Critical participatory co-analysis: a new opportunity for the field. *Published Proceedings of the International Conference of the Learning Sciences, ICLS*.
- 2020 Calabrese Barton, A., Balzer, M., Calabrese Barton, B., Kim, W. J., Brien, S., Greenberg, D. (2020). Practices for Social-Spatial Justice: A Community Project for Reclaiming the Local Science Center. *Published Proceedings of the International Conference of the Learning Sciences, ICLS*.
- 2020 Calabrese Barton, A., Tan, E., Roby, R., & Greenberg, D. (2020). Twinning iterative design with community cultural wealth: Toward a locally-grounded, expansive maker culture. *Published Proceedings of the International Conference of the Learning Sciences, ICLS*.
- 2020 Greenberg, D. (2020). Rightful Presence and Power: Examining Our Research-Practice and Youth-Adult Partnerships. In symposium *Partnerships and STEM Learning Experiences Across (In)formal Contexts*. National Association for Research in Science Teaching, Portland, Oregon.
- 2020 Greenberg, D. (2020). *Disrupting Systems & Structures: Youth and Community Action for Liberation, Resistance, and Transformation*. Session Organizer, American Educational Research Association, San Francisco.
- 2020 Greenberg, D., Williams, K., Williams, J., Roper, Z. (2020). Better Methods or Bust: Youth Reclaiming Power over Research about Them. In *Disrupting Systems & Structures: Youth and Community Action for Liberation, Resistance, and Transformation*. American Educational Research Association, San Francisco.
- 2020 Calabrese Barton, A., Tan, E., Greenberg, D. (2020). Youth-Community Invention: Community Epistemologies and Expansive Iterative Design. In *Creating Innovative Learning Environments Through Community and Interdisciplinary Connections for Invention Education*. American Educational Research Association, New York.
- 2018 Greenberg, D. (2018). Critical Participatory Research with Youth Partners. Invited Panel Session on Science Identities Research, International Committee, American Educational Research Association, New York.
- 2018 Greenberg, D., Calabrese Barton, A., Tan, E., GET City Youth Partners (2018). Makerspace Co-Design. In symposium *Creative Resource Leveraging*, American Educational Research Association,

New York.

- 2018 Greenberg, Williams, K., Williams, J., McDaniel, A., Roby, R.S., Calabrese Barton, A. (2018). Critical Youth Action for Justice with STEM. In *Youth Leadership and Activism*, American Educational Research Association, New York.
- 2018 Youth Researchers at Impression 5 and the Boys and Girls Clubs of Lansing, Balzar, M., Calabrese Barton, A., Greenberg, D., Tan, E. (2018). Youth-Designed Makerspaces: Embodied Expertise towards Making for a Purpose. In *Analytical frameworks to advance the study of making: Themes in research and development on makerspaces*. American Educational Research Association, NY.
- 2017 Greenberg, D., Calabrese Barton, A., Keenan, S. (2017). Moments of Critical Joy in STEM. In *Pedagogies of Joy :) Reigniting conversations about the intersectionalities of joy within learning pathways*. Symposium, Informal Learning Environment Research SIG, American Educational Research Association, San Antonio.
- 2017 Greenberg, D., Calabrese Barton, A., Keenan, S. (2017). Critically Examining What We Mean by “Youth Voice” and “Agency” in STEM. In *From Making to Agentic Participation: Perspectives on and Approaches to Fostering Epistemic Engagement in Making*. Structured Poster Session, Division C-3b: Technology-Based Environments, American Educational Research Association, San Antonio.
- 2017 Greenberg, D. (2017). *Innovations in Methods and Approaches to Tracing Youth Pathways into STEM*. Session Organizer, American Educational Research Association, San Antonio.
- 2017 Greenberg, D., Calabrese Barton, A. (2017). STEM Pathway Explorations in Virtual Reality Gameplay: A Critical Youth Project. In *Innovations in Methods and Approaches to Tracing Youth Pathways into STEM*. Structured Poster Session, G-2: Studies of diversity and variation with social contexts of education, American Educational Research Association, San Antonio.
- 2017 Keenan, S. Greenberg, D. (2017). Creative Connections: Disrupting the Norm in a community-based makerspace. In *Creative Resource Leveraging and Critical Mobilities in Equity-Oriented Makerspaces*. Symposium, Informal Learning Environments Research SIG, American Educational Research Association, San Antonio.
- 2017 Houang, R.T., Schmidt, W.H., Cogan, L.S., Greenberg, D. (2017). Museums and Professional Development: A Unique Partnership. *Research in Informal Learning Environments*. Paper Session, C-3a: Learning Environments, American Educational Research Association, San Antonio.
- 2017 Greenberg, D. (2017). *A Spectrum of Youth Participation in Research Across Sites/Uses: Toward Critical Equity Frameworks*. Session Organizer, Symposium, Strand 11, National Association for Research in Science Teaching, San Antonio.
- 2016 Keenan, S., Greenberg, D., Calabrese Barton, A., Shin, M., Nazar, C.R., Tan, E. (2016) Equity in Makerspaces: Creative Resource Movement. Digital Media and Learning Conference, UC Irvine.
- 2016 Greenberg, D., Williams, K., Williams, J., Calabrese Barton, A. (2016). Warm Bodies: A Public Transportation Heating System. Student Panel. FabLearn Conference, Stanford, CA.
- 2016 Greenberg, D. *Equity and Access in Science: Understanding Pathways Frameworks for Youth Learning and Development*. Session Organizer, Structured Poster Session, Science Teaching and Learning SIG, American Educational Research Association, Washington, D.C.
- 2016 Greenberg, D., Calabrese Barton, A., Nazar, C.R., Shin, M., Tan, E. (2016, April). I Own My STEM Pathway: Young Black Women Authoring Pathways in STEM. In structured poster session presented at the National Association for Research in Science Teaching, Washington, D.C.

- 2016 Calabrese Barton, A., Shin, M., Greenberg, D., Nazar, C.R. (2016). Innovating with Scientists, Engineers, and Community Members: Youths' Engineering Design and Network of Experts. In *Learning to Engage: Scientists, Engineers, Educators, and Youth in Learning Collaborations*. Structured poster session, Division C-1d: Science, American Educational Research Association, Washington, D.C.
- 2016 Shin, M., Calabrese Barton, A., Greenberg, D., Nazar, C.R. (2016). Youth Engagement and Mobilities of Learning During Making in an Equity-Oriented Makerspace. In *Toward Building Makerspaces for All: New Theories and Practices to Design Inclusive Makerspaces*. Structured poster session, Division C-3a, American Educational Research Association, Washington, D.C.
- 2015 Greenberg, D., Calabrese Barton, A., Nazar, C.R., Shin, M., Tan, E. (2015). Authoring Identity Pathways among Youth from Non-Dominant Backgrounds through Engineering for Sustainable Communities. In symposium *The Role of Informal Experiences in Supporting STEM Interest*. Paper session, Strand 6: Science Learning in Informal Contexts, National Association for Research in Science Teaching, Chicago, IL.
- 2015 Greenberg, D., Calabrese Barton, A., Nazar, C.R., Shin, M., Tan, E. (2015). Innovators Together: Collaborative, Strategic Resource Use and Movement for Identity Work in After-School Science. *The Impact of Multimodal Composing on Youth Transformative Disciplinary Identity Work Across Settings*. Structured poster session, Division C, the American Educational Research Association, Chicago, IL.
- 2015 Shin, M., Calabrese Barton, A., Greenberg, D., Nazar, C.R., Tan, E. (2015). "Little Kids Can Do Ginormous Works": Youth's Engineering Design and Identity Work. *Equity-Focused Implementation of the Next Generation Science Standards: Exploring Models of Hope and Possibility*. Structured poster session, Division C, American Educational Research Association, Chicago, IL.
- 2015 Nazar, C.R., Calabrese Barton, A., Shin, M., Greenberg, D. (2015, April). Hybrid Practices and Developing Expertise in Engineering Among Middle School Students. *Young People Shaping Science Practice in and out of Classrooms: Implications for Teaching and Learning*. Structured poster session, Division C, American Educational Research Association, Chicago, IL.
- 2014 Wong, E. D., Pugh, K. J., Greenberg, D. (2014, April). Charting Dewey's Influence on Contemporary Scholarship in Science Education Journals (1992-2012). Poster session, American Educational Research Association, Philadelphia, PA.

## HONORS AND AWARDS

- 2013-2019 "Dean's Scholar" Fellowship, Michigan State University  
(in recognition of early research promise)
- 2014-2019 MSU College of Education, Travel Grant Fellowship
- 2016 Heart & Soul Award, State of Michigan  
(in recognition of community-engaged participatory work)
- 2016 MSU College of Education, Research Enhancement Fellowship
- 2015-2016 MSU College of Education, Summer Research Renewable Fellowship
- 2014 MSU College of Education, Fellowship to Enhance Global Understanding
- 2014 MSU College of Education, Summer Research Fellowship

## RESEARCH POSITIONS

- 2020-Present **Research Investigator, University of Michigan School of Education**  
I am a research scientist collaborating with several faculty to conduct empirical research, publish

results, and write grant proposals for future research projects.

**New (Fall 2021-Summer 2022) Advisory Work:** I am spearheading a new effort with the American Museum of Natural History to co-develop an AI Machine Learning unit for Summer 2022 implementation by Massachusetts Institute of Technology Scheller Teacher Education Program scholars, delivered to youth summer camp visitors at AMNH. Working with a team led by AMNH Director for Youth Learning and Research Preeti Gupta, my role will be to advise on application of justice-oriented informal STEM pedagogical tools to machine learning lesson plans and additional curricular materials. I originally co-developed these tools with Louise Archer (UCL) and Angela Calabrese Barton (UM) in our YESTEM NSF grant.

In a related effort, I am leading the formation of a cross-institution **YESTEM Study Group** comprised of informal STEM educational institutions across the U.S., including AMNH, Detroit Zoo, Museum of Science and Industry Chicago, Digital Youth Network, Oregon Museum of Science and Industry, the Exploratorium, Self-Enhancement Inc., KQED Public Media, and others. This one-year initiative aims to explore and further develop justice-oriented technologies for STEM learning in out-of-school learning environments and programs, resulting in a new industry handbook to advance informal STEM learning design efforts at a field-wide scale. I aim to write an NSF grant proposal to further this work with partners. More information on that effort will be available following a late-Fall 2021 group planning session.

**New (2021-Present) Co-PI Work:** I worked with Angela Calabrese Barton and Leslie Herrenkohl (University of Michigan) to submit a 2-year NSF ECR CORE grant proposal and we were successfully awarded the grant. The project, titled “Building a Learning Model of Youths’ Community-Based Critical Data Practices”, will study the community-based critical data practices of youth from non-dominant communities. **NSF award number coming soon.**

**New (2021-Present) Co-PI Work:** We recently submitted a 3-year Research in Service to Practice NSF AISL grant proposal and were successfully awarded the grant. With Edna Tan (UNC Greensboro) and Angela Calabrese Barton (University of Michigan), the project titled “Critical, Connected Co-Making with Youth, Families and Communities [C3]” will explore and co-design for community-grounded making in a post-2020 lens. **NSF award number coming soon.**

**New (2021-Present) PI Work:** I recently worked in partnership with Devin Brown (Professor of Neurology, Michigan Medicine, University of Michigan) to submit a National Institutes of Health (NIH) grant proposal, “The Healthy Futures Project”, to conduct research on a comic book-based, multimedia educational intervention aimed at enhancing teen understanding of clinical trials. I would lead the teen co-design component to co-develop the intervention, layering design-based and youth-led dimensions to the project for equity-oriented study design. This draws on my expertise in participatory design and research, and applies it to address a public health crisis.

2019-2020

**Postdoctoral Research Fellow, University of Michigan School of Education  
Postdoc of the RAPID COVID-19 Project**

*NSF 2028370 “RAPID: How People Learn Rapidly: COVID-19 as a Crisis of Socioscientific Understanding” (\$199,744.00)*  
I co-wrote the grant proposal to NSF and was instrumental in conceptualization of the study and its framework and methods for data collection and analysis. As a postdoc on the grant, I led data collection and analysis for our Michigan sites. This included in-depth interviewing and additional forms of qualitative methods such as Experience Sampling Methods (ESM) surveys and participant artifact collection. All of this was done remotely using Zoom, text with parents and youth, and phone calls. My work on this project benefited from my seven years embedded in the field, in our community research-practice partnership sites.

2019-Present  
2017-Present

**Postdoctoral Research Fellow, University of Michigan School of Education  
Project Manager of YESTEM Project**

*NSF 1647033 “Science Learning +: Partnering for Equitable STEM Pathways for Underrepresented Youth (The YESTEM Project)” and Wellcome Trust “Youth Equity + STEM” (£1,500,000), Louise Archer (University College London), Angela*

*Calabrese Barton (MSU), Lynn Dierking (Oregon State), Carmen Turner (Boys and Girls Club), Emily Dawson (UCL)*  
In this project, researchers and practitioners collaborate to study experiences, practices and tools that support equitable youth pathways into STEM. Working across ISL settings (e.g. science centers, community groups, zoos) and universities across 4 cities, the project creates a coherent knowledge base to strengthen and expand research-practice partnerships, build capacity towards transformative R&D, and develop new models and tools to support equitable pathways into STEM globally.

I (1) conducted critical ethnographic research on youth equity pathways in ISL at two Lansing, MI research sites; (2) onboarded a new post-doc and new graduate student research assistant to support this work; and (3) coordinated efforts across 4 US sites and 4 UK sites (e.g., cross-checking methods and approaches, training partners, etc.). Taking an ecological view of STEM learning as a sociocultural process of participation and transformation, we document pathways within/across ISL settings over time, impacts on learning and development, and influences on organizations. We aim to identify environmental aspects shaping youth access, development, and impacts of tools/practices.

2019-Present  
2017-2019

**Postdoctoral Research Fellow, University of Michigan  
Project Team Leader and Research Assistant of EC Making Project**

*NSF 1712834 "Equitably Consequential Making among Youth from Historically Marginalized Communities" (\$696,758.00), PI Angela Calabrese Barton (MSU), Co-PI Scott Calabrese Barton (MSU), Co-PI Edna Tan (UNCG)*

We are developing: (1) a theory-based and data-driven framework for equitably consequential making; (2) a set of individual-level and program-level cases to guide research and practice; and (3) indicators of equitably consequential making. This will result in a framework for equitably consequential making with guiding principles for implementation toward increased opportunities to learn in STEM. We use interview studies and critical longitudinal ethnography with embedded youth participatory case study methodologies. I am also currently mentoring newer graduate research assistants on this project (e.g., on protocol and program ethics, supervising site visits, etc.).

2013-2017

**Project Team Leader & Research Assistant of Making for Change Project**

*NSF 1421116 "Making for Change: Becoming Community Engineering Experts through Makerspaces and Youth Ethnography" (\$299,992.00), PI Angela Calabrese Barton (MSU), Co-PI Edna Tan (UNCG)*

We developed and studied an informal (out-of-school) STEM learning model to engage middle school youth from underrepresented backgrounds in experiences related to engineering-for-sustainable-communities. The model engages youth both in maker space activities and in conducting community ethnography studies to identify local problems and then to design potential solutions for them. Using a design-based research approach and applying social practice theory and systems theory, we have identified how critical aspects of the learning environment shape identity work.

2013-2016

**Research Assistant of Science STARS Project**

*NSF 1114481 "Science STARS: Nurturing Urban Girls' Identities through Inquiry-Based Science" (\$1,249,984.00), PI April Luehmann (U. of Rochester), Co-PI Angela Calabrese Barton (MSU), Co-PI Jessica Thompson (U. of Washington)*

Science STARS (Stars Tackling Authentic & Relevant Science) engaged approximately 400 urban middle school girls in authentic inquiry-based scientific investigations and the creation of a science documentary to extend their research and situate their findings. The project was piloted in Rochester, NY and expanded to sites in Lansing, MI and Seattle, WA. I completed Lansing program teaching and data generation. I am active in continued collaborations across site teams, drawing on multi-level co-analyses of data we produced together (e.g., publication co-writing still ongoing, presenting cross-site findings at AERA/NARST/ICLS conferences together).

2015-2016

**Principal Investigator of STEM Pathways Project**

*MSU Grant "3D and 4D Explorations of Youth STEM Pathways" (\$12,000), PI Day Greenberg (MSU)*

I developed and pilot-tested a series of critical participatory studies to explore and represent pathways in/through STEM learning and practice. This effort informed and enhanced my work on the SL+ pathways project listed above and my dissertation on critical participatory approaches to research on STEM identity work and pathway construction.

2015-2017

**Research Assistant of SL+ Pathways Project**



*Science Learning +: NSF and Wellcome Trust Planning Grant “Youth Access & Equity in ISL: Developing a Research and Practice Agenda” (\$99,000), Louise Archer, Lynn D Dierking, Angela Calabrese Barton, Emily Dawson, Janet Sumner, Sarah Thomas, Melanie Washington, Ruth Murray, Jim Short, Emily Green, Sue E McCann, Day Greenberg*

I supported the development of a Youth Access & Equity Research & Practice Agenda, focusing on addressing equity issues for youth, ages 11-14, primarily from non-dominant backgrounds, directly leading to my current work as project manager on the Phase 2 grant described above. The project involves researchers and practitioners from three ISL settings/contexts, (1) Designed spaces, e.g., museums; (2) Community-based, e.g., afterschool clubs; and (3) Everyday science, e.g., science media, to advance scholarly understanding of equity issues in relation to these three contexts.

2014-2015 **Principal Investigator**

*Teacher-Student Interactions in a Science Museum Exhibit, PI Day Greenberg (MSU)*

A quasi-experimental discourse analysis study on videotaped teacher-student interactions in a science museum exhibit, conducted with guidance from Drs William Schmidt, Lee Cogan, and David Wong. The research is a continuation of a larger project evaluating the museum's science teacher development program, currently being submitted for publication in the journal *Science*.

2013-2014 **Editorial Assistant**

*Journal of Research in Science Teaching*

I served on the editorial staff under editors Joseph Krajcik and Angela Calabrese Barton, editing manuscripts for style and formatting, and supporting online author and reviewer communication.

## UNIVERSITY TEACHING

Winter 2021 **Teaching Assistant of “Co-designing for Liberatory STEM Education” (EDUC 737) and Participatory Partnership Mentor**

*School of Education, University of Michigan*

I supported the doctoral scholars attending Dr. Calabrese Barton's participatory research and design seminar to facilitate discussion groups, and to provide my expertise from the field in whole group meetings over Zoom. I also supervised the establishment of a new doctoral student partnership with teen leaders at a Michigan Boys and Girls Club, where we piloted remote (hybrid online) co-designs of a COVID-19-related STEM learning and participatory action research project.

2013-2019 **Field Instructor & Intern Supervisor of Boys and Girls Club**

*College of Education, Michigan State University*

I supervised and co-mentored pre-service teachers during their undergraduate coursework-connected classroom placements at the Boys and Girls Club of Lansing, Michigan. The makerspace in the club served as a community-centered “alternative classroom” space for them to design, deliver, and critique their own original NGSS science and integrated-STEM/engineering lesson plans. All supervision and advising was conducted in partnership with faculty of record and site founder/director, Dr. Angela Calabrese Barton. All lessons were delivered within the GET City afterschool STEM program. Qualified candidates were offered internships for the semester following their site placements. I then acted as primary on-site supervisor and mentor for those internships.

Fall 2018, **Co-Instructor of “Teaching Science to Diverse Learners” (TE 403)**

Fall 2016

*College of Education, Michigan State University, Elementary Science Teacher Program*

*Fall 2018 with Dr. Angela Calabrese Barton; Fall 2016 with Kathleen Schenkel*

I co-taught a senior course on elementary science education methods. We covered learning/teaching science with the Next Generation Science Standards (NGSS), focusing on equitable implementation through culturally sustaining pedagogies. Students served 20 hours in classroom placements with lesson planning experiences we designed in partnership with classroom mentor-teachers.

Summer 2017, **Instructor of “Learning, Culture, and Equity in the US and EU: Comparative Perspectives”**  
Summer 2016, **(CEP/TE 491)**

Summer 2015 *College of Education, Michigan State University*

I designed and taught an undergraduate course on learning, culture, and equity at multiple scales/locations, with frameworks from critical theory and multiculturalism in education. Meetings covered learning and teaching across contexts, using scholarship and international media as artifacts of discourse on politics of difference, immigration, refugee experiences, race, language, and religion. I also led the connected study trip for 3 weeks (May-June) across the European Union to visit schools and learn about school diversity and segregation, race and language in classrooms, and refugee student experiences in US/EU comparative context. I supervised student travel, coordinated with institutional partners, designed content, and led field experiences and meetings at Michigan State (U.S.), Fontys University (Netherlands) and Hogeschool PXL (Belgium). Assignments challenged students to think/work multimodally and intersectionally (e.g., engaging with school leaders and peers, developing local and transnational partnerships, exploring designs for structural change).

Summer 2017, **Instructor of “Teaching and Learning with Technology” (CEP 416)**

Summer 2016, *College of Education, Michigan State University*

Summer 2015 I designed and taught an undergraduate course on physical and digital technologies of learning in the U.S. and Europe. Meetings covered uses/impacts of curricular materials and resources, and explorations of tech-supported learning. I engaged students multimodally (e.g., student websites, video assignments, etc.). Students interviewed teachers, produced a documentary, designed a school’s website, designed and led interactive ESL/TESOL elementary lessons, and designed and led role-play games to engage peers in transnational dialogue on structures of educational mobility.

Spring 2015, **Co-Instructor of “Reflections on Learning” (TE 150)**

Fall 2014 *College of Education, Michigan State University*

I co-taught an undergraduate course on social, cultural, and cognitive aspects of learning. Classes covered foundational topics of learning, teaching, human development, and educational psychology.

Spring 2014 **Project Co-Leader [Curriculum Design]**

*College of Education, Michigan State University*

*MSU-Wipro STEM & Leadership Teaching Program for Chicago Public Schools*

I developed curriculum for a year-long certificate program for Chicago Public Schools STEM teachers with Dr. Sonya Gunnings-Moton, Dr. Punya Mishra and Dr. Leigh Graves Wolf, supported by Wipro Ltd. Participants can apply credits toward MSU’s Master of Educational Technology program.

## **K-12 TEACHING & PROGRAM DESIGN**

2019-Present **Founder and Ongoing Co-Advisor of Teenovators**

*Teenovators Program, Boys and Girls Club of Lansing and University of Michigan*

I piloted a teen STEM leadership program with connected goals of sustainability and community justice. I continued to advise on, guide, and co-direct bi-weekly program implementation by two Boys and Girls Club staff partners. The Teenovators Program supports teens in developing educational and professional interests and skills while taking on new leadership positions in their city.

The 2020-2021 school year involved transitioning to a hybrid online program focused on the science of the COVID-19 pandemic. University of Michigan Educational Studies PhD student Devon Riter will teach the 2021-2022 program under the guidance of continuing partner Angela Calabrese Barton.

2013-Present **Lead Educator, Middle School Science and Engineering**

*Green Energy Technology in the City (GET City) Partnership between the Boys and Girls Club of Lansing, Michigan State College of Engineering, and University of Michigan School of Education*

I engaged youth 11-14 in STEM-making through sustained engagement (teaching 2-hour sessions twice weekly year-round). I designed culturally sustaining, NGSS-aligned curriculum centering community power and social change. This involved teacher-student co-planning, with older youth as participatory researchers and program mentors. I conducted participant observation data generation on out-of-school STEM learning, aiding me in a) supporting classroom adaptation; b) supervising pre-service field experiences; and c) hosting STEM teaching workshops.

- 2018-2019 **Principal Investigator & Designer of Elementary Computer Science Pilot**  
*Coders Hangout*  
*Boys and Girls Club of Lansing, MI*  
 I piloted a new research-practice initiative to engage 4<sup>th</sup>- to 6<sup>th</sup>-graders (age 8-11) in culturally sustaining learning of computer science and new digital technologies. The Coders Hangout was a year-long, weekly program valuing and supporting Black youth as computer science experts, cutting-edge technology creators, and multidisciplinary innovators who reimagine coding as a space of joy. After a successful pilot year, curriculum was fully integrated into central plans for grades 5-9.
- 2017 **Co-Founder, Mid-Michigan Makers Consortium**  
*Regional Collaborative*  
 The Mid-Michigan Makers Consortium was a series of 2017 events to share capacity and develop a connected Michigan makerspace ecology. Several collaborations emerged.
- 2011-2013 **Public Educator, Science and Engineering**  
*The Museum of Science and Industry, Chicago*  
 I engaged school groups and families in science/engineering through labs and stage shows. I designed lesson plans and program pilots (e.g., cart-type activities and basic chemistry labs). The Mid-Michigan Makers Consortium was a series of 2017 events to share capacity and develop a connected Michigan makerspace ecology. Several collaborations emerged.

## PROFESSIONAL SERVICE

- 2020-Present **Reviewer (Review Panelist) of Grant Proposals**  
*National Science Foundation (NSF)*  
 Division of Research on Learning in Formal and Informal Settings (DRL, EHR Directorate)
- 2021-Present **Reviewer of Masters Student Applications**  
*University of Michigan*  
 Dow Masters Sustainability Fellows Program, Graham Sustainability Institute
- 2019-Present **Journal Peer Reviewer**  
*Journal of Research in Science Teaching (JRST)*  
*Journal for STEM Education Research (JSER)*  
*Information and Learning Sciences (ILS)*  
*Journal of Design Research (JDR)*
- 2018-Present **Conference Peer Reviewer**  
*American Educational Research Association (AERA), Annual Conference*  
 Division C (Learning and Instruction)  
 Division D (Measurement and Research Methodology)  
 STL SIG (Science Teaching and Learning)  
 ILER SIG (Informal Learning Environment Research)
- 2017-2020 **Conference Peer Reviewer**  
*National Association of Research in Science Teaching (NARST), Annual Conference*  
 Strand 2 (Science Learning: Contexts, Characteristics, and Interactions)  
 Strand 6 (Science Learning in Informal Contexts)  
 Strand 11 (Cultural, Social, and Gender Issues)
- 2015-Present **Institutional Advisor & Youth Mentor** *(beyond our ongoing research)*  
*Youth Action Council at Impression 5 Science Center*  
 We co-designed the science museum's new Think Tank Makerspace in partnership with a newly formed Youth Action Council comprised of youth representatives from across the Lansing

metropolitan area. In monthly Youth Action Council meetings, we develop ongoing programming guided by youth expertise on “making that matters” to them, their peers, and their communities. The Youth Action Council of Impression 5 Science Center, Lansing, Michigan has been visited by Governor Whitmer and First Lady Dr. Jill Biden.

- 2016-2019 **Visiting Engineering Expert** (*multiple years*)  
*Lewton Elementary School, Lansing and Sheridan Road STEM Magnet School, Lansing*  
I worked with sixth-grade engineering classes on group engineering design projects, as a visiting expert. Student groups presented concept prototypes to me. I visited about once per semester.
- 2015-2019 **Shorter-term (1-6 months) Pro-bono Institutional Advising/Consulting**  
*2019, Boys and Girls Clubs of Marshall County, IN:* I advised on “STEAM”-oriented re-branding. This also involved writing a grant proposal for programming expansion and establishing new institutional collaborations (e.g., with South Bend community incubator enFocus Inc.) for future planning.
- 2018-2019, MoonTree Studios, Donaldson, IN:* I advised on organizational redesign at a non-profit, rural, all-ages makerspace founded by a rural Indiana Catholic nun order committed to “dare to accept the challenges of the future.” I advised on program structures in an interconnected “STEAM”-informed mission centering biomimicry in design as a critical eco-justice call-to-action.
- 2015-2016, The Information Technology Empowerment Center (ITEC), Lansing, MI:* I advised on organizational redesign in a full-day workshop and follow-up meeting with ITEC developers. Topics included logic models, outcomes measurement, program implementation, and instructor training.

#### **WORK PRIOR TO MICHIGAN STATE UNIVERSITY**

- 2011-2013 Science Educator, Museum of Science and Industry, Chicago  
2010-2011 Science Program Researcher, Great Lakes Protection Fund (glpf.org)  
2008-2010 Community Media Consultant, Evanston, IL Chamber of Commerce  
2007-2008 Science Writer, Popular Science Magazine and Scripps Newspapers Company