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College of Arts and Sciences School of Education
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ACADEMIC APPOINTMENTS

Syracuse University, Department of Mathematics, College of Arts and Sciences, Department of Teaching and Leadership, School of Education

Associate Professor, Mathematics and Mathematics Education, 2023 – current position
Assistant Professor, Mathematics and Mathematics Education, 2017 – 2023

University of Wisconsin-Madison, Wisconsin Center for Education Research

Postdoctoral Research Fellow, Mathematical Thinking, Learning, and Instruction, 2014–
2017

North Carolina State University, Friday Institute for Educational Innovation

Research Associate, 2013–2014

Western Michigan University, Department of Mathematics

Instructor, 2012–2013
Doctoral Fellow, Center for the Study of Mathematics Curriculum, 2009–2012
Graduate Teaching Assistant, Department of Mathematics, 2010–2011
Graduate Research Assistant, Core Plus Mathematics Project, 2006–2009

PROFESSIONAL PREPARATION

Western Michigan University, Kalamazoo, Michigan

Doctor of Philosophy—Mathematics Education, 2012
Dissertation: *Characterizing and Supporting Change in Algebra Students’
Representational Fluency in a CAS/Paper-and-Pencil Environment*

Master of Arts—Mathematics, 2009

Master of Arts—Mathematics Education, 2008

University of Saint Thomas, Saint Paul, Minnesota

Bachelor of Arts, Mathematics, 2006
Magna cum laude

SCHOLARSHIP

A. Publications

1. Peer-Reviewed Journal Articles (n=17)

- (17) Boutros, E., Wu, Q., Xu, H., & **Fonger, N.** (2023). Making mathematics meaningful: How learning about local social injustices develops undergraduate students' identity, intellect, skill, and criticality. *The Crown: Syracuse Undergraduate Research Journal*, 1, Article 16.
- (16) Keech, K., Routhouska, B., **Fonger, N. L.** (2022). People, place, and population predictions. *Mathematics Teacher: Learning and Teaching PK-12*. 118(8), 566-575. <https://doi.org/10.5951/MTLT.2021.0120>
- (15) **Fonger, N. L.** (2022). Teaching is a Journey: Toward Anti-Racism in Practice. *Mathematics Teacher Learning and Teaching*. 115(4), 314-319. <https://doi.org/10.5951/mtlt.2021.0328>
- (14) **Fonger, N. L.** (2021). A Heart-Centered Stance: Receptivity to Algebra Teachers' and Students' Multidimensional Experiences. *Journal of Humanistic Mathematics*, 11(1), 225-264. <https://scholarship.claremont.edu/jhm/vol11/iss1/12/>
- (13) **Fonger, N. L.**, Ellis, A., Dogan, M. F. (2020). A quadratic growth learning trajectory. *Journal of Mathematical Behavior*, 59, 1-22. <https://doi.org/10.1016/j.jmathb.2020.100795>
- (12) **Fonger, N. L.** (2019). Meaningfulness in representational fluency: An analytic framework for students' creations, interpretations, and connections. *Journal of Mathematical Behavior*, 54 <https://doi.org/10.1016/j.jmathb.2018.10.003>
- (11) Mayer, J., Huntley, M. A., **Fonger, N. L.**, Terrell, M. (2019). Professional learning through teacher-researcher collaborations. *Mathematics Teacher*, 112(5), 382-385. <https://www.jstor.org/stable/10.5951/mathteacher.112.5.0382>
- (10) **Fonger, N. L.**, Stephens, A., Blanton, M., Isler, I., Knuth, E., Gardiner, A. (2018). Developing a learning progression for curriculum, instruction, and student learning: An example from mathematics education. *Cognition and Instruction*, 36(1), 30-55. <https://doi.org/10.1080/07370008.2017.1392965>
- (9) **Fonger, N. L.** (2018). An activity structure for supporting students' coordination of computer algebra systems and paper-and-pencil across phases of curriculum. *International Journal for Technology in Mathematics Education*, 25(1), 3-18. [Doi: 10.1564/tme_v25.1.01](https://doi.org/10.1564/tme_v25.1.01)
- (8) **Fonger, N. L.**, Davis, J., Rohwer, M. L. (2018). Instructional supports for representational fluency in solving equations with computer algebra systems and paper-and-pencil. *School Science and Mathematics*, 118(30), 30-42. [doi:10.1111/ssm.12256](https://doi.org/10.1111/ssm.12256)
- (7) Stephens, A. C., **Fonger, N.**, Strachota, S., Isler, I., Blanton, M., Knuth, E., Gardiner, A. M. (2017). A learning progression for elementary students' functional thinking. *Mathematical Thinking and Learning*, 19(3), 143-166. <https://www.tandfonline.com/doi/abs/10.1080/10986065.2017.1328636>

- (6) **Fonger, N. L.**, Reiten, L., Strachota, S., Ozgur, Z. (2017). Engaging in research: Why? How? Now! *Mathematics Teacher* 110(6), 462-465.
<https://www.jstor.org/stable/10.5951/mathteacher.110.6.0462>
- (5) Davis, J. D., & **Fonger, N. L.** (2015). An analytical framework for categorizing the use of CAS symbolic manipulation in textbooks. *Educational Studies in Mathematics*, 88(2), 239-258. [doi: 10.1007/s10649-014-9581-z](https://doi.org/10.1007/s10649-014-9581-z)
- (4) **Fonger, N. L.** (2014). Equivalent expressions using CAS and paper-and-pencil techniques. *Mathematics Teacher*, 107(9), 688-693.
https://www.jstor.org/stable/10.5951/mathteacher.107.9.0688#metadata_info_tab_contents
- (3) **Fonger, N. L.** (2012). Shed new light on student thinking with a representational lens. *Consortium: The newsletter of the consortium for mathematics and its applications*, 102, 1-6.
https://www.researchgate.net/publication/283547704_She_new_light_on_student_thinking_with_a_representational_lens
- (2) **Fonger, N. L.** (2011). Lessons learned as a novice researcher: The case of a pilot study in mathematics education. *The Hilltop Review*, 4(2), 55-62. Retrieved October 25, 2011, from
http://www.wmich.edu/gsac/Events/Spring2011/Hilltop%20Review/Hilltop_Review_4.2.2011_Final.pdf
- (1) Hedican, E. B., Kemper, J. T., & **Lanie, N. M.** (2007). Modeling biomarker dynamics with implications for the treatment of prostate cancer. *Computational and Mathematical Methods in Medicine*, 8(2), 77-92.
<https://doi.org/10.1080/17486700701349021>

2. Books (n=1)

- (1) **Fonger, N. L.** (under contract). *Making Algebra Meaningful: A Visual Approach to Math Literacy for All*.

3. Peer-Reviewed Book Chapters (n=5)

- (5) Huntley, M. A., Terrell, M., **Fonger, N. L.** (in press). Creating mosaics to portray the algebra strand within six high-school textbook series. In D. R. Thompson (Ed.) *Lessons Learned from Research on Mathematics Curriculum*.
- (4) **Fonger, N. L.**, Lim, K. (2018). The promise of mindfulness as a proposed intervention to alleviate the delimiting effects of math anxiety. In L. Hong, D. Grimes, Q. Wang (Eds.) *Empirical Studies of Contemplative Practices* (pp. 165-180). Hauppauge, NY: NOVA Science Publishers, Inc.
- (3) Blanton, M. Brizuela, B., Stephens, A., Knuth, E., Isler, I., Gardiner, A. M., Stround, R., **Fonger, N.**, Stylinou, D. (2018). Implementing a framework for early algebra. In C. Kieran (Ed.) *Teaching and Learning Algebraic Thinking with 5- to*

12-Year Olds, ICME-13, Monographs (pp. 27-49). https://doi.org/10.1007/978-3-319-68351-5_2

- (2) Hirsch, C., Keller, B., **Fonger, N.**, & Edson, A. (2013). Core Math Tools: Supporting equitable implementation of the common core state standards for mathematics. In D. Polly (Ed.), *Common Core Mathematics Standards and implementing digital technologies* (pp. 1-22). Hershey, PA: IGI Global.
- (1) Ziebarth, S. W., **Fonger, N. L.**, & Kratky, J. L. (2013). Instruments for studying the enacted mathematics curriculum. In D. Thompson & Z. Usiskin (Eds.), *Enacted Mathematics Curriculum: A Conceptual Framework and Research Needs* (pp. 97-120). Information Age Publishing.

4. Peer-Reviewed Conference Papers (n=23)

- (23) Caviness, S. L., Fonger, N. L., Voyias, K., Njue, E., Odiwuor, B., Raja, W. (October 2023). “*It was meaningful because [this] is now my home*”: *Locality-identity and social justice mathematics*. In Lamberg, T., & Moss, D. (Eds.), *Proceedings to the forty-fifth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (Vol. 2, pp. 70–75), Reno, NV.
- (22) **Fonger, N. L.**, Caviness, S., Raja, W., & Njue, E. (2023). *Students’ Expressions of Criticality and Emotion in Historically Responsive Math Task Contexts*. Paper will be presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- (21) Erskine, A., Odiwuor, B., & **Fonger, N. L.** (2022). An exploratory action research study of social justice mathematics in undergraduate precalculus. In Lischka, A. E., Dyer, E. B., Jones, R. S., Lovett, J. N., Strayer, J., & Drown, S. (Eds). *The 44th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 382-386). [Link to the paper](#)
- (20) Sharpe, C. & **Fonger, N. L.** (2022). Have we cut ourselves off at the neck? Centering relationality and humanity in our research. In Lischka, A. E., Dyer, E. B., Jones, R. S., Lovett, J. N., Strayer, J., & Drown, S. (Eds). *Proceedings of the forty-fourth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1906-1907). Middle Tennessee State University. [Link to Full Proceedings](#)
- (19) Wambua, M. M. & **Fonger, N. L.** (2020). Teacher’s collaboration with freshmen undergraduates to improve feedback practices through cogenerative dialogues. *Proceedings of the forty-second annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*.
- (18) **Fonger, N. L.**, & Ellis, A. (2020). Making meaning of learning trajectories amidst multiple metaphors. *Proceedings of the forty-second annual meeting of the North*

American Chapter of the International Group for the Psychology of Mathematics Education.

- (17) **Fonger, N. L.**, Ellis, A., Dogan, M. F. (2019). Epistemological and methodological foundations of creating a learning trajectory of children's mathematics. In U. T. Jankvist, M. van den Heuvel-Panhuizen, & M. Veldhuis (Eds.), *Proceedings of the Eleventh Congress of European Society for Research in Mathematics Education* (pp. 3122-3129). Utrecht, the Netherlands: Freudenthal Group & Freudenthal Institute, Utrecht University and ERME.
- (16) **Fonger, N. L.**, Altindis, N. (2019). Meaningful mathematics: Networking theories on multiple representations and quantitative reasoning. In Otten, S., Candela, A. G., de Araujo, Z., Haines, C., & Munter, C. (Eds.) *Proceedings of the forty-first annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1776-1786). St Louis, MO: University of Missouri.
- (15) Ellis, A., **Fonger, N. L.**, Dogan, M. F. (2019). Articulating links between student conceptions and instructional actions in learning trajectories research. In Otten, S., Candela, A. G., de Araujo, Z., Haines, C., & Munter, C. (Eds.) *Proceedings of the forty-first annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1803-1808). St Louis, MO: University of Missouri.
- (14) Altindis, N., **Fonger, N. L.** (2019). Seeing exponential functions despite representational fluency in a quantitatively-rich task context. In Otten, S., Candela, A. G., de Araujo, Z., Haines, C., & Munter, C. (Eds.) *Proceedings of the forty-first annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 980-985). St Louis, MO: University of Missouri.
- (13) Altindis, N., **Fonger, N. L.** (2018). Preservice teachers' use and connections of representations of quadratic function in solving and planning to teach. *Proceedings of the 40th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 819). Greenville, SC: University of South Carolina & Clemson University.
- (12) **Fonger, N. L.** (2017). Characterizing sophistication in representational fluency. In Galindo, E., & Newton, J., (Eds.). (2017). In E. Galindo & J. Newton (Ed.) *Proceedings of the 39th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.
- (11) Ellis, A., **Fonger, N. L.**, Dogan, M. F. (2017). Developing function understanding through dependency relations of change. In Galindo, E., & Newton, J., (Eds.). (2017). In E. Galindo & J. Newton (Ed.) *Proceedings of the 39th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, pp. 283-286. Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.

- (10) **Fonger, N. L.**, Dogan, M. F., Ellis, A. (2017). Students' clusters of concepts of functions. In Kaur, B., Ho, W.K., Toh, T.L., & Choy, B.H. (Eds.). *Proceedings of the 41st Conference of the International Group for the Psychology of Mathematics Education*, Vol. 2, pp. 329-336. Singapore: PME.
- (9) **Fonger, N. L.**, Ellis, A., Dogan, M. F. (2016). Students' conceptions supporting their symbolization and meaning of function rules. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.) *Proceedings of the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 156-163). Tucson, AZ: University of Arizona.
- (8) Strachota, S., Isler, I., **Fonger, N. L.**, Blanton, M., & Gardiner, A. (2016). Analyzing generalizations through discourse. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.) *Proceedings of the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Tucson, AZ: University of Arizona.
- (7) Strachota, S., **Fonger, N. L.**, Stephens, A., Blanton, M., Knuth, E., Gardiner, A. (2016). Understanding variation in elementary students' functional thinking. *Proceedings of the 40th annual meeting of the International Group for the Psychology of Mathematics Education*.
- (6) **Fonger, N. L.**, Stephens, A., Blanton, M., Knuth, E. (2015). A learning progressions approach to early algebra research and practice. In T. G. Bartell, K. N. Bieda, R. T. Putnam, K. Badfield, & H. Dominguez (Eds.). *Proceedings of the 37th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. East Lansing, MI: Michigan State University.
- (5) Ziols, R., **Fonger, N. L.**, Tran, D. T., Elliott, N. (2015). Children's reasoning with fraction representation systems. In T. G. Bartell, K. N. Bieda, R. T. Putnam, K. Badfield, & H. Dominguez (Eds.). *Proceedings of the 37th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. East Lansing, MI: Michigan State University.
- (4) **Fonger, N. L.** (2013). Equivalence and equation solving with multiple tools: Toward an instructional theory. In M. Martinez & A. Castro Superfine (Eds.), *Proceedings of the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1141-1148). Chicago, IL: University of Illinois at Chicago.
- (3) **Fonger, N. L.** (2011). An analytic framework for representational fluency: Algebra students' connections between representations using CAS. In L. R. Wiest & T. Lamberg (Eds.), *Proceedings of the 33rd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. (pp. 88-96). Reno, NV: University of Nevada, Reno. Retrieved from <http://convention3.allacademic.com/one/pmena/pmena11/>
- (2) Davis, J. D., & **Fonger, N. L.** (2010). Computer algebra systems: Their roles and connections to paper-and-pencil skills in reform-oriented curricula. Paper

presented at the *Annual Meeting of the American Educational Research Association*, Denver, CO. Retrieved from <http://www.aera.net/repository/>

- (1) **Fonger, N. M. L.** (2009). CAS-based task frameworks and linking multiple representations. In Dj. Kadijevich & R. M. Zbiek (Eds.), *Proceedings of the 6th CAME (Computer Algebra in Mathematics Education) Symposium*. Belgrade, Serbia. Retrieved from http://www.megatrend.edu.rs/came_files/CAME%202009-Proceedings.pdf

B. Publicly Engaged Creative Scholarship

1. Community-Engaged Public Scholarship Products (n=12)

- (12) Fonger, N. L., Keech, K., Caviness, S. C., Voyias, K., Raja, W. (2023). Math Tasks: Culturally and Historically Responsive Math Tasks. Published April 10, 2023 at <https://nicolefonger.com/2023/04/10/culturally-and-historically-responsive-math-lessons/>
- (11) Fonger, N. L. (Sept 2023). Zine: “It was meaningful because...” Published by Nicole Fonger, September 18, 2023 at <https://nicolefonger.com/2023/09/18/it-was-meaningful-because/>
- (10) **Fonger, N. L.** (August 2022). Zine: *Where were you in 2012-13?* Paper copy by request.
- (9) **Fonger, N. L.** (August 2022). Zine: *What is algebra?* Paper copy by request.
- (8) **Fonger, N. L.** (August 2022). Zine: *How can I help my kids with fractions?* Paper copy by request.
- (7) **Fonger, N. L.** (August 2022). Zine: *What is culturally and historically responsive literacy?* Available at <https://nicolefonger.com/2022/08/16/cultivating-math-genius/> and paper copy by request.
- (6) **Fonger, N. L.** (March 2021). Zine: *What is antiracism?* Paper only, available upon request.
- (5) **Fonger, N. L.** and Cogen Leaders of the Antiracist Algebra Coalition (April 2021). Zine: *What is our work?* Inspired by Cogen Leaders of the Antiracist Algebra Coalition. Available at <https://nicolefonger.com/2021/06/02/what-is-our-work/> and paper copy by request.
- (4) **Fonger, N. L.** (May 2021). Zine: *Are you White?* Available at <https://www.instagram.com/p/CPeDIERjQO/> and paper copy by request.
- (3) **Fonger, N. L.** and SU Office of Diversity and Inclusion. (2021). Zine: *That’s So Ghetto #Microaggression* Available at <https://nicolefonger.com/2021/08/29/thats-so-ghetto-microaggression/> and paper copy by request or at 119 Euclid, Syracuse University. Credit to Eboni Joy Britt and Ebony King. In collaboration with SU Office of Diversity and Inclusion Leaders, I created, produced, and distributed this zine to all incoming students at SU who attended a new student orientation in August 2021.

- (2) **Fonger, N. L.** and the Cogen Leaders of the Antiracist Algebra Coalition. (Nov 2021). *Zine: How can Math Be Racist?* Available at <https://documentcloud.adobe.com/link/track?uri=urn:aaid:scds:US:fb90b8d9-d9ba-4c61-9f2c-038d4fd20768> and paper copy by request. Credit to Tashia Thomas-Neil.
- (1) **Fonger, N. L.** (Sept 2021). *Zine: What is Community-Engaged Scholarship?* Available at <https://nicolefonger.com/2021/09/15/what-is-community-engaged-scholarship-2/> and paper copy by request.

2. Community-Engaged Public Scholarship Workshops and Events (n=6)

- (6) Fonger, N. L., Keech, K., Voyias, K., Ashby, L., Robinson, J. with Nottingham Data Warriors. (December 2, 2023). **Safe Communities Event** <https://nicolefonger.com/2023/11/21/data-warriors-safe-communities-event/>
This public event served over 100 people and featured student, teacher, and faculty work across topics of redlining, lead poisoning, and safe communities through math, maps, and hands-on displays. I led the concept of the event as a world cafe discussion. I coordinated and designed the event flow, layout, focus, and execution. This work represented not only the work of Data Warriors students in Fall 2023 on graphs inspiring action, concentration of crime and landlord responsibility to ensure safe housing at large apartment complexes, as well as past and ongoing work on culturally and historically responsive lesson design, and youth participatory action research.
- (5) Fonger, N. L., Keech, K., Voyias, K., Caviness, S., Boutros, E. with Nottingham Data Warriors. (June 10, 2023). **Lead Poisoning Prevention Event.** <https://nicolefonger.com/2023/05/23/syracuse-truth-seekers-june-10-2023-event/>
This public event served over 50 people and featured student, teacher, and faculty research and creative scholarships focused on using math and maps to spread awareness and advocacy around lead poisoning prevention. I led and designed a half-life of lead interactive display with pennies and legos. I also coordinated the involvement of community members, food, scheduling, and concept. This work represents a culmination of Data Warriors programming activities (our group name changed from Truth Seekers to Data Warriors).
- (4) Keech, K., **Fonger, N. L.**, Caviness, S., & Routhouska, B. (December 2022 - ongoing). Nottingham Data Warriors.
- Nottingham Data Warriors aim to educate ourselves, educate others, and advocate for change with respect to environmental/community justice in Syracuse with math.
 - As teacher-researcher leaders we:
 - organize and convene high school youth after school on a weekly basis to lead youth-centered discussions on Syracuse-based environmental justice issues in our communities.

- Curate and review news articles and other texts to understand the scope of the environmental justice issues in our communities. Padlet link: <https://padlet.com/nfonger/datawarriors> (Pass: math)
 - Seek grant funding to support our mission that will fund events, programming, and youth fellowships.
- (3) **Fonger, N. L.**, Mosier, T., Raja, W., Erskine, A., Sharif, K., Njue, E., Peña, D., Caviness, S. (May 7, 2022). “A Sense of Place: Using Math to Engage in Community” Public Event held at Café Sankofa.
- <https://calendar.syracuse.edu/events/2022-may-07/a-sense-of-place-using-math-to-engage-in-our-communities/>
 - <https://www.cnycorridor.net/calendar/a-sense-of-place-using-math-to-engage-in-our-communities/>
- (2) **Fonger, N. L.** (Fall 2021). “Antiracist Algebra Coalition: Black Brilliance and Math Coaching” Working sessions with school teachers, coaches, district leaders, and parents. The project webpage can be accessed here: <https://nicolefonger.com/antiracism/>
- (1) **Fonger, N. L.** (Spring 2021). “Antiracist Algebra Coalition” inaugural working sessions of “Cogen” leaders. Established in collaboration with educators, trainers, and administrators. The project webpage can be accessed here: <https://nicolefonger.com/antiracism/>

3. Features in Public Media (n=3)

- (3) “Tech education is racist—Here’s how to fix it, Experts say” “Attitudes need to change.” by Sascha Bordsky. Published November 4, 2022. <https://www.lifewire.com/tech-education-is-racist-heres-how-to-fix-it-experts-say-6825640>
- (2) “Syracuse City School District highlights teachers’ inclusive teaching methods.” “Nottingham High School teachers worked with an SU professor to integrate local history of I-81 into algebra lessons.” by Sam Warren. Published online and in print October 24, 2022. <http://w.dailyorange.com/2022/10/syracuse-city-school-district-highlights-teachers-inclusive-teaching-methods/>
- (1) “Syracuse CSD staff, SU students engage community through math.” By Shalon Stevens. Published May 7, 2022. <https://spectrumlocalnews.com/nys/central-ny/community/2022/05/07/syracuse-csd-staff--su-students-engage-community-through-math>

C. Invited Presentations (n=9)

- (9) **Fonger, N. L.** (2020). What is effective mathematics instruction? *The Study Council at Syracuse University 2019-2020: Regional Conversations and Networking*. Syracuse University, Syracuse, NY. January 2020.
- (8) **Fonger, N. L.** (2019). Sketchnotes of Plenary Presentations. *41st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. St. Louis, MO.

- (7) **Fonger, N. L.** (2019). Fluency and meaning in solving equations. USACAS Conference. Chicago, IL. June 2019.
- (6) **Fonger, N. L.** (2017). The academic job market. Hosted by the Future Professoriate Program at Syracuse University. Panel Discussion, School of Education. Nov. 30, 2017.
- (5) **Fonger, N. L.** (2017). The Tenure-Track Interview Process Luncheon. Hosted by Women in STEM (WiSE) Postdocs at Syracuse University. Panel Discussion, College of Arts and Sciences. Oct. 27, 2017.
- (4) **Fonger, N. L.** (2017). Math anxiety: Causes and possible supports through instruction and leadership. Presentation at a Fall meeting of the Math Mavens, Teacher Leaders and Math Coaches of Central New York. Fayetteville Elementary School, Fayetteville, NY. Dec. 8, 2017.
- (3) **Fonger, N. L.** (2017). Building bridges to link research and practice. Presentation at the spring meeting for the Tristate Instructors of Mathematics Network. University of Wisconsin Platteville Department of Mathematics, Platteville, WI. April 2017.
- (2) **Fonger, N. L.** (2015). Perspectives on Linking Research and Practice: Thoughts From the Field. National Council of Teachers of Mathematics Research Conference, Boston, MA. April 2015.
- (1) Kemper, J. T. Hedican, E. B., & **Lanie, N.** (2004). Prostate specific antigen as bio-marker for prostate cancer. Invited presentation for the Center for Applied Mathematics, Math Appreciation Day, University of Saint Thomas, Saint Paul, MN. November 2004.

D. Refereed Conference Presentations (n=42)

1. International Refereed Conference Presentations (n=17)

- (17) Caviness, S. L., **Fonger, N. L.**, Voyias, K., Njue, E., Odiwuor, B., Raja, W. (2023). It was meaningful because [this] is now my home. *The 45th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Reno, NV.
- (16) Erskine, A., Odiwuor, B., & **Fonger, N. L.** (2022). An exploratory action research study of social justice mathematics in undergraduate precalculus. *The 44th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Nashville, TN.
- (15) Sharpe, C. & **Fonger, N. L.** (2022). Have we cut ourselves off at the neck? Centering relationality and humanity in our research. *The 44th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Nashville, TN.
- (14) **Fonger, N. L.**, Altindis, N. (2019). Meaningful mathematics: Networking theories on multiple representations and quantitative reasoning. *Conference of the 41st*

annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. St. Louis, MO.

- (13) Ellis, A., **Fonger, N. L.**, Dogan, M. F. (2019). Articulating links between student conceptions and instructional actions in learning trajectories research. *Conference of the 41st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.* St. Louis, MO.
- (12) Altindis, N., **Fonger, N. L.** (2019). Seeing exponential functions despite representational fluency in a quantitatively-rich task context. *Conference of the 41st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.* St. Louis, MO.
- (11) **Fonger, N. L.**, Ellis, A., Dogan, M. F. (2019). Theoretical and epistemological foundations of a learning trajectory of children's mathematics. Congress on European Research on Mathematics Education. Thematic Working Group: Theory and Methods. The Netherlands: University of Utrecht.
- (10) **Fonger, N. L.**, Dogan, M. F., Ellis, A. (2017). Students' clusters of concepts of functions. In Kaur, B., Ho, W.K., Toh, T.L., & Choy, B.H. (Eds.). *Proceedings of the 41st Conference of the International Group for the Psychology of Mathematics Education*, Vol. 2, pp. 329-336. Singapore: PME.
- (9) Isler, I., Strachota, S, Stephens, A, **Fonger, N.**, Blanton, M., Gardiner, A., Knuth, E. (2017). Grade 6 students' abilities to represent functional relationships. Presented at the 10th International Congress on European Research in Mathematics Education (CERME10). Dublin, Ireland. February 1-5, 2017.
- (8) **Fonger, N. L.** (2017). Characterizing sophistication in representational fluency. In Galindo, E., & Newton, J., (Eds.) *39th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.* Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.
- (7) Ellis, A., **Fonger, N. L.**, Dogan, M. F. (2017). Developing function understanding through dependency relations of change. In Galindo, E., & Newton, J., (Eds.) *39th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.* Indianapolis, IN: Hoosier Association of Mathematics Teacher Educators.
- (6) Huntley, M. A., Terrell, M., **Fonger, N. L.** (2016). The algebra content of high school textbooks in the US. Presented at the 13th International Congress on Mathematics Education. Hamburg, Germany. July 24-31, 2016.
- (5) **Fonger, N. L.** (2013). Design research. *Season School on Design-Based Research.* University of Jaén, Jaén, Spain. November 4-8, 2013.
- (4) **Fonger, N. L.** (2013). Equivalence and equation solving with multiple tools: Toward an instructional theory. *35th Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education.* The Palmer House, Chicago, IL. November 2013.

- (3) **Fonger, N. L. & Rohwer, M. L. (2012).** Expressions, equations, and equivalence, oh my! TI-Nspire CAS handhelds as a learning tool in algebra. *Teachers Teaching with Technology International Conference*. Chicago, IL. March 2012.
- (2) **Fonger, N. L. (2011).** An analytic framework for representational fluency: Algebra students' connections between representations using CAS. *33rd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Reno, NV. October 2011.
- (1) **Fonger, N. M. L. (2009).** CAS-based task frameworks and linking multiple representations. Presented virtually at the *6th CAME (Computer Algebra in Mathematics Education) Symposium*. Belgrade, Serbia.

2. National Refereed Conference Presentations (n=25)

- (25) Ashby, L., Caviness, S., Voyias, K., **Fonger, N. (2023).** Youth-Centered Community, Collaboration, and Learning in Mathematics and Geography for Environmental Justice. Presented at the *Race, Ethnicity, and Place Conference*, October 2023, Washington D.C.
- (24) Ashby, L., Beavin, A., Drake, S., **Fonger, N. L.**, Robinson, J. (2022). Community-Engaged Racial Justice Mathematics presented on the panel “Institutional Pathways for Community-Engaged Scholarship” at the *All In Conference*, October 26 – 28, 2022, Santa Cruz, California.
- (23) **Fonger, N. L. (2021).** Toward Antiracist Practice in Mathematics Education. Virtual Conference. Cornell University Department of Mathematics MATH 5080 Mathematics for Secondary School Teachers, NYS Master Teacher Program, Mathematics Professional Development. [Google Slides](#) [Zoom Recording of Talk](#)
- (22) **Fonger, N. L. (2021).** Reframing Equitable Communication Mechanism to Blur Research Practice Boundaries. *Presented at the American Educational Research Association*. Virtual Conference. [PDF of slides](#) [Research Gate PDF of paper](#)
- (21) Altindis, N., & **Fonger, N. L. (2021).** Exploring How to Support Students’ Co-Emergence of Representational Fluency and Functional Thinking. *Presented at the American Educational Research Association*. Virtual Conference.
- (20) Kabagoroby, M. R. A., **Fonger, N. L. & Altindis, N. (2021).** The Use of Multiple Resources by English as Second Language Learners (ESLLs) to Communicate Mathematical Ideas. *Presented at the American Educational Research Association*. Virtual Conference.
- (19) **Fonger, N. L. (2019).** Sketchnotes: A communication tool to strengthen research and practice links. National Council of Teachers of Mathematics Research Conference. San Diego, CA: National Council of Teachers of Mathematics.
- (18) Altindis, N., **Fonger, N. L. (2019).** Preservice teachers’ representational fluency and functional reasoning. National Council of Teachers of Mathematics Research Conference. San Diego, CA: National Council of Teachers of Mathematics.

- (17) Altindis, N., **Fonger, N. L.** (2018). Preservice teachers' use and connections of representations of quadratic function in solving and planning to teach. *The 40th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Greenville, SC: University of South Carolina & Clemson University.
- (16) **Fonger, N. L.** (2018). A self-study on mindfulness in precalculus. *Research in Undergraduate Mathematics Education (RUME), Pre-calculus working group*. San Diego, CA.
- (15) **Fonger, N. L.** (2017). Triumphs and Challenges in Coordinating CAS and Paper-and-Pencil in Classrooms: Lessons from a Teacher-Researcher Partnership. USACAS 10 (United States of America Computer Algebra Systems conference). Hawken High School, Gates Mills, OH. June. www.usacas.org
- (14) **Fonger, N. L.**, Stephens, A., Isler, I., Strachota, S. Blanton, M., Knuth, E. (2016). An Early Algebra Learning Progression for Characterizing and Supporting Students' Generalization and Representation of Functions: A Longitudinal Approach to Integrating Curriculum, Instruction, Assessment, and Student Learning. *Institute of Education Sciences Principal Investigators Meeting*. Washington, DC. December 2016.
#ProjectLEAP advances effective curricular and instructional supports for students' functional thinking in early algebra #MathEd
- (13) **Fonger, N. L.**, Ellis, A., Dogan, M. F. (2016). Students' conceptions supporting their symbolization and meaning of function rules. *38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Tucson, AZ: University of Arizona. November 2016.
- (12) Stephens, A., **Fonger, N. L.**, Knuth, E., Blanton, M. (2016). Elementary students' generalization and representation of functional relationships: A learning progressions approach. *American Educational Research Association*. Washington, DC. April 2016.
- (11) **Fonger, N. L.** (2015). How partnerships are core to a linking research and practice agenda. *National Council of Teachers of Mathematics Research Conference*. Boston, MA. April 2015.
- (10) **Fonger, N. L.**, Tran, D., Elliott, N. (2015). Variation in Children's Understanding of Fractions: Preliminary Findings. *National Council of Teachers of Mathematics Research Conference*. Boston, MA. April 2015.
- (9) **Fonger, N. L.**, Tran, D., Elliott, N. (2015). What fraction of children's knowledge of fractions can you see? *National Council of Teachers of Mathematics Annual Meeting*. Boston, MA. April 2015.
- (8) **Fonger, N. L.** (2014). Synergy in linking research and practice to support students' use of multiple tools. *National Council of Teachers of Mathematics Research Conference*. New Orleans, LA. April 2014.
- (7) **Fonger, N. L.** (2014). Conjecturing a linear equations, inequalities, and functions learning trajectory for teacher education. *Association of Mathematics Teacher Educators*. Irvine, CA. February 2014.

- (6) **Fonger, N. L.** (2013). A research-based learning progression for beginning algebra. *Annual Meeting of the National Council of Teachers of Mathematics*, Denver, CO. April 2013.
- (5) **Fonger, N. L.** (2013). Equivalence and equation solving with multiple tools: A learning progression. *National Council of Teachers of Mathematics Research Presession*, Denver,
- (4) **Fonger, N. L.** (2012). Students' development of representational fluency with CAS: An instructional theory. *National Council of Teachers of Mathematics Research Presession*. Philadelphia, PA. April 2012.
- (3) Davis, J. D. & **Fonger, N.** (2010). Computer algebra systems: Their roles and connections to paper-and-pencil skills in reform-oriented curricula. *American Educational Research Association Annual Meeting*. Denver, CO. May 2010.
- (2) Ziebarth, S. W., **Fonger, N. L.**, & Edson, A. J. (2010). Tools to help teachers and school leaders understand curriculum implementation. *Annual Meeting of the National Council of Teachers of Mathematics*. San Diego, CA. April 2010.
- (1) Ziebarth, S., **Fonger, N. L.**, Edson, A., Engelman, J., & Kratky, J. (2010). Pursuing a doctorate in mathematics education: The varieties of research experience. *National Council of Teachers of Mathematics Research Presession*. San Diego, CA. April 2010.

E. Other Reports (n=4)

- (4) School of Education with **Fonger, N. L.**, Peña, D. (Feb. 23, 2022). "School of Education, SCSD Collaboration Connects Math to Black History in Syracuse." Accessed May 31, 2022 from <https://soe.syr.edu/school-of-education-scsd-collaboration-connects-math-to-black-history-in-syracuse/>.
- (3) School of Education. (2020). "Sketchnotes: A Visual Communication Mechanism to Strengthen Research-Practice Links," featuring **Nicole L. Fonger**. Published in *Education Exchange* Accessed May 31, 2022 from <https://soe.syr.edu/wp-content/uploads/EducationExchangeFall2020.pdf>
- (2) Stallings, T., **Fonger, N.**, & DeWitt, J. (2014). Recommendations for Moving North Carolina Forward in Digital Learning and Mathematics Instruction. Friday Institute for Educational Innovation, North Carolina State University. March 2014.
- (1) **Fonger, N. L.** (2014/2015). Reader reflections: Hexagons reply. *Mathematics Teacher*, 108(5), 325.

F. Local and Regional Presentations (n=40)

1. Presentations in Central New York (n=13)

- (13) Boutros, E., **Fonger, N. L.**, Wu, Q., Xu, H. (December 2023). *Making mathematics meaningful: How learning about local social injustices develops undergraduate students' criticality, identity, intellect, and skill* Presented an Interactive Display at the SOURCE Fall Expo, December 1, 2023, Syracuse University.
- (12) **Fonger, N. L.** (2023). Expanding what counts as meaningful algebra. Presented at the Association for Mathematics Teachers of New York State (AMTNYS) Annual Meeting, Syracuse, NY, November 11, 2023.
- (11) Raja, W., Keech, K., **Fonger, N. L.**, & Voyias, K. (November 2023). *How can we support students learning in social justice mathematics classrooms?* Talk presented at the Annual Meeting of the Association of Mathematics Teachers of New York State (AMTNYS), November 2023, Syracuse, N
- (10) Boutros, E., **Fonger, N. L.**, Wu, Q., Xu, H. (October 2023). *Enhancing Students' Inclusion and Belonging by Developing Meaningful Mathematics Literacy in the Place We Now Call Home*. Presented at the D.E.I.A. Symposium, October 3, 2023, Syracuse University.
- (9) Boutros, E., **Fonger, N. L.**, Wu, Q., Xu, H. (August 2023). *Making Mathematics Meaningful: How learning about local injustices develops undergraduate students' criticality, identities, intellect, skill, and emotion*. Poster presented at the Syracuse University Office of Undergraduate Research and Creative Engagement Symposium, August 10, 2023, Syracuse University.
- (8) Caviness, S. L., Fonger, N. L., Njue, E., Odiwuor, B. (April 2023). *It was meaningful because Syracuse Is now my home: Locality-Identity and Social Justice Mathematics*. Presented at the Spring Syracuse University Office of Undergraduate Research and Creative Engagement Symposium. Syracuse University, Syracuse, NY.
- (7) Caviness, S. L., Fonger, N. L., Voyias, K., Njue, E., Odiwuor, B., & Raja, W. (April 2023). *Attending to Locality-Identity when Designing Social Justice Mathematics Tasks*. Paper presentation at the School of Education Graduate Student Research Symposium, Syracuse, NY.
- (6) **Fonger, N. L.** (2022). Visualizing meaningful mathematics: Realizing “Algebra for All” Requires Changes in Aperture. Presented at the Mathematics Education Research and Creative Scholarship Showcase, Bird Library, December 2021. MTD 830 Fall 2021 Course and Outreach
- (5) Raja, W., Njue, E., **Fonger, N. L.**, & Caviness, S. (2022). Social Justice Mathematics. Presented at the Mathematics Education Research and Creative Scholarship Showcase, Bird Library, December 2022.
- (4) Njue, E., **Fonger, N. L.**, Caviness, S. Raja, W. (2022). Social Justice Mathematics. Presented at the Syracuse Office of Undergraduate Research and

Creative Engagement (SOURCE) Symposium. Syracuse University, Syracuse, NY.

- (3) Keech, K. Routhouska, B. Harris, S. Fonger, N. L. (2021). Race and Regression. Presented at the Mathematics Education Research and Creative Scholarship Showcase, Bird Library, December 2021. MTD 830 Fall 2021 Course and Outreach
- (2) **Fonger, N. L.**, LaBeau, K. (2020, November). Visualizing bridges between research and practice. Presented at the Association of Mathematics Teachers in New York State (AMTNYS), Nov. 2020. Syracuse, NY (Virtual Conference) <https://sites.google.com/amtnys.org/amtnys2020/tues-nov-3rd?authuser=0>
- (1) **Fonger, N. L.**, Mayer, J., Huntley, M. A., Terrell, M. (2017). Engaging in research. Why? How? Now! A teacher-researcher partnership. Presented at the Association of Mathematics Teachers in New York State (AMTNYS), Nov. 2017. Buffalo, NY.

2. Presentations to Audiences in Other Regions in the United States (n=27)

- (27) Fonger, N. L. (2024). *Visualizing Meaningful Algebra for All: Achievement, Access, Identity, and Power* Presentation at the Regional meeting of the National Council of Teachers of Mathematics, Seattle, WA. February 5-7, 2024.
- (26) Raja, W., Caviness, S., and Odiwuor, B. (supervised by **Fonger, N. L.**) (October, 2022). *How do we analyze students' learning of mathematics through local social justice issues?* Presentation at the Northeastern Conference on Research in Undergraduate Mathematics Education, Online.
- (25) Stephens, A., Blanton, M., Demers, L., Knuth, E., Stylianou, D. Burrows, A., Eiland, M., **Fonger, N. L.**, Gardiner, A. M., Hayes, R., Isler, I., Kang, H., Strachota, S. (2016). Project LEAP: Learning through an early algebra intervention. University of Wisconsin-Madison Education Research Poster Fair. February, 2016.
- (24) **Fonger, N. L.** (2015). A learning progressions approach to supporting algebra students' representational fluency in equation solving. Poster presented at 3rd Annual Meeting on Mathematical Thinking (M3T-3). University of Minnesota. August 14, 2015.
- (23) **Fonger, N. L.**, Davis, J. D., Rohwer, M. L. (2015). A functions approach to solving equations with computer algebra systems/paper-and-pencil: Supports for students' change in representational fluency. Poster presented at Social Policy and Research in Cognition & Mathematics Education: A focus on Common Core (SPaRCME). University of California, Berkeley. May 29-30, 2015.
- (22) Blanton, M., Knuth, E., Stephens, A., Eiland, M., **Fonger, N. L.**, Gardiner, A. M., Hayes, R., Isler, I., Kang, H., Strachota, S. (2015). The impact of early algebra on students' algebra-readiness. University of Wisconsin-Madison Education Research Poster Fair. February, 2015.

- (21) **Fonger, N. L.** (2015). How partnerships are Core to a linking research and practice agenda. Mathematics Education Seminar, University of Wisconsin-Madison. February, 2015.
- (20) **Fonger, N. L.** (2014). Advancing a program of research. Mathematics Education Seminar, University of Wisconsin-Madison. October, 2014.
- (19) **Fonger, N. L.,** Maloney, A. M., Confrey, J. (2013). Three musketeers of algebra. *North Carolina Council of Teachers of Mathematics 43rd Annual Conference.* Joseph S. Koury Convention Center, Greensboro, NC. October 2013.
- (18) **Fonger, N. L.** (2013). The strategic use of paper-and-pencil and CAS: Reconciling differences between representations. *Conversations Among Colleagues*, Central Michigan University, Mount Pleasant, MI. March 2013.
- (17) **Fonger, N. L.** (2012). Visualize shape center and spread with Core Math Tools. *Annual Meeting of the National Council of Teachers of Mathematics BuzzHub.* Philadelphia, PA. April 2012.
- (16) Hirsch, C. & **Fonger, N.** (2012). Core Math Tools supporting CCSSM-oriented curriculum design and enactment. *Center for the Study of Mathematics Curriculum Research Conference.* Phoenix, AZ. March 2012.
- (15) **Fonger, N.** (2012). Algebra students' representational fluency in a CAS and paper-and-pencil environment. *Center for the Study of Mathematics Curriculum Research Conference.* Phoenix, AZ. March 2012.
- (14) **Fonger, N. L.** (2011). How dynamic links can bolster connections between representations. *Michigan Council of Teachers of Mathematics Annual Conference.* Macomb, MI. August 2011.
- (13) **Fonger, N.** & Davis, J. (2010). The role of computer algebra systems in high school curricula: A textbook analysis. Poster presentation at the Fourth Annual WMU Research and Creative Activities Poster Day, Western Michigan University, Kalamazoo, MI. April 2010.
- (12) Ziebarth, S. **Fonger, N. L.,** & Edson, A. J. (2009). Fidelity of implementation tools: High school curricula. Poster presentation at the *Center for the Study of Mathematics Curriculum Research Conference.* Phoenix, AZ. February 2009.
- (11) **Fonger, N. L.,** Edson, A. J., & Ziebarth, S. (2009). Fidelity of implementation tools: High school curricula. Poster presentation at the Third Annual WMU Research and Creative Activities Poster Day, Western Michigan University, Kalamazoo, MI. April 2009.
- (10) **Fonger, N. L.** (2009). Technology-intensive curricula and student learning. *Center for the Study of Mathematics Curriculum Research Conference.* Phoenix, AZ. February 2009.
- (9) **Lanie, N.** (2008). Delving deeper into CPMP-Tools: Java-based software for data analysis and probability simulation. Poster presentation at the *Center for the Study of Mathematics Curriculum Research Conference.* Phoenix, AZ. February 2008.

- (8) **Lanie, N.** (2008). New software tools supporting new expectations for high school mathematics. Workshop presentation at the *Mathematics in Action Conference*. Grand Valley State University, Grand Valley, MI. February 2008.
- (7) **Lanie, N.** (2007). Interactive geometry software for all Michigan teachers and students. Workshop presentation at *Michigan Council of Teachers of Mathematics Annual Conference*. Holt, MI. August 2007.
- (6) **Lanie, N. & Hirsch, C.** (2007). Design and development of curriculum-embedded, Java-based software for high school mathematics. Poster presentation at the *Center for the Study of Mathematics Curriculum Research Conference*. Phoenix, AZ. February 2007.
- (5) **Lanie, N. & Thompson, A.** (2006). GEMS Camp at UST: Girls experiencing math in the summer. Presentation at the *Minnesota Council of Teachers of Mathematics Annual Conference*. Duluth, MN. April 2006.
- (4) **Rezac, L. & Lanie, N.** (2005). Arabesque: Studying geometry in Spain. Presentation at the *Minnesota Council of Teachers of Mathematics Annual Conference*. Duluth, MN. April 2005.
- (3) **Lanie, N.** (2005). Symmetry in southern Spain: Classification of 17 planar symmetry groups. Presentation at the *Minnesota Council of Teachers of Mathematics Conference*. Andover MN. October 2005.
- (2) **Lanie, N.** (2005). GEMS camp: Counseling girls in mathematics. Presentation at the *Minnesota Council of Teachers of Mathematics Conference*. Andover MN. October 2005.
- (1) **Rezac, L. & Lanie, N.** (2004). Classification and proof of 17 planar symmetries. Poster presentation at University of Saint Thomas, Saint Paul, MN. September 2004.

GRANTS AND AWARDS

A. Extramural Grants and Awards, funded

“Data Warriors Engage Communities in Environmental Justice Art-Based Advocacy: Math and Maps Inspiring Action.” Funding awarded to working group HF3: Community Engaged Public Humanities with Fonger, Brice Nordquist, Timur Hammond, Kate Navickas, and Christina Willemsen. Event planned for April 6, 2024, \$2,500

“Data Warriors Engage Communities in Environmental Justice Awareness: Safe Communities Event.” Funding awarded to working group HF3: Community Engaged Public Humanities with Nicole Fonger, Brice Nordquist, Timur Hammond, Kate Navickas, and Christina Willemsen. Event December 2, 2023, \$2,500

“Supporting Algebra Students’ Learning of Exponential Functions and Mindsets to See Math as Useful Through Environmental Justice Math Lessons.” National Council of Teachers of Mathematics, Mathematics Education Trust (MET) Equity in Mathematics Grants (6-12). Betty Routhouska (Primary Applicant), Ken Keech (Co-Applicant), Nicole L. Fonger (Co-Applicant). June 1 2023 – May 31, 2024, \$7700

“Nonviolent Action from Civil Rights to Climate Justice” Event as part of the Community-Engaged Public Humanities Working Group with Drs Brice Nordquist, Nicole Fonger, Timur Hammond, Kate Navickas, Christina Willemsen. Spring 2023, \$3250

“Take Me to the Palace of Love” Mini Residency with Rina Banerjee, Exhibition of Rina Banerjee’s Work (January 15 – March 15, 2022) and Conversation with Rina Banerjee and Gayatri Spivak (March 3, 2022). Awarded to the HF3: Community-Engaged Public Humanities group Nicole L. Fonger, Timur Hammond, Kate Navickas, Brice Nordquist, Chris Willemsen by the Central New York Humanities Corridor, \$10,940

“Community-Engaged Social Justice Mathematics” Event by the Community-Engaged Public Humanities Working Group with Drs. Timur Hammond, Brice Nordquist, Central New York Humanities Corridor. September 2021- May 2022, \$5000

“Community-Engaged Public Humanities Working Group” with Drs. Brice Nordquist, Timur Hammond, Kathryn Mariner. Central New York Humanities Corridor. March 2019 – May 2020, \$3000

B. Internal Grants and Awards, funded

“Intersection of Math Education and Geography through Youth-Centered Community-Engaged Research on Environmental Justice.” With Dr. Jonnell Robinson, and collaborators Ken Keech, Stephen Caviness, Lauren Ashby, Karley Voyias. Syracuse University College of Arts and Sciences Engaged Humanities Network. May 2023-May 2024, \$5000

“Meaningful Math Research Group” Syracuse Office of Undergraduate Research and Creative Engagement (SOURCE) Research Assistant Grant, Awarded Nov. 2021 for student work Spring 2022 – Summer 2022, \$8720

“Social Justice Mathematics” Syracuse University College of Arts and Sciences Engaged Communities Course Grant, \$3000

“Racial Justice mathematics” Syracuse Office of Undergraduate Research and Creative Engagement (SOURCE) Research Assistant Grant, Awarded Nov. 2021 for student work Spring 2022 – Summer 2022, \$3876

“The Antiracist Algebra Coalition” College of Arts and Sciences Engaged Humanities Network (EHN) Grant, Syracuse University, \$3000

“Building Research-Practice Partnerships to Improve Student Outcomes in School Algebra” Syracuse University Collaboration for Unprecedented Success and Excellence Grant, June 2020 – June 2022, \$8800

Community-Engaged Scholarship: A Cross Disciplinary Approach. Syracuse University, School of Education. Awarded Fall 2019, \$1500

“A Research-Practice Partnership to Enrich and Support Youth Experience of Meaningful Math Learning in an Urban Public High School” Fonger, N. L. (PI) and Keech, K. (Collaborator). Syracuse University, School of Education, April 2018-2020, \$5000

HONORS, AWARDS, FELLOWSHIPS

2019	Service, Teaching, and Research (STaR) Fellow Association of Mathematics Teacher Educators (AMTE)
2019	Writing Across the Curriculum Faculty Fellow Syracuse University, College of Arts and Sciences
2014	Linking Research and Practice Outstanding Publication Award National Council of Teachers of Mathematics, “Equivalent Expressions Using CAS and Paper-and-Pencil Techniques” was authored by Nicole L. Fonger, published May 2014, pp. 688-93
2011	Graduate Research and Creative Scholar Award Western Michigan University, Department of Mathematics
2010	All University Teaching Effectiveness Award Western Michigan University

TEACHING

A. Mathematics Secondary School Teaching Appointments

2006	Kalamazoo Public Schools, Geometry
2006 – 2008	Kalamazoo Christian High School, Algebra, Geometry

B. University Courses Taught

1. Syracuse University (2017 – present)

CAS 101	First Year Forum, Meaningful Mathematics
CAS 101	First Year Forum, Women in Science and Engineering
MAT 194	Pre-calculus (Undergraduate)
MAT 295	Calculus (Undergraduate)
MAT 375	Introduction to Abstract Mathematics (Undergraduate)

EED 423/600	Elementary Math Methods and Curriculum – Intermediate Grades (Undergraduate/Graduate)
EDU 508	Candidacy Student Teaching Experience
SED 413/613	Methods and Curriculum in Teaching Mathematics (Undergraduate/Graduate)
SED 416/616	Assessment and Data Driven Instruction (Undergraduate/Graduate)
MTD 630	Internship in Mathematics Education (Graduate)
MTD 634	Teaching and Learning Functions (Graduate)
MTD 690	Independent Study (Graduate)
MTD/EDU 700	Linking Research and Practice in Education (Graduate)
MTD/EDU 700	Linking Research and Practice in STEAM Education (Graduate)
MTD/EDU 835	Learning Theories in Mathematics/Education (Graduate)
MTD 830	Research Seminar on Mathematics Education (Graduate)

2. University of Wisconsin–Madison (2015)

C&I 942	Seminar in Research on Mathematics Education (in Collaboration with Dr. Amy Ellis)
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3. Western Michigan University (2006 – 2012)

MAT 3510	Computing Technology in Secondary School Mathematics
MAT 1510	Geometry for Elementary and Middle School Teachers
MAT 1500	Number Concepts for Elementary and Middle School Teachers
MAT 1140	Excursions in Mathematics

CONSULTING & TEACHER PROFESSIONAL DEVELOPMENT

A. Professional Consulting

2022	Equity Focused School Leadership, Ed Smith PreK-8 School, Syracuse, NY
2021	Environmental Justice STEM Lessons, Western Michigan University

B. Teacher Professional Development

2022	Cultivating Math and Science Genius, Mi-STEM Institute, Kalamazoo, Michigan August 8-12, 2022
2020	Syracuse, NY, Syracuse City School District Teacher Leaders Culturally Responsive Education: Antiracism Training Session
2014	Raleigh, NC, Friday Institute for Educational Innovation, Course Developer, MOOC-Ed Series Course on Fractions Foundations.
2013	Raleigh, NC, Friday Institute for Educational Innovation, Course Developer and Leader, MOOC-Ed Series Course on Mathematics Learning Trajectories, Equipartitioning as a Foundation for Rational Number Reasoning in K-5
2013	Gaylord, MI, <i>Deep Understanding of Geometry</i> , Workshop Developer and Leader, Michigan Mathematics Rural Area Project workshop for elementary teachers.

SERVICE

A. Service to Syracuse University**1. Service to the University**

- 2020 Reviewer, Future Professoriate Program
 2017 – present Member, Women in Science and Engineering
 2017-2018 Postdoctoral Faculty Liaison, Women in Science and Engineering

2. Service to the College of Arts and Sciences

- 2023 Academic Strategic Planning Committee
 2023 Meetings with Candidates for Dean
 2022 Member, Curriculum Committee

3. Service to the School of Education

- 2023-2024 Member, Tenure Track Faculty Search Committee for Inclusive STEM Education
 2023-present Academic Advising for the Early Childhood Inclusive Elementary Program (Undergraduate)
 2023-present Review of applications to graduate programs in mathematics education (master's in Teaching and Curriculum; PhD in mathematics education)
 2021 Member, Ad Hoc Vision Committee
 2018 SK-12, Summer Launch Event, Committee
 2019-2023 Member, Committee on Policies, Standards, and Scholarship

4. Service to the Department of Mathematics

- 2022-2023 Meeting with Job Candidates
 2022 Course Tagging (MAT 194)
 2022 Course Supervisor, Calculus I (MAT 295)
 2018-2020, Course Supervisor, Precalculus (MAT 194)
 2021-current

5. Service to the Department of Teaching and Leadership*

**the school of education de-departmentalized in 2023*

- 2022 Course Tagging (SED 416)
 2022– 2023 Secondary Mathematics Education Program Coordinator
 2017 – 2023 Mathematics Education Faculty Review of applications for prospective Masters and PhD students
 2018 Outreach to Mathematics Education Leadership Scholars

B. Service to the Profession**1. Reviewing****i. Reviewer for Refereed Journals**

Ad hoc reviewer for the following journals:

- *Journal for Research in Mathematics Education (JRME)*
- *Journal of Mathematics Teacher Education*

- *Contemporary Issues in Technology and Mathematics Teacher Education*
- *Mathematics Teacher (MT)*

ii. Reviewer for Professional Organizations

Ad hoc reviewer for the following conferences:

- American Educational Research Association (AERA)
- North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA)

iii. Reviewer for Funding Agencies

2021	National Science Foundation, Review Panel Member
2020	National Science Foundation, Ad Hoc Reviewer
2019	National Science Foundation, Review Panel Member
2018	National Science Foundation, Ad Hoc Reviewer
2016	National Science Foundation, Review Panel Member
2015	National Science Foundation, Review Panel Member

2. Conference Planning

2014	Convening on K-12 Mathematics Education: Common Core, Digital Learning, and State Policy
2011-2012	Local Organizing Committee Member, North American Chapter of the International Group for the Psychology of Mathematics Education
2009-2010	CSMC Doctoral Fellows Symposium, San Diego, CA
2007-2008	Conversations Among Colleagues Conference

C. Service to City of Syracuse, County of Onondaga

a. Onondaga County

Spring 2022 Grand Jury Duty, Recording Member

b. Syracuse City School District

2021-2023 Parent Teacher Organization Vice President, Climate Team Representative, Ed Smith PreK-8 School

2022-present Parent Representative, Superintendent Parent Council

c. Community Beautification

2020-present Volunteer, Neighborhood Trash Clean Up “Sherman Park Trash Sharks” and “Barry Park Association”

2020-2022 Volunteer, Café Sankofa Community Garden

STUDENT MENTORING AND ADVISEMENT

A. Doctoral Committees (chair)—Syracuse University (n=2)

- a.** Waleed Raja, PhD Candidate “Exploring the Role of Task Design and Students’ Emotions in Supporting Students’ Learning in Social Justice Mathematics” Anticipated Graduation Summer 2024

- b. Nigar Altindis, PhD “Exploring the Nature of Co-Emergence of Students’ Representational Fluency and Functional Thinking” Defended April 2021

B. Doctoral Committees (member)—Syracuse University (n=2)

- a. Stephen Caviness, PhD Candidate “Mathematics Identity,” Anticipated Defense 2024.
- b. Grace Njuguna Visher, PhD “An Investigation of Sixth Grade Students’ Reasoning of the Angle Concept: A Design Research Study in a Miniature Golf Context,” Defended April 2020
- c. Tonya Wilson, PhD Candidate, Mathematics Education, Summer 2019 – 2022. Did not finish.

C. Dissertation Reader—Syracuse University (n=1)

- a. Alexa R. Kulinski, PhD, “The Matter of Artmaking and Teaching: Exploring Preservice Art Teachers’ Perceptions and Uses of Matter in Artmaking, Reflection, and Curriculum Making,” 2023.

D. PhD Mathematics Education Research Apprenticeship (n=3)

- a. Waleed Raja, Fall 2022, “Social Justice Mathematics”
- b. Miriam Kabagorobyia “The Use of Multiple Resources by English as Second Language Learners (ESLLs) to Communicate Mathematical Ideas” (Published in the AERA Paper Repository August 2021)
- c. Nigar Altindis “Seeing exponential functions despite representational fluency in a quantitatively-rich task context” (Published in the PME-NA Proceedings, November 2019)

E. General Graduate Student Advising

Graduate Student Mentoring Luncheon, PME-NA Conference, 2018
 Research Support and Mentoring for Graduate Students Outside of Syracuse University, Fall 2018 - present

PROFESSIONAL AND CIVIC MEMBERSHIPS

2017-2021	National Council of Teachers of Mathematics (NCTM)
2011-present	North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA)
2017-2019	International Group for the Psychology of Mathematics Education (IGPME)
2017-2020	European Research in Mathematics Education (ERME)
2009, 2011, 2017-present	American Educational Research Association (AERA)
2013-2014, 2019-2020	Association of Mathematics Teacher Educators (AMTE)
2017-2020, 2023	Association of Mathematics Teachers of New York State (AMTNYS)

LEADERSHIP, DIVERSITY, EQUITY, AND INCLUSION PROFESSIONAL LEARNING

2022-2023	Becoming an Antiracist Educator Series Level 2, Virginia Commonwealth University
2021	Becoming an Antiracist Educator Series Level 1, Virginia Commonwealth University
2021	Conversations About Race and Equity (CARE) Circles, Syracuse University
2021	Diversity and Inclusion Training, Syracuse University
2019	Leadership Training, Women in Science and Engineering, Syracuse University
2018	Fostering an Inclusive Learning Environment, Syracuse University
2016	Undergraduate research mentor training, DELTA program, University of Wisconsin-Madison
2015-16	Postdoctoral Training Course in Scientific Leadership & Management, University of Wisconsin-Madison
2014	Conflict Management Training, North Carolina State University

TECHNOLOGICAL EXPERTISE

Experienced user of both Macintosh and Windows operating systems and familiarity and expertise with software including:

- *Creative Publishing Tools*: Adobe, Freehand, iMovie, Camtasia
- *Website Development Tools*: Dreamweaver, Wordpress
- *Microsoft 365 Suite*: OneNote, Excel, Teams, Powerpoint, Publisher, Word
- *Mathematics and Statistics Education Technology*: Desmos, Dynamic Statistics (e.g., Fathom), Dynamic Geometry (GSP, Geogebra, TI-Nspire, CPMP-Tools), JAVA applets (e.g., Core Math Tools), handheld and presenting/navigation software for CAS and calculators (e.g., Texas Instruments products TI-83+, TI-86, TI-89, TI-Nspire, TI-Nspire CAS)
- *Qualitative Data Analysis Tools*: Studiocode video coding software, HyperRESEARCH (textual analysis), MaxQDA,
- *Management Tools*: Endnote (reference library), Zotero
- *Video Conferencing*: Zoom, Teams