

Tabatha Rainwater

University of Tennessee

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Education

Doctor of Philosophy, Mathematics Education **anticipated: May 2025**

University of Tennessee, Knoxville, TN

Specializations: Participatory Action Research with Parents; Cultural Studies in Education
Cognate; Mathematics Graduate Certificate

Committee: Drs. Frances Kay Harper (advisor; chair), Jeneva Lauren Clark, Jennifer Marrow, David Bowers

Pre-dissertation (in progress): *Trauma-Informed Teaching Practices in Mathematics Classes: A Mixed Item Survey*

Special Education & Intervention Teacher Endorsement **2018**

Lipscomb University, Nashville, TN

Advisor: Dr. Misty Parsley

Capstone: Conceptual Review of Mathematics Teaching Accommodations and Modifications A Free Open Access Resource

Masters in the Art of Teaching, Secondary Mathematics **2014**

University of the , Williamsburg, KY

Thesis: Making it to Graduation among Teen Mothers in Southeastern Kentucky A Qualitative Case Study

Bachelor of Science, Computational Mathematics **2011**

University of Tennessee, Knoxville, TN

Advisor: Jan Rosinski

Thesis: Simulations for SEQUOIA, a high-powered neutron spectrometer using Monte Carlo Parallel Computational High-Performance Computing on KRACKEN, a supercomputer.

Fellowships, Grants, and Awards

Graduate Fellow Award (\$1500) **2020-2023**

Awarded Three Academic Years

Department of Theory and Practice in Teacher Education

College of Education, Health, and Human Sciences

PME-NA Graduate Student Travel Award (\$500) **2021**

Intellectual Merit Based, Inaugural Awardee and Fellow, awarded to ten graduate students from over 200 applicants. Psychology of Mathematics Education in North America.

Excellence in Science, Technology, Engineering, & Mathematics Teaching Award **2021 (STEM)**

Department of Theory and Practice in Teacher Education
College of Education, Health, and Human Science

Teacher of the Year **2019**
Austin-East Magnet High School 2800 Martin Luther King Blvd Knoxville, TN 37914

Tennessee Math Teacher of the Year (\$1000) **2018**
in Geometry: A hands-on manipulative for high school Geometry learning. Tennessee Math Teacher Association (TMTA) Classroom Grant.

Excellence in Service Award **2018-2020**
Summer Pre-College Engineering Volunteers for 10th graders (eVOL-10)
Office of Diversity Programs Tickle College of Engineering

Peer-Reviewed Manuscripts

Rainwater, T. R. (revise & resubmit) Healing Informed Mathematics: A Theoretical framework with Parents as research partners. *Urban Education*. Resubmitted on 01/10/2023.

Rainwater, T. R., Harper, F. K., Singh, I., Howell, K. (2021, November). Expanding Connection In Practice: Attention To Multiple Mathematical Knowledge Bases In Integrated Steam Lessons. *Proceedings of the 43rd Annual Meeting of North American Chapter of the International Group for the Psychology of Mathematics Education*. Philadelphia, PA.

Peer-Reviewed Publications, Invited

Harper, F. K., Caudle, L. A., Flowers, C. E., **Rainwater, T.**, Quinn, M. & The CRRRAFT Partnership. (under review following revisions). Centering teacher and parent voice to realize culturally relevant teaching of computational thinking in early childhood. *Early Childhood Research Quarterly*. Resubmitted on 6/27/2022.

Invited Presentations

Rainwater, T. R. (2022, November) Developing a Research Agenda: Unfurling ideas into publication. *Undergraduate Mathematics Invited Symposium*. Maryville College. Maryville, TN.

Rainwater, T. R. (2022, April) Intergenerational Healing through Somatic Practices in Mathematics Education. *3-Minute-Thesis Finalist*. The Graduate School, University of Tennessee.

Conference Papers (Peer-Reviewed Papers)

Rainwater, T. R. (2022, November). *Healing through Confianza: Visualizing our mathematics*. [Paper session]. The International Conference on Urban Education, Cancun, Mexico.

Harper, F. K., Caudle, L., Quinn, M., **Rainwater, T. R.**, Larsen, J., Greene, D., Flowers, C. E., & Sadovnik, A. (2022). Culturally Relevant Computing for Young Children: A Conceptual Analysis. *American Educational Research Association 2022 Annual Meeting, SIG-Early Education and Child Development*. <https://tinyurl.com/yy8vobgb>

Conference Presentations (Peer-Reviewed Proposals)

Rainwater, T. R., James-Hale, J., Zelaya-Zapta, F. (2023, February). *Juggling to Thrive: Motherscholars Becoming Mathematics Teacher Educators*. [Poster session]. Association of Mathematics Teacher Educators, New Orleans, LA.

Harper, F. K., **Rainwater, T. R.**, & Zelaya, F., (2023, February). Including parents as critical members of school-university-community partnerships. [Discussion Session]. Association of Mathematics Teacher Educators, New Orleans, LA.

Harper, F.K., Caudle, L., Quinn, M. Larson, J., Flowers, C.E., **Rainwater, T.R.**, and Thompson, H. (2022, May). *Culturally relevant robotics: A family and teacher partnership*. Video presented at the 2022 STEM for All Video Showcase. Online. <https://stemforall2022.videohall.com/presentations/2555>

Harper, F.K., Caudle, L., Quinn, M., **Rainwater, T. R.**, Larsen, J.A., Greene, D., Flowers, C. E., Sadovnik, A., and The CRRAFT Partnership. (2022, April). *Culturally relevant computing for young children: A conceptual analysis*. Paper presented at the American Educational Research Association Annual Conference, San Diego, CA. (Paper refereed)

Grafton, J., Langston, M., Settlemyer, P., Welch, T., Wooten, K., Zelaya, F., Greene, D., Flowers, C. E., **Rainwater, T. R.**, Larsen, J.A., Quinn, M. F., Caudle, L. A., Harper, F. K., and the CRRAFT Partnership. (2022, January). *Reflections on the co-development and initial implementation of a preschool robotics program: Listening to teacher and caregiver voices*. Research presentation at the annual Southeastern STEM Education Research Conference, Murfreesboro, TN. (Abstract refereed)

Ho, A., **Rainwater, T. R.** (2020, July). *The Game of SET introducing educators to an online platform for virtual classroom engagement*. Mathematics Teacher Circles, American Institute of Mathematics.

Rainwater, T. R. (2019, June). Creating a 3D printed West African Djembe Drum using Calcplot3D, *CalcPlot 3D Invited Collaboration Workshop*. Pittsburg, PA.

Rainwater, T. R. Clark, J. L. (2019, October). Chem-e-Cars in the Classroom. *National Conference of Teachers of Mathematics Annual Conference*. Nashville, TN.

Regional and Local Conference Presentations

Rainwater, T. R., Clark, J. L., Clark, J. (2022, October). *Chem-e-Cars in the Classroom*. *Tennessee Math Teachers Association Annual Conference*. Chattanooga, TN.

Rainwater, T. R. (2020, September). Title IX & Trauma-Informed Campus Politics. *Trans-departmental Discussions, TPE 617*. University of Tennessee, Knoxville.

Clark, J., **Rainwater, T. R.** (2019, October). ACT mathematics lessons using local funds of knowledge, Engagement and Outreach Conference - *Partnering for Impact Office of Community Engagement and Outreach*. University of Tennessee, Knoxville.

Rainwater, T. R. (2019, July). Chem-e-cars in the classroom, *Knox County Schools Teacher Inservice Professional Development*. Knoxville, TN.

Rainwater, T.R. (2019, July) Maximizing Volume using Calcplot3D, *Knox County Schools, Inservice Professional Development*. Knoxville, TN.

Rainwater, T. R. (2018, December) Building Sierpinski Fractals, Math as a form of self-care. *Austin-East Magnet High School*. Knoxville, TN.

Rainwater, T.R., (2018, October) Chem-e-cars in the classroom. *Tennessee Math Teacher Association*. Walter State, Sevierville, TN.

Research Experience

Research Associate

2021 - Present

Black and Latinx Parents Leading chANge and Advancing Racial Justice in Elementary Mathematics: **PLANAR** National Science Foundation *Faculty Early Career Development Program (CAREER) Grant* Award Number 2031394

University of Tennessee, Centro Hispano de East Tennessee, Knoxville Area Urban League
Supervisor: Dr. Frances Kay Harper

Independently Facilitated Parents as Leaders Collaborative Research Group as needed to support PI. Acted as a facilitator to group development of Black and Hispanic families doing math together.

Adapted existing mathematics enrichment materials from multiple sources to include opportunities for elementary children to use local community funds of knowledge with an explicit focus on countering deficit and racial narratives of school math.

Parent Partner Liaison: planning community meeting locations, organizing local catering, training, recruiting, and organizing childcare workers, and developing processes for payment to parent partners using university payment systems.

Year 0 grant development, assisted with conceptualization and implementation through monthly theoretical analysis shared with non-profit community partners.

Research Assistant

2020 2022

Culturally Relevant Robotics: A Family Teacher Partnership, **CRAFT** National Science Foundation *Computer Science for All Grant* Award Number 2031394

University of Tennessee

Supervisors: Drs. Frances Kay Harper, Lori Caudle, and Margarete Quinn

Analyzed Parent and Teacher transcripts from in-person and virtual co-development meetings using post-colonial code-cooccurrence in Dedoose, qualitative methods

Provided quick, timely, and informal communication during the first year of covid with parent leaders, who were taking an active role in curriculum development.

Designed and implemented a professional development session for preschool teachers to learn to teach computational thinking skills with an emphasis on engineering design through TikTok dances.

Iteratively and collaboratively worked with department and university-level accountants to pay parent research partners in cash. This was the first time the department had used cash payments and one of the first at the university level.

developed the materials management for the at-home curriculum.

Research Assistant

2020-2021

Math Majors to Math Teachers: Supporting Students on Required Teacher Licensure Content Praxis Exams: funded through OneUT

University of Tennessee

Supervisor: Dr. Amelia Brown

Developed content to help future math teachers successfully pass their teacher licensure exam in mathematics.

Research Assistant

2020

Tennessee Eastern & Appalachian Math
AIM

Circle American Institute of Mathematics,

Supervisor: Dr. Anne Ho

Develop virtual materials for k-12 math teachers to infuse the game of SET into virtual classroom settings.

Co-PI

2018-2020

ACT math Modules: Curriculum for ACT Math Prep

University of Tennessee

Collaborator: Dr. Jeneva Lauren Clark

Led in developing a robust free and open-sourced online ACT math curriculum with culturally responsive content, partnering university with the local title 1 high school with urban characteristics.

Research Assistant

2018

CalcPlot3D: Developing 3D Geometry Lessons

Robert Morris University, NSF-IUSE 1524968, Pittsburg, PA

Supervisor: Dr. Paul Seeburger

Created West African Djembe Drum using 3D Geometry on calcplot-3D, 3D print of Djembe from math formulas, and developed high school geometry lesson plan with 3D printing the Djembe.

University-Level Teaching and Professional Experience

Undergraduate

Guest Lecture 2023

University of Tennessee, Knoxville

MEDU 430: Teaching Mathematics in the Elementary School

Invited to facilitate class session focused on patterns as a gate

Course instructor 2021

University of Tennessee

Math and Science Teacher Supervisor 2020-2021

Job Embedded and VolsTeach Math and Science Teachers

Theory & Practice in Teacher Education

Elementary Math Methods Course Instructor 2020-2021

College of Education, Health, & Human Science

K-12+ Teaching Experience

Mathematics Teacher, 2017-2020

Austin-East Magnet High School

Courses Taught include College Developmental Math, dual credit, Algebra 1, Geometry, Geometry for diverse needs, Stand Alone Special Education Geometry, and the only approved Algebra 1 and Geometry mixed topics course.

Responsibilities: Coordinated a UT/AE Math day with guest lectures. Created, wrote, and implemented a school-wide socially competent research-based ACT Math curriculum. Increased graduation rates by 5%.

Accolades: TN Compass Observation score of 4.66/5. Held the highest TVAAS Growth Scores in all Austin-East and was a Level 5/5 educator in Algebra 1 and Geometry. (Top 10% of all teachers statewide).

Mathematics Teacher,

Northwest Middle School

2012-2015

Courses Taught: Algebra 1, Response to Intervention (RTI), 8th-grade math: before and after statewide implementation of common core.

Responsibilities: Sole Algebra 1 Teacher, First RTI Teacher in the building, maintained Level 4 Algebra 1 score.

Mathematics Teacher,

2010-2012

Pulaski County Technical Community College

Courses Taught: College Developmental Math, College Algebra, and GED Mathematics.

Responsibilities: Pre-assess adult abilities, goals, and needs. Develop learning trajectories and lessons for multiple learners, work with parole officers and court officials, and facilitate free monthly GED courses with the local state jail. Facilitate Basic College Readiness exam (for completion of college algebra credit).

Service and Academic Professional Activity

Student-Parents at UTK 2023-present **Founder, President**

I developed the Student Parent Organization to fill a void at the university. Student-Parents at UTK is a group intended to create a visibly welcoming community for students who identify as parents or caregivers. We welcome undergrad and graduate students.

- Organize student-parents to advocate for common goals.
- Collaborate with on-campus support for student-parent access to resources.
- National Collaboration with Student-Parent organizations for initial start-up and design
- Developed Constitution, bylaws, annual budget, mission, and objective.
- Coordinate with Hodges Library for Student-Parents Common study space (coming soon)
- Planning Student-Parent Family movie night spring 2023

Executive Committee, Graduate Student Senate 2022-2023 **Institutional Advocacy Committee, Chair**

University of Tennessee, Knoxville

The Institutional Advocacy Committee is an internal committee focused on advancing the rights of students within the university. This new committee has worked to present student-parent rights and opportunities for future improvements within the university. Legislation is in progress to protect student-parents in the coming years.

Role/Responsibilities:

- Hold monthly meetings with the committee.
- Direct 15 graduate students for collective movement towards collective needs.
- Represent the committee in monthly Graduate Student Executive Committee meetings.

Graduate Student Writing Group 2022

Theory and Practice in Teacher Education

University of Tennessee, Knoxville

Supervisor: Dr. David Bowers

Developed and ran a writing group for doctoral students to have peer-to-peer support, accountability, and affinity.

Journal manuscript reviewing 2020-Present

Mathematics Thinking and Learning

July

2020 Present

Summer Mathematics Pre-College Teacher 2018-2020

Tickle College of Engineering

Office of Diversity Summer Pre-college program eVol-10

Kinsa Communication App for Autism Connects to Sesame Street 2017

Autism Site Knoxville Founding Parent Board Member 2015-present
Regal Cinemas 2015-present
We Developed My Way Matinee with Corporate Staff for Individuals with Divergent Sensory Needs. This is now a nationwide program that I started; our first movie was sold out: Minions.

Professional Affiliations

Psychology of Mathematics Education (North America), member 2020-Present
Association of Mathematics Teacher Educators, member 2020-Present
American Educational Research Association, member 2020-Present
Division G: Social Context of Education
Division K: Teaching and Teacher Education
National Council of Teachers of Mathematics, member 2014-Present
TODOS, Mathematics for All
Benjamin Banneker Association 2017-present