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College of Education
North Carolina State University
502-D Poe Hall
Raleigh, NC 27695

ACADEMIC APPOINTMENTS

North Carolina State University   2019-Present
    Assistant Professor, Mathematics Education

EDUCATION

Ph.D. Stanford University   2019
    Curriculum and Teacher Education: Mathematics Education
    Learning Sciences and Technology Design

M.Ed. University of California, San Diego   2008
    Credentials: Secondary Mathematics, Physics

B.A.   University of California, San Diego   2006
    Major: Mathematics

RESEARCH INTERESTS

Justice-Oriented Teaching, Mathematics Education, Professional Development, Pre-Service Teacher Preparation, Informal Learning, Curriculum, Social Media, Computational Methods in Social Science Research

PUBLICATIONS

Journal Publications (Under Review)
    Carman, L., & **Anderson, R. K. (**Submitted**).** Moving between evasiveness and engagement: Secondary mathematics preservice teachers' understandings of race after learning critical topics in an introductory methods course.

Journal Publications (Revise & Resubmit)
    McKie, K., **Anderson, R. K**. (R&R). Complexity and professionalization: The nested collaborative nature of teacher learning.
    Anderson, R. K., Donaldson, S., Troudt, M. L., & Baker, C. K. (R&R). Noticing and wondering to develop as anti-racist mathematics teacher educators: A framework for collaborative change.

Journal Publications (Accepted)
    Donaldson, S., **Anderson, R.K.**, Woods, D., Troudt, M., & Baker, C. (Accepted). Developing anti-racist praxis: Using self-study and student feedback to support collective learning. *Philosophy of Mathematics Education.*

Journal Publications (Published)

Anderson, R. K., & Williams, M. (2023). Mathematics teachers' participatory patterns between face-to-face and virtual professional learning environments. *Contemporary Issues in Technology and Teacher Education, 23*(1).

Troudt, M. L., Skultety, L., Anderson R. K., & Joswick, C. (2022). Framing justice-oriented professional growth for teachers and teacher educators using nested cycles of acknowledgment, action, and accountability. *AMTE Connections.* https://amte.net/sites/amte.net/files/Connections_Troudt_0.pdf

Anderson, R. K., Weiland, T., Males, L., & Quaisley, K. (2022). How four white MTEs attempted to acknowledge, act, and hold ourselves accountable. *Teaching for Excellence and Equity in Mathematics, 13*(1), 60-70.

Anderson, R. K., West, H., & Kates, A. (2022). Learning to subvert: How online learning communities can promote acts of creative insubordination. *Journal of Mathematics Teacher Education.* *https://doi-org.prox.lib.ncsu.edu/10.1007/s10857-022-09543-6*

Anderson, R. K., Ruef, J., Reigh, E., Chavez, R. Williamson, P, & Villa III, A. M. (2021). "Math is so much more.": The design, implementation, and outcomes of an elective mathematics methods course. *Teacher Education Quarterly*, *48*(4), 28-51.

Anderson, R. K., Baker, C.K., Donaldson, S., Troudt, M. L. (2020). Pursuing anti-racist practice through collaborative noticing and wondering. *AMTE Connections*. *30*(2). Retrieved from https://amte.net/connections/winter-2020

Boaler, J., Anderson, R. (2018). Considering the rights of learners in classrooms: The Importance of mistakes and growth assessment practices. *Democracy and Education,* 26(2), Article 7.

Anderson, R. K., Boaler, J., & Dieckmann, J. (2018). Achieving elusive teacher change through challenging myths about learning: A blended approach. *Education Sciences*. *8*(3), 98. doi: 10.3390/educsci8030098

Borko, H., Carlson, J., Mangram, C., Anderson, R. K., Fong, A. Million, S., Mozenter, S., & Villa III, A. M. (2017). Design-Based implementation research: Adapting a professional development leadership model with a school district. *International Journal of STEM Education. 4*(29). doi: 10.1186/s40594-017-0090-3

Anderson, R. (2016). When copy machine collaboration is not enough: Building a collaborative online professional network. *New England Mathematics Journal*. 49(1), 57-64.

Journal Articles (In Preparation)

Barker, H., Lee, H., Kellogg, S., & Anderson, R. K. (In Preparation). The viability of topic modeling to identify participant motivations for enrolling in online professional development.

Anderson, R.K. (In Preparation). Critical praxis reflection journals as tools to acknowledge, act, and account for racial injustices in secondary mathematics classrooms.

Edited Books

Hollebrands, K., Anderson, R., Oliver, K. (eds.) (2021). *Online learning in mathematics education*. Springer.

Book Chapters

Woods, D., Baker, C., Anderson, R. K., Donaldson, S., & Troudt, M. (In Press). Seeking to unsettle and break through whiteness: Enacting self-study to engage in antiracist praxis as mathematics teacher educators. In B. Butler, J. Ritter, & A. Cuenca (Eds.) *How Teacher Educators Learn: Profiles in Teacher Educator Professional Learning*. Information Age Publishing.

Baker, C.K., Troudt, M. L., Donaldson, S., & Anderson, R. K., & Woods, D. (2022). Becoming together: Interrogating anti-racism in teacher education through critical self-study. In G.

Martinez-Alba, L. J.Pentón Herrera, & A. A. Hersi (Eds.) *Antiracist Teacher Education: Theory and Practice*. Association of Teacher Education.

Skultety, L., Joswick, C., Troudt, M. L., & **Anderson R. K.** (2022). Interrogating map projections: A justice-oriented geometry lesson. In Conway, B., Id-Deen, L., Raygoza, M. C., Ruiz, A., Staley, J. W., & Thanheiser, E. (Eds.), *Middle School Mathematics Lessons to Explore, Understand and Respond to Social Injustice.*

Monzenter, S., & **Anderson, R. K.** (2022). Scale as a tool to investigate the impacts of civil war: A unit to mathematically read *A Long Walk to Water*. In Greathouse, P., Anthony, H., & Eisenbach B. (Eds.), *Developing Mathematics Literacy through Young Adult Novels*. Rowman and Littlefield.

Anderson, R. K., Troudt M. L., Joswick, C., & Skultety, L. (2022). Simulating success based on societal odds: A unit to mathematically read *The Hunger Games*. In Greathouse, P., Anthony, H., & Eisenbach B. (Eds.), *Developing Mathematics Literacy through Young Adult Novels*. Rowman and Littlefield.

Refereed Conference Proceedings

Joswick, C., **Anderson, R. K.,** Troudt, M., & Skultety, L. (2022). Acknowledgement and Action: Teachers' First Act Towards Avenues for Social Justice Work. North American Chapter of the International Group for the Psychology of Mathematics Education Annual Meeting, PME-NA XLIV, Nashville, TN.

Carman, L., & **Anderson, R. K.** (2021). Developing an antiracist stance amongst pre-service secondary math teachers: What course resources impacted perceptions of mathematics learning? North American Chapter of the International Group for the Psychology of Mathematics Education, Philadelphia, PA.

West, H., **Anderson, R. K.,** & Kates, A. (2020). Collaborative learning within an informal community: How online spaces can catalyze change. In A.I. Sacristán, J.C. Cortés-Zavala & P.M. Ruiz-Arias, (Eds.). *Mathematics Education Across Cultures: Proceedings of the 42nd Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, Mexico* (pp. 1941-1945). Cinvestav /AMIUTEM / PME-NA. https:/doi.org/10.51272/pmena.42.2020

Anderson, R. K. (2020). Social media facilitated collaboration: An analysis of in-the-moment support in a mathematics education facebook group. In *Proceedings of the International Commission on Mathematical Instruction Study 25, Teachers of Mathematics Working and Learning in Collaborative Groups*. Lisbon, Portugal: University of Lisbon. February 3-7, 2020; Pg. 581-588.

Anderson, R. (2019). Networked professional development: An ecological perspective on mathematics teacher learning. *Proceedings of the forty-first annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education.* St Louis, MO: University of Missouri. November 14-17, 2019; Pg. 525-529.

Anderson, R. K. (2018). Beyond copy room collaboration: A case study of online informal teacher professional learning. *Proceedings of The 13th International Conference of the Learning Sciences*, June 23-27, 2018; London England. Pg. 1511-1512.

Opinion Articles

Anderson, R. K. (2019). Unlearning deficit language together: A productive blueprint for supporting change. *Ed Week*. December 11, 2019; Pg. 20.

RESEARCH EXPERIENCE

Design and Pitch Challenges in STEM: Merging Entrepreneurship and Mathematics Learning
Funding: NSF ITEST ($ 1,424,834.00)
Co-Principal Investigator | North Carolina State University

2021 - Present

Collaborators: PI Erin Krupa, Michael Belcher, North Carolina State University

Students from underrepresented populations perceive STEM to be disconnected from their interests, career aspirations, and lived experiences. New curricular approaches are needed, especially in mathematics, that increase students' career interest and engagement in STEM, while also supporting the learning of rich and targeted STEM content. In this project, researchers will develop and investigate nine justice-oriented design challenges built within a novel curricular framework for high school mathematics, the Design and Pitch Challenges in STEM. The Design and Pitch Challenges framework leverages entrepreneurial pitch competitions to support rich mathematics learning that seeks to address injustices in society. Students work collaboratively to 1) build, test, and refine prototype STEM products; 2) design business plans to demonstrate product viability; and 3) pitch their products to a panel of judges. To support implementation, researchers will also build and investigate an online professional learning network for teachers. This project will work to rehumanize the learning experience for high school students by bringing relevant topics to their mathematics curriculum.

Developing an Anti-Racist Stance in an Introductory Mathematics Education Course
Principal Investigator | North Carolina State University

2020 - Present

Collaborators: Luke Carman, graduate student, North Carolina State University

This project started as a course redesign of EMS 204: Introduction to Mathematics Education during the summer of 2020. The course redesign changed the focus of the course from a broad survey of mathematics education to intentionally focusing on developing anti-racist mathematics teachers. As this is the first course in the math education sequence, the course redesign still honored the survey aspect of the course, but grounded course components in a anti-racist framework. This project takes a design-based research approach and is planned to iterate through the offerings of EMS 204 in the 2021-2022 school year. The goal of this project is to rehumanize mathematics classrooms through understanding the impact of different anit-racist course activities on pre-service teachers' conception of mathematics teaching and learning.

Becoming an Anti-Racist Mathematics Teacher Educator
Co-Principal Investigator | North Carolina State University

2020 - Present

Collaborators: Sara Donaldson, Wheaton College (MA); Melissa Troudt, University of Wisconsin - Eau Claire; Courtney Baker, George Mason University

This project started as a research interest group within the AMTE STaR Fellowship focused on understanding research on anti-racist teaching practices. It has grown into a multi-university research project that uses self-study and case-study methodologies to analyze the impact of intentional anti-racist professional development for mathematics

teacher educators (MTE). The goal of the project is to rehumanize mathematics education by systematically documenting the change process of MTEs and producing professional development resources for other MTEs. This collaboration will continue by seeking more funding to develop professional development materials.

Where do Mathematics Teachers Choose to Learn?: Examining Professional Learning within an Informal, Community-Based Mathematics Teacher Collaborative   2020 - 2022
Funding: FRPD NCSU Internal Award ($5,000)

Principal Investigator | North Carolina State University

Collaborators: Kim Johnson, facilitator, Triangle Math Teachers' Circle; Luke Carman, graduate student, North Carolina State University

Virtual Webinars as Instances of Intentional Teacher Professional Learning   2020 - 2022
Principal Investigator | North Carolina State University

Collaborators: Leigh Nataro, Amber Thienel, Marissa Grayson, Facilitators, Global Math Department; Luke Carman, graduate student, North Carolina State University; Kelly Boles, graduate student, Stanford University.

Twenty-First Century Teacher Learning: Online Learning Communities as Critical Components of Mathematics Teacher Professional Development   2017 - 2022
Principal Investigator | North Carolina State University

Collaborators: Sebastian Munoz-Najar Galvez, Harvard University; Kelly McKie, University of Ottawa; Martia Williams, undergraduate student, North Carolina State University; Latoya Brewer, graduate student, North Carolina State University

Research on the Impact of an Elective Curriculum and Instruction Course   2017 - 2019
Research Assistant | Stanford University | PI: Dr. Peter Williamson

Research on the Impact of a Hybrid Teacher Professional Development Model   2016 - 2019
Research Assistant | Stanford University | PI: Dr. Jo Boaler

Research on Undergraduate Educational Pathways   2017 - 2018
Research Assistant | Stanford University | PI: Brian Cook

Research on Mathematics Teacher Leadership Preparation   2015 - 2016
Research Assistant | Stanford University | PIs: Dr. Hilda Borko and Dr. Janet Carlson

TEACHING EXPERIENCE

Post-Secondary Teaching Experience

Interactions in the Mathematics Classroom, graduate-masters, NCSU	2021-2023
Seminar on STEM Teacher Professional Development, graduate-PhD, NCSU	2020, 2022
Introduction to Mathematics Education, undergraduate, NCSU	2019-2021

Teaching Mathematics with Technology, graduate-masters, NCSU   2019-2021
Curriculum and Instruction for Mathematics III, graduate-masters, Stanford University   2017-2018
Curriculum and Instruction for Mathematics II, graduate-masters, Stanford University   2018
Curriculum and Instruction Elective in Math, graduate-masters, Stanford University   2018

Secondary Teaching Experience

Mathematics and Physics Teacher – Guajome Park Academy (Public K-12 School)   2007 - 2015

Professional Development Experience

Hollyhock Teacher Fellowship - Stanford University   2016, 2018
How to Learn Math for Teachers (Online Course) - Stanford University Online   2016
Problem-Solving Cycle – Stanford University   2015 - 2016

CONFERENCE PRESENTATIONS AND INVITED TALKS

Borden, M. L., **Anderson, R. K.**, & Krupa, E. Teacher professional development through   2023
engagement as researchers observing student learning. Association of Mathematics
Teacher Educators, *New Orleans, LA.*

McKie, K. A., & **Anderson R. K.** The professionalization of teaching: Mathematics   2023
teachers as mathematics teacher educators. Association of Mathematics Teacher
Educators, *New Orleans, LA.*

Joswick, C., **Anderson, R. K.**, Troudt, M., & Skultety, L. Acknowledgement and Action: 2022
Teachers' First Act Towards Avenues for Social Justice Work. North American Chapter
of the International Group for the Psychology of Mathematics Education Annual
Meeting, PME-NA XLIV, *Nashville, TN.*

McKie, K., & **Anderson, R. K.** Complexity and Professionalization: The Nested   2022
Collaborative Nature of Mathematics Teacher Learning. American Educational Research
Association, *San Diego, CA.*

Anderson, R. K., Edgington, C., Lawler, B. R., Males, L. M., Carman, L., Sundrani, A.   2022
Articulating the AMTE standards: Building a comprehensive, justice-oriented secondary
mathematics teacher preparation program. Association of Mathematics Teacher
Educators, *Las Vegas, NV.*

Carman, L., & **Anderson, R. K**. Critical Mathematics Modules in an Introductory   2022
Secondary Mathematics Methods Course. Association of Mathematics Teacher
Educators, *Las Vegas, NV.*

Anderson, R. K. Writing to discover racism: Journaling as a tool to explore teaching   2022
practices in mathematics. Teaching and Learning Symposium: Creating Our New
Normal, NC State Office of Faculty Development, *Raleigh, NC.*

Carman, L., & **Anderson, R. K.** Confronting colorblindness: The impact of critical math modules on pre-service teachers' conception of race and racism. Psychology of Mathematics Education - North America, *Philadelphia, PA.* 2021

Anderson, R. K., & Carman, L. Becoming an anti-racist mathematics teacher. Triangle Mathematics Summit, *Raleigh, N.C.* 2021

West, H., **Anderson, R. K.,** & Kates, A. Collaborative learning within an informal community: How online spaces can catalyze change. Psychology of Mathematics Education - North America, *Sinelo, Mexico.* 2021

Anderson, R. K. Social media facilitated collaboration: An analysis of in-the-moment support in a mathematics education facebook group. International Commission on Mathematical Instruction Study 25, Teachers of Mathematics Working and Learning in Collaborative Groups. *Lisbon, Portugal.* 2020

Anderson, R. Networked professional development: An ecological perspective on mathematics teacher learning. Psychology of Mathematics Education - North America Conference, *St. Louis, Mo.* 2019

Anderson, R., & Chavez, R**.** Rehearsing ways to practice creative insubordination with Pre-Service Teachers. Paper in Symposium: Political Conocimiento for Teaching Mathematics: Context Matters. Chair: Rochelle Gutierrez**.** Association of Mathematics Teacher Educators (AMTE) Annual Meeting**,** *Orlando, FL.* 2019

Williamson, P., **Anderson, R.**, Reigh, E., & Lange, K. Re-imagining pre-service teacher education: Teaching and learning across disciplinary lines. American Education Research Association (AERA) Annual meeting**,** *Toronto, Canada.* 2019

Anderson, R., & Chavez, R**.** Engaging in political conversations around mathematics: Rehearsing ways to practice creative insubordination with pre-service teachers. So, What Are You Working On? Conference**,** *Stanford, CA.* 2018

Boaler, J., **Anderson, R.,** & Fieldstien, S. The creation and development of mathematical mindset coaching tools: A partnership between Youcubed at Stanford University and Tulare County. National Council of Supervisors of Mathematics (NCSM) National Conference,. *Washington, D.C.* 2018

Lang, D., **Anderson, R.,** & Lee, M. Teacher professional development: Social networks and influence maximization. BayLAN, *Berkeley, CA.* 2017

Anderson, R., & Dieckmann, J. Researching the impact of an online course designed to transform student engagement and achievement in mathematics. TELOS: Technology for Equity in Learning Opportunities**,** *Stanford, CA.* 2017

GRANTS

College of Education Dean's Office Innovation Fund ($7,014.50) 2022

Strengthening Field Experiences Through Justice-Oriented Training of Cooperating Teachers

College of Education Dean's Office Innovation Fund ($9,610.00)   2022
Context Matters: A Mixed-Methods Examination of Teachers' Professional
Development Needs in Low-performing Schools

NSF ITEST ($1,424,834.00)   2021 - Present
Design and Pitch Challenges in STEM: Merging Entrepreneurship and Mathematics Learning

Faculty Research and Professional Development Grant ($5,000)   2020-2021
Research grant to study local mathematics teacher collaborative

STEM Education Initiative Grant ($9,749)   2019
Funding for course (Teaching Mathematics with Technology) redesign

VPGE SCORE: Strengthening the Core – Academic Innovation Grant ($15,000)   2018-2019
Research grant to study an innovative curriculum and instruction course. (with Peter Williamson)

Technology for Equity in Learning Opportunities Research Grant ($100,000)   2016-2018
Research grant to study the implementation of hybrid teacher professional development (with Jo Boaler)

HONORS AND AWARDS

AMTE STaR Fellowship   2020-2021
Service, Teaching, and Research (STaR) in Mathematics Education Fellow, Sponsored
by Association of Mathematics Teacher Educators (AMTE) [only 30 mathematics
teacher educators selected per year in the United States]

Noyce Master Teacher Fellowship   2012 – 2015
Curriculum development, new teacher mentoring, networking, professional development

PROFESSIONAL TRAINING

Scholarship of Teaching and Learning Institute, North Carolina State University, 2022
Campus Writing and Speaking Program, North Carolina State University, 2022
Open Science Incubator, North Carolina State University, 2020
Computational Social Science. Stanford University, 2019
Technology-Enhanced Teaching Certificate. Stanford University, 2018

ACADEMIC LEADERSHIP & SERVICE

Change Agent Task Force Member (NCSU, College of Education)   2021 - Present

Social Media Committee Member (AMTE)   2021 - Present

Dissertation Advisor (NCSU), Jonathan Lopes Torres (Co-advisor) Luke Carman   2019 - Present
(Co-advisor), Nixon Igunza, Charlese Harris, Aaron Ideus, Orna David

Dissertation Committee Member (NCSU), Emily Elrod, Heather Barker, James Smiling, Latoya Brewer, Charles Johnson, Josh Mannix, Brianna Bentley, Jerome Amedu   2019 - Present

Thesis Advisor (NCSU), *Dagmara Ciliano, Amber Haldi*   2020 - Present

Reviewer, *Education Sciences, AMTE, PME-NA, MTE, AERA Open, Democracy & Education*   2017 – Present

Panel Reviewer, NSF   2021

Search Committee Member (NCSU), Assistant Professor of Mathematics Education   2020 - 2021

Facilitator & Mentor*, Mathematics Education Research Group, Stanford University   2017 - 2019

Founding Member & Facilitator, Computational Text Analysis for Social Sciences, Stanford University   2017 - 2019

MEDIA MENTIONS

"Best way to improve student math scores? Change teachers' attitudes, study says" *San Jose Mercury News,* August 5, 2018
https://www.mercurynews.com/2018/08/05/best-way-to-improve-student-math-scores-change-teachers-attitudes-study-says/

"To Up Students' Math Ability, Try Working on Their Teachers' Growth Mindset" *Education Week,* July 19, 2018
https://blogs.edweek.org/teachers/teaching_now/2018/07/up_students_math_ability_teachers_growth_mindset.html

"Stanford research shows that students do better on tests when teachers face down their math demons" *Quartz,* July 12, 2018
https://qz.com/1326592/stanford-research-shows-that-students-do-better-on-tests-when-elementary-school-teachers-face-down-their-own-math-demons/

PROFESSIONAL AFFILIATIONS

American Educational Research Association (AERA)
Association of Mathematics Teacher Educators (AMTE)
National Council of Teachers of Mathematics (NCTM)
TODOS: Mathematics for All (TODOS)