

CURRICULUM VITAE

Rebecca G. Gault

Assistant Professor of Mathematics Education
Early Childhood Through Secondary Education
College of Education
University of West Georgia
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ACADEMIC BACKGROUND

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| Ph.D.
2016 | UNIVERSITY OF CENTRAL FLORIDA, Orlando, Florida
Mathematics Education
Dissertation Title: <i>A multiple case study examining how third-grade students who struggle in mathematics make sense of fraction concepts.</i>
Chair: Dr. Enrique Ortiz |
| M.A.
2006 | UNIVERSITY OF CENTRAL FLORIDA, Orlando, Florida
Mathematics Education |
| B.S.
1992 | LOUISIANA STATE UNIVERSITY, Baton Rouge, Louisiana
Civil Engineering |
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PROFESSIONAL EXPERIENCE

- 2016-present **Assistant Professor of Mathematics Education (UWG)** – Taught courses focused on methods and linking research to practice in secondary mathematics education, science education, and STEM education as well as courses focused on pedagogy and content in elementary mathematics education.
- 2015-2016 **Graduate Research Associate (UCF)** – A study examining the effects of robotics on children’s mathematical learning and physiological well-being for children with acute lymphocytic leukemia. School of Teaching, Learning, and Leadership, University of Central Florida, Orlando, FL.
- 2014-2015 **Graduate Research Associate (UCF)** – Replication of the original Cognitively Guided Instruction study in first and second grade classrooms with diverse student populations. School of Teaching, Learning, and Leadership, University of Central Florida, Orlando, FL. Research associate work included compiling relevant scholarly writings, writing literature reviews, conducting diagnostic interviews with first and second grade students, coding

- interview and testing data, and coding teacher performance in first and second grade mathematics classrooms using Instructional Quality Assessment Rubrics.
- 2013-2016 **Graduate Teaching Associate (UCF)** – Instructor of Record for MAE 4326, How Children Learn Mathematics. School of Teaching, Learning, and Leadership, University of Central Florida, Orlando, FL. This methods course includes face to face components and online components and is specifically intended to support preservice teachers in internship.
- Graduate Teaching Associate (UCF)** – Instructor of Record for MAE 2801, Elementary School Mathematics. School of Teaching, Learning, and Leadership, University of Central Florida, Orlando, FL. This content course is designed to support the development of deep conceptual understanding of mathematics for preservice teachers. The course employs an alternate base system to cover whole number concepts of counting, place value, number sense, and operations. Fractions are covered with a focus on pictorial representations and conceptual understanding. The course models use of high cognitive demand tasks, whole class discourse, and justification of reasoning strategies in all mathematical work.
- 1/15- 5/15 **Internship (unpaid)** – Developed and implemented a twice-weekly mathematics intervention program for struggling third and fourth graders in a low socio-economic elementary school. Intervention topics included number sense, relational reasoning, whole number operations, and fraction concepts and operations. The program focused on using high cognitive demand tasks with small group discourse and appropriate teacher scaffolding to support deep conceptual student learning.
- 2/14- 5/14 **Interviewer/Coder** – Conducted and coded diagnostic interviews with first and second grade students as part of the Replicating the CGI Experiment in Diverse Environments grant, a Cognitively Guided Instruction efficacy study, conducted by UCF in conjunction with the Florida Center for Research in Science, Technology, Engineering, and Mathematics.
- 2012-2013 **Mathematics Teacher** – Taught Algebra 2 and Algebra 1 to a diverse population of students including students in the Exceptional Education program and students in the Language Enriched Pupil program. Cypress Creek High School, Orange County Public Schools, Orlando, FL.
- 2006-2012 **Mathematics Teacher** – Taught Algebra 1 and Eighth Grade Mathematics. Served a crucial role in developing an Algebra 1 End of Course Exam Prep class which resulted in a 97% passing rate for Algebra 1 students at Legacy MS in 2012. As the Algebra 1 teacher for the AVID team, was responsible for developing lessons that increased rigor through the use of real world applications, writing assignments, and student to student discourse. Legacy Middle School, Orange County Public Schools, Orlando, FL.
- 2005-2006 **Mathematics Teacher** – Taught Eighth Grade Mathematics on the Language Enriched Pupil Team. Created lessons for students with diverse learning styles and levels of proficiency. Meadow Woods Middle School, Orange County Public Schools, Orlando FL.
- 2004-2005 **Project Engineer/Civil Design Engineer** – Inwood Consulting, Orlando, FL.
- 2000-2003 **Project Engineer/Civil Design Engineer** – URS Corporation, Orlando, FL.
- 1992-2000 **Project Engineer/Civil Design Engineer** – HNTB Corporation, Orlando, FL.
- 1990-1992 **Engineering Student Intern** – Sigma Consulting Group, Baton Rouge, LA.
- 1988-1990 **Engineering Co-operative Student**– Federal Highway Administration, Arlington, VA.

COURSES TAUGHT AT THE UNIVERSITY OF WEST GEORGIA

ECED 4263 Teaching Content/Process: Mathematics Education – This course is offered for elementary education majors. This course focuses on mathematics education content, methods, and materials which are appropriate for the cognitive development of the young child from pre-k to grade five.

ECED 7259 Investigating Methods and Materials in Mathematics - This course is offered for those pursuing a Master of Education with a major in Early Childhood Education and covers concepts and material which are appropriate for mathematics education of Pre K - Grade 5 children. In addition, research on the use of process education in these areas will be considered.

ECSE 4763 Teaching Content/Process: Dual Certificate Mathematics Education – This course is offered for elementary education majors. This course focuses on mathematics education content, methods, and materials which are appropriate for the cognitive development of the young child from pre-k to grade five with emphasis on developmentally appropriate practices for teaching mathematics to all children, including those with mild disabilities.

ECSE 7272 STEM Math for Social Justice - This course focuses on concepts and materials which are appropriate for mathematics education integrated with science, technology, and engineering for P-12 children. In addition, STEM education is considered through the lens of social justice, equity, and community-based learning.

EDMI 7271 Teaching Content/Process: Mathematics Education – This course is offered for K-5 Mathematics Endorsement candidates. This course prepares candidates to understand and use the major concepts of number and operations in mathematics for grades K-5, including expressing, transforming, and generalizing patterns and quantitative relationships through a variety of representations. In addition, candidates will: solve problems using multiple strategies, manipulatives, and technological tools; interpret solutions; and determine reasonableness of answers and efficiency of methods; as well select and use a variety of formative and summative assessment techniques to monitor student progress, gauge students' mathematical understanding, and interpret school-based progress.

EDMI 7271L Elementary Mathematics I – This course is offered for K-5 Mathematics Endorsement candidates. This course involves a series of supervised and coordinated real applications of the knowledge and skills occurring in actual K-5 classroom settings that allow students to further develop and demonstrate the knowledge and skills acquired in coursework.

EDME 7272 Elementary Mathematics II - This course is offered for K-5 Mathematics Endorsement candidates. This course prepares candidates to understand and use the major concepts of probability and data analysis for grades K-5, solve problems using multiple strategies, manipulatives, and technological tools; interpret solutions; and determine reasonableness of answers and efficiency of methods. In addition, this course will nurture collaboration, critical thinking, hands-on exploration, manipulative use, problem-based inquiry, technology utilization, and activity implementation addressing various learning styles; and will select and use a variety of formative and summative assessment techniques to monitor student progress, gauge students' mathematical understanding, and interpret school-based progress.

EDME 7272L Elementary Mathematics II Lab - This course is offered for K-5 Mathematics Endorsement candidates. Supervised and coordinated series of real applications of the knowledge and skills occurring in actual K-5 classroom settings that allow students to further develop and demonstrate the knowledge

and skills acquired in coursework. Residency experiences shall require demonstration of the content knowledge and pedagogical skills acquired in Elementary Mathematics II.

EDME 7273 Advanced Strategies for Teaching Elementary Mathematics - This course is the capstone course for K-5 Mathematics Endorsement candidates. Exploration of techniques and strategies for teaching mathematics in the elementary school, including diversity, data-driven instruction, grouping for instruction, and technology in the classroom.

EDME 7273L Advanced Strategies for Teaching Elementary Mathematics Lab - This course is offered for K-5 Mathematics Endorsement candidates. Supervised and coordinated series of real applications of the knowledge and skills occurring in actual K-5 classroom settings that allow students to further develop and demonstrate the knowledge and skills acquired in coursework. Residency experiences shall require demonstration of the content knowledge and pedagogical skills acquired in Advanced Strategies for Teaching Elementary Mathematics.

SEED 6264 Instructional Strategies in Secondary Mathematics Education – This course is offered for graduates seeking secondary teaching certification in mathematics. This course is designed for investigation and assessment of research in teaching of mathematics with implications for strategies and curricular needs at the secondary level.

UTCH 3001 Knowing and Learning in Mathematics and Science – This course is offered for mathematics and science majors seeking secondary teaching certification. Students develop a powerful tool kit of approaches to knowing and learning in mathematics and science. The course focuses on what it means to know and learn mathematics and science.

UTCH 3002 Classroom Interactions – This course is offered for mathematics and science majors seeking secondary teaching certification. Students develop a powerful tool kit of approaches to knowing and learning in mathematics and science. Students investigate how theories explored in Knowing and Learning play out in instructional settings as they design and implement instructional activities informed by their understandings of what it means to know and learn mathematics and science. Students then evaluate the outcomes of those activities on the basis of student artifacts.

COURSES TAUGHT AT THE UNIVERSITY OF CENTRAL FLORIDA

MAE 2801 Elementary School Mathematics – Instructor of Record. This course is required for elementary education and exceptional education majors. Students explore whole number concepts and operations in base 8 and then move back to base 10 as they develop deep understanding of fraction concepts and operations. Emphasis is also placed on developing conceptual understanding of measurement and geometry.

MAE 4326 How Children Learn Mathematics – Instructor of Record. This course is required for elementary education majors. This course for pre-service elementary school teachers includes instructional strategies, learning activities, the use of manipulatives, lesson planning, evaluation of mathematical learning, and diagnostic techniques.

HONORS AND AWARDS

- Graduate Presentation Fellowship, 2014.
- Graduate Dean's Fellowship, 2013-2016.
- Education Dean's Fellowship, 2013-2016.
- Lockheed Martin Fellowship for the Teachers of Mathematics and Science Transition (TMAST) program, 2005-2006.

RESEARCH FOCI AND ACTIVITIES

- Understanding the thinking and sense-making employed by students who struggle to learn mathematics.
- The development of fraction concepts and algebraic thinking in elementary-aged students, including students identified as struggling in mathematics.
- The role of teacher implementation of high cognitive demand tasks, discourse, and scaffolding to support achievement and conceptual understanding of mathematics concepts for all students including struggling learners in elementary school mathematics.
- The contribution of assessment to student achievement.

How do Pre-Service Teachers Make Sense of Fraction Division with Remainder? – Co-investigator on this research study with the primary purpose of gaining an understanding of the thought processes pre-service teachers use to build conceptual knowledge of fraction division.

Replicating the Cognitively Guided Instruction Experiment in Diverse Environments – Conducted interviews with first and second grade students to contribute data for research on children's mathematical thinking in classrooms with teachers trained or not trained in Cognitively Guided Instruction, entered pretest and posttest data, participated on the writing team for the literature review, conducted Instructional Quality Assessments on class instruction via videotape.

DISSERTATION

A multiple case study examining how third-grade students who struggle in mathematics make sense of fraction concepts. - Although many researchers in mathematics education have studied the conceptual thinking and reasoning of elementary mathematics students and the need for conceptually-based instruction prior to instruction in procedures, few of these studies have specifically addressed the thinking or instructional needs of students who struggle in mathematics. This study is an attempt to qualitatively document how third-grade students who struggle make sense of fraction concepts in a conceptually-rich intervention emphasizing social construction of knowledge, discourse, and scaffolding techniques. Chair: Enrique Ortiz, EdD

PUBLICATIONS

- Gault, R.G., Sahin, N., & Dixon, J.K. (submitted for review). What do we do with what's left over? Making sense of remainders in fraction division.
- Sahin, N., Gault, R.G., Tapp, L., & Dixon, J.K. (submitted for review). Preservice teachers making sense of fraction division with remainders.
- Glenn-White, V. & Gault, R.G. (2015). Alternative subtraction algorithms and place value. *Dimensions in Mathematics*, 34(2), 11-16.

PRESENTATIONS AND PROGRAMS

- Gault, R.G. & Britton, S. (March 2019). *An integrative approach to STEM education methods courses for k-12 teachers*. Interdisciplinary STEM Teaching and Learning Conference in Savannah, GA.
- Ponder, T., Arrington, L., Butler, J., Gilles, B., & Gault, R.G. (February 2019). *Finding your way through the 4Cs with technology*. Association of Teacher Educators Annual Conference in Atlanta, GA.
- Gault, R.G. & Britton, S. (November 2018). *Problematizing STEM with ecojustice philosophy*. National Association for Multicultural Education Annual Conference in Memphis, TN.
- Britton, S. & Gault, R.G. (November 2018). *STEM for all*. Southeastern Association of Science Teacher Education Annual Conference in Birmingham, AL.
- Britton, S. & R.G. Gault (March 2018). *The role of social justice in STEM education*. Interdisciplinary STEM Teaching and Learning Annual Conference in Savannah, GA.
- Gault, R.G. (February 2018). *Students who struggle to understand fractions: Where is the breakdown?* Research Council on Mathematics Learning Annual Conference in Baton Rouge, LA.
- Gault, R. (October 2017). *Pre-service teachers' emerging understandings of fraction division with remainders*. Georgia Educational Research Association, Augusta, GA.
- Gaquere-Parker, A., Gault, R.G., & Scasney, K. (May 2017). *Developing and sustaining relationships with K-12 school partners: What can UTeach do for you?* UTeach Annual Conference, Austin, TX.
- Childs, K., Dixon, J.K., Sutherland, M., Gault, R.G., & Sahin, N. (April, 2016). *Examining an instrument for assessing primary grades mathematics classrooms*. Research Conference of the National Council of Teachers of Mathematics, San Francisco, CA.
- Tapp, L., Gault, R.G., & Dixon, J.K. (April, 2016). *Making sense of fraction division with remainders*. National Council of Teachers of Mathematics, San Francisco, CA.
- Gault, R.G. (February, 2016). *How do struggling third graders make sense of fraction concepts?* Research Council on Mathematics Learning annual conference in Orlando, FL.
- Eisenreich, H. & Gault, R.G. (October, 2015). *Building early number sense: Understanding your students' struggle by making sense of counting and regrouping*. Florida Council of Teachers of Mathematics, Orlando, FL.
- Gault, R.G. (July, 2015). *A multiple case study: How do third grade students who struggle in mathematics make sense of fraction concepts involving representation, comparison, and equivalence?* A poster presentation given as a capstone activity in an education research class. University of Central Florida, Orlando, FL.

- Gault, R.G., & Tapp, L. (February, 2015). *Building Conceptual Understanding of Fraction Division with Remainders*. Research Council on Mathematics Learning annual conference in Las Vegas, NV.
- Sahin, N., Gault, R.G., & Tapp, L. (February, 2015). *How do pre-service teachers make sense of fraction division with remainder?* Presentation at the Association of Mathematics Teacher Educators annual conference in Orlando, FL.
- Gault, R.G. & Harshman, K. (November, 2014). *Guiding versus telling: Engaging students in doing mathematics*. Presentation at the School Science and Mathematics Association annual conference in Jacksonville, FL.
- Harshman, K. & Gault, R.G. (November, 2014). *Common core made easy!* Presentation at the School Science and Mathematics Association annual conference in Jacksonville, FL.
- Gault, R.G., Tapp, L., & Harshman, K. (October, 2014). *All about division: Interpreting the remainder*. Presentation at the Florida Council of Teachers of Mathematics annual conference in Tampa, Florida.
- Gault, R.G. & Tapp, L. (October, 2014). *Learning area with geoboards: An alternative to procedural learning*. Presentation at the Florida Council of Teachers of Mathematics annual conference in Tampa, Florida.
- Gault, R.G. and Harshman, K. (February, 2014). *Common core made easy: A walk through the standards for mathematical practice*. Presentation at Happy Hour Workshop sponsored by the College of Education and Human Performance at the University of Central Florida. Orlando, FL.
- Gault, R.G. (December, 2013). *Guiding versus telling*. An Ignite! presentation given as a capstone activity in a mathematics education doctoral student seminar. University of Central Florida, Orlando, FL.
- Gault, R.G. (November, 2013). *An exploratory study: Investigation into the use of manipulatives to teach addition and subtraction with derived fact strategies to under-performing second grade students*. A poster presentation given as a capstone activity in an education research class. University of Central Florida, Orlando, FL.
- Gault, R.G. and Furnari, K. (February, 2012). *Thinking maps in the middle school mathematics curriculum*. Presentation to Legacy Middle School mathematics teachers' professional learning community. Legacy Middle School, Orlando, FL.
- Gault, R.G. (December, 2011). *Middle school student preparation for the algebra 1 end of course exam*. Presentation to Legacy Middle School mathematics teachers' professional learning community which included demonstrating use of the FLDOE Algebra 1 EOC Test Item Specifications and the Florida Virtual School Practice EOC for student preparation. Legacy Middle School, Orlando, FL.
- Gault, R.G. (April, 2006). *Impact of local community planning decisions on school organization, safety, and performance*. Capstone presentation for Master of Art in Mathematics Education. University of Central Florida, Orlando, FL.
- Developed and implemented an intervention program to improve student performance on the Algebra 1 EOC. Helped to choose and train additional instructors from existing staff. Provided materials, support and instructional guidance for instructors teaching EOC prep. 2011-2012.
- Developed and implemented a free morning mathematics tutoring program for students struggling in 6th grade mathematics through geometry at Legacy Middle School, Orlando, FL. 2007-2012.
- Training and direction of volunteers working with the Florida Engineering Society's MathCounts competitions. 1992-1996.

TRAINING

- edTPA Deep Dive Training conducted during the Southeastern Regional edTPA Conference. April, 2018. Birmingham, AL.
- Instructional Quality Assessment (IQA) training conducted by Dr. Melissa Boston. June, 2015 & October, 2014. University of Central Florida, Orlando, FL.
- Student Interview training for Cognitively Guiding Instruction research project. March-April, 2014. University of Central Florida, Orlando, FL.
- Graduate Teaching Associate training. July, 2013. University of Central Florida, Orlando, FL.

SERVICE

National

Served as a reviewer for the RCML Annual Conference 2016.

Served on the Local Arrangements Committee for the Association of Mathematics Teacher Educators (AMTE) 2015 annual conference.

State

Volunteered at the Florida Educational Research Association (FERA) 2014 annual conference.

University – University of West Georgia

Served as Search Committee Chair for Assistant Professor of Elementary Education, 2017-2018.

Judge in the Engineering Division for the West Georgia Science and Engineering Fair, 2018.

Judge in the Engineering Division for the West Georgia Science and Engineering Fair, 2017.

Conducted a workshop for student participants during the Future Educators' Day, 2018.

Conducted a workshop for student participants during the Future Educators' Day, 2017.

Conducted a workshop and assisted with planning for the UTeach Showcase, 2017.

Served on the Personnel Committee for the College of Education, 2016-2019.

Served on the Search Committee for Assistant Professor of Secondary Science Education, 2016-2017.

University – University of Central Florida

Actively participated in the development of a Professional Learning Community (PLC) designed to support and improve instruction by Graduate Teaching Associates teaching MAE 2801 Elementary School Mathematics.

Revised the Course Pack and Course Notes for MAE 2801 Elementary School Mathematics.

Local School District

Developed mathematics components and implemented interdisciplinary training for k-12 local teachers involved in a STEM initiative focused on stream restoration.

Developed and implemented a twice-weekly mathematics intervention program for struggling third and fourth graders in a low socio-economic elementary school. Intervention topics included number sense, relational reasoning, whole number operations, and fraction concepts and operations. The program focused on using high cognitive demand tasks with small group discourse and appropriate teacher scaffolding to support deep conceptual student learning.

Community

Organized the 2013 Timber Creek High School Thespians Silent Auction fundraiser.

Served as judge for engineering category and on organizing committee for Georgia Science Fair, District Level.

REVIEWER

Rebecca G. Gault (2019) Article Reviewer. *RCML's Investigations in Mathematics Learning*.

Rebecca G. Gault (2015) Presentation Proposal Reviewer. *RCML Annual Conference 2016*.

Rebecca G. Gault (2014-2015) Article Reviewer. *Teaching Children Mathematics*

Rebecca G. Gault (2014-2015) Article Reviewer. *Mathematics Teaching in Middle School*

PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS

Research Council on Mathematics Learning (RCML) 2014-present

National Council for Teachers of Mathematics (NCTM) 2014-present

Association of Mathematics Teacher Educators (AMTE) 2014-present

School Science and Mathematics Association (SSMA) 2014-present

National Association of Multicultural Educators (NAME) 2018-present

Association of Teacher Educators (ATE) 2018-present