

RAYMOND JOHNSON

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Current Positions

Mathematics Content Specialist, January 2016 – Present
Colorado Department of Education, Denver, Colorado

Graduate Research Assistant, Summer 2012 – Present
University of Colorado Boulder, Boulder, Colorado

Education

Ph.D., Education (in progress), Fall 2010 – Present
University of Colorado Boulder, Boulder, Colorado

- Emphasis in Curriculum and Instruction in Mathematics Education, David C. Webb, Advisor
- Comprehensive exam completed Fall 2012; Committee: David Webb, William Penuel, and Derek Briggs

Graduate Coursework, Education, Fall 2009 – Summer 2010
University of Colorado Boulder, Boulder, Colorado

- Emphasis in Curriculum and Instruction in Mathematics Education

Program Certificate in Cartography and Geographic Information Systems (GIS), 2002
University of Northern Iowa, Cedar Falls, Iowa

- Emphases: Alpine Geography, Land Cover Analysis, Data Storage and Distribution

B.A., Mathematics, 1999

University of Northern Iowa, Cedar Falls, Iowa

- Emphasis in Secondary Mathematics Teaching, Bonnie Litwiller, Advisor
- Presidential Scholar (Awarded to top 15 of approximately 3,000 incoming freshmen)
- Presidential Scholar Senior Thesis: *Math Wars: The Politics of Curriculum*, advised by Edward Rathmell

Research Activity

Graduate Research Assistant, Summer 2012 – Current

Institute of Cognitive Science and School of Education, University of Colorado Boulder

- Project: Inquiry Hub (NSF Award #1147590)
- Principal Investigators: Tamara Sumner; Co-PI: William R. Penuel
- Primary Collaborators: Heather Leary, Jennifer Jacobs, Samuel Severance, Holly Devaul, Cathy Martin, Patty Kincaid
- Provided algebra content expertise, professional development facilitation, and research assistance in a research-practice partnership; Assumed project management duties in Fall 2015

Graduate Research Assistant, Fall 2014 – Summer 2015

Center for Assessment, Design, Research and Evaluation (CADRE), School of Education, University of Colorado Boulder

- Project: Measuring Student Growth Using Student Learning Objectives
- Faculty Director: Derek Briggs
- Primary Collaborators: Fred Peck, Jessica Alzen, Rajendra Chattergoon, David C. Webb
- Provided content expertise and professional development primarily with Kindergarden and Grade 1 teachers

Principal Investigator, Spring 2011

School of Education, University of Colorado Boulder

- Project: Middle School Mathematics Teachers' Perceptions of the Common Core State Standards in Statistics
- Collaborator: Susan Thomas
- Interviewed and observed two middle school math teachers to explore perceptions and interpretations of new Common Core State Standards

Graduate Research Assistant, Fall 2010 – Summer 2011

School of Education, University of Colorado Boulder

- Faculty Advisor: Finbarr Sloane
- Collaborator: Nathan Dadey
- Analyzed ECLS-K dataset using R and performed homeschooling literature review

Graduate Research Assistant, Spring 2001 – Spring 2002

Department of Geography, University of Northern Iowa

- Faculty Director: Michael Emch
- Coordinated STORM Project outreach and internet distribution efforts

Graduate Research Assistant, Spring 2000

Department of Geography, University of Northern Iowa

- Faculty Advisor: Dennis Dahms
- Assisted with INQUA Quaternary glacial extent mapping project for Wyoming and Colorado

Teaching Activity

University Courses

Basic Statistical Methods, Fall 2015

School of Education, University of Colorado Boulder

- Instructor of graduate-level course

Basic Statistical Methods, Fall 2011, Fall 2012, Fall 2013

School of Education, University of Colorado Boulder

- Instructor of upper-level undergraduate course

School in Society, Spring 2012, Spring 2013

School of Education, University of Colorado Boulder

- Instructor of course focused on educational history and traditions, policy, and cultural issues

CU Teach: Step 1 and Step 2, Fall 2011 – Spring 2012

School of Education, University of Colorado Boulder

- Co-instructor of introductory courses for aspiring mathematics and science preservice teachers

Inaugural Presidential Scholars Think Tank, Fall 2000

University of Northern Iowa, Cedar Falls, Iowa

- Co-directed with UNI President Robert Koob

Physical Geography Lab, Fall 2000

University of Northern Iowa, Cedar Falls, Iowa

- Teaching assistant and lab instructor for Dennis Dahms

Introduction to Statistics, Summer 1999

University of Northern Iowa, Cedar Falls, Iowa

- Teaching assistant for Mark Ecker

K-12 Courses

High School Mathematics, Fall 2006 – Spring 2009

South Park High School, Park County School District Re-2, Fairplay, Colorado

– Taught Algebra 1, Geometry, Algebra 2, and Math Lab

High School Mathematics, Fall 2003 – Spring 2006

Florence High School, Fremont County School District Re-2, Florence, Colorado

– Taught Algebra 1, Geometry, Algebra 2, and Business Math

Substitute Teacher, Fall 2002 – Spring 2003

North Central Iowa

Professional Activity

Blogging, Social Media, and Outreach

Blogger at MathEd.net (October 2009 – Present) and [MathEd.net Links](http://MathEd.net/Links) (November 2011 – Present). Notable posts:

[This Week in Math Ed](#) (series)

[NCTM's Grand Challenge](#)

[RYSK: Gravemeijer's Local Instruction Theories as Means of Support for Teachers in Reform Mathematics Education \(2004\)](#)

[Constructivism and the Khan Academy](#)

[RYSK: Erlwanger's Benny's Conception of Rules and Answers in IPI Mathematics \(1973\)](#)

[2004-2006: My adventures in standards-based grading \(and why I stopped\)](#)

[Patterns of patterns](#)

Creator and Editor of the [MathEd.net Wiki](#)

Active member of mathematics education communities on Twitter (<https://twitter.com/MathEdnet>) since October 2009 and Google+ (<https://plus.google.com/+RaymondJohnson>) since July 2011.

Strauss, V. (2012, August 2). *Khan Academy: Readers weigh in*. Op-ed for the Washington Post's *Answer Sheet* written with Frederick Peck.

Johnson, R. (2011, October 29). *The publication paradox*. Blog post for the 2011 Open Access Week.

Publications

Johnson, R. (2016). A few thoughts from NCTM 2015. In I. Horn & T. Cordone (Eds.), *The best of the math teacher blogs 2015* (pp. 147-148).

Johnson, R., Severance, S., Penuel, W. R., & Leary, H. (2016). Teachers, tasks, and tensions: Lessons from a research-practice partnership. *Journal of Mathematics Teacher Education*, *19*(2), 169-185.

<http://doi.org/10.1007/s10857-015-9338-3>

Penuel, W. R. & **Johnson, R.** (2016) Review of “*Continued Progress: Promising Evidence on Personalized Learning*.” Boulder, CO: National Education Policy Center. Retrieved from

<http://nepc.colorado.edu/thinktank/review-personalized-learning>

Briggs, D. C., Peck, F., **Johnson, R.**, & Alzen, J. (2015). The learning progression project Year 2 pilot findings: Mathematics (Report). Retrieved from <http://www.colorado.edu/cadre/selected-reports-and-publications>

Briggs, D. C., Diaz-Bilello, E., Peck, F., Alzen, J., Chattergoon, R., & **Johnson, R.** (2015). Using a learning progression framework to assess and evaluate student growth (Working Paper). Retrieved from <http://www.colorado.edu/cadre/selected-reports-and-publications>

Johnson, R., Severance, S., Leary, H., & Miller, S. (2014). Mathematical tasks as boundary objects in design-based implementation research. In J. L. Polman, E. A. Kyza, K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee, & L. D'Amico (Eds.), *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 2* (pp. 1127-1131). Boulder, CO: International Society of the Learning Sciences. Retrieved from http://scholar.colorado.edu/educ_gradpapers/1/.

- Severance, S., Leary, H., & **Johnson, R.** (2014). Tensions in a multi-tiered research-practice partnership. In J. L. Polman, E. A. Kyza, K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee, & L. D'Amico (Eds.), *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 2* (pp. 1171-1175). Boulder, CO: International Society of the Learning Sciences. Retrieved from <http://www.isls.org/icls2014/Proceedings.html> and http://mathed.net/files/2014-ICLS-Tensions_in_a_Multi-Tiered_Research-Practice_Partnership.pdf.
- Cole, M., Engeström, Y., Sannino, A., Gutiérrez, K., Packer, M., Penuel, W. R., **Johnson, R.**, Severance, S., Leary, H., & Miller, S. (2014). Toward an argumentative grammar for socio-cultural/cultural-historical activity approaches to design research. In J. L. Polman, E. A. Kyza, K. O'Neill, I. Tabak, W. R. Penuel, A. S. Jurow, K. O'Connor, T. Lee, & L. D'Amico (Eds.), *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 3* (pp. 1254-1263). Boulder, CO: International Society of the Learning Sciences. Retrieved from <http://www.isls.org/icls2014/Proceedings.html> and http://mathed.net/files/2014-ICLS-Toward_an_Argumentative_Grammar_for_CHAT_Design_Research.pdf.
- Johnson, R.** (1999). *Math Wars: The Politics of Curriculum* (Unpublished undergraduate thesis). University of Northern Iowa, Cedar Falls, IA. <http://dx.doi.org/10.6084/m9.figshare.2391046>

Conference Presentations and Workshops

- Johnson, R.**, Peck, F., & Webb, D. C. (2016, April). *Modeling Your Way to Understanding with Realistic Mathematics Education*. Forthcoming presentation at the Annual Meeting of the National Council of Teachers of Mathematics, San Francisco, CA.
- Johnson, R.**, Peck, F., Briggs, D. C., & Alzen, J. (2016, April). *A Unified Framework of Teachers' Conceptions of Learning and Assessment*. Forthcoming interactive paper presentation at the Research Conference of the National Council of Teachers of Mathematics, San Francisco, CA.
- Severance, S., Leary, H., **Johnson, R.**, & Quigley, D. (2016, April). *Developing Teacher Expertise in the Next Generation Science Standards Through Curricular Co-Design*. Forthcoming structured poster presentation at the Annual Meeting of the American Educational Research Association, Washington, D.C.
- Bejarano, L., Amidon, T., **Johnson, R.**, McGarry, A., & Turner, C. (2015, September). *Better Teaching Through Online Collaboration: Twitter, Blogs, and the Web*. Invited presentation at the Annual Conference of the Colorado Council of Teachers of Mathematics, Denver, CO. <http://dx.doi.org/10.6084/m9.figshare.2082655>
- Johnson, R.**, Peck, F., Campbell, W., Grover, R., Miller, S., Scroggins, A., & Webb, D. C. (2015, September). *An Orientation to Realistic Mathematics Education*. Opening plenary at the 5th International Realistic Mathematics Education Conference, Boulder, CO. <http://dx.doi.org/10.6084/m9.figshare.2082622>
- Sumner, T., Penuel, W. R., Severance, S., **Johnson, R.**, Quigley, D. (2015, September). *Inquiry Hub: Ecosystems: Digital Curriculum for Citizen Science from a Design Research Partnership*. Poster at the 7th Annual Symposium on STEM Education, Boulder, CO. <http://dx.doi.org/10.6084/m9.figshare.2082628>
- Furtak, E. M., Cartun, A., Kizil, R. C., Chrzanowski, A. M., Grover, R., Heredia, S. C., **Johnson, R.**, McClelland, A., White, K. H. O. (2015, April). *Toward a Participation Metaphor for Formative Assessment*. Roundtable presentation at the Annual Meeting of the American Educational Research Association, Chicago, IL. <http://tinyurl.com/lkjahyu>
- Johnson, R.**, Martin, C., & Sauer, R. (2015, April). *Supporting Algebra 1 Teachers' Implementation of the CCSS: A Research + Practice Partnership*. Presentation at the Annual Conference of the National Council of Supervisors of Mathematics, Boston, MA. <http://dx.doi.org/10.6084/m9.figshare.1378968>
- Johnson, R.**, Leary, H., Severance, S., Penuel, W., Sumner, T., Devaul, H., & Dibie, O. (2014, September). *Capacity for Customization: Algebra Teachers, Curriculum Design, and the Common Core*. Poster at the 6th Annual Symposium on STEM Education, Boulder, CO. <http://dx.doi.org/10.6084/m9.figshare.1218433>
- Johnson, R.** (2014, July). *Making Social Media More Than Merely Social: Implications for Teacher Professionalism*. Invited presentation for the Global Math Department, <https://www.bigmarker.com/GlobalMathDept/22July2014>.
- Wray, J., Ani, K., Black, A., Hunter, C. **Johnson, R.**, Meyer, D., & Nowak, K. (2014, April). *Teachers Leveraging Technology in the Classroom*. Invited panelist for the Annual Meeting of the National Council of Teachers of Mathematics, New Orleans, LA.

- Johnson, R.** (2014, April). *Math Teachers and Social Media: Professional Collaboration or Support Group?* Presentation for the Annual Meeting of the National Council of Teachers of Mathematics, New Orleans, LA. <http://dx.doi.org/10.6084/m9.figshare.2087740>
- Johnson, R.** (2014, April). *Aligning Mathematical Tasks to the Standards for Mathematical Practice.* Poster for the Research Conference of the National Council of Teachers of Mathematics, New Orleans, LA. <http://dx.doi.org/10.6084/m9.figshare.3124822>
- Johnson, R.,** Leary, H., & Penuel, W. (2014, April). *Supporting Common Core-Driven Curriculum Adaptations for High School Algebra.* Poster for the SIG-RME poster session at the Annual Meeting of the American Educational Research Association, Philadelphia, PA. <https://dx.doi.org/10.6084/m9.figshare.3124825>
- Leary, H., Severance, S., & **Johnson, R.** (2013, September). *Customizing Curriculum and Digital Resources for STEM Educators.* Poster for the 5th Annual Symposium on STEM Education, Boulder, CO.
- Johnson, R.** & Thomas, S. (2013, April). *Statistical Reasoning in the Middle School.* Gallery workshop for the Annual Meeting of the National Council of Teachers of Mathematics, Denver, CO. <http://dx.doi.org/10.6084/m9.figshare.3124828>
- Abels, M., Matassa, M. S., & **Johnson, R.** (2013, April). *Making Sense of Algebra with Realistic Mathematics Education.* Gallery workshop for the Annual Meeting of the National Council of Teachers of Mathematics, Denver, CO. <http://dx.doi.org/10.6084/m9.figshare.3124831>
- Johnson, R.** (2011, November). *Efficient Polynomial Multiplication, Division, Factoring, and Completing the Square.* Gallery workshop for the Regional Conference of the National Council of Teachers of Mathematics, Albuquerque, NM. <http://dx.doi.org/10.6084/m9.figshare.3124834>
- Johnson, R.** (2011, September). *A Learning Progression for Multiplying, Dividing, and Factoring Polynomials.* Presentation for the 3rd International Realistic Mathematics Education Conference, Boulder, CO. <http://dx.doi.org/10.6084/m9.figshare.3124837>
- Johnson, R.** & Thomas, S. (2011, April). *What's the Probability of Teaching Statistics?* Poster presented for the 2011 Spring Qualitative Methods Class Poster Session, School of Education, University of Colorado, Boulder, Boulder, CO. <http://dx.doi.org/10.6084/m9.figshare.3124840>
- Johnson, R.** (2001, October). *Remote Sensing Outreach of the University of Northern Iowa STORM Project.* Presentation for the 2011 Iowa Geographic Information Council (IGIC), Iowa City, IA.
- Johnson, R.** (1999, December). *Math Wars: The Politics of Curriculum.* Thesis presentation in the Department of Mathematics, University of Northern Iowa, Cedar Falls, IA. <http://dx.doi.org/10.6084/m9.figshare.2391046>

Service Activities

- Board Member, Colorado Council of Teachers of Mathematics (January 2016 – Present)
- Contributor to the [Guides to the Colorado Academic Standards in Mathematics](#) (Fall 2014)
- Advisor for *Virtual Teacher Learning Communities* (vTLC) project with Erin Furtak (Fall 2013 – Present)
- PhET Interactive Simulations (phet.colorado.edu) Mathematics Advisory Group (Fall 2012 – Spring 2013).
- Mendeley Advisor for University of Colorado Boulder (April 2011 – Present).
- School of Education learning sciences lab design participant (Fall 2011 – Spring 2012).
- Reviewer for *Educational Measurement: Issues and Practice* and the *Journal of Curriculum Studies*.
- Technology Consultant/Technician, Fort Dodge Community Schools, Fort Dodge, IA August 1999-December 1999, installed and configured Renaissance Learning's Star Math and Accelerated Math Software

Memberships

- National Council of Teachers of Mathematics
- Colorado Council of Teachers of Mathematics
- National Council of Supervisors of Mathematics
- American Educational Research Association
- International Society of the Learning Sciences

Graduate Coursework

Mathematics Education

EDUC 8165	Topics in Math Ed: Research on Teacher Learning & Practice	David Webb	Sp14
EDUC 8165	Topics in Math Ed: Research & Writing in Math/Sci Ed	Erin Furtak	Fa13
EDUC 8165	Topics in Math Ed: Curriculum, Culture, and Achievement	Edd Taylor	Sp13
EDUC 8165	Topics in Math Ed: Theories of Math and Science Learning	Vicki Hand	Sp12
EDUC 8165	Topics in Math Ed: Research in the Learning of Algebra	David Webb	Fa11
EDUC 6925	Readings in Math Ed (Program Area Seminar)	Various	Fa10–Present
EDUC 6804	Student Centered Secondary Mathematics	Webb/van der Kooij	Su11
EDUC 5820	Teaching of Mathematics: Algebraic Thinking	Thomas Sullivan	Su10
EDUC 5810	Teaching of Mathematics: Number Sense	Michael Matassa	Su10
EDUC 5317	Nature of Mathematics and Mathematics Education	David Webb	Fa09

Assessment and Measurement

EDUC 8740	Advances in the Assessment of Student Learning	Erin Furtak	Fa12
EDUC 8720	Advanced Topics in Measurement	Derek Briggs	Sp12
EDUC 8710	Measurement in Survey Research	Derek Briggs	Fa11
EDUC 5706	Assessment of Mathematics and Science Education	David Webb	Sp10

Other

EDUC 8348	Purposes and Methods of Design Research	Penuel/Manz	Fa14
EDUC 8615	Language Issues in Education Research	G. Solano-Flores	Sp13
EDUC 8145	Research on Teaching and Learning to Teach	Liston/Whitcomb	Sp13
EDUC 8014	Multicultural Education	Linda Mizell	Fa11
EDUC 8260	Qualitative Methods II	Susan Jurow	Sp11
EDUC 8240	Quantitative Methods II	Gregory Camilli	Sp11
EDUC 8220	Introduction to Education Research and Policy	Ken Howe	Sp11
EDUC 8250	Qualitative Methods I	Margaret Eisenhart	Fa10
EDUC 8230	Quantitative Methods I	Gregory Camilli	Fa10
EDUC 8210	Perspectives on Classrooms, Teaching, and Learning	Elizabeth Dutro	Fa10
EDUC 7446	Policy Issues in Education	Kevin Welner	Sp10
EDUC 6325	Culture and Ethnography in Education	Margaret Eisenhart	Sp10
EDUC 6804	Ethics in Education	Ken Howe	Fa09