

Katherine E. Lewis

Assistant Professor

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Education

University of California, Berkeley – Ph.D. in Education	2011
Dissertation: Toward a Reconceptualization of Mathematical Learning Disabilities: A Focus on Difference Rather than Deficit	
Alan Schoenfeld (chair), Geoffrey Saxe, Susan Schweik	
University of California, Berkeley – M.A. in Education	2007
Trinity College Dublin, Ireland – M.Sc. in Multimedia Systems	2003
University of Notre Dame – B.A. in Psychology and Computer Applications	1999
Magna Cum Laude.	

Professional Experience

University of Washington – Asst. Professor in Special Education and the Learning Sciences	2013-Present
University of Minnesota – Post-doctoral Associate	2012
<i>Supervisor: Michèle Mazzocco</i>	
Johns Hopkins University – Visiting Scholar / Post-doctoral Fellow	2011
<i>Supervisor: Michèle Mazzocco</i>	

Honors, Awards, & Fellowships

Linking Research and Practice Outstanding Publication Award from the National Council of Teachers of Mathematics	2018
National Academy of Education - Spencer Postdoctoral Fellow	2015-2017
Early Career Publication Award from AERA Special Interest Group on Research in Mathematics Education	2015
Service Teaching and Research (STaR) Fellow	2014-2015
Technology Teaching Fellow – University of Washington	2013-2014
Spencer Dissertation Fellow	2010-2011
Research in Cognition and Mathematics Education (RCME) Fellow	2009-2011
Diversity in Mathematics Education (DiME) Research Fellow	2005-2009
Spencer Research Training Grant	2007-2008
University of California, Berkeley, Fellowship	2004-2005

Publications – Journal Articles (* peer reviewed)

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- * **Lewis, K. E.** & Lynn, D. M. (2018). Access through compensation: Emancipatory view of a mathematics learning disability. *Cognition & Instruction* 36(4), 424-459. doi: 10.1080/07370008.2018.1491581.

- * **Lewis, K. E.** & Lynn, D. M. (2018). An insider's view of a mathematical learning disability: Compensating to gain access to fractions. *Investigations in Mathematics Learning* 10(3), 159-172. doi: 10.1080/19477503.2018.1444927.
 - * **Lewis, K. E.** & Lynn, D. M. (2018). Against the odds: Insights from a statistician with dyscalculia. Special Issue of *Education Sciences* on "Dispelling Myths about Mathematics" edited by Jo Boaler. 8, 63. doi:10.3390/educsci8020063
 - * **Lewis, K. E.** & Fisher, M. B. (2018). Clinical interviews: Assessing and designing mathematics instruction for students with disabilities. *Intervention in School and Clinic*. 53(5). 283-291. doi: 10.1177/1053451217736864
 - * Lynch, S. R., Hunt, J. H., **Lewis, K. E.** (2018). Productive struggle for all: Differentiated instruction. *Mathematics Teaching in the Middle School*. 23(4), 194-201.
 - * **Lewis, K. E.** (2017). Designing a bridging discourse: Re-mediation of a mathematical learning disability. *Journal of the Learning Sciences*, 26(2). 320-365. doi: 10.1080/10508406.2016.1256810
 - * **Lewis, K. E.** (2016). Beyond error patterns: A sociocultural view of fraction comparison error patterns in students with mathematical learning disabilities. *Learning Disability Quarterly* 39(4), 199-212. doi:10.1177/0731948716658063
 - * **Lewis, K. E.** (2016). Understanding mathematical learning disabilities as developmental difference: A fine-grained analysis of one student's partitioning strategies for fractions. *Infancia y Aprendizaje*, 39(4), 812-857. doi:10.1080/02103702.2016.1215085
 - * **Lewis, K. E.** & Fisher, M. B. (2016). Taking stock of 40 years of research on mathematical learning disability: Methodological issues and future directions. *Journal for Research in Mathematics Education*, 47(4), 338-371. doi:10.5951/jresmetheduc.47.4.0338
- Schoenfeld, A. H. & **Lewis, K. E.**, (2016). Becoming a researcher: A reflection. *Journal of Education*, 196(2), 63-69.
- * **Lewis, K. E.** (2014). Difference not deficit: Reconceptualizing mathematical learning disabilities. *Journal for Research in Mathematics Education*, 45(3), pp. 351-396.
Reprinted (2016) in *Journal of Education*, 196(2), 39-62.
 - * Mazzocco, M.M.M., Myers, G.F., **Lewis, K.E.**, Hanich, L.B., & Murphy, M.M. (2013). Limited knowledge of fraction representations differentiates middle school students with mathematics learning disability (dyscalculia) vs. low mathematics achievement. *Journal of Experimental Child Psychology*, 115, 371-387.
- Lewis, K. E.** (2010). Understanding mathematical learning disabilities: A case study of errors and explanations. *Learning Disabilities a Contemporary Journal* 8(1), pp. 21-30.
- * Saxe, G.B., Earnest, D., Sitabkhan, Y., Haldar, L.C., **Lewis, K.E.**, & Zheng, Y. (2010). Supporting generative thinking about integers on number lines in elementary mathematics. *Cognition and Instruction*, 28(4), pp. 433-474.

Publications – Book Chapters and Handbook Entries

- Hunt, J. H. & **Lewis, K. E.** (in press). Extending students' knowledge of fractions as relational quantities: Teaching for understanding. In D. Bryant (Ed.) *Intensifying Mathematics Interventions for Students Who Struggle Learning Mathematics*.

Lewis, K. E. (2018). Difference not deficit: Assessing issues of access in mathematics for students with disabilities. In S. Crespo, S. Celedón-Pattichis, and M. Civil (Eds). *Access and Equity: Promoting high quality mathematics in grades 3-5*. (pp. 35-48). Reston, VA: National Council for Teachers of Mathematics.

Lewis, K. E. (2018). Vygotsky's zone of proximal development. In E. B. Braaten (Ed.) *The SAGE Encyclopedia of Intellectual and Developmental Disorders*. (pp. 1712-1714). Thousand Oaks, CA: SAGE Publication Inc. doi: 10.4135/9781483392271.n533

Grants

Faculty Partner with Disability Rights Washington and Office of Education Ombuds. *One Out of Five (OO5) Disability History and Pride Project*. University of Washington, Unite:Ed Research + Practice Seed Grant. \$40,000

Co-Principal Investigator. *Project FOSTER: Foundations Of Subject-matter in Teacher Education and Research*. U.S. Department of Education, Office of Special Education Services. Grant #H325D160044 (2016-2021). \$1,250,000. Roxanne Hudson, PI.

Principal Investigator. *Rewriting Our Understanding of Mathematical Learning Disability*. Harlan Hahn Endowment Fund, University of Washington (Travel award to fund participant/co-investigator's travel to national math education conference: PMENA) \$1868

Principal Investigator. *Beyond the Basics: Understanding Mathematical Learning Disabilities in Algebra*. National Academy of Education, Spencer Postdoctoral Fellowship. (2015-2017) \$70,000

Principal Investigator. *Into Uncharted Territories: Mathematical Learning Disabilities in Algebra*. Royalty Research Fund, University of Washington (2014-2015). \$28,973

Conference Proceedings (* peer reviewed)

* **Lewis, K. E.** & Lynn, D. M. (2016). Compensation: Rewriting our understanding of math learning disabilities. *Proceedings of the 38th Annual Meeting of the North American Chapter of the International Group for Psychology and Mathematics Education (PME-NA)*. Tucson, AZ. pp. 1064-1070.

* **Lewis, K. E.** (2015). Understanding issues of quantity through comparisons: Math learning disabilities and fractions. *Proceedings of the 37th Annual Meeting of the North American Chapter of the International Group for Psychology and Mathematics Education (PME-NA)*. East Lansing, MI. pp. 209-212.

* **Lewis, K. E.** (2012). Beyond low achievement: Identifying mathematical learning disabilities through atypical understandings. *Proceedings of the 34th Annual Meeting of the North American Chapter of the International Group for Psychology and Mathematics Education (PME-NA)*. Kalamazoo, MI. pp. 1007.

* **Lewis, K. E.** (2010). Reconceptualizing mathematical learning disabilities: A diagnostic case study. *Proceedings of the International Conference of the Learning Sciences (ICLS)*. June 29- July 2, 2010. pp. 742-749.

* **Lewis, K. E.** (2007). Mathematical learning disabilities: An exploratory case study. *Proceedings of the North American Chapter of the International Group for Psychology and Mathematics Education (PME-NA)*. October 25-28, 2007. pp. 283-284.

Invited Talks

- Lewis, K. E.**, (2019, April) *Productive struggle for all students using differentiated instruction*. Invited talk at the National Council for Teachers of Mathematics Research Conference. San Diego, CA.
- Lambert, R., Harriss, E., Lynn, D. M. & **Lewis, K. E.** (2019, April). Rethinking mathematics education through neurodiversity. Invited talk at the National Council for Teachers of Mathematics Annual Conference. San Diego, CA.
- Lewis, K. E.** (2017, April). *Mathematics learning disabilities in algebra: A case study*. Invited talk at the National Council for Teachers of Mathematics Research Conference, in the Mathematics Learning and Students with Disabilities Invited Session. San Antonio, TX.
- Lewis, K. E.** (2016, December). *Mathematical learning disability through a Vygotskian lens: Difference, re-mediation, and compensation*. Invited Talk at University of Wisconsin, Madison. Mathematical Thinking, Learning, and Instruction Colloquium. Madison, WI.
- Lewis, K. E.** (2016, August). *Providing access for all*. Invited keynote presentation at the Summer Academy on Mathematical Equity, Couer d'Alene, Idaho.
- Lewis, K. E.** (2015, April) *Crafting a dissertation-based research article for Journal for Research in Mathematics Education*. Invited panel member at annual meeting for National Council for Teachers of Mathematics Annual Meeting. Boston, MA.
- Lewis, K. E.**, Thouless, H., Fisher, M. (2013, April). *Identifying and building upon students' mathematical understanding in RTI*. Invited paper presented at National Council for Teachers of Mathematics Conference, Denver, CO.

Conference Presentations (* peer reviewed)

- * **Lewis, K. E.**, Sweeney, G., Adler, R. & Thompson, G. (2019, April). Atypical algebraic understandings: A case study of a mathematical learning disability. Paper presented at the annual meeting of the American Educational Research Association (AERA), Toronto, Canada.
- * **Lewis, K. E.** & Lynn, D. (2018, April). *Difference and compensation: Emancipatory research of mathematics learning disability*. Paper presented at the annual meeting of the American Educational Researchers Association (AERA), New York, NY.
- * **Lewis, K. E.** & Lynn, D. (2017, May). *Emancipatory research: Compensating for a mathematical learning disability*. Paper presented at the annual meeting of the American Educational Researchers Association (AERA), San Antonio, TX.
- Lewis, K. E.** (2016, November). *Beyond the basics: Understanding mathematical learning disabilities in algebra*. Paper presented at the annual National Academy of Education Spencer Fellows Retreat, Washington DC.
- * **Lewis, K. E.** & Lynn, D. (2016, November). *Compensation: Rewriting our understanding of math learning disabilities*. Paper presented at the annual meeting of the North American Chapter of the International Group for Psychology and Mathematics Education (PME-NA). Tucson, AZ.
- * Fisher, M. B. & **Lewis, K. E.** (2016, April). *Increasing access: Mathematics instruction for students with disabilities*. Paper presented at the annual meeting of Council for Exceptional Children (CEC), St. Louis, MO.

- * **Lewis, K. E. & Fisher, M. B.** (2016, April). *Review of 40 years of research on mathematical learning disabilities: Methodological issues and future directions*. Poster presented at the annual meeting of American Educational Researchers Association (AERA), Washington DC.
- * **Lewis, K. E.** (2015, Nov). *Understanding issues of quantity through comparisons: Math learning disabilities and fractions*. Paper presented at the annual meeting of the North American Chapter of the International Group for Psychology and Mathematics Education (PME-NA). East Lansing, MI.
- Lewis, K. E. & Thompson, G. M.** (2015, Oct). *Identifying difference: Screening for mathematical learning disabilities*. Poster presented at the annual meeting of Council for Learning Disabilities. Las Vegas, NV.
- * **Lewis, K. E.** (2015, April). *Reframing mathematical learning disabilities through a Vygotskian lens: A case study of a re-mediation*. Paper presented at the annual meeting of American Educational Researchers Association (AERA), Chicago, IL.
- * **Lewis, K. E.** (2014, April). *Persistent difficulties with fractions: Understanding and screening for math learning disabilities*. Paper presented at the annual meeting of Council for Exceptional Children (CEC), Philadelphia, PA.
- * **Lewis, K. E.** (2014, April). *Math learning disabilities and fraction comparisons: Understanding errors*. Paper presented at the annual meeting of American Educational Researchers Association (AERA), Philadelphia, PA.
- * **Lewis, K. E.** (2012, Nov). *Beyond low achievement: Identifying mathematical learning disabilities through atypical understandings*. Poster presented at the 34th Annual Meeting of the North American Chapter of the International Group for Psychology and Mathematics Education (PME-NA). Kalamazoo, MI.
- * **Lewis, K. E. & Lynn, D.** (2011, June). *Manifestations of a mathematical learning disability across topic domains: A unique case*. Paper presented at the 41st annual meeting of the Jean Piaget Society (JPS), Berkeley, CA.
- * **Lewis, K. E.** (2011, April). *Atypical understandings: Mathematical learning disabilities and fractions*. Poster presented at the annual meeting of American Educational Researchers Association (AERA), New Orleans, LA.
- * **Lewis, K. E.** (2011, April). *Pairing diagnostic analysis and remediation: A case study of mathematical learning disabilities*. Poster presented at the biennial Society for Research in Child Development (SRCD), Montreal, Canada.
- Lewis, K. E.** (2010, June). *Mathematical learning disabilities and fractions: A diagnostic case study*. Poster presented at the annual meeting of the Institute of Education Sciences (IES), Washington, DC.
- * **Lewis, K. E.** (2010, April). *Mathematical learning disabilities: Representing action, ignoring quantity*. Paper presented at the annual meeting of American Educational Researchers Association (AERA), Denver, CO.
- * **Lewis, K. E.** (2009, October). *Diagnosis and remediation: Mathematical learning disabilities and fractions*. Paper presented at the annual conference of Learning Disabilities Worldwide (LDW), Burlington, MA.

- * **Lewis, K. E.** (2009, April). *Learning and forgetting: A microgenetic analysis of mathematical learning disabilities*. Poster presented at the National Council for Teachers of Mathematics Research Pre-session, Washington DC.
- * **Lewis, K. E.** (2009, April). *Understanding difference: A view of mathematical learning disabilities through student explanations*. Paper presented at the annual meeting of American Educational Researchers Association (AERA), San Diego, CA.
- * **Lewis, K. E.** (2008, April). *Into uncharted territories: mathematical learning disabilities in high school*. Poster presented at the annual meeting of American Educational Researchers Association (AERA), New York, NY.
- * **Lewis, K. E.** (2007, October). *Mathematical learning disabilities: An exploratory case study*. Poster presented at the annual meeting of the North American Chapter of the International Group for Psychology and Mathematics Education (PME-NA) Annual Meeting, Reno, NV.
- * **Lewis, K. E.** (2006, April) *Learning as a process: A microgenetic analysis of one student's learning of integer arithmetic*. Poster presented at the annual meeting of the American Educational Researchers Association (AERA), San Francisco, CA.

Diversity in Mathematics Education (DiME) Fellows. *Why They Fail: Unpacking Everyday Explanations of the Achievement Gap Within Research on Differential Mathematics Achievement*. American Educational Researchers Association Annual Meeting (AERA), Montreal, Canada.

Teaching

Qualitative Methods in Educational Research I (EDPSY 586)	2018
Exceptional Children: Introduction to Special Education (EDSPE 404)	2014-2016, 2019
Principles of Clinical Appraisal for Teachers of Exceptional Children (EDSPE 513)	2014, 2016-2018
Practicum in Research Design and Analysis in Special Education (EDSPE 517)	2014-2019
Special Education Doctoral Seminar – Literature Review (EDSPE 518)	2013-2016, 2018-2019
Specific Numeracy Techniques for Students with Mild Disabilities (EDSPE 523)	2013-2015, 2017-2018
Technology & Educational Research, University of California, Berkeley	2008

Advising

Current

4 Doctoral Students as Chair
 1 Doctoral Committees as Member
 10 Masters of Education Students (10 as chair)
 3 Masters in Instructional Leadership as Member

Completed

3 Doctoral Student as Committee Member
 25 Masters of Education Students (24 as chair)

Service

National Service

Editorial Board

American Educational Research Journal (AERJ)	2016-current
Intervention in School and Clinic	2015-current
Journal for Research in Mathematics Education (JRME)	2018-current

Reviewer

American Educational Research Association Annual Conference (AERA)
 American Educational Research Journal
 Cognition and Instruction
 Council for Exceptional Children Annual Conference (CEC)
 Educational Research and Reviews
 Education Sciences
 Educational Studies in Mathematics
 International Conference of the Learning Sciences (ICLS)
 Intervention in School and Clinic
 Infancia y Aprendizaje
 Journal of Learning Disabilities
 Journal of Mathematical Behavior
 Journal of Numerical Cognition
 Journal for Research in Mathematics Education
 Journal of Teacher Education
 Learning and Individual Difference
 Mathematical Thinking and Learning
 Psychology of Mathematics Education – North America (PME-NA)
 Research in Developmental Disabilities
 Teachers College Record

Invited Symposium Member – Learning Differences and the Future of Special Education: 2019
Stanford University Graduate School of Education

Presenter – Journal for Research in Mathematics Education Webinar: “From Dissertation 2019
 to JRME Article” <https://www.nctm.org/webinars/jrme/>

Board Member – Research in Mathematics Education Special Interest Group, 2017-2019
 American Educational Research Association

Co-Facilitator – Critical Perspectives on Disability Working Group at PME-NA 2016-2017

Invited Panel Member – NCTM’s Crafting a Dissertation-based Research Article for JRME 2015

Co-Facilitator – Special Education Working Group at PME-NA 2012-2015

Organizer - Diversity in Mathematics Education (DiME) Retreat, UCLA 2007

Organizer - Diversity in Mathematics Education (DiME) Retreat, UC Berkeley 2006

University / College Service

Mentoring Committee – Emily Machado 2019

Guest Lecture – Leadership for Learning Instructional Leadership Strand 2019

Area Representative on Faculty Council 2017-2019

Reviewer – Royalty Research Fund 2018

UW Representative – Washington Transfer Institute 2017

Design Exceptional Children (EDSPE 304) for the online ECFS Program 2017

Guest Lecture – Seminal Readings in Math Ed 2017

Faculty Panel for Stanford Dean and Faculty Special Education Design Meeting 2017

Spencer Grant Panel Member 2017

Senior Lecturer Reappointment Committee Member 2017

Presenter – University of Washington Disability Studies Brown Bag 2016

Reviewer Royalty Research Fund 2016

Guest Lecture – Psychology of Math – EDPSY 581 (Sanders) 2016

Member – College of Education Technology Task Force 2015-2016

Organizer - New Faculty Induction 2015

Guest Lecturer – Implementation Research Group (Hudson/Davis) 2015

Coordinator – Junior Faculty Lunches for Special Education Faculty Search 2015

Member - Faculty Development and Support 2014-2015

Reviewer – Distinguished Doctoral Research Award	2014
College of Education Rep – Teaching & Learning Technologies Oversight Committee Meeting	2014
Member – Special Education Director Faculty Search	2014
Member – Technology Director Search Committee	2014
Organizer/Presenter – Canvas Workshops for College of Education	2014
Marshall – College of Education Graduation	2014, 2015
Guest Lecturer – Qualitative Methods	2014
Reviewer/Interviewer – Elementary Teacher Education Program	2013

State / Local Service

Advisory Board Member for UW - Mathematics Pathways to Completion 2015-2018

The goal of this Dana Center New Mathways Project is to help students complete academic and professional programs by eliminating educational and systemic barriers to success in mathematics coursework, particularly for underserved students.

Carnegie Alpha Lab Partnership with Seattle Community Colleges 2014-2015

Alpha labs are a researcher and practitioner partnership that involves a gradual scale-up of interventions.

Professional Development

- Summer Academy on Mathematical Equity: Providing Access for All”, Coeur d’Alene Idaho 2016
~100 math teachers from Idaho
- Hamlin Robinson School, Seattle, WA 2015
- Dartmoor School, Bellevue, WA 2014
- Martin Luther King Jr. Middle School, Berkeley, CA 2012

Memberships

American Educational Research Association
Association of Mathematics Teacher Educators
Council for Exceptional Children
National Council for Teachers of Mathematics

Other Work Experience

- Senior Consultant – Cap Gemini Ernst & Young, Chicago, IL** 1999–2002
- Developed eCommerce websites for clients in a variety of industries. 2003–2004
 - Programmed web pages in C#, ASP, ASP.NET, JavaScript, and HTML.