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 Ed and the Learning Sciences *2013-Present*

University of Minnesota – Post-doctoral Associate *2012*

Supervisor: Michèle Mazzocco

Johns Hopkins University – Visiting Scholar / Post-doctoral Fellow *2011*

Supervisor: Michèle Mazzocco

Honors, Awards, & Fellowships

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)

* **Lewis, K. E.** & Lynn, D. L. (in press). Access through compensation: Emancipatory view of a mathematics learning disability. *Cognition & Instruction*.

*** Lewis, K. E.** & Lynn, D. L. (2018). An insider's view of a mathematical learning disability: Compensating to gain access to fractions. *Investigations in Mathematics Learning.*

*** Lewis, K. E.** & Lynn, D. L. (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/jresematheduc.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

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. (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. (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.** & 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

Exceptional Children: Introduction to Special Education (EDSPE 304)	*2014-2016*
Principles of Clinical Appraisal for Teachers of Exceptional Children (EDSPE 513)	*2014, 2016-2017*
Practicum in Research Design and Analysis in Special Education (EDSPE 517)	*2014-2018*
Special Education Doctoral Seminar – Literature Review (EDSPE 518)	*2013-2016, 2018*
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
14 Masters of Education Students (9 as chair)
2 Masters in Instructional Leadership as Member

Completed
3 Doctoral Student as Committee Member
16 Masters of Education Students (15 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
Council for Exceptional Children Annual Conference (CEC)
Educational Research and Reviews
International Conference of the Learning Sciences (ICLS)
Intervention in School and Clinic
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

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

Area Representative on Faculty Council *2017-2018*
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-current*
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.