

# Nicole R. Hallinen

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## EDUCATION

- 2015 PhD, **Stanford Graduate School of Education**  
Learning Sciences & Technology Design, Developmental & Psychological Sciences  
Dissertation: *The Importance of Mathematics and Well-Chosen Examples when Preparing Students for Future Learning in Simple Physics*  
Committee: Daniel Schwartz (Advisor), Carl Wieman, Jennifer Langer-Osuna, Shelley Goldman
- 2009 BS, Psychology, **Carnegie Mellon University**  
Honors Thesis: *Creating an Online Tutor for Fractions*  
Advisor: Robert Siegler
- 2009 BA, French & Francophone Studies, **Carnegie Mellon University**  
Thesis: *I Was Playing When I Learned: A Narrative Game for French Aspectual Distinction*  
Advisors: Bonnie Youngs, Christopher Jones  
Undergraduate Minor: European Studies

## RESEARCH INTERESTS

Math and science learning, transfer, induction, contrasting cases, generalization, task design, educational games, educational neuroscience, number sense, language learning

## RESEARCH EXPERIENCE

- 2016- **Postdoctoral Fellow, Advisors: Nora Newcombe & Julie Booth**  
Temple University Network of Cognition and Education Sciences  
*Funded through IES Postdoctoral Training Grant*
- 2009-14 **Graduate Research Assistant, Advisor: Daniel Schwartz**  
Stanford Graduate School of Education  
*Partially funded through CISCO Systems Stanford Graduate Fellowship*
- **Contrasting Cases:** Researched the selection of examples to facilitate learning and transfer of multivariate math and science concepts with community college students
  - **Examples & Non-Examples:** Conducted think-alouds with community college students on creating a definition for “polygon”, found that non-examples facilitate learning
  - **Preschool Math iPad Game:** Helped design and administer assessments of preschoolers’ number sense and early math used as pre-post measures of the effectiveness of an iPad game
  - **Choice-Based Assessments:** Data-mining analyses of student choices in an educational game about force and motion, middle school classroom study on design-thinking
  - **Inventing Mathematical Solutions:** Investigated inducing vs. telling a solution for learning algebra growth pattern problems and effects on transfer and overgeneralization
  - **PhET Collaboration with CU Boulder:** Designed and implemented instructional units to complement science and mathematics simulations in middle school classroom settings
  - **Integers:** fMRI data collection with adults, helped develop and teach curricula designed to emphasize properties of negative numbers, including symmetry, in 4<sup>th</sup> grade classroom study
- 2009 **Language Learning Software Internship**  
Rosetta Stone, Inc., Labs Department
- Brainstormed and developed content for English and foreign language learning software
  - Designed language-learning activities to supplement software in middle school classrooms

**2008-09 Online Learning Research**

Pittsburgh Science of Learning Center, CMU Human Computer-Interaction Department  
*Partially funded through NSF-REU summer internship at PSLC*

- Designed and programmed an online game to help learners distinguish French verb forms
- Performed think-aloud user study with students and language experts

**2006-09 Cognitive Development Research, Advisor: Robert Siegler**

CMU Psychology Department

*Partially funded through CMU Small Undergraduate Research Grant, Spring 2007*

- Designed and executed study about playing a life-sized board game for early number sense
- Authored and programmed fractions module for Psychology Senior Honors Thesis

**2005-09 Carnegie Mellon Online Writing Tutor, Advisors: John Hayes, Diana Bajzek**

CMU Office of Technology for Education

*Partially funded through CMU Small Undergraduate Research Grant, Spring 2008*

- Conducted user study on the effectiveness and practicality of CMU Online Writing Tutor
- Designed and programmed interactive writing exercises, revised instructional writing content

**AWARDS & GRANTS**

2009-12	Cisco Systems Stanford Graduate Fellowship (SGF) <i>3 Years of graduate tuition support and stipend</i>	>\$240,000
2009	Gretchen Goldsmith Lankford Undergraduate Teaching Award	\$2,500
2008	Andrew Carnegie Society Scholar	\$2,000
2008	Undergraduate Presentation Travel Award	\$250
2007, 2008	Small Undergraduate Research Grants	\$300, \$370
2007	Vira I. Heinz Scholarship for Global Leadership	\$5,000

**PUBLICATIONS & PRESENTATIONS**

Kuo, E., Hallinen, N. R., & Conlin, L. D. (2015, July). How Prompting Force Diagrams Can Push Students Away from Problem-Solving Expertise. Poster presented at the *Physics Education Research Conference*, College Park, MD.

Blair, K., Pfaffman, J., Cutumisu, M., Hallinen, N., & Schwartz, D. (2015, April). Testing the effectiveness of iPad math game. In *Proceedings of the 33<sup>rd</sup> Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems* (pp. 727-734). ACM.

Hallinen, N.R., Baldinger, E., & Selling, S.K. (2014, July). The Role of Examples and Nonexamples in Defining. In Liljedahl, P., Nicol, C., & Allan, D. (Eds.) *Proceedings of the 38<sup>th</sup> Conference of the International Group for the Psychology of Math Education and the 36<sup>th</sup> Conference of the North American Chapter of the Psychology of Mathematics Education*, Vancouver, Canada.

Hallinen, N.R., Cheng, J., Chi, M., & Schwartz, D.L. (2014, June). Tug of War – What is it Good For? Measuring Student Inquiry Choices in an Online Science Game. In Polman, J. L., Kyza, E. A., O'Neill, D. K., Tabak, I., Penuel, W. R., Jurow, A. S., O'Connor, K., Lee, T., and D'Amico, L. (Eds.). *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS)*, Boulder, CO.

Hallinen, N.R., Blair, K.P., Chin, D.B., & Schwartz, D.L. (2014, June). Combining Generation and Direct Instruction to Prepare Students to Transfer Big Ideas Across School Topics. In Polman, J. L., Kyza, E. A., O'Neill, D. K., Tabak, I., Penuel, W. R., Jurow, A. S., O'Connor, K., Lee, T., and D'Amico, L. (Eds.). *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS)*, Boulder, CO.

- Conlin, L., Hallinen, N.R., & Schwartz, D.L. (2014, June). Supporting Middle Schoolers' Use of Inquiry Strategies for Discovering Multivariate Relations in Interactive Physics Simulations. In Polman, J. L., Kyza, E. A., O'Neill, D. K., Tabak, I., Penuel, W. R., Jurow, A. S., O'Connor, K., Lee, T., and D'Amico, L. (Eds.). *Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS)*, Boulder, CO.
- Hallinen, N.R. (2013, November). Supporting inductive learning to reduce overgeneralization. In Martinez, M. & Castro Superfine, A. (Eds.), *Proceedings of the 35<sup>th</sup> Annual Meeting of the North American Chapter of the International Group for the Psychology of Math Education*, Chicago, IL.
- Hallinen, N.R., Blair, K.P., Tsang, J.M., & Schwartz, D.L. (2013, May). I Have a Hammer. Is That a Nail? Inducing mathematical structure to reduce negative transfer. Paper presented at the 2013 *Annual Meeting of the American Educational Research Association*, San Francisco, CA.
- Blair, K.P., Tsang, J. T., Hallinen, N., Rosenberg-Lee, M., Menon, V., & Schwartz, D. L (2013, May). Extending Natural Number Understanding to the Integers: Cross-disciplinary research in Education, Neuroscience, and Cognitive Science. Paper presented at the 2013 *Annual Meeting of the American Educational Research Association*, San Francisco, CA.
- Hallinen, N.R., Chi, M., Chin, D.B., Prempeh, J., Blair, K.P. & Schwartz, D.L. (2012). Applying Cognitive Developmental Psychology to Middle School Physics Learning: The Rule Assessment Method. *Proceedings of the Physics Education Research Conference*, Philadelphia, PA.
- Chi, M., Chin, D.B., Hallinen, N.R., & Schwartz, D.L. (2012, August). A Comparison of Two Instructional Models Using Contrasting Cases. Poster presented at the *Physics Education Research Conference*, Philadelphia, PA.
- Hallinen, N., Semmens, R., Dohmen, I., Chin, D.B., & Chase, C. (2012, April). Express Yourself: Math Learning in the Context of Communication. *Annual Meeting of the American Educational Research Association*. Vancouver, Canada.
- Dohmen, I.M., Hallinen, N.R., Schwartz, D.L., Chase, C.C., Chin, D.B., Semmens, R., & Shemwell, J.T. (2011, March). Communicating through math and measurement. Poster session presented at the *annual inter-Science of Learning Conference*, Washington, DC.
- Hallinen, N., Walker, E., Wylie, R., Ogan, A., & Jones, C. (2009, July). I Was Playing When I Learned: A narrative game for French aspectual distinctions. *Proceedings of Workshop on Intelligent Educational Games, 14<sup>th</sup> International Conference on Artificial Intelligence in Education*. Brighton, UK, 117-120.
- Hallinen, N.R. (2008, November) "Effective, Interesting, Useful? An Evaluation of the Carnegie Mellon Online Writing Tutor": Brief Paper and Presentation, *Association for the Advancement of Computer Education (AACE) E-Learn World Conference on E-Learning*, Las Vegas, NV.
- Hayes, J.R., Bajzek, D.M., Brooks, J., Reyes, B., Hallinen, N., & Steinberg, E.R. (2007). Developing an online writing tutor to improve technical-writing skills in engineering and science students. In G. Rijlaarsdam (Series Ed.) and D. Alamargot, P. Terrier, & J.-M. Cellier (Vol Eds.), *Studies in Writing, Vol. 21, Written Documents in the Workplace*, 107-123.

**TEACHING EXPERIENCE***Teaching evaluations available upon request***San Jose State University Laurie College of Education, Child and Adolescent Development**

2015 Instructor, Research Methods in Child Development

2013 Instructor, Research Methods in Child Development

**Stanford University Graduate School of Education**

2015 Teaching Assistant, Core Mechanics for Learning

2014 Teaching Assistant, Core Mechanics for Learning

2012 Teaching Assistant, Induction, Proof, Discovery, &amp; Statistics

**Carnegie Mellon Dietrich College of Humanities and Social Sciences**

2009 Teaching Assistant, Introduction to Psychology

2009 Writing Assistant, Intermediate French II

2008 Writing Assistant, Intermediate French II

**ACADEMIC & COMMUNITY SERVICE**

- **Journal Reviewer:** Journal of Experimental Psychology: Applied, Cognitive Research: Principles and Implications, Mathematical Thinking and Learning, Physical Review – Physics Education Research (formerly PRST-PER)
- **Conference Reviewer and Session Chair:** American Educational Research Association (AERA), Psychology of Math Education (PME), Physics Education Research Conference (PERC)
- **Mentorship:** Stanford Pre-Education Society Mentor, CMU Sexual Assault Advisor & Safezone Trained LGBTQ Ally, CMU Emerging Leaders Program Facilitator, CMU Women's Leadership Program
- **Committee Membership:** Stanford GSE Behavioral Neuroscience Faculty Search Committee (student representative), CMU Global Education Working Group (undergraduate representative), CMU Science and Humanities Scholars Student Advisory Council, CMU Modern Languages Student Advisory Council

**HONORS AND PROFESSIONAL SOCIETIES**

International Society of the Learning Sciences

American Association of Physics Teachers

Psychology of Math Education (PME) – North America Chapter

American Educational Research Association

Phi Beta Kappa Society

The Honor Society of Phi Kappa Phi

Lambda Sigma Society

Mortar Board Senior Honor Society

Psi Chi Psychology Honor Society

Phi Sigma Iota Modern Languages Honor Society

**ADDITIONAL EXPERIENCE**

2010-2013 Head Community Associate &amp; Community Associate, Stanford Graduate Life Office

2008-2009 Child Life Volunteer, Children's Hospital of Pittsburgh

2008 English as a Second Language Classroom Tutor, Allderdice High School

2008 French Classroom Tutor, Allderdice High School

2007-2009 Resident Assistant, Freshman Dormitory, Carnegie Mellon Student Development Office

2007 Assistant Teacher, 4 year-old class, CMU Children's School (Psychology Dept. Lab School)

2005, 2006 Summer Camp Counselor, 7-9 year-olds, Chatham College Music &amp; Arts Day Camp

**SKILLS**

Software: Matlab (PsychToolbox, SPM), SPSS, R, Qualtrics, ActionScript, EPrime

Language: Proficient in French