

# POOJA K. AGARWAL, Ph.D.

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## EDUCATION

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<b>Ph.D.</b> , Cognitive Psychology Washington University in St. Louis (Advisor: Henry L. Roediger, III)	2011
<b>M.A.</b> , Cognitive Psychology Washington University in St. Louis	2009
<b>B.A.</b> , Cognitive Neuroscience & <b>Elementary Teacher Certification</b> Washington University in St. Louis ( <i>Magna cum laude</i> )	2005

## PROFESSIONAL EXPERIENCE

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<b>Assistant Professor</b> Berklee College of Music	2016 – Present Boston, MA
<ul style="list-style-type: none"><li>Designing and teaching introductory and upper level psychology seminars for 60+ exceptional undergraduate musicians</li></ul>	
<b>Founder of RetrievalPractice.org</b>	2016 – Present
<ul style="list-style-type: none"><li>Founder of RetrievalPractice.org, a hub of research and resources about the science of learning for educators and students</li><li>Guiding and implementing applied retrieval practice research in collaboration with numerous organizations worldwide</li></ul>	
<b>Research Scientist</b> University of South Florida	2015 – 2016 Boston, MA
<ul style="list-style-type: none"><li>Spearheaded an extensive review of research on retrieval practice conducted in authentic classroom settings</li><li>Authored and produced an Interleaving Practice Guide, translating 10 years of cognitive science research for educators</li></ul>	
<b>Project Lead, HarvardX</b> Harvard University	2014 – 2015 Boston, MA
<ul style="list-style-type: none"><li>Contributed to Massive Open Online Courses (MOOCs) by writing assessment items and editing content on edX</li><li>Produced a Small Private Online Course (SPOC) for HarvardX staff on best practices in writing assessment items</li></ul>	
<b>Post-Doctoral Research Associate</b> Washington University in St. Louis	2012 – 2014 St. Louis, MO
<ul style="list-style-type: none"><li>Directed applied research on retrieval practice in collaboration with K-12 teachers and more than 1,500 students</li><li>Authored and produced a Retrieval Practice Guide, translating 10 years of cognitive science research for educators</li><li>Managed \$5 million in federal grants and trained 17 research assistants in project design, statistics, and scientific writing</li></ul>	
<b>Director of K-12 Student Assessment</b> Illinois State Board of Education	2011 – 2012 Springfield, IL
<ul style="list-style-type: none"><li>Directed the development and administration of Illinois's 7 standardized tests for 2.1 million students statewide</li><li>Pioneered and authored Illinois's No Child Left Behind Waiver Request for an innovative accountability system</li><li>Managed a \$43 million budget, 15 employees, numerous contracts with testing companies, and a division reorganization</li></ul>	

## ADDITIONAL TEACHING EXPERIENCE

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**Adjunct Professor**, Washington University in St. Louis Spring 2013

- *The Science of Effective Study Strategies*: Proposed, developed, and led a 100-level seminar for 15 undergraduate students; Course topics included a review of research in the field of cognitive psychology
- *The Science & Politics of Testing in the U.S.*: Developed and led a 400-level seminar for 25 advanced undergraduate and graduate students; Course topics included the history of standardized testing, college admissions, psychometrics, No Child Left Behind, and the future of the American education system

**Teaching Assistant**, Washington University, Cognitive Psychology Spring 2009

- Guest lectured and facilitated a 300-level course for 80 undergraduate students

**Student Teacher**, St. Louis County Public Schools, Grades 4-5 2004 – 2005

- Developed and taught differentiated curriculum in math, science, and history

**Curriculum Coordinator**, IMSA Kids Institute, Grades 2-12 1999 – 2005

- Developed and taught 400+ hours of hands-on science workshops and summer courses

## ADDITIONAL POLICY EXPERIENCE

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**Fellow**, Office of Federal Policy Summer 2008  
 The College Board (Advisor: John “Jay” Cole) Washington, DC

- Led an analysis of the strengths and weaknesses of 3 international assessments (PISA, TIMSS, and PIRLS)

**Intern**, Institute of Education Sciences (IES) Summer 2006  
 U.S. Department of Education (Advisor: Elizabeth R. Albro) Washington, DC

- Created summaries, brochures, and spreadsheets of awarded grants (200+) and publications (80+)

**Intern**, Office of Educational Technology Summer 2003  
 U.S. Department of Education (Advisor: John Bailey) Washington, DC

- Investigated K-12 students’ technology use and contributed to the 2004 National Education Technology Plan

## HONORS & AWARDS

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Association for Psychological Science (APS) Rising Star Award 2017

American Psychological Association (APA) Graduate Research Student Award (\$1,000) 2009

Illinois Mathematics & Science Academy (IMSA) Alumni Titan Award 2009

Washington University Graduate Research Symposium, 1<sup>st</sup> Place in Social Sciences (\$250) 2009

National Science Foundation (NSF) Graduate Research Fellowship (\$120,000) 2007

Harry S. Truman Scholarship (\$30,000) 2005

Washington University Undergraduate Research Grants (\$5,000) 2005

## PEER-REVIEWED PUBLICATIONS

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- Agarwal, P. K.** (in press). Retrieval practice and Bloom's taxonomy: Do students need fact knowledge before higher order learning? *Journal of Educational Psychology*.
- Agarwal, P. K.**, Finley, J. R., Rose, N. S., & Roediger, H. L. (2017). Benefits from retrieval practice are greater for students with lower working memory capacity. *Memory*, *25*, 764-771.
- Agarwal, P. K.**, D'Antonio, L., Roediger, H. L., McDermott, K. B., & McDaniel, M. A. (2014). Classroom-based programs of retrieval practice reduce middle school and high school students' test anxiety. *Journal of Applied Research in Memory and Cognition*, *3*, 131-139.
- McDermott, K. B., **Agarwal, P. K.**, D'Antonio, L., Roediger, H. L., & McDaniel, M. A. (2014). Both multiple-choice and short-answer quizzes enhance later exam performance in middle and high school classes. *Journal of Experimental Psychology: Applied*, *20*, 3-21.
- Zaromb, F., Butler, A. C., **Agarwal, P. K.**, & Roediger, H. L. (2014). Collective memories of three wars in United States history in younger and older adults. *Memory & Cognition*, *42*, 383-399.
- McDaniel, M. A., Thomas, R. C., **Agarwal, P. K.**, McDermott, K. B., & Roediger, H. L. (2013). Quizzing in middle-school science: Successful transfer performance on classroom exams. *Applied Cognitive Psychology*, *27*, 360-372.
- Agarwal, P. K.** (2012). Advances in cognitive psychology relevant to education: Introduction to the special issue. *Educational Psychology Review*, *24*, 353-354.
- Agarwal, P. K.**, Bain, P. M., & Chamberlain, R. W. (2012). The value of applied research: Retrieval practice improves classroom learning and recommendations from a teacher, a principal, and a scientist. *Educational Psychology Review*, *24*, 437-448.
- Agarwal, P. K.**, & Roediger, H. L. (2011). Expectancy of an open-book test decreases performance on a delayed closed-book test. *Memory*, *19*, 836-852.
- McDaniel, M. A., **Agarwal, P. K.**, Huelser, B. J., McDermott, K. B., & Roediger, H. L. (2011). Test-enhanced learning in a middle school science classroom: The effects of quiz frequency and placement. *Journal of Educational Psychology*, *103*, 399-414.
- Roediger, H. L., **Agarwal, P. K.**, McDaniel, M. A., & McDermott, K. B. (2011). Test-enhanced learning in the classroom: Long-term improvements from quizzing. *Journal of Experimental Psychology: Applied*, *17*, 382-395.
- Fazio, L. K., **Agarwal, P. K.**, Marsh, E. J., & Roediger, H. L. (2010). Memorial consequences of multiple-choice testing on immediate and delayed tests. *Memory & Cognition*, *38*, 408-418.
- Marsh, E. J., **Agarwal, P. K.**, & Roediger, H. L. (2009). Memorial consequences of answering SAT II questions. *Journal of Experimental Psychology: Applied*, *15*, 1-11.
- Agarwal, P. K.**, Karpicke, J. D., Kang, S. H. K., Roediger, H. L., & McDermott, K. B. (2008). Examining the testing effect with open- and closed-book tests. *Applied Cognitive Psychology*, *22*, 861-876.

## ADDITIONAL PUBLICATIONS

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- Agarwal, P. K.**, Roediger, H.L., McDaniel, M. A., & McDermott, K. B. (2013, 2018). How to use retrieval practice to improve learning. Washington University in St. Louis, St. Louis, MO.
- Rohrer, D., Dedrick, R. F., & **Agarwal, P. K.** (2017). Interleaved mathematics practice: Giving students a chance to learn what they need to know. University of South Florida, Tampa, FL.
- Agarwal, P. K.**, Lange, R., & Metcalf, L. A. (2012). Illinois's growth model approach using the value table method. Illinois State Board of Education, Springfield, IL.
- Agarwal, P. K.** (2011). Examining the relationship between fact learning and higher order learning via retrieval practice. Doctoral dissertation, Washington University in St. Louis, St. Louis, MO.
- White, B. R., & **Agarwal, P. K.** (2011). The principal report: The state of school leadership in Illinois. Illinois Education Research Council, Edwardsville, IL.
- Agarwal, P. K.** (2003, October/November). College life in the Internet age. *Upgrade*, 14-15.
- Agarwal, P. K.** (2001). If I could make a school. *Learning & Leading with Technology*, 29, 28-31.

## BOOK CHAPTERS

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- Pyc, M. A., **Agarwal, P. K.**, & Roediger, H. L. (2014). Test-enhanced learning. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.), *Applying science of learning in education: Infusing psychological science into the curriculum*. APA Society for the Teaching of Psychology.
- Roediger, H. L., **Agarwal, P. K.**, Kang, S. H. K., & Marsh, E. J. (2010). Benefits of testing memory: Best practices and boundary conditions. In G. M. Davies & D. B. Wright (Eds.), *New frontiers in applied memory* (pp. 13-49). Brighton, U.K.: Psychology Press.
- Roediger, H. L., Weinstein, Y., & **Agarwal, P. K.** (2010). Forgetting: Preliminary considerations. In S. Della Sala (Ed.), *Forgetting* (pp. 1-22). Hove, U.K.: Psychology Press.

## EDITORIAL & REFEREE EXPERIENCE

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| <b>Consulting Editor</b> , <i>Scholarship of Teaching and Learning in Psychology</i>         | 2014 – Present |
| <b>Guest Editor</b> , <i>Educational Psychology Review</i> (Special Issue in September 2012) | 2010 – 2012    |
| <b>Ad Hoc Reviewer</b>   | 2009 – Present |
- Advances in Health Education; American Educational Research Journal; American Psychologist; Applied Cognitive Psychology; British Journal of Educational Psychology; Current Directions in Psychological Science; Educational Psychology; Educational Psychology Review; Educational Researcher; Journal of Applied Research on Memory and Cognition; Journal of Educational Psychology; Journal of Experimental Psychology: Learning, Memory, & Cognition; Learning and Individual Differences; Learning and Instruction; Memory; Mind, Brain, & Education; Psychonomic Bulletin & Review; Review of Educational Research; Scholarship of Teaching and Learning in Psychology*

## INVITED WORKSHOPS & PRESENTATIONS FOR K-12 EDUCATORS

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- Agarwal, P. K.** (2018, February). *Unleash the science of learning: Transform teaching with strategies from cognitive science*. Workshop delivered at the Interlochen Center for the Arts, Interlochen, MI.
- Agarwal, P. K.** (2017, November). *Unleash the science of learning: Evidence-based teaching strategies to transform classrooms*. Workshop delivered at the Learning & the Brain Conference, Boston, MA.
- Francisco, A., & **Agarwal, P. K.** (2017, October). *Putting learning science research to work: Translating research to support education leaders*. Talk delivered at the iNACOL Symposium, Orlando, FL.
- Agarwal, P. K.** (2017, July). *Make it stick: Harness the science of learning & transform teaching*. Keynote delivered at the 11<sup>th</sup> Annual Teaching with Technology Symposium, Little Rock, AR.
- Agarwal, P. K., & Bain, P. B.** (2016, July). *Make it stick: How to teach economics & personal finance so students will remember*. Workshop delivered at the Federal Reserve Bank, St. Louis, MO.
- Agarwal, P. K.** (2016, June). *Retrieval practice: Learning to learn*. Talk delivered at the Character Lab Toolbox Workshop, Philadelphia, PA.
- Agarwal, P. K.** (2015, February). *The science of effective learning: Retrieval as an effective and efficient strategy in your classroom*. Keynote delivered at the Milton Academy Math Teachers Conference, Milton, MA.
- Agarwal, P. K.** (2014, August). *Teaching strategies + cognitive science = student success*. Workshop delivered at the IES Regional Education Laboratory Mid-Atlantic Bridge Event, Chambersburg School District, Chambersburg, PA.
- Agarwal, P. K.** (2014, January). *Student engagement and academic outcomes: Evidence from cognitive research*. Talk delivered at the National Association of State Boards of Education Study Group Conference, Arlington, VA.
- Agarwal, P. K.** (2013, December). *Organizing instruction and study to improve student learning*. Workshop delivered at the IES Regional Education Laboratory Mid-Atlantic Bridge Event, Laurel Public School District, Laurel, DE.
- Agarwal, P. K., Obenhaus, A., & McDoniel, M.** (2013, October). *How to use retrieval practice to improve learning*. Talk delivered at the Teach for America Teacher Development Day at the University of Missouri, St. Louis, MO.
- Agarwal, P. K.** (2013, September). *Organizing instruction and study to improve student learning*. Workshop delivered at the IES Regional Education Laboratory Mid-Atlantic Bridge Event for Local K-12 School Districts, Delaware State University, Dover, DE.
- Agarwal, P. K.** (2013, April). *The science of learning: How to use retrieval practice to improve learning*. Talk delivered at Metro Academic and Classical High School, St. Louis, MO.
- Dufault, C., & **Agarwal, P. K.** (2013, January). *Make learning stick: Applying cognitive science research to improve teaching and learning*. Talk delivered at McKinley Middle School Classical Leadership Academy, St. Louis, MO.

McDaniel, M. A., & **Agarwal, P. K.** (2010, September). *How to use retrieval practice to improve your students' learning*. Talk delivered at Columbia Middle School, Columbia, IL.

## INVITED WORKSHOPS & PRESENTATIONS FOR HIGHER EDUCATION

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**Agarwal, P. K.** (2018, August). *Giving science away: The critical importance of effective science communication*. Talk to be delivered at the James S. McDonnell Foundation Teachers as Learners Program Meeting, St. Louis, MO.

**Agarwal, P. K.** (2018, June). *Harnessing the science of learning: Transforming teaching with cognitive science*. Talk to be delivered at the Latin American School for Education, Cognitive, and Neural Sciences, Santiago de Chile, Chile.

**Agarwal, P. K.** (2018, April). *Unleash the science of learning: Evidence-based teaching strategies that transform STEM classrooms*. Workshop delivered at the STEM Pedagogy Institute, University of New Hampshire, Durham, NH.

**Agarwal, P. K.** (2018, February). *Unleash the science of learning: Bridging the gap between research, teaching, and policy*. Talk delivered at the Ontario Institute for Studies in Education, University of Toronto, Toronto, Canada.

**Agarwal, P. K.** (2017, May). *Make it stick: Translating the science of learning and transforming student learning*. Keynote delivered at Husson University, Bangor, ME.

**Agarwal, P. K.** (2017, April). *Make it stick: Applying the science of learning and transforming student learning*. Keynote delivered at the 23<sup>rd</sup> Annual Conference of the Association for University Regional Campuses of Ohio, Bowling Green State University Firelands, Huron, OH.

**Agarwal, P. K.** (2017, March). *Make it stick: Harnessing the science of learning and transforming teaching*. Talk delivered at Fontbonne University, St. Louis, MO.

**Agarwal, P. K.** (2016, October). *Retrieval practice: A powerful study strategy for improving long-term learning*. Talk delivered at Dartmouth College, Hanover, NH.

**Agarwal, P. K.** (2016, October). *The science of learning: How to teach so students learn*. Workshop delivered at Rutgers University, New Brunswick, NJ.

**Agarwal, P. K.** (2016, March). *The science of learning: Retrieval as an effective and efficient classroom strategy*. Talk delivered at the Massachusetts Institute of Technology, Boston, MA.

**Agarwal, P. K.** (2014, November). *Applying cognitive psychology research at school, work, home, and life*. Keynote delivered at the Lindenwood University 10<sup>th</sup> Annual Missouri Undergraduate Psychology Conference, St. Charles, MO.

**Agarwal, P. K.** (2013, November). *Retrieval practice improves learning: Evidence from applied research in middle schools and high schools*. Talk delivered at the McMaster University Symposium on Cognition, Learning, and Education, Hamilton, Ontario, Canada.

- Agarwal, P. K.** (2013, September). *Research-based strategies for studying effectively*. Talk delivered at Saint Louis University Medical School, St. Louis, MO.
- Agarwal, P. K.** (2012, August). *Retrieval practice is a powerful strategy for improving classroom learning*. Talk delivered at the UT Center for Teaching and Learning, Austin, TX.
- Agarwal, P. K.** (2012, August). *Research-based cognitive strategies enhance college readiness*. Talk delivered at the University of Texas OnRamps Faculty Meeting, Austin, TX.
- Agarwal, P. K.** (2012, June). *Research-based cognitive strategies for enhancing college readiness*. Talk delivered at the University of Texas CRAFT Summer Institute, Austin, TX.
- Agarwal, P. K.** (2011, June). *Examining the relationship between fact learning and higher order learning via retrieval practice*. Talk delivered at the Universidade de Lisboa, Portugal, Lisbon.
- Agarwal, P. K.** (2007, October). *The secret benefit of classroom testing*. Talk delivered at the University of Missouri, Columbia, MO.

## ACADEMIC CONFERENCE PRESENTATIONS

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- Agarwal, P. K.** (2013, May). *Advances in cognitive psychology relevant to education & lessons from applied research* (Chair). Symposium presented at the 25<sup>th</sup> Annual Meeting of the Association for Psychological Science, Washington, DC.
- Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2013, May). *How to use retrieval practice to improve classroom learning*. Talk delivered at the 25<sup>th</sup> Annual Meeting of the Association for Psychological Science, Washington, DC.
- Roediger, H. L., Sanches, J. B., & **Agarwal, P. K.** (2011, November). *Does variable encoding affect learning and retention relative to constant encoding?* Talk delivered at the 52<sup>nd</sup> Annual Meeting of the Psychonomic Society, Seattle, WA.
- Roediger, H. L., Zaromb, F. M., Butler, A. C., & **Agarwal, P. K.** (2011, August). *Collective memories and national narcissism in younger and older adults*. Talk delivered at the 5<sup>th</sup> International Conference on Memory, York, England.
- Agarwal, P. K.**, McDaniel, M. A., Thomas, R. C., McDermott, K. B., & Roediger, H. L. (2011, March). *Quizzing promotes deeper acquisition in middle school science: Transfer of quizzed content to summative exams*. Talk delivered at the Annual Conference of the Society for Research on Educational Effectiveness, Washington, DC.
- Roediger, H. L., McDaniel, M. A., McDermott, K. B., **Agarwal, P. K.**, & Huelser, B. J. (2009, May). *Applying retrieval-enhanced learning in the classroom: The Columbia Middle School Project*. Keynote delivered at the 21<sup>st</sup> Annual Meeting of the Association for Psychological Science, San Francisco, CA.
- Agarwal, P. K.** & Bowden, E. C. (2002, June). *Integrating technology into science curriculum "by kids, for kids."* Talk delivered at the National Educational Computing Conference, San Antonio, TX.

**Agarwal, P. K.**, Droste, R., Xi, S.C., & Wat, M. (2000, October). *Empowering high school students to become elementary school teachers of science*. Talk delivered at the National Association of Biology Teachers Convention, Orlando, FL.

## ACADEMIC CONFERENCE POSTER PRESENTATIONS

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**Agarwal, P. K.** (2017, May). *Retrieval practice enhances fact learning and higher order learning in a K-12 classroom*. Poster presented at the 29<sup>th</sup> Annual Meeting of the Association for Psychological Science, Boston, MA.

Saddawi-Konefka, D., Cottral, J., **Agarwal, P. K.**, Karpicke, J. D., Oettingen, G., Gollwitzer, P., & Baker, K. (2016, May). *Can strategies from cognitive psychology improve self-directed learning in residents? A two-center multidisciplinary randomized comparative effectiveness trial*. Poster presented at the Executive Committee on Teaching and Education Symposium, Boston, MA.

**Agarwal, P. K.**, Rose, N. S., & Roediger, H. L. (2010, November). *Testing levels the playing field for students with lower working memory capacity*. Poster presented at the 51<sup>st</sup> Annual Meeting of the Psychonomic Society, St. Louis, MO.

**Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2010, June). *Improving student learning with classroom quizzes: Three years of evidence from Columbia Middle School*. Poster presented at the 5<sup>th</sup> Annual Institute of Education Sciences Research Conference, Washington, DC.

Butler, A. C., Zaromb, F. M., **Agarwal, P. K.**, & Roediger, H. L. (2010, June). *Individual and collective memories of U.S. history in younger and older adults*. Poster presented at the Theoretical Perspectives on Autobiographical Memory Conference, Aarhus, Denmark.

**Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2010, March). *Improving student learning through the use of classroom quizzes: Three years of evidence from the Columbia Middle School project*. Poster presented at the Annual Conference of the Society for Research on Educational Effectiveness, Washington, DC.

**Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2009, November). *Feedback increases middle school students' resolution and retention of correct responses*. Poster presented at the 50<sup>th</sup> Annual Meeting of the Psychonomic Society, Boston, MA.

Roediger, H. L., McDaniel, M. A., McDermott, K. B., **Agarwal, P. K.**, & Huelser, B. J. (2009, June). *What is an effective quizzing schedule for middle school students?* Poster presented at the 4<sup>th</sup> Annual Institute of Education Sciences Research Conference, Washington, DC.

**Agarwal, P. K.**, Huelser, B. J., McDaniel, M. A., & McDermott, K. B., & Roediger, H. L. (2009, May). *Test-enhanced learning: Transfer of knowledge in middle school classrooms*. Poster presented at the 21<sup>st</sup> Annual Meeting of the Association for Psychological Science, San Francisco, CA.

Roediger, H. L., McDaniel, M. A., McDermott, K. B., & **Agarwal, P. K.** (2008, June). *Test-enhanced learning in the classroom: The Columbia Middle School project, year 2*. Poster presented at the 3<sup>rd</sup> Annual Institute of Education Sciences Research Conference, Washington, DC.



**Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2008, May). *Improving student learning using classroom quizzes*. Poster presented at the 20<sup>th</sup> Annual Meeting of the Association for Psychological Science, Chicago, IL.

Roediger, H. L., McDaniel, M. A., McDermott, K. B., & **Agarwal, P. K.** (2007, November). *Test-enhanced learning in the classroom: The Columbia Middle School project*. Poster presented at the 48<sup>th</sup> Annual Meeting of the Psychonomic Society, Long Beach, CA.

Roediger, H. L., McDaniel, M. A., McDermott, K. B., & **Agarwal, P. K.** (2007, June). *Test-enhanced learning in the classroom: The Columbia Middle School project*. Poster presented at the 2<sup>nd</sup> Annual Institute of Education Sciences Research Conference, Washington, DC.

**Agarwal, P. K.**, Karpicke, J. D., Kang, S. H. K., Roediger, H. L., & McDermott, K. B. (2006, November). *Long term retention is greater following closed-book tests than open book tests*. Poster presented at the 47<sup>th</sup> Annual Meeting of the Psychonomic Society, Houston, TX.

**Agarwal, P. K.**, Karpicke, J. D., Kang, S. H. K., Roediger, H. L., & McDermott, K. B. (2006, May). *Open-book or closed-book tests? Effects of testing on learning depend on feedback*. Poster presented at the 18<sup>th</sup> Annual Meeting of the Association for Psychological Science, New York, NY.