VITA
JON R. STAR

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EDUCATION

Ph.D.	Education and Psychology, University of Michigan, 2001
M.A.	Cognitive Psychology, University of Michigan, 1998
M.Ed.	Human Development and Psychology, Harvard University, 1993
Sc.B.	Electrical Engineering, Brown University, 1988

PROFESSIONAL PREPARATION

Carl H. Pforzheimer, Jr. Professor of Teaching and Learning, Graduate School of Education, Harvard University, 2025 – present
Professor of Education, Graduate School of Education, Harvard University, 2015 – present
Nancy Pforzheimer Aronson Associate Professor in Human Development and Education, Graduate School of Education, Harvard University, 2011 – 2015
Nancy Pforzheimer Aronson Assistant Professor in Human Development and Education, Graduate School of Education, Harvard University, 2010 – 2011
Assistant Professor, Graduate School of Education, Harvard University, 2007 – 2011
Assistant Professor, College of Education, Michigan State University, 2002 – 2007
Post-doctoral Fellow, College of Education, Michigan State University, 2001 – 2002
Graduate Assistant, School of Education, University of Michigan, 1996 – 2001
Middle School and High School Mathematics Teacher, Albuquerque Academy, Albuquerque, New Mexico, 1993 – 1995
High School Mathematics and Computer Science Teacher, Choate Rosemary Hall, Wallingford, Connecticut, 1988 – 1992

HONORS AND AWARDS

National Council of Teachers of Mathematics Linking Research and Practice Outstanding Publication Award - *Teaching Children Mathematics*, 2010
Nominee, Teacher Scholar Award, Michigan State University, 2006
Lilly Teaching Fellowship, Michigan State University, 2004 – 2005
Visiting Scholar, Combined Program in Education and Psychology, University of Michigan, 2001 – 2003
Nominee, Outstanding Dissertation Award, University of Michigan, 2002
Matilda Bookmiller Bickel Award, University of Michigan, 2001
Semi-finalist, Spencer Foundation Dissertation Fellowship, 2000

Phillip S. Jones and Joseph N. Payne Award, University of Michigan, 1999
Spencer Research Training Grant Fellow, University of Michigan, 1996 – 2001

FUNDED PROPOSALS

Understanding and Improving Professional Development for College Mathematics Instructors: An Exploratory Study, National Science Foundation, $200,000, REC-0424018. Natasha Speer and Jon R. Star, co-PIs, August, 2004 – July, 2006.

Flexibility in the Use of Mathematical Procedures, Michigan State University College of Education Seed Grant, $9,128. Jon R. Star, PI, August, 2004 – July, 2005.

Preparing Preservice Teachers: Teaching Adolescents Strategies for Reading and Writing with Science and Mathematics Texts, Carnegie Corporation, $100,000. Mark Conley, PI. Charles Anderson, Joyce Parker, Nathalie Sinclair, and Jon R. Star, co-PIs, August, 2005 – July, 2008.

Using Contrasting Examples to Support Procedural Flexibility and Conceptual Understanding in Mathematics, Institute for Education Sciences Cognition and Student Learning Research Program, $1,025,137. Jon R. Star and Bethany Rittle-Johnson, co-PIs, August, 2005 – July, 2009.

Enhancing the Mathematical Problem Solving Performance of Sixth Grade Students in High Poverty Schools Using Schema-based Instruction, Institute for Education Sciences Mathematics and Science Education Research Grants, $1,432,797. Asha Jitendra, PI; Jon R. Star, co-PI, August, 2006 – July, 2011.

Helping Teachers to Use and Students to Learn from Contrasting Examples: A Scale-up Study in Algebra I, National Science Foundation Research and Evaluation on Education in Science Engineering (REESE), $2,006,604 (DRL-0814571). Jon R. Star, PI; Bethany Rittle-Johnson and Kristie J. Newton, co-PIs. August, 2008 – August, 2014.

Teacher Effectiveness Measures, The Bill and Melinda Gates Foundation, $712,067. Heather Hill, PI; Jon R. Star, co-PI. July 2009 - December 2011.

Studying Technology-based Strategies for Enhancing Student Interest in STEM Careers through Algebra Curricula in Grades 5-9, National Science Foundation, $1,463,660 (DRL-0929575). Chris Dede, PI; Jon R. Star, co-PI. January 2010 - December 2013.

Open, Online, Help Forums: An Emergent Help-seeking Resource. Spencer Foundation, $40,000. Carla van de Sande, PI; Jon R. Star, co-investigator.

Learning of Ratio and Proportion Problem-Solving Using Schema-Based Instruction: Efficacy and Sustainability. Institute for Education Sciences Mathematics and Science Education Research Grants, $4,593,808. Asha Jitendra, PI; Jon R. Star, co-PI, September, 2011 – August, 2015. Grant terminated, April, 2013.

APEC Promising Practices in Secondary Mathematics and Science Teacher Education. Synergy Enterprises, Inc. and the US Department of Education, $105,250. Jon R. Star, PI, August, 2012 – July, 2013.

Leveraging Comparison and Explanation of Multiple Strategies (CEMS) to Improve Algebra Learning, National Science Foundation EHR Core Research, $1,105,110 (DRL-1561283). Jon R. Star, PI; Bethany Rittle-Johnson and Kelley Durkin, PIs. May, 2016 – April, 2021.

Using Educational Data Mining Techniques to Uncover How and Why Students Learn from Erroneous Examples. National Science Foundation EHR Core Research, $978,042 (DRL-1661121). Bruce McLaren, PI; Ryan Baker, PI; Jon R. Star, PI. June, 2017 – May 2020.

Using Animated Contrasting Cases to Improve Procedural and Conceptual Knowledge in Geometry. National Science Foundation DRK-12, $449,451 (DRL-1907745). Erin Krupa, PI; Jon R. Star, co-PI. August, 2019 – July, 2023.

Investigating Gender Differences in Digital Learning Games with Educational Data Mining. National Science Foundation EHR Core Research, $1,500,000 (DRL-2201799). Bruce McLaren, PI; Jon R. Star, co-PI. July, 2022 – June, 2025.

Leveraging Exit Tickets to Enhance Students' Self-Regulated Learning and Mathematics Knowledge. National Science Foundation DRK-12, $853,639 (DRL-2405243). Kelley Durkin, PI; Jon R. Star, co-PI. October, 2024 – October 2027.

EDITORIAL AND REVIEW BOARDS

Editorial Board, *Cognition and Instruction*, 2017 – present
Editorial Board, *Learning and Individual Differences*, 2023 – present
Editorial Board, *Learning and Instruction*, 2022 – present
Editorial Board, *Review of Educational Research*, 2021 – present
Editorial Board, *Contemporary Educational Psychology*, 2006 – 2023
Editorial Board, *International Journal of STEM Education*, 2013 – present
Editorial Board, *Research in Mathematics Education*, 2017 – 2024
Editorial Board, *Journal for Research in Mathematics Education*, 2016 – 2019
Executive Editor, *Cognition and Instruction*, 2012 - 2017
Co-Editor, *Elementary School Journal*, 2012 – 2017
Editorial Board, *Journal of Educational Psychology*, 2016
Editorial Board, *American Educational Research Journal – Teaching, Learning, and Human Development* section, 2007 – 2011
Editorial Board, *Merrill-Palmer Quarterly*, *a Journal of Developmental Psychology*, 2007 – 2014
Task Force Co-Chair, *Association of Mathematics Teacher Educators* (AMTE): Developing a program for early career mentoring of math teacher educators, 2012 – 2016
AERA Division C, Section 1a Program Chair, AERA Annual Meeting 2013
Ad hoc Reviewer, *Journal for Research in Mathematics Education*, *Cognition and Instruction*, *Instructional Science*, *Research in Collegiate Mathematics Education, American Educational Research Journal, Learning and Instruction, Mathematical Thinking and Learning, Cognitive Science, Journal of Experimental Child Psychology, Journal of Applied Developmental Psychology, Journal of Experimental Education, Journal of Teacher Education, Elementary School Journal, Journal of Educational Psychology, Journal of Special Education, European Journal of Psychology of Education, The Mathematics Educator (Singapore), Child Development Research, International Journal of Science and Mathematics Education*
Program Reviewer, *American Educational Research Association*, *National Council for Teachers of Mathematics*, *North American chapter of the International Group for the Psychology of Mathematics Education*, *Cognitive Science Society, Society for Research in Child Development*
Department of Education Institute of Education Sciences *Mathematics and Science Scientific Review Panel, Principal Member* (2005 – 2009; 2014 – 2017)
National Science Foundation *Research on Learning Environments Review Panel* (2003)

National Science Foundation *DRK-12 Review Panel* (2010)
American Education Research Association *Scribner Award Committee for Division C* (2007-2010)
National Council of Teachers of Mathematics *Intervention Task Force* (2006 – 2007)

PUBLICATIONS

Books

Merritt, R., & Star, J.R. (2026). *Diving Deeper with Upper Elementary School Ma*th. Routledge.

Lloyd, G., Herbel-Eisenmann, B., & Star, J.R. (2011). *Developing Essential Understanding of Expressions, Equations, and Functions for Teaching Mathematics in Grades 6-8*. National Council of Teachers of Mathematics.

Chapters in Edited Volumes

Jeon, S. and Star, J.R. (2024). Connecting mathematics and science in an elementary STEM curriculum. In Y. Li, Z. Zeng, and N. Song (Eds.), *Disciplinary and Interdisciplinary Education in STEM* (pp. 221-239). Springer.

Rittle-Johnson, B., Star, J., Durkin, K. & Loehr, A. (2024). A compare and discuss instructional routine. In M. Harring, V. Krupp, and O. Meyer (Eds.), *Deeper Learning in Teacher Education - Interdisciplinary and International Perspectives* (pp. 259-276). New York, NY. Routledge.

Rittle-Johnson, B., Star, J., Durkin, K. & Loehr, A. (2020). Compare and Discuss to promote deep learning. In Manalo, E. (Ed.), *Deeper Learning, Dialogic Learning, and Critical Thinking Research-Based Strategies for the Classroom* (pp. 48-64). New York, NY. Routledge.

Rittle-Johnson, B., Star, J.R., & Durkin, K. (2017). The power of comparison in mathematics instruction: Experimental evidence from classrooms. In D. Geary, D. Berch, R. Ochsendorf, & K. Mann Koepke (Eds.), *Mathematical Cognition and Learning (Volume 3: Acquisition of Complex Arithmetic Skills and Higher-Order Mathematics Concepts)* (pp. 273-295). Cambridge, MA: Elsevier/Academic Press.

Star, J. R., & Verschaffel, L. (2017). Providing support for student sense making: Recommendations from cognitive science for the teaching of mathematics. In J. Cai (Ed.), *Compendium for Research in Mathematics Education*. Reston, VA: National Council of Teachers of Mathematics.

Star, J.R., & Rittle-Johnson, B. (2016). Toward an educational psychology of mathematics education. In E. Anderman & L. Corno (Eds.), *Handbook of Educational Psychology* (3rd ed., pp. 257-268). New York: Taylor & Francis.

Star, J.R., Chen, J., & Dede, C. (2015). Applying motivation theory to the design of game-based learning environments. In J. Torbeyns, E. Lehtinen, & J. Elen (Eds.), *Describing and Studying Domain-Specific Serious Games* (pp. 83-92).

Star, J.R., Chen, J., Taylor, M., Durkin, K., Dede, C., & Chao, T. (2015). Evaluating game-based learning environments for enhancing motivation in mathematics. In J. Torbeyns, E. Lehtinen, & J. Elen (Eds.), *Describing and Studying Domain-Specific Serious Games* (pp. 209-230).

Vig, R., Star, J.R., Dupuis, D., Lein, A., & Jitendra, A. (2015). Exploring the impact of knowledge of multiple strategies on students' learning about proportions. In J. Middleton, J. Cai, & S. Hwang (Eds.), *Large-Scale Studies in Mathematics Education* (pp. 61-73). Switzerland: Springer.

Star, J.R., & Boix Mansilla, V. (2012). Teaching for disciplinary understanding in mathematics. In *Teaching the disciplines in the Middle Years Programme: Nurturing big ideas and deep understanding* (pp. 71- 78). Wiltshire, UK: International Baccalaureate Organization.

Rittle-Johnson, B., & Star, J.R. (2011). The power of comparison in learning and instruction: Learning outcomes supported by different types of comparisons. In B. Ross & J. Mestre (Eds.), *Psychology of Learning and Motivation: Cognition in Education* (Vol. 55, pp. 199-226). San Diego: Elsevier.

Jitendra, A. K., Woodward, J., & Star, J. R. (2011). Middle school students' thinking about ratios and proportions. In R. Gersten & R. Newman-Gonchar (Eds.), *Understanding RTI in mathematics* (pp. 127-150). Baltimore, MD: Paul H. Brookes.

Star, J.R., Lynch, K., & Perova, N. (2011). Using video to improve mathematics' teachers' abilities to attend to classroom features: A replication study. In M. Sherin, V. Jacobs, & R. Philipp (Eds.), *Mathematics teachers' noticing: Seeing through teachers' eyes* (pp. 117-133). Routledge.

Sherin, B., & Star, J.R. (2011). Reflections on the study of teacher noticing. In M. Sherin, V. Jacobs, & R. Philipp (Eds.), *Mathematics teachers' noticing: Seeing through teachers' eyes* (pp. 66-78). Routledge.

Star, J.R., Strickland, S., & Hawkins, A. (2008). What is mathematical literacy? Exploring the relationship between literacy and content learning in middle and high school mathematics. In M. Conley, J. Freidhoff, M. Sherry, & S. Tuckey (Eds.), *Adolescent literacy policy and instruction: The research we have and the research we need (*pp. 104-112). New York: Guilford.

Ben-Zeev, T., & Star, J.R. (2001). Intuitive mathematics: Theoretical and educational implications. In B. Torff & R. J. Sternberg (Eds.), *Understanding and teaching the intuitive mind* (pp. 29-56). Mahwah, NJ: Lawrence Erlbaum Associates.

Gelman, S.A., Hollander, M., Star, J.R., & Heyman, G. (1999). The role of language in the construction of kinds. In D.L. Medin (Ed.), *The psychology of learning and motivation* (Vol. 39, pp. 201-263). New York: Academic Press.

Refereed Journal Articles

Zhang, Y. & Star, J.R. (in press). Trajectories of change in mathematical creative self-efficacy under student-centered and teacher-centered pedagogies. *Creativity Research Journal*. https://doi.org/10.1080/10400419.2025.2585033

Yang, X., Leung, F., & Star, J.R. (in press). Mathematics teacher expertise: Empirical studies and theoretical reflections from a cultural perspective. *ZDM – Mathematics Education*. https://doi.org/10.1007/s11858025-01746-4

Yang, X., Star, J.R., Liu, R., & Yang, Y. (2025). Toward an integrated model of the individual differences in mathematical flexibility. *Educational Psychology Review*, 37:95. https://doi.org/10.1007/s10648-025-10051-1

Yang, Q., Star, J.R., Harris, P., & Rowe, M. (in press). Block play by American and Chinese families: Associations with children's spatial ability. *Journal of Applied Developmental Psychology*.

Ableitinger, C., Dorner, C., & Star, J.R. (in press). The tree of procedural knowledge. *For the Learning of Mathematics*.

Vizek, L., Samková, L., & Star, J.R. (2025). Investigating how lower secondary school students reason about quadrilaterals emerging in dynamic constructions. *International Journal of Mathematical Education in Science and Technology*, 56(3), 495-514. https://doi.org/10.1080/0020739X.2023.2255184

Hatisaru, V., Richardson, S., & Star, J.R. (2025). Mathematical practices (commonly used by mathematicians) in mathematics teachers' solutions to algebraic problems. *European Journal of Science and Mathematics Education*, 13(1), 1-17.

Jiang, R., Liu, R., & Star, J.R. (2025). Overcoming the gap between knowledge and use in mathematical flexibility: examining the role of inhibitory control. *Learning & Instruction*, 95.

Hastö, P., & Star, J.R. (2024, August). Strategy flexibility in university mathematics. *Notices of the American Mathematical Society*, 917-923.

Hatisaru, V., Stacey, K., & Star, J.R. (2024). Mathematical connections in preservice secondary mathematics teachers' solutions to algebra problems. *Avances de Investigación en Educación Matemática*, 25, 33-55. https://doi.org/10.35763/aiem25.6354

Brunner, E., & Star, J.R. (2024). The quality of mathematics teaching from a mathematics educational perspective: What do we actually know and which questions are open? *ZDM Mathematics Education*, 56, 775–787. https://doi.org/10.1007/s11858-024-01600-z

Vizek, L., Samková, L., & Star, J.R. (2024). Assessing the quality of conceptual knowledge through dynamic constructions. *Educational Studies in Mathematics*. *177*(2), 167–191. https://doi.org/10.1007/s10649-024-10349-x

Yang, X., Star, J.R., Zhu, X., Wang, R., Zhang, Y., Tong, J., & He, Z. (2024). Phonological awareness and RAN contribute to Chinese reading and arithmetic for different reasons. *Cognitive Processing*, 25, 443-455. https://doi.org/10.1007/s10339-024-01184-2

Hong, W., Star, J.R., Liu, R., Jiang, R., & Fu, X. (2023). A systematic review of mathematical flexibility: Concepts, measurements, and related research. *Educational Psychology Review,* 35, 104. https://doi.org/10.1007/s10648-023-09825-2

Yang, Q., Star, J.R., Harris, P., & Rowe, M. (2023). Chinese parents' support of preschoolers' mathematical development. *Journal of Experimental Child Psychology*, 236. https://doi.org/10.1016/j.jecp.2023.105753

Star, J.R. (2023). Revisiting the origin of, and reflections on the future of, pedagogical content knowledge. *Asian Journal for Mathematics Education*, 2(2). https://doi.org/10.1177/27527263231175885

Wang, H., & Star, J.R. (2023). Investigating algorithm-oriented flexibility and structure-informed flexibility in mathematics learning. *Asian Journal for Mathematics Education*, 2(1), 16-41. https://doi.org/10.1177/27527263231163593

Li, Y., Xiao, Y., Wang, K., Zhang, N., Pang, Y., Wang, R., Qi, C., Yuan, Z., Xu, J., Nite, S., & Star, J.R. (2022). A systematic review of high impact empirical studies in STEM education. *International Journal of STEM Education*, 9. https://doi.org/10.1186/s40594-022-00389-1

Jiang, R., Star, J.R., Hastö, P., Li, L., Liu, R., Tuomela, D., Joglar, N., Palkki, R., Abánades, M., & Pejlare, J. (2023). Which one is the "best": A cross-national comparative study of students' strategy evaluation in equation solving. *International Journal of Science and Mathematics Education*, 21, 1127-1151. https://doi.org/10.1007/s10763-022-10282-6

Garcia Coppersmith, J., & Star, J.R. (2022). A complicated relationship: Examining the relationship between flexible strategy use and accuracy. *Journal of Numerical Cognition,* 8(3). https://doi.org/10.5964/jnc.7601

Star, J.R., Tuomela, D., Joglar, N., Hastö, P., Palkki, Abánades, M., Pejlare, J., Jiang, R., Li, L., & Liu, R. (2022). Exploring students' procedural flexibility in three countries. *International Journal of STEM Education*, 9(4). https://rdcu.be/cEJh0

Wang, J., Liu, R., Star, J.R., Zhen, R., Liu, Y., & Hong, W. (2021). Do students respond faster to inequalities with a greater than sign or to inequalities with a less than sign: Spatial-numerical association in inequalities. *Journal of Cognition and Development*, 22(4), 605-618. https://doi.org/10.1080/15248372.2021.1916499

Star, J.R., Jeon, S., Comeford, R., Clark, P., Rittle-Johnson, B., & Durkin, K. (2021). Compare and discuss multiple strategies. *Mathematics Teacher: Learning and Teaching PK-12*, 114 (11), 853-859. https://doi.org/10.5951/MTLT.2021.0051

Joglar, N., Ferrando, I., Abánades, M. Ángel, Arteaga, B. P., Barrera, V., Belmonte, J. M., Crespo, R., Fernández, I. A., Fraile, A., Hernández, E., Liñán, M. del M., Macías, J., Muñoz-Catalán, M. C., Pla-Castells, M., Ramírez, M., Segura, C., Tolmos, P., & Star, J. (2021). POEMat.ES: Pauta de observación de la enseñanza de matemáticas en educación secundaria en España. Avances De Investigación En Educación Matemática, (20), 89–103. https://doi.org/10.35763/aiem20.4004

Star, J. R. (2021). In pursuit of a replication culture in mathematics education. *Implementation and Replication Studies in Mathematics Education*, *1*, 53-76. https://doi.org/10.1163/26670127-01010003.

Jiang, R., Liu, R., Star, J.R., Zhen, R., Wang, J., Hong, W., Jiang, S., Sun, Y., & Fu, X. (2021). How mathematics anxiety affects students' inflexible perseverance in mathematics problem solving: Examining the mediating role of cognitive reflection. *British Journal of Educational Psychology*, 91(1), 237-260. https://dx.doi.org/10.1111/bjep.12364

Rittle-Johnson, B., Star, J. R., & Durkin, K. (2020). How can cognitive science research help improve education? The case of comparing multiple strategies to improve mathematics learning and teaching. *Current Directions in Psychological Science*, 29(6), 599-609. https://doi.org/10.1177/0963721420969365.

Loehr, A., Rittle-Johnson, B., Durkin, K., & Star, J.R. (2020). Does calling it 'Morgan's Way' reduce student learning? Evaluating the effect of person-presentation during comparison and discussion of worked examples in mathematics classrooms. *Applied Cognition Psychology,* 34*,* 825-836. https://dx.doi.org/10.1002/acp.3670

Depaepe, F., Verschaffel, L., & Star, J.R. (2020). Expertise in developing students' expertise in mathematics: Bridging teachers' professional knowledge and instructional quality. *ZDM Mathematics Education*, 52, 179–192. https://doi.org/10.1007/s11858-020-01148-8

Liu, Y., Liu R-D, Star, J., Wang, J, and Tong, H. (2020). The effect of perceptual fluency on overcoming the interference of the More A-More B intuitive rule among primary school students in a perimeter comparison task: The perspective of cognitive load. *European Journal of Psychology of Education,* 35, 357–380. https://doi.org/10.1007/s10212-019-00424-w

Verschafel, L., Schukajlow, S., Star, J.R., & Van Dooren, W. (2020). Word problems in mathematics education: a survey. *ZDM Mathematics Education.* 52, 1-16. https://doi.org/10.1007/s11858-020-01130-4

Ziegler, E., Edelsbrunner, P., & Star, J.R. (2019). Preventing interference: Reordering complexity in the learning of new concepts. *Journal of Educational Psychology*, 111(7), 1202-1219, https://doi.org/10.1037/edu0000347

Ying, L., Liu, R. D., Star, J. Jia, W., Rui, Z., & Huimin, T. (2019). The effect of perceptual fluency on overcoming the interference of the More A-More B intuitive rule among primary school students. *Journal of Educational Psychology*. https://doi.org/10.1037/edu0000403

Maciejewski, W., & Star, J.R. (2019). Justifications for choices made in procedures. *Educational Studies in Mathematics*, 101, 325–340. https://doi.org/10.1007/s10649-019-09886-7

Richey, J., Andres-Bray, J., Mogessie, M., Scruggs, R., Andres, J., Star, J.R., Baker, R., & McLaren, B. (2019). More confusion and frustration, better learning: The impact of erroneous examples. *Computers & Education*, 139(1), 173-190. https://doi.org/10.1016/j.compedu.2019.05.012

Wang, J., Liu, R., Star, J.R., Liu, Y., & Tong, H. (2019). The moderating effect of regulatory focus in the relationship between potential flexibility and practical flexibility. *Contemporary Educational Psychology, 56*, 218-227. https://doi.org/10.1016/j.cedpsych.2019.01.013

Hastö, P., Tuomela, D., Palkki, R., & Star, J. R. (2019). Relationship between mathematical flexibility and success in national examinations. *European Journal of Science and Mathematics Education* 7(1), 1-13. http://scimath.net/articles/71/711.pdf .

Chen, J.A., Star, J.R., Dede, C., Tutwiler, M.S. (2018). Technology-rich activities: One type does not motivate all. *Contemporary Educational Psychology*. https://doi.org/10.1016/j.cedpsych.2018.06.011

Liu, R., Wang, J., Star, J.R., Zhen, R., Jiang, R., Fu, X. (2018). Turning potential flexibility into flexible performance: Moderating effect of self-efficacy and use of flexible cognition. *Frontiers in Psychology*, 9, 646. https://doi.org/10.3389/fpsyg.2018.00646

Joglar, N., Abánades, M., & Star, J.R. (2018, April). Flexibilidad matemática y resolución de ecuaciones lineales. *UNO*, 080.

Murray, E., Durkin, K., Chao, T., Star, J.R., & Vig, R. (2018). Exploring connections between content knowledge, pedagogical content knowledge, and the opportunities to learn mathematics: Findings from the TEDS-M dataset. *Mathematics Teacher Education and Development,* 20, 4-22.

Star, J.R. (2017). When and why replicated studies should be published. *Journal for Research in Mathematics Education*, 49(1), 98-103.

Xu, L., Liu, R., Star, J.R., Wang, J., Liu, Y., Zhen, R. (2017). Measures of potential flexibility and practical flexibility in equation solving. *Frontiers in Psychology*, 8, 1368, https://doi.org/10.3389/fpsyg.2017.01368

Kirschner, P., Verschaffel, L., Star, J.R., & Van Dooren, W. (2017). There is more variation within than across domains: An interview with Paul A. Kirschner about applying cognitive psychology-based instructional design principles in mathematics teaching and learning. *ZDM Mathematics Education,* 49, 637–643. https://doi.org/10.1007/s11858-017-0875-3

Durkin, K., Star, J., Rittle-Johnson, B. (2017). Using comparison of multiple strategies in the mathematics classroom: Lesson learned and next steps. *ZDM Mathematics Education*, 49, 585-597. doi: 10.1007/s11858-017-0853-9

Chao, T., Chen, J., Star, J.R., & Dede, C. (2016). Using digital resources for motivation and engagement in learning mathematics: Reflections from teachers and students. *Digital Experiences in Mathematics Education*, 2, 253–277. doi: 10.1007/s40751-016-0024-6

Maciejewski, W., & Star, J.R. (2016). Developing flexible procedural knowledge in undergraduate calculus. *Research in Mathematics Education*, 3, 299-316. doi: 10.1080/14794802.2016.1148626

Star, J.R., Rittle-Johnson, B., & Durkin, K. (2016). Comparison and explanation of multiple strategies: One example of a small step forward for improving mathematics education. *Policy Insights from the Behavioral and Brain Sciences*, *3*(2), 151-159. doi: 10.1177/2372732216655543

Star, J. R. (2016). Small steps forward: Improving mathematics instruction incrementally. *Phi Delta Kappan*, 97, 58-62. doi: 10.1177/0031721716641651

Pollack, C., Leon Guerrero, S., & Star, J. R. (2016). Exploring mental representations for literal symbols using priming and comparison distance effects. *ZDM*, 48(3), 291-303. doi: 10.1007/s11858-015-0745-9

Lein, A., Jitendra, A., Starosta, K., Dupuis, D., Hughes-Reid, C., & Star, J.R. (2016). Assessing the relation between seventh-grade students' engagement and mathematical problem solving performance. *Preventing School Failure*, 60(2), 117-123. doi: 10.1080/1045988X.2015.1036392

Jitendra, A., Dupuis, D., Star, J.R., & Rodriguez, M. (2016). The effects of schema-based instruction on the proportional thinking of students with mathematics difficulties with and without reading difficulties. *Journal of Learning Disabilities*. doi: 10.1177/0022219414554228

Chao, T., Murray, E., & Star, J. R. (2016). Helping mathematics teachers develop noticing skills: Utilizing smartphone technology for one-on-one teacher/student interviews. *Contemporary Issues in Technology and Teacher Education*, *16*(1). Retrieved from http://www.citejournal.org/vol16/iss1/mathematics/article1.cfm

Rittle-Johnson, B., Schneider, M., & Star, J.R. (2015). Not a one-way street: Bi-directional relations between procedural and conceptual knowledge of mathematics. *Educational Psychology Review,* 27(4), 587-597. doi: 10.1007/s10648-015-9302-x

Star, J.R., & Pollack, C. (2015). Inhibitory control and mathematics learning: Definitional and operational considerations. *ZDM - The International Journal on Mathematics Education*, 47(5), 859-863. doi: 10.1007/s11858-015-0716-1

Star, J.R., Newton, K., Pollack, C., Kokka, K., Rittle-Johnson, B., & Durkin, K. (2015). Student, teacher, and instructional characteristics related to students' gains in flexibility. *Contemporary Educational Psychology*, 41, 198-208. doi: dx.doi.org/10.1016/j.cedpsych.2015.03.001

Star, J.R., Pollack, C., Durkin, K., Rittle-Johnson, B., Lynch, K., Newton, K., & Gogolen, C. (2014). Learning from comparison in algebra. *Contemporary Educational Psychology*, 40, 41-54. doi: dx.doi.org/10.1016/j.cedpsych.2014.05.005

Star, J.R., Chen, J., Taylor, M., Durkin, K., Dede, C., & Chao, T. (2014). Evaluating technology-based strategies for enhancing motivation in mathematics. *International Journal of STEM Education*, 1:7. doi:10.1186/2196-7822-1-7. http://www.stemeducationjournal.com/content/1/1/7

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PRESENTATIONS

Wang, X., Nelluvelil, J., Kingan, M., Adler, R., Cao, L., Zepeda, C., Star, J., Rittle-Johnson, B., & Durkin, K. (2026, April). Do metacognitive-supportive exit tickets in middle school math classrooms improve students' self-regulated learning? Paper accepted for presentation at the 2026 Annual Meeting of the American Educational Research Association (AERA), Los Angeles, CA.

McMullen, J., Pampallis, I., Veermans, K., & Star, J.R. (2024, June). Adaptive number knowledge is related to adaptivity in high school students. Paper presented at the annual meeting of the Mathematical Cognition and Learning Society (MCLS), Washington, D.C.

Pampallis, I., Veermans, K., Star, J.R., & McMullen, J. (2023, August). Adaptive number knowledge and procedural flexibility in high school students. Paper presented at European Association of Research on Learning and Instruction Biennial Conference (EARLI), Thessaloniki, Greece.

Yang, Q., Star, J.R., Harris, P., Rowe, M. (2023, March). Chinese parents' support of preschoolers' mathematical development. Paper presented at the biennial meeting of the Society for Research in Child Development, Salt Lake City, Utah.

Star, J.R. (2022, October). Mathematical flexibility: A promising focus for research and practice. Invited talk, East China Normal University, Shanghai, online.

Star, J.R. (2022, October). Reflections on pedagogical content knowledge (and related constructs). Invited talk, Scientific Research Network meeting "Developing and stimulating competencies: Methodological challenges and opportunities for research," Leuven, Belgium.

Ghosh, A., & Star, J.R. (2022). "Don't talk while we talk": Conflicting messages about talking in the mathematics classroom. Paper presented at the American Educational Research Association (AERA), San Diego.

Star, J.R. (2021, October). Mathematical flexibility: A promising focus for research and practice. Invited talk, International Workshop on Mathematics Education – IWME 2021, the Vietnam National Institute of Educational Sciences, online.

Star, J.R., Rittle-Johnson, B., Durkin, K., & Loehr, A. (2021, August). Improving instructional quality by comparing and discussing multiple strategies. Paper presented at European Association of

Research on Learning and Instruction Biennial Conference (EARLI), online.

Rittle-Johnson, B., Fujimura, N., Goto, S., Aoyagi, Y., Star, J.R., Durkin, K., & Loehr, A. (2021, April). Building algebraic knowledge and flexibility: A comparison of secondary-school students in the U.S. and Japan. Paper presented at the American Educational Research Association (AERA), online.

Star, J.R. (2021, January). Conceptual and procedural knowledge in mathematics: Past, present, and future. Presentation at the Institut für Didaktik der Mathematik und der Informatik, Münster, Germany.

Star, J.R. (2020, December). New directions in the study of (and assessment of) procedural flexibility. Erno Lehtinen Online Colloquium, Turku, Finland. https://sites.utu.fi/eloc/en/events/jon-star/#video

Star, J. R., Durkin, K., Rittle-Johnson, B., & Loehr, A. (2020, June). Effects of comparing and discussing multiple strategies on students' algebra learning. In J. Y. C. Chan & J. K. Bye (Co-chairs), *Problem-solving strategy in algebra: From lab to practice.* Symposium accepted at the 2020 Mathematical Cognition & Learning Society Conference. Dublin, Ireland.

Rittle-Johnson, B., Hickendorff, M., Star, J. R., Durkin, K. & Loehr, A. M. (2020, April) *Comparing and Explaining Examples of Multiple Strategies to Promote Algebra Learning: Instructional Features That Predict Learning* [Symposium]. AERA Annual Meeting San Francisco, CA http://tinyurl.com/skkf8bg (Conference Canceled)

McMullen, J., Star, J.R., Lehtinen, E., & Rittle-Johnson, B. (2019, August). Individual differences in bootstrapping procedural and conceptual knowledge for future learning. Paper presented at European Association of Research on Learning and Instruction Biennial Conference, Aachen, Germany.

Loehr, A. M., Durkin, K., Rittle-Johnson, B., Star, J. R. (2019, April). Impact of comparison and explanation of multiple strategies on learning and flexibility in algebra. Paper presented at the American Educational Research Association (AERA), Toronto, Canada.

Star, J.R. (2018, May). Flexibility in mathematical problem solving: The state of the field. Invited plenary talk at the 8th East Asia Regional Conference on Mathematics Education. Taipei, Taiwan.

Zhang, Y., Fine, S., Loehr, A., Star, J., & Rittle-Johnson, B. (2018, May). Procedural flexibility for algebra: Assessment development. Poster presentation at the 8th East Asia Regional Conference on Mathematics Education. Taipei, Taiwan.

Rittle-Johnson, B. Star, J., Durkin, K. & Loehr, A. (2018, May). Comparing solution strategies to promote algebra learning and flexibility. Invited speaker at the 8th East Asia Regional Conference on Mathematics Education. Taipei, Taiwan.

Durkin, K., Loehr, A. M., Rittle-Johnson, B., Star, J. (2018, April). Effects of encouraging comparison and explanation of multiple strategies on instructional practices in algebra classrooms. Roundtable presentation at the American Educational Research Association (AERA), New York City, NY

Loehr, A. M., Rittle-Johnson, B., Star, J. R., & Desharnais, C. (2018, April). Developing a more comprehensive measure of formal algebra knowledge. Paper presented at the American Educational Research Association (AERA), New York City, NY.

Schiller, L., & Star, J.R. (2018, April). A solution to algebraic word problems: Schema-based instruction. Paper presented at the American Educational Research Association (AERA), New York City, NY.

Loehr, A. M., Rittle-Johnson, B., Star, J. R., Kang, J. M., & Durkin, K. (2017, October). Assessing conceptual understanding of algebra. Poster presented at the Cognitive Development Society (CDS), Portland, OR.

Xu, L., Liu, R., Star, J.R., Wang, J., Liu, Y., & Zhen, R. (2017, September). Measures of potential flexibility and practical flexibility in equation solving. Paper presented at European Association of Research on Learning and Instruction Biennial Conference, Tampere, Finland.

Star, J.R. (2017, September). Turning potential flexibility into flexible performance: The moderating role of self-efficacy and use of flexible cognition. Paper presented at European Association of Research on Learning and Instruction Biennial Conference, Tampere, Finland.

Star, J.R. (2017, September). 'It's complicated': Some things to think about for your future work (Discussant remarks). Paper presented at European Association of Research on Learning and Instruction Biennial Conference, Tampere, Finland.

Star, J. R. (2016, December). Un paso más allá de nuestro entorno: Investigación en educación matemática para mejorar la política educativa. Paper given at the workshop Perspectivas en la Formación Inicial del Profesor de Matemáticas. Castro Urdiales, Spain.

Wang, J., Liu, R., Star, J.R., Xu, L., & Zhen, R. (2016, October). Turning potential flexibility into flexible performance: The moderating role of self-efficacy and use of flexible cognition. Paper given at the Scientific Research Network meeting "Developing competencies in learners: From ascertaining to intervening", Leuven, Belgium.

Star, J.R., & Hill, H. (2016, May). Panorama de la foración de profesores de matemáticas. Paper presented at the Departamento de Didáctica de las Matemáticas, Universidad Complutense de Madrid, Madrid, Spain.

Star, J. (2015, September). What do, and what *should,* novice teachers notice about mathematics instruction? Paper presented at the International Conference for Math and Science Teacher Education on Academic and Practical Perspectives on School-based Teacher Training, Oranim, Israel.

Star, J.R. (2015, October). The importance of being flexible: Improving algebra learning and teaching. Paper presented at the Colloquium of mathematics education of the Institut für Entwicklung und Erforschung des Mathematikunterrichts, Technische Universität, Dortmund, Germany.

Star, J.R. (2015, October). Toward an educational psychology of STEM learning. Paper given at the Scientific Research Network meeting "Developing competencies in learners: From ascertaining to intervening", Leuven, Belgium.

Star, J.R. (2016, April). Toward an educational psychology of STEM learning. Paper given at the Kolloquium Lehr Lern Forschung und Fachdidaktik, Institut für Erziehungswissenschaft, ETH University of Zurich, Switzerland.

Star, J.R. (2016, March). Developing flexible procedural knowledge in undergraduate calculus. Paper presented at the Workshop on The Role of Calculus in the Transition from High School to College Mathematics, Washington, D.C.

Star, J. (2015, August). Exploring the impact of knowledge of multiple strategies on students' learning about proportions. Paper presented at European Association of Research on Learning and Instruction Biennial Conference, Limassol, Cyprus.

Maciejewski, W., & Star, J.R. (2015, January). Developing flexible procedures in undergraduate Calculus. Paper presented at the Joint Mathematics Meetings (American Mathematical Society and Mathematical Association of America), San Antonio, TX.

Aizikovitsh-Udi, E., & Star, J.R. (2014, April). From high-tech to high-school: Integrating ex-high tech workers into the high school educational system. Paper presented at the American Educational Research Association (AERA) annual convention, Philadelphia, PA.

Vig, R., Taylor, M., Chao, T., Pollack, C., & Star, J. (2014, March). Assessing implementation fidelity: Challenges as seen through the lens of two experimental studies. Paper presented at the Society for Research on Educational Effectiveness Spring 2014 Conference, Washington, D.C.

Chao, T., Schiller, L., Suslavich, M., Venditta, A., Desharnais, C., & Star, J.R. (2013, November). How sharing of student strategies can de-emphasize a lesson's mathematical point. Poster presented at the thirty-fifth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Chicago, Illinois.

Star, J.R., Newton, K., Pollack, C., Kokka, K., Rittle-Johnson, B. (2013, November). *Relating teacher characteristics, student characteristics, and instructional practices to flexibility in algebra.* Poster presented at the thirty-fifth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Chicago, Illinois.

Star, J.R. (2013, August). (Discussant.) Approaches to initiate and support learning by comparing and contrasting cases. Paper presented at the European Association of Research on Learning and Instruction Biennial Conference, Munich, Germany.

Star, J.R., Pollack, C., Newton, K., Kokka, K., Rittle-Johnson, B., & Durkin, K. (2013, August). Teacher and instructional characteristics related to students' gains in flexibility. Paper presented at the European Association of Research on Learning and Instruction Biennial Conference, Munich, Germany.

Star, J.R., Pollack, C., Durkin, K., Rittle-Johnson, B., Lynch, K., Newton, K., & Gogolen, G. (2013, August). Learning from comparison in algebra. Paper presented at the European Association of Research on Learning and Instruction Biennial Conference, Munich, Germany.

Star, J. , Chen, J., Durkin, K., Chao, T., & Dede, C. (2013, August). Comparing the effects of alternative technology-based activities on adolescents' mathematics achievement and motivation. Paper presented at the European Association of Research on Learning and Instruction Biennial Conference, Munich, Germany.

Ehren, M., & Star, J.R. (2013, April). Strategies teachers use to coach students on the high-stakes math test. Paper presented at the American Educational Research Association (AERA) annual convention, San Francisco, California.

Chen, J., Fitzgerald, S., Petrovai, K., Chao, T., Taylor, M., Star, J.R., & Dede, C. (2013, April). Technology activities that motivate and engage: A qualitative investigation. Paper presented at the American Educational Research Association (AERA) annual convention, San Francisco, California.

Aizikovitsh-Udi, E., Star, J.R., & Clarke, D. (2013, April). Promoting mathematical thinking through teacher questioning. Paper presented at the American Educational Research Association (AERA) annual convention, San Francisco, California.

Star, J.R., & Kokka, K. (2013, April). Using strategic interruptions to effectively integrate whole-class and small-group instruction in mathematics. Paper presented at the American Educational Research Association (AERA) annual convention, San Francisco, California.

Taylor, M., & Star, J.R. (2013, April). Patterns in teaching patterns: Challenges to maintaining task richness. Paper presented at the American Educational Research Association (AERA) annual convention, San Francisco, California.

Star, J.R. (2013, April). Leveraging comparison to improve the teaching and learning of algebra. Invited paper presented at the American Educational Research Association (AERA) annual convention, San Francisco, California.

Star, J.R. (2013, April). Does the learning of mathematics build higher-order thinking? Evidence from neuroscience and psychology. Paper presented at the 21st Century Mathematics conference, Stockholm, Sweden.

Star, J.R. (2013, March). Using comparison to improve students' knowledge of algebra. Paper presented at the 2012-13 Interdisciplinary Colloquium Series, Kaput Center, University of Massachusetts – Dartmouth.

Jitendra, A., Star, J.R., Dupuis, D., & Rodriquez, M. (2013, March). Effectiveness of schema-based instruction for improving seventh-grade students' proportional reasoning: A randomized experiment. Paper presented at the Society for Research on Educational Effectiveness Spring 2013 Conference, Washington, D.C.

Star, J.R., Rittle-Johnson, B., Lynch, K., Durkin, K., Gogolen, C., & Newton, K. (2013, March). The impact of a comparison curriculum in Algebra I: A randomized experiment. Paper presented at the Society for Research on Educational Effectiveness Spring 2013 Conference, Washington, D.C.

Durkin, K., Pollack, C., Star, J. R., & Rittle-Johnson, B. (2013, March). Differences in fidelity of implementation measures: What videos and surveys reveal about algebra instruction. Paper presented at the annual meeting of the Society for Research on Educational Effectiveness Spring 2013 Conference, Washington, DC.

Aizikovitsh-Udi, E., Clarke, D., & Star, J.R. (2013, February). Good questions or question questioning: An essential issue for effective teaching. Paper presented at the Eighth Congress of European Research in Mathematics Education (CERME 8), Manavgat-Side, Antalya, Turkey.

Star, J.R., Gogolen, C., & Jitendra, A. (2012, October). Exploring the impact of knowledge of multiple strategies on students' learning about proportions. Paper presented at the 34nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Kalamazoo, Michigan.

Lynch, K., & Star, J.R. (2012, October). Views of at-risk students on instruction incorporating the comparison of multiple strategies in Algebra I. Paper presented at the 34nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Kalamazoo, Michigan.

Aizikovitsh-Udi, E., Star, J.R., & Clarke, D. (2012, July). Promoting mathematical thinking through good

questioning. Paper presented at the 12th International Conference on Mathematical Education, Seoul, Korea.

Star, J.R. (2012, May). Moving from the lab to the classroom: Results and challenges from a large-scale intervention study on students' learning from comparison. Paper presented at the Instructional Technology and Technology department, Katholieke Universiteit Leuven, Leuven, Belgium.

Rittle-Johnson, B., Star, J.R. (2012, May). Using comparison to support mathematics knowledge: From the lab to the classroom. Paper presented at the annual meeting of the Midwestern Psychological Association, Chicago, IL.

Star, J.R. (2012, April). Tecnologías en Educación en EEUU: Oportunidades y Retos. Paper presented at the III Simposio iTest 2012, Centro de Estudios Superiores Felipe II, Universidad Computense de Madrid, Aranjuez, Spain.

Jitendra, A. K., Star, J. R., Bauer, C., & DuPuis, D. N. (2012, April). The effectiveness of schema-based instruction as a tier 1 intervention on the proportional reasoning of students with different types of learning difficulties. Paper presented at the American Educational Research Association (AERA) annual convention, Vancouver, Canada.

Jitendra, A. K., Star, J. R., Lein, A., DuPuis, D. N., & Bauer, C. (2012, April). The contributions of specific mathematical concepts and skills and reading to problem solving involving ratios, proportions, and percents. Poster presented at the American Educational Research Association (AERA) annual convention, Vancouver, Canada.

Jitendra, A. K., Star, J. R., DuPuis, D. N., Rodriguez, M. C., & Someki, F. (2012, April). Effectiveness of schema-based instruction for improving seventh-grade students' proportional reasoning: a randomized experiment. Poster presented at the American Educational Research Association (AERA) annual convention, Vancouver, Canada.

Star, J.R. (2012, March). Promoviendo la Flexibilidad Matemática. Paper presented at the Departmento Didáctica de la Matemática, Universidad de Granada, Granada, Spain.

Star, J.R. (2012, March). Reflections on the past, present, and future of the constructs of "conceptual knowledge" and "procedural knowledge". Paper presented at the colloquium series of the Department of Education, Oxford University, Oxford, UK.

Star, J.R. (2012, March). Promoviendo la Flexibilidad Matemática. Paper presented at the 5th Jornadas de Ensenañza de las Mathemáticas en Cantabria, Santander, Spain.

Star, J.R. (2012, March). Reflections on the past, present, and future of the constructs of "conceptual knowledge" and "procedural knowledge". Paper presented at the Departamento de Matemáticas, Estadística y Computación de la Universidad de Cantabria, Santander, Spain.

Star, J.R. (2012, February). Reflections on the past, present, and future of the constructs of "conceptual knowledge" and "procedural knowledge". Paper presented at the Research Lunch Meeting Series, Freudenthal Institute, Utrecht University, Utrecht, The Netherlands.

Star, J.R. (2011, November). Promoviendo la Flexibilidad Matemática. Paper presented at the Research Colloquium Series, Universidad Computense de Madrid, Madrid, Spain.

Jitendra, A. K., & Star, J. R. (2011, August). Effectiveness of schema-based instruction for improving seventh-grade students' proportional reasoning: A randomized experiment. Paper presented at the

STEM Conference, University of Minnesota, St. Paul, MN.

Lein, A., Jitendra, A. K., Dupuis, D. N., & Star, J. R. (2011, August). The contributions of specific mathematical concepts and skills and reading to problem solving involving ratios, proportions, and percents. Poster presented at the STEM Conference, University of Minnesota, St. Paul, MN.

Star, J.R. (2011, August). (Discussant.) What makes a successful learner of mathematical proof? Paper presented at the European Association of Research on Learning and Instruction Biennial Conference, Exeter, England.

Durkin, K., Rittle-Johnson, B., & Star, J.R. (2011, August). Strategy flexibility matters for student achievement: How flexibility relates to other outcomes. Paper presented at the European Association of Research on Learning and Instruction Biennial Conference, Exeter, England.

Pollack, C., & Star, J. R. (2011, June). From the laboratory to the classroom: Creating and implementing a researched-based curriculum around the use of comparison. Poster presented at the 3rd biennial conference of the International Mind, Brain, and Education Society, San Diego, CA.

Star, J.R., & Rittle-Johnson, B. (2011, May). The power of comparison in learning and instruction: Learning outcomes supported by different types of comparisons. Paper presented at the annual meeting of the Association for Psychological Science, Washington, DC.

Jitendra, A. K., & Star, J. R. (2011, April). Elementary and middle school RTI: Improving mathematics learning with Tier 2 interventions. Paper presented in symposium at the Council for Exceptional Children (CEC) annual convention, National Harbor, MD.

Jitendra, A., & Star, J.R. (2011, April). Schema-based instruction as Tier 1 intervention: Contrasting high- and low-ability students' solving of percent word problems. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Star, J.R., Lynch, K., & Perova, N. (2011, April). Using video to improve preservice teachers' abilities to attend to classroom features: A replication study. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Durkin, K., Rittle-Johnson, B., & Star, J.R. (2011, April). Procedural flexibility matters for student achievement: The relationship between procedural flexibility and standardized tests. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Jitendra, A., Star, J.R., Rodriguez, M., Lindell, J., & Someki, F. (2011, April). Enhancing seventh-grade students' proportional thinking using schema-based instruction. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Lynch, K., & Star, J.R. (2011, April). Exploring relationships between mathematical knowledge for teaching (MKT) and teachers' implementation of curricula. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Star, J.R., & Nurnberger-Haag, J. (2011, April). (Discussant.) Toward a research agenda on mathematical models. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Jitendra, A. K., & Star, J. R. (2011, February). The effects of schema-based instruction on seventh graders' proportional thinking. Paper presented at the National Association for School

Psychologists (NASP) Conference, San Francisco, CA.

Jitendra, A. K., & Star, J. R. (2011, February). Improving mathematics achievement: Results of three IES-funded intervention studies. Paper presented in symposium at the Pacific Coast Research (PCR) Conference, Coronado, CA.

Lloyd, G., Herbel-Eisenmann, B., & Star, J.R. (2011, January). Expressions, equations, and functions. Presentation presented at the annual meeting of the Association of Mathematics Teacher Educators, Irvine, CA.

Star, J.R., & Richland, L. (2011, January). Exploring relationships between MKT and teachers' ability to effectively use comparison. Presentation presented at the annual meeting of the Association of Mathematics Teacher Educators, Irvine, CA.

Newton, K., & Star, J.R. (2011, January). Studying the impact of model teaching: Examining teachers' practice to determine the effectiveness of a professional learning task. Presentation presented at the annual meeting of the Association of Mathematics Teacher Educators, Irvine, CA.

Philipp, R., Sherin, M.G., Jacobs, V., Goldsmith, L., Santagata, R., Seago, N., van Es., E., & Star, J.R. (2011, January). Mathematics teacher noticing: Seeing through teachers' eyes. Presentation presented at the annual meeting of the Association of Mathematics Teacher Educators, Irvine, CA.

Star, J.R. (2011, January). Promoting the development of procedural flexibility. Paper presented at the Pennsylvania Department of Education Annual Conference, Hershey, PA.

Star, J.R. (2010, November). (Discussant.) Re-thinking "algebra for all": Reflections from within the black box. Paper presented at the annual meeting of the Association for Public Policy Analysis and Management (APPAM), Boston, MA.

Lynch, K., & Star, J.R. (2010, October). Teaching mathematics with multiple strategies in middle and high school. Paper presented at the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Columbus, Ohio.

Pollack, C., & Star, J.R. (2010, October). From the laboratory to the classroom: Designing a research-based curriculum around the use of comparison. Poster presented at the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Columbus, Ohio.

Newton, K., Star, J.R., & Perova, N. (2010, October). Learning by teaching: Using a model teaching activity to help teachers learn to use comparison in algebra. Paper presented at the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Columbus, Ohio.

Schanzer, E., & Star, J.R. (2010, October). Teaching on the wall of Plato's cave: How representational affinity impacts understanding of algebraic functions. Poster presented at the 32nd annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Columbus, Ohio.

Durkin, K., Rittle-Johnson, B., & Star, J.R. (2010, August). Immediate introduction to multiple procedures supports procedural flexibility in equation solving. Poster presented at the annual meeting of the Cognitive Science Society, Portland, Oregon.

Rittle-Johnson, B., Star, J.R., & Durkin, K. (2010, April). Developing procedural flexibility: When should

multiple solution methods be introduced? Paper presented at the annual meeting of the American Educational Research Association, Denver, Colorado.

Jitendra, A., & Star, J.R. (2010, April). Schema-based instruction: Effects of tier 1 intervention for improving learning of ratios and proportions. Paper presented at the annual convention of the Council for Exceptional Children, Nashville, Tennessee.

Jitendra, A., & Star, J.R. (2010, April). Improving middle school students' proportional thinking using schema-based instruction. Paper presented at the annual convention of the Council for Exceptional Children, Nashville, Tennessee.

Jitendra, A., George, M., Starosta, K., & Star, J.R. (2010, April). Improving learning of ratio and proportion for secondary students with behavior disorders. Paper presented at the annual convention of the Council for Exceptional Children, Nashville, Tennessee.

Beckmann, S., & Star, J.R. (2010, April). Using strip diagrams to solve algebra word problems. Paper presented at the annual meeting of the National Council of Teachers of Mathematics, San Diego, California.

Star, J.R. (2010, April). Teachers' views about teaching multiple strategies. Invited address, Mathematics Education Colloquium, University of New Hampshire.

Jitendra, A., & Star, J.R. (2010, February). Effects of schema-based instruction on ratio, proportion, and percent problem-solving by seventh grade students. Paper presented at the Pacific Coast Research Conference, Coronado, California.

Jitendra, A., Woodward, J., & Star, J.R. (2010, January). Proportional thinking of middle-school students: The role of schema-based instruction. Paper presented at the annual International Academy for Research in Learning Disabilities (IARLD), Miami, Florida.

Rittle-Johnson, B., Star, J.R., & Durkin, K. (2009, October). Pathways to flexibility: Leveraging comparison and prior knowledge. Paper presented at the fifth biennial of the Cognitive Development Society, San Antonio, Texas.

Star, J.R., & Newton, K. (2009, September). The nature and development of experts' strategy flexibility for solving equations. Paper presented at the thirty-first annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Atlanta, Georgia.

Lynch, K., Newton, K., & Star, J.R. (2009, September). Exploring procedural flexibility in struggling algebra students. Paper presented at the thirty-first annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA). Atlanta, Georgia.

Star, J.R., & Rittle-Johnson, B. (2009, September). The role of prior knowledge in the development of strategy flexibility: The case of computational estimation. Paper presented at the thirty-first annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA). Atlanta, Georgia.

Jitendra, A., & Star, J.R. (2009, September). Improving seventh grade students' learning of ratio and proportion using schema-based instruction and self-monitoring. Paper presented at the thirty-first annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA). Atlanta, Georgia.

Yakes, C., Star, J.R., & Pollack, C. (2009, September). Developing teachers' flexibility in algebra through comparison. Paper presented at the thirty-first annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA). Atlanta, Georgia.

Star, J.R. (2009, May). *Why students struggle with algebra and how schools and teachers can help*. Invited address, 2009 STEM Conference, Center for Excellence in Mathematics and Science Education, East Tennessee State University.

Jitendra, A., Woodward, J., & Star, J.R. (2009, April). *Does schema-based instruction and self-monitoring influence seventh grade students' proportional thinking*? Paper presented at the annual meeting of the American Educational Research Association, San Diego.

Woodward, J., Jitendra, A. K., Star, J. R. & Starosta, K. (2009, April). *The effects of schema-based instruction and self-monitoring on proportional thinking*. Paper presented at the annual convention of the Council for Exceptional Children, Seattle, WA.

Jitendra, A., Star, J. R., Price, K., Grant, C., & Starosta, K. (2009, February). *Teaching problem solving to students with behavior disorders: The role of schema-based instruction and self-monitoring*. Poster presented at the Pacific Coast Research Conference, San Diego, California.

Jitendra, A., Woodward, J., Star, J.R. (2009, February). Understanding seventh grade students' proportional thinking. Paper presented at the Pacific Coast Research Conference, San Diego, California.

Rittle-Johnson, B. & Star, J.R. (2008, June). *It pays to compare: Effectively using comparison to support student learning of algebra*. Invited talk presented at the Institute for Education Sciences Research Conference, Washington, D.C.

Jitendra, A., Star, J.R., Caskie, G., Leh, J., Sood, S., & Hughes, C. (2008, June). *Improving ratio and proportion problem solving performance of seventh grade students using schema-based instruction.* Paper presented at the 32nd annual meeting of the International Academy for Research in Learning Disabilities, Toronto, Canada.

Star, J.R. (2008, April). *Conceptual (knowledge) confusion: Some deliberatively provocative remarks*. Paper presented at the Research PreSession of the annual meeting of National Council of Teachers of Mathematics, Salt Lake City, UT.

Jitendra, A., & Star, J.R. (2008, April). *Meeting the needs of students with learning disabilities: The role of schema-based instruction*. Paper presented at the Research PreSession of the annual meeting of National Council of Teachers of Mathematics, Salt Lake City, UT.

Jitendra, A., Star, J.R., Starosta, K., Sood, S., Caskie, G., Leh, J., Hughes, C., Mack, T., & Paskman, S. (2008, April). *Teaching ratio and proportion problem solving using schema-based instruction*. Paper presented at the annual convention of the Council for Exceptional Children, Boston, MA.

Star, J.R. & Rittle-Johnson, B. (2008, March). *The role of comparison in the development of flexible knowledge of computational estimation*. Paper presented at the annual meeting of the American Educational Research Association, New York City.

Star, J.R., Jitendra, A., Starosta, K., Caskie, G., Leh, J., Sood, S., Hughes, C., & Mack, T. (2008, March). *Using schema-based instruction to improve seventh graders' learning of ratio and proportion*. Paper presented at the annual meeting of the American Educational Research Association, New York City.

Jitendra, A., Star, J.R., Starosta, K., Caskie, G., Leh, J., Sood, S., Hughes, C., Mack, T., & Parkman, S. (2008, February). *Teaching ratio, proportion, and percent problem solving using schema-based intervention*. Poster presented at the Pacific Coast Research Conference, San Diego, California.

Star, J.R. (2007, November). *Improving students' flexibility in algebra: The benefits of comparison*. Invited address, Mathematics Education Seminar Series, Harvard University Mathematics Department, Cambridge, MA.

Rittle-Johnson, B., & Star, J.R. (2007, October). *When it pays to compare: Benefits of comparison in mathematics classrooms*. Paper presented at the fifth biennial of the Cognitive Development Society, Santa Fe, New Mexico.

Star, J.R., & Rittle-Johnson, B. (2007, August). *Contrasting cases in mathematics support procedural flexibility and conceptual knowledge*. Paper presented at the European Association of Research on Learning and Instruction 12th Biennial Conference, Budapest, Hungary.

Star, J.R. (2007, August). *What is mathematical understanding? How can we measure it? Theoretical and empirical reflections*. Invited address, Department of Elementary Education, Middle East Technical University, Ankara, Turkey.

Rittle-Johnson, B. & Star, J.R. (2007, August). *Compared to what? How different types of comparison affect transfer in mathematics*. Paper presented at the annual meetings of the Cognitive Science Society, Nashville, TN.

Star, J.R., Rittle-Johnson, B., Lee, K., Samson, J., & Chang, K. (2007, June). *When it pays to compare: Experimental evidence for when and how comparison facilitates mathematics learning.* Poster presented at the Institute for Education Sciences Research Conference, Washington, D.C.

Jitendra, A., Star, J.R., Starosta, K., and Caskie, G. (2007, June). *Enhancing the mathematical problem solving performance of seventh grade students using schema-based instruction: Lessons learned from Year 1 design study*. Poster presented at the Institute for Education Sciences Research Conference, Washington, D.C.

Star, J.R. (2007, May). *Improving students' flexibility in algebra: The benefits of comparison*. Invited address, California Algebra Forum, San Diego, CA.

Star, J.R., Lee, K., Chang, K., Rittle-Johnson, B., & Glasser, H. (2007, April). *Investigating student thinking about estimation: What makes a good estimate?* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Star, J.R., Chang, K., Lee, K., & Rittle-Johnson, B. (2007, April). *The benefits of comparison in learning to solve equations*. Poster presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Star, J.R., & Rittle-Johnson, B. (2007, April). *Does comparison support transfer of knowledge? Investigating student learning of algebra*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Star, J.R. (2007, February). *Conducting rigorous evaluations of interventions that (may) improve student learning: A research/teacher reflects*. Presentation at the US Department of Education Mathematics and Science Partnerships conference, Dallas, TX.

Star, J.R. (2006, December). *Conducting rigorous evaluations of interventions that (may) improve student learning: A research/teacher reflects*. Presentation at the US Department of Education Mathematics and Science Partnerships conference, Washington, DC.

Rittle-Johnson, B., Star, J.R., Glasser, H., & Lee, K. (2006, June). *Does using contrasting cases increase problem solving, flexibility, and conceptual knowledge? An experimental study on early algebra learning*. Poster presented at the Institute for Education Sciences Research Conference, Washington, D.C.

Star, J.R. (2006, April). (Discussant). *How teachers and students view generality*. Symposium presented at the Research PreSession of the annual meeting of the National Council of Teachers of Mathematics, St. Louis, Missouri.

Rittle-Johnson, B., & Star, J.R. (2006, April). *Explaining contrasting solution methods supports problem-solving flexibility and transfer*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, California.

Star, J.R. (2006, April). (Discussant). *Middle school students' mathematical thinking*. Symposium presented at the annual meeting of the American Educational Research Association, San Francisco, California.

Rittle-Johnson, B., & Star, J.R. (2005, October). *Contrasting examples in mathematics lessons support flexible and transferable knowledge*. Paper presented at fourth biennial meeting of the Cognitive Development Society, San Diego, California.

Star, J.R. (2005, October). *Students' use of standard algorithms for solving linear equations*. Paper presented at the twenty-seventh annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA). Blacksburg, Virginia.

Star, J.R. (2005, October). (Discussant). *Adaptive and representational expertise*. Paper presented at the twenty-seventh annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA). Blacksburg, Virginia.

Glasser, H. & Star, J.R. (2005, October). *Interview effects on the development of algebraic strategies*. Poster presented at the twenty-seventh annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Blacksburg, Virginia.

Demir, M. & Star, J.R. (2005, October). *Effectiveness of the 'change in variable' strategy for solving linear equations*. Poster presented at the twenty-seventh annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Blacksburg, Virginia.

Chang, K. & Star, J.R. (2005, October). *Investigating variations in problem-solving strategies for solving linear equations*. Poster presented at the twenty-seventh annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Blacksburg, Virginia.

Lee, K. & Star, J.R. (2005, October). *The "insertion" error in solving linear equations*. Poster presented at the twenty-seventh annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Blacksburg, Virginia.

Gucler, B. & Star, J.R. (2005, October). *Multiple solution strategies for linear equation solving*. Poster presented at the twenty-seventh annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Blacksburg, Virginia.

Hill, D., & Star, J.R. (2005, April). *Factors in high school affecting success in college mathematics*. Invited address, University of Michigan Mathematics Department Seminar on Teaching Mathematics.

Star, J.R., Glasser, H., Lee, K,. Gucler, B., Demir, M., & Chang, K. (2005, April). *Investigating the development of students' knowledge of standard algorithms*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Star, J.R. (2005, April). (Discussant). *Students' understanding of mathematical functions*. Symposium presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Gorowara, C., Berk, D, Poetzl, C., Star, J.R., & Taber, S. (2005, April). *Research issues in developing strategic flexibility: What and how*. Symposium presentation at the Research PreSession of the annual meeting of the National Council of Teachers of Mathematics, Anaheim, CA.

Star, J.R. (2005, March). Math*ematical flexibility: What is it? Why is it important? How does it develop?* Invited address, University of Delaware College of Education Colloquium.

Speer, N., & Star, J.R. (2005, March). *Teaching assistants' knowledge and beliefs related to student learning of Calculus*. Invited address, Michigan State University College of Education Mathematics Education Colloquim Series.

Haser, C. & Star, J.R. (2004, October). *Preservice teachers' beliefs about mathematical understanding*. Paper presented at the twenty-six annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Montreal, Canada.

Wood, M.B. & Star, J.R. (2004, October). *Making sense (or not) out of linear equations*. Paper presented at the twenty-six annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Montreal, Canada.

Star, J.R. (2004, October). *Which way is best? Students' conceptions of optimal strategies for solving equations*. Paper presented at the twenty-six annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Montreal, Canada.

Star, J.R. (2004, April). *The development of flexible procedural knowledge of equation solving*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Rittle-Johnson, B., & Star, J.R. (2004, April). *Finding balance: Revisiting the relations between conceptual and procedural knowledge*. Symposium presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Star, J.R. (2004, April). (Discussant). *Algebraic reasoning*. Symposium presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Lewis, G.M., & Star, J.R. (2004, April). *Students' approaches to learning mathematics in Standards-based curricula*. Paper presented at the Research PreSession of the annual meeting of the National Council of Teachers of Mathematics, Philadelphia.

Star, J.R., Smith, J., & Hoffmann, A.J. (2004, April). *Students' perceptions of difference between traditional and Standards-based mathematics curricula*. Paper presented at the Research PreSession of the annual meeting of the National Council of Teachers of Mathematics, Philadelphia.

Lewis, G.M., & Star, J.R. (2003, April). *Moving between reform and traditional mathematics curricula: Patterns in students' mathematics achievement*. Poster presented at the annual meeting of the American Educational Research Association, Chicago, IL.

Star, J.R., & Hoffmann, A.J. (2002, October). *Assessing students' conceptions of reform mathematics*. Paper presented at the twenty-fourth annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Athens, Georgia.

Star, J.R. (2002, October). Re-*conceptualizing procedural knowledge: The emergence of "intelligent" performances among equation solvers*. Paper presented at the twenty-fourth annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Athens, Georgia.

Smith, J., Star, J.R., & Hoffmann, A. (2002, April). S*tudents' experiences moving between "traditional" and "reform" curricula: What are the implications for K-16 education?* Paper presented at the Research PreSession of the annual meeting of the National Council of Teachers of Mathematics, Las Vegas, Nevada.

Silver, E., Mesa, V., Benken, B., Mairs, A., Morris, K., & Star, J.R. (2002, April). *Characterizing teaching and assessing for understanding in middle grades mathematics: An examination of "best practice" portfolio submissions to NBPTS*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, Louisiana.

Star, J.R., & Seifert, C. (2002, April). *Re-conceptualizing procedural knowledge: Flexibility and innovation in equation solving*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, Louisiana.

Berk, D., Burdell, C., Hoffmann, A.J., Lazarovici, V., Lewis, G., Smith, J., and Star, J.R. (2001, October). *Students' reactions and adjustments to fundamental curricular changes: What are "mathematical transitions"? How can we study them?* Paper presented at the twenty-third annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Snowbird, Utah.

Star, J.R. (2001, April). *Mathematical transitions: Moving from a traditional high school to a reform university*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, Washington.

Star, J.R. (2001, April). *Intuitive mathematics: Theoretical and educational implications*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, Washington.

Smith, J., Herbel-Eisenmann, B., Breaux, G., Burdell, G., Jansen, A., Lewis, G., & Star, J.R. (2000, October). *How do students adjust to fundamental changes in mathematics curricula?* Paper presented at the twenty-second annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Tucson, Arizona.

Star, J.R. (2000, October). *An exploration of successful students' problem solving*. Paper presented at the twenty-second annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Tucson, Arizona.

Star, J.R. (2000, October). *Re-"conceptualizing" procedural knowledge in mathematics*. Paper presented at the twenty-second annual meeting of the North American chapter of the International Group for the Psychology of Mathematics Education (PME-NA), Tucson, Arizona.

Star, J.R., & Smith, J. (2000, September). *Understanding "reform" at the collegiate level: Exploring students' experiences in reform Calculus*. Paper presented at the annual meeting of the Association for Research in Undergraduate Mathematics Education (ARUME), Chicago, Illinois.

Star, J.R. (2000, June). *Capturing the complexities of competence: An exploration of successful students' problem solving*. Paper presented at the workshop "Learning algebra with the computer" at the Intelligent Tutoring Systems conference, Montreal, Canada.

Star, J.R. (2000, June). *Levels of competence in procedural skills*. Poster presented at the International Conference on the Learning Sciences, Ann Arbor, Michigan.

Star, J.R. (2000, June). *On the relationship between knowing and doing in procedural learning*. Paper presented at the International Conference on the Learning Sciences, Ann Arbor, Michigan.

Smith, J.P., III, Star, J.R., & Herbel-Eisenmann, B. (2000, April). *Studying mathematical transitions: How do students navigate fundamental changes in curriculum and pedagogy?* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, Louisiana.

Star, J.R. (2000, April). *Levels of competence in procedural skills*. Poster presented at the Biennial meeting of the Society for Research in Adolescence, Chicago, Illinois.

Linnenbrink, L, Hruda, L., Haydel, A., Star, J.R., & Maehr, M. (1999, April). *Student motivation and cooperative groups: Using achievement goal theory to investigate students' socio-emotional and cognitive outcomes*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Herbel-Eisenmann, B., Smith, J. P., III, & Star, J. R. (1999, April). *Middle school students' algebra learning: Understanding linear relationships in context*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Smith, J. P., III, Star, J. R., & Herbel-Eisenmann, B. (1999, April). *Imperfect tools and partial results: Preliminary work to assess middle schooler's algebra learning*. Paper presented at the Research Pre-Session of the annual meeting of the National Council of Teachers of Mathematics, San Francisco, California.

Star, J.R. (1998, October). *Children's comprehension of generics in category induction*. Poster presented at the Biennial meeting of the Society for Research in Child Development, Albuquerque, New Mexico.

Webinars, Podcasts, and Interviews

Pedagogy Non-Grata. Podcast, Interview with Jon Star.
https://podbay.fm/p/pedagogy-non-grata-338647/e/1595944800

Solving Problems Multiple Ways. Podcast, Math with Matthew.
http://www.mathwithmatthew.com/podcast.html

Making Algebra Easier. Webinar. Education Week.
http://www.edweek.org/medias/events/webinars/algebra.mp4

Evidence-Based Practices for Supporting Understanding and Skill in Mathematics. Webinar. Carnegie Learning. http://www.carnegielearning.com/webinars/evidence-based-practices-for-supporting-understanding-and-skill-in-mathematics

Assisting Students Struggling with Mathematics in Elementary and Middle School. Webinar. Regional Educational Laboratory Northeast and Islands and Vermont Department of Education.
http://edc.acrobat.com/p75325680/

Q&A with Jon Star, Ph.D., on Conceptual Understanding in Math. Interview. Scholastic/Tom Snyder Productions. http://blog.tomsnyder.com/math-hub/bid/39599/Q-A-with-Jon-Star-Ph-D-on-conceptual-understanding-in-math

Making Algebra Work: Instructional Strategies that Deepen Student Understanding. Webinar. The Center for Comprehensive School Reform and Improvement.
http://www.centerforcsri.org/webcasts/algebra