Ji Y. Son


## Contact Information

Email: json2@calstatela.edu

Websites: [CourseKata.org](http://coursekata.org/)

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California State University, Los Angeles

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## Current Position

Professor, Department of Psychology, Cal State LA (2019-present)

Co-founder of CourseKata.org, an innovative ed tech platform for continuously improving students’ experience of interactive textbooks (2017-present)

Associate Professor, Department of Psychology, Cal State LA (2015-2019)

Assistant Professor, Department of Psychology, Cal State LA (2009-15)

Visiting Scholar, Department of Psychology, UCLA (2010-12)

## Education

Post-Doctoral Training, Department of Psychology, UCLA (2007-09)

## Ph.D., Indiana University (August 2007)

## Psychology and Cognitive Science

Dissertation Title: *Contextualization and Decontextualization: A Look at Symbols, Experiences, and*

*Language* (Supervised by Dr. Robert L. Goldstone and Dr. Linda B. Smith)

## B.S., UCLA (June 2002)

 Cognitive Science

Thesis Title: *Spatial Effects of Semantic Memory in a Symbolic-Connectionist Network* (Supervised by Dr.

John Hummel and Dr. Keith J. Holyoak)

## Teaching Experience

Course Instructor, Psychology Department, Cal State LA

Courses taught: Inferential Statistics, Research Methods in Psychology, Sensation & Perception, Cognition of Children and Adolescents, Psychology of the Developing Person, Human Development

Research Training Faculty, Minority Opportunities in Research (MORE) Program, Cal State LA

Psychology Colloquium Coordinator, Psychology Department, Cal State LA (2010-14)

Honors Thesis Advisor, Early Entrance Program (EEP), Cal State LA (2014-15, 2016-17, 2018-19)

Honors Thesis Advisor, Psychology Department, Indiana University (2006-08)

Lab Instructor, Psychology Department, Indiana University

Introduction to Psychology, Lab Section (Fall 2004)

Academic Advancement Program (AAP) Tutor, UCLA

 *Program designed to promote excellence and provide mentorship for minority/atraditional students*

Behavioral Neuroscience (Fall 2001-Spring 2002)

Cognitive Science (Fall 2001-Spring 2002)

## Grants

Project Team for “Scaling CourseKata,” Bill and Melinda Gates + Valhalla Foundation (2023-25) - $3,500,000

Sub-award to Cal State LA - $231,400

PI for “CourseKata,” California State University Chancellor’s Office (2022-24) - $125,000

Project Team for “CourseKata,” Valhalla Foundation (2021-23) - $700,000

Project Team for “CourseKata: An R&D Model for HS Statistics and Data Science,” Chan Zuckerberg Initiative (2020-23) - $3,373,240

 Sub-award to Cal State LA - $248,508

Co-PI for “Building and Testing a New Model for Continuous Improvement of High-Impact

Online and Hybrid College Courses,” Governor's Office of Planning and Research, California Education Learning Lab (2019-2022) - $1,300,000

 Sub-award to Cal State LA - $230,861

Project Team for “Developing a New R&D Model for Continuous Improvement of Postsecondary Teaching and Learning,” Chan Zuckerberg Initiative (2017-2020) - $1,525,128

 Sub-award to Cal State LA - $169,018

Co-PI for “CAPS: Culturally Adaptive Pathway to Success,” NSF S-STEM (2018)- $999,315

Proven Lead Faculty for Statistics, CSU Course Redesign with Technology Program (2016-18) - $17,545

Adopting Faculty for Statistics/Psychology, CSU Course Redesign with Technology Program (2014-15) - $10,420

PI for “Alleviating Math Anxiety in Non-STEM Majors Through Innovative Pedagogy and Reflection,” Cal State LA Research, Scholarship, and Creative Activity Minigrant (2014-15) - $4992

Project Evaluator for “Using Virtual Labs to Improve Biology Courses and Reduce Bottlenecks,” California State University Initiative to Reduce Bottlenecks Using Innovative Online Technology (2014-15) - $39,780

 Project Leaders: Drs. Robert Desharnais, Paul Narguizian

Project Evaluator for “Virtual Labs for General Education Biology,” California State University Initiative to Reduce Bottlenecks Using Innovative Online Technology (2013-14) - $82,105

 Project Leaders: Drs. Robert Desharnais, Paul Narguizian

Co-PI for “Undergraduate Science for Future Elementary Teachers,” California State University, Math and Science Teacher Initiative (2013-14) - $24,600

 Co-PIs: Drs. James Rudd, Paul Narguizian, Patrick Sharp

PI for Cal State LA Center for Effective Teaching and Learning (CETL) Undergraduate Research Mentoring Grant, (2012-2013) - $1500

PI for “Improving Quantitative Reasoning Through College-Level Statistics,” Cal State LA Research, Scholarship, and Creative Activity Minigrant (2010-11) - $3,400

PI for "Connecting Concepts and Activities: Principles of Integration in Mathematical Pedagogy," US Department of Education, Subcontract from UCLA (2009-2010) - $28,553

## Publications

### ***Popular Press/Editorials***

Son, J. Y., & Ngo, F. (2025, June 17). Community college math policy: Balancing big picture gains and classroom struggles. *EdSource*. <https://edsource.org/2025/california-college-math-challenges/733784>

Son, J. Y., & Stigler, J. W. (2023, January 25). Don’t force a false choice between algebra and data science. *EdSource*. <https://edsource.org/2023/dont-force-a-false-choice-between-algebra-and-data-science/684817>

Burrill, G., Cohn, H., Lai, Y., Sinha, D. P., Son, J. Y., & Stevenson, K. F. (2023). Listening for common ground in high school and early collegiate mathematics. *Notices of the American Mathematical Society,* *70*(5). <https://www.ams.org/journals/notices/202305/noti2689/noti2689.html?adat=May%202023&trk=2689&galt=none&cat=education&pdfissue=202305&pdffile=rnoti-p798.pdf>

Lai, Y., & Son, J.Y., (2023). Why should I listen to you? If applications and theory could talk, Part 1 of n. *American Math Society: Column on Teaching and Learning,* <https://mathvoices.ams.org/teachingandlearning/why-should-i-listen-to-you-if-applications-and-theory-could-talk-part-1-of-n/>

### ***Peer-reviewed Journal Articles***

Zhang, I., Jia, Y., Cheng, X., Son, J. Y., & Stigler, J. W. (2025). [Empowering novice programmers: Redesigning documentation for effective informal learning](https://journals.sagepub.com/doi/pdf/10.1177/07356331241311505). *Journal of Educational Computing Research*, 07356331241311505.

Zhang, I., Guo, X. H., Son, J. Y., Blank, I. A., & Stigler, J. W. (2025). [Watching videos of a drawing hand improves students’ understanding of the normal probability distribution.](https://link.springer.com/content/pdf/10.3758/s13421-024-01526-7.pdf) *Memory & Cognition*, *53*(1), 262-281.

Xu, A., Son, J. Y., & Sandhofer, C. M. (2024). [A library for innovative category exemplars (ALICE) database: Streamlining research with printable 3D novel objects.](https://link.springer.com/article/10.3758/s13428-024-02458-5) *Behavior Research Methods*, 1-23.

Jackson, M. C., Remache, L. J., Ramirez, G., Covarrubias, R., & Son, J. Y. (2024). Wise interventions at minority-serving institutions: Why cultural capital matters. *Journal of Diversity in Higher Education*. [https://doi.org/10.1037/dhe0000570](https://psycnet.apa.org/doi/10.1037/dhe0000570)

Tucker, M. C., Wang, X. W., Son, J. Y., & Stigler, J. W. (2024). Prediction versus production for teaching computer programming. *Learning and Instruction*, *91*, 101871. <https://doi.org/10.1016/j.learninstruc.2023.101871>

Sutter, C. C., Jackson, M. C., Givvin, K. B., Stigler, J. W., & Son, J. Y. (2024). The “better book” approach to addressing equity in statistics: Centering the motivational experiences of students from racially marginalized backgrounds for widespread benefit. *Education Sciences*, *14*, 487. <https://doi.org/10.3390/educsci14050487>

Zhang, I., Guo, X. H., Son, J. Y., Blank, I. A., & Stigler, J. W. (2024). [Watching videos of a drawing hand improves students’ understanding of the normal probability distribution](https://link.springer.com/article/10.3758/s13421-024-01526-7). *Memory & Cognition*, 1-20.

Son, J.Y. (2023). [Following the mentorship model of Jesus: The role of storytelling](https://www.researchgate.net/publication/376165480_Following_the_Mentorship_Model_of_Jesus_The_Role_of_Storytelling). *Christian Higher Education, 22*, 336-344. <https://doi.org/10.1080/15363759.2023.2279729>

Salas, J.L., Wang, X.W., Tucker, M.C., & Son, J.Y. (2024). [Memorization and performance during the COVID-19 pandemic: Evidence of shifts from an interactive textbook](https://escholarship.org/uc/item/9c48w9zs). *Online Learning Journal, 28.* <https://doi.org/10.24059/olj.v28i2.3435>

Zhang, I. (Y.), Gray, M. E., Cheng, A. (X.), Son, J. Y., & Stigler, J. W. (2024). Representational-mapping strategies improve learning from an online statistics textbook. *Journal of Experimental Psychology: Applied, 30*(2), 293–317. <https://doi.org/10.1037/xap0000474>

Remache, L. J., Covarrubias, R., Ramirez, G., Jackson, M., & Son, J. (2023). The Impact of a Tailored Psychologically-wise Intervention on Academic Outcomes During COVID-19. *Understanding Interventions*, *14*(1). <https://www.understandinginterventionsjournal.org/article/87467>

Tucker, M.C., Shaw, S.T., Son, J.Y., & Stigler, J.W. (2022). Teaching statistics and data science with R. *Journal of Statistics and Data Science Education.*

Eghterafi, W., Tucker, M.C., Zhang, Y., & Son, J.Y. (2022). Effect of feedback with video-based peer modeling on learning and self-efficacy. *Online Learning Journal.*

Lawson, A., Ayala, B., & Son, J. Y. (2021). Priming students to calculate inhibits sense-making. *Journal of Cognitive Science, 22*(1), 41-69.

Zhang, I., Givvin, K. B., Sipple, J. M., Son, J. Y., & Stigler, J. W. (2021). Instructed hand movements affect students’ learning of an abstract concept from video. *Cognitive Science, 45*(2).

Ramirez, G., Covarrubias, R., Jackson, M., & Son, J. Y. (2021). Making hidden resources visible in a minority serving college context. *Cultural Diversity and Ethnic Minority Psychology, 27*(2), 256–268. [https://doi.org/10.1037/cdp0000423](https://psycnet.apa.org/doi/10.1037/cdp0000423)

Son, J.Y., Blake, A.B., Fries, L., & Stigler, J.W. (2021). Modeling first: Applying learning science to the teaching of introductory statistics. *Journal of Statistics & Data Science Education.* <https://doi.org/10.1080/10691898.2020.1844106>

Stigler, J.W., Son, J.Y., Givvin, K.B., Blake, A., Fries, L., Shaw, S.T., & Tucker, M.C. (2020). The *Better Book* approach for education research and development. *Teachers College Record, 122*, p. 1-32.

Fries, L., Son, J.Y., Givvin, K.B., & Stigler, J.W. (2020). Practicing connections: A framework to guide instructional design for learning in complex domains. *Educational Psychology Review,* <https://doi.org/10.1007/s10648-020-09561-x>

Ford, B., Chilton, K., Endy, C., Henderson, M., Jones, B. A., & Son, J. Y. (2020). Beyond big data: Teaching introductory US history in the age of student success. *Journal of American History, 106*(4), 989-1011.

Lawson, A.P., Davis, C., & Son, J.Y. (2019). Not all flipped classes are the same: Using learning science to design flipped classrooms. *Journal of Scholarship in Teaching and Learning, 19,* 77-104, 10.14434/josotl.v19i5.25856

Lawson, A.P., Mirinjian, A., & Son, J.Y. (2018). Can preventing calculations help students learn math? *Journal of Cognitive Education and Psychology, 2*, 178-197,http://doi.org/10.1891/1945-8959.17.2.178.

Son, J.Y., Ramos, P., DeWolf, M., Loftus, W., & Stigler, J.W. (2018). Exploring the Practicing-Connections Hypothesis: Using gesture to support coordination of ideas in understanding a complex statistical concept. *Cognitive Research: Principles and Implications, 3,* https://doi.org/10.1186/s41235-017-0085-0

Geller, E., Son, J.Y., & Stigler, J.S. (2017). Conceptual explanations and understanding fraction comparisons. *Learning and Instruction, 52,* 122-129*.*

DeWolf, M., Son, J. Y., Bassok, M., & Holyoak, K. J. (2017). Relational priming based on a multiplicative schema for whole numbers and fractions. *Cognitive Science,* 1-36*.*

Son, J.Y., Narguizian, P., Beltz, D., & Desharnais, R.A. (2016). Comparing physical, virtual, and hybrid flipped labs for general education biology. *Online Learning, 3,*228-243.

Son, J. Y., & Rivas, M. J. (2016). Designing clicker questions to stimulate transfer. *Scholarship of Teaching and Learning in Psychology*, *2*, 193-207.

Lin, Y.I., Son, J.Y., & Rudd, J.A. (2016). Asymmetric translation between multiple representations in chemistry. *International Journal of Science Education, 38,* 644-662*.*

Thai, K.-P., Son, J.Y., & Goldstone, R.L. (2016). The simple advantage in perceptual and categorical generalization. *Memory & Cognition, 44,* 292–306.

Fyfe, E.,R., McNeil, N., Son, J.Y., & Goldstone, R.L. (2014). Concreteness fading in mathematics and science instruction: A systematic review. *Educational Psychology Review, 26,* 9-25*.*

Son, J.Y., Smith, L.B., Goldstone, R.L., & Leslie, M. (2012). The importance of being interpreted: Grounded words and children’s relational reasoning. *Frontiers in Psychology*, *3*, 45.

Kuwabara, M., Son, J.Y., & Smith, L.B. (2011). Attention to context: U.S. and Japanese children’s emotional judgments. *Journal of Cognition and Development, 12,* 504-517*.*

Son, J.Y., Smith, L.B., & Goldstone, R.L. (2011). Connecting instances to promote children's relational reasoning. *Journal of Experimental Child Psychology*, *108,* 260-277.

Goldstone, R.L., Son, J.Y., & Byrge, L. (2011). Early perceptual learning (commentary on Bhatt & Quinn, in press). *Infancy, 16,* 45-51.

Son, J.Y., Doumas, L.A.A., & Goldstone, R.L. (2010). When do words promote analogical transfer? *Journal of Problem Solving, 3,* 52-92.

Goldstone, R.L., Landy, D.H., & Son, J.Y. (2010). The education of perception. Topics in Cognitive Science, 2, 265-284.

Kellman, P.J., Massey, C.M., & Son, J.Y. (2010). Perceptual learning modules in mathematics: Enhancing students' pattern recognition, structure extraction, and fluency. Topics in Cognitive Science, 2, 285-305.

Son, J.Y., & Goldstone, R.L. (2009). Contextualization in perspective. *Cognition and Instruction, 27*, 1-39.

Son, J.Y., & Goldstone, R.L. (2009). Fostering general transfer with specific simulations. *Pragmatics & Cognition, 17*, 1-42.

Son, J.Y., Smith, L.B., & Goldstone, R.L. (2008). Simplicity and generalization: Short-cutting abstraction in children’s object categorization*. Cognition, 108,* 626-638.

Goldstone, R.L., & Son, J.Y. (2005). The transfer of scientific principles using concrete and idealized simulations. *Journal of the Learning Sciences*, 14, 69-110.

### ***Manuscripts Currently Under Peer Review***

Nguyen, T.-L., Rudd, J.A., & Son, J.Y. (Under review). Why are easy questions hard? Pedagogical content knowledge (PCK) in judging chemistry assessments. *Chemistry Education Research and Practice.*

Lin, X., Son, J.Y., & Rudd, J.A. (Revise and resubmit). Assessing students’ ability to translate nanoscale representations in chemistry. *Chemistry Education Research and Practice.*

### ***Book Chapters***

Son, J. Y. (2021). Recategorization: A grace for working moms. In N. W. Yuen & D. Collier-Goubil (Eds.) *Power women: Stories of motherhood, faith & the academy.* Westmont, Illinois: IVP Academic.

Goldstone, R. L., & Son, J.Y. (2012). Similarity. In K. J. Holyoak & R. G. Morrison (Eds.) *Oxford Handbook of Thinking and Reasoning.* Oxford, England: Oxford University Press.

Goldstone, R. L., Day, S., & Son, J.Y. (2010). Comparison.  In B. Glatzeder, V. Goel, & A. von Müller (Eds.) *On thinking: Volume II, towards a theory of thinking.* Heidelberg, Germany: Springer Verlag GmbH.  (pp. 103-122).

Goldstone, R. L., Landy, D., & Son, J.Y. (2008). A well-grounded education: The role of perception in science and mathematics. In M. de Vega, A. Glenberg, & A. Graesser (Eds.) *Symbols, embodiment, and meaning*. Oxford Press.

Goldstone, R.L., & Son, J.Y. (2005). Similarity. In K.J. Holyoak & R. G. Morrison (Eds.) *The Cambridge Handbook of Thinking and Reasoning* (pp. 13-36). Cambridge: Cambridge University Press.

### ***Books***

Son, J.Y., & Stigler, J.W. (2018). *Introduction to Statistics with R: A Modeling Approach.* An online interactive textbook made possible in part by a grant from the Chan Zuckerberg Initiative DAF, an advised fund of Silicon Valley Community Foundation. <https://coursekata.org/>

Son, J.Y. (2010). *Abstracting the Concrete: How Symbols, Experiences, and Language Act as Forces of Contextualization.* Saarbrücken, Germany: Lambert Academic Publishing.

### ***Peer-reviewed Proceedings***

Son, J. Y., & Stigler, J. W. (2025). The Practicing Connections Framework: A learning science approach to introductory statistics. In *Proceedings of the Statistics and Data Science 2025 Conference.*

Zhang, I., Xu, A., Son, J. Y., & Stigler, J. W. (2024). Exploring the role of prior knowledge during embodied learning. In *Proceedings of the 18th International Conference of the Learning Sciences-ICLS 2024, pp. 1770-1773*. DOI: [10.22318/icls2024.530325](http://dx.doi.org/10.22318/icls2024.530325)

Zhang, I. Y., Xu, A., Son, J.Y., & Stigler, J. (2023). The power of embodied learning in an online course with Chinese high schoolers. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 45, No. 45).

Zhang, Y., Son, J.Y., Blank, I.A., & Stigler, J. (2021). Utilizing dynamic and embodied visualization to facilitate understanding of normal probability distributions. In *Proceedings of the Annual Meeting of the Cognitive Science Society.*

Fries, L., Davis, C., Zhang, Y., & Son, J.Y. (2021). Teaching modeling in introductory statistics using the better book approach. *IASE 2021 Satellite Conference: Statistics Education in the Era of Data Science.* DOI: [10.52041/iase.vbhgj](http://dx.doi.org/10.52041/iase.vbhgj)

Davis, C., Givvin, K.B., Hwang, J., & Son, J.Y. (2021). Improving social and conceptual connections during remote statistics classes. *IASE 2021 Satellite Conference: Statistics Education in the Era of Data Science.* DOI: [10.52041/iase.udcmv](http://dx.doi.org/10.52041/iase.udcmv)

Davis, C., Romero, D.R., & Son, J.Y. (2021). Coordinating spatial concepts and verbal explanations in text vs. video. American Educational Research Association. DOI: [10.3102/1686733](http://dx.doi.org/10.3102/1686733)

Tucker, M.C., Shaw, S., Son, J.Y., & Stigler, J. (2021). Integrating R in a college statistics course improves student attitudes toward programming. American Educational Research Association. DOI: [10.3102/1692312](http://dx.doi.org/10.3102/1692312)

Son, J.Y., & Stigler, J.S. (2018). Practicing connections: A new design framework for developing courseware in rich domains. In *Proceedings of E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 862-867). Las Vegas, NV, United States: Association for the Advancement of Computing in Education (AACE). Retrieved October 31, 2018 from <https://www.learntechlib.org/primary/p/185322/>.

Stigler, J.W., & Son, J.Y. (2018). Modeling first: A modeling approach to teaching introductory statistics.  In *Proceedings of the 10th International Conference on Teaching Statistics.* Kyoto, Japan: International Association for Statistical Education.

DeWolf, M., Son, J.Y., Bassok, M., & Holyoak, K.J. (2015). Implicit understanding of arithmetic with rational numbers: The impact of expertise. In R. Dale, C. Jennings, P. Maglio, T. Matlock, D. Noelle, A. Warfaumont & J. Yoshimi (Eds.), *Proceedings of the 37th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.

Thai, K.-P., & Son, J.Y. (2013). The simple advantage in categorical generalization of Chinese characters. In M. Knauff, M. Pauen, N. Sebanz, & I. Wachsmuth (Eds.), *Proceedings of the 35th Annual Conference of the Cognitive Science Society* (pp. 3527-3533). Austin, TX: Cognitive Science Society.

Kuwabara, M., Son, J.Y., Smith, L.B. (2008) Trait or situation? Cultural differences in judgments of emotion. *Proceedings of the 7th International Conference on Development and Learning*. Monterey, CA.

Son, J.Y., Smith, L.B., & Goldstone, R.L. (2007). Re-representation using labels: Comparison or replacement? *Proceedings of the 29th Annual Conference of the Cognitive Science Society.* Nashville, TN:

Son, J. Y., Smith, L. B., & Goldstone, R. L. (2007). Words that evoke schemas: The need for optimal vagueness. *Proceedings of the Workshop on Analogies: Integrating Multiple Cognitive Abilities (AnICA07).* Nashville, TN.

Son, J.Y., Smith, L.B., & Goldstone, R.L. (2006). Generalizing from simple instances: An uncomplicated lesson from kids learning object categories. *Proceedings of the 28th Annual Conference of the Cognitive Science Society*. Vancouver, British Columbia.

Son, J.Y., & Smith, L.B. (2006). Post-it power: Using non-linguistic labels to help children notice relations. *Proceedings of the 5th International Conference on Development and Learning*. Bloomington, IN.

Son, J.Y., & Goldstone, R.L. (2005). Relational words as handles: They come along with baggage. *Proceedings of the 27th Annual Meeting of the Cognitive Science Society*. Stresa, Italy.

### ***Abstracts & Invited Presentations***

Son, J.Y. (August, 2025). Teaching for Transfer: Preparing Students to Apply Data Science Across the Disciplines. Mathematical Association of America (MAA) MathFest, Sacramento, CA.

Xu, A., Son, J.Y., & Stigler, J.W. (July, 2025). Understanding Visual Representation of Linear Models: A Comparison of Real Students and ChatGPT. Cognitive Science Society, San Francisco, CA.

Son, J.Y. (July, 2025). The Better Book Approach: Understanding and Improving Complex Learning through Implementation Science. Cognitive Science Society, San Francisco, CA.

Stigler, J.W., & Son, J.Y. (July, 2025). Building Communities to Study and Improve Learning in Complex Domains. NSF Nightingale Labs Summer 2025 Workshop, Stanford, CA.

Zhang, I., & Son, J.Y. (July, 2025). Rethinking introductory statistics: A modeling-first approach grounded in learning science. U.S. Conference on Teaching Statistics. Ames, IA.

Son, J.Y., & Williams, I. (July, 2025). What makes a good project? U.S. Conference on Teaching Statistics. Ames, IA.

Son, J.Y., & Williams, I. (July, 2025). What makes a good project? 2025 U.S. Conference on Teaching Statistics. Ames, IA.

Sutter, C.C., Jackson, M., Xu, A., Fan, J., Hu, G., & Son, J.Y. (May, 2025). Bridging Research and Practice: The Better Book Approach to Improving Teaching and Learning of Statistics. WPA 2025 Las Vegas, NV. <https://www.xcdsystem.com/wpa/program/9pWFcYF/index.cfm>

Son, J.Y., & Stigler, J.W. (April, 2025). The Practicing Connections Framework: A Learning Science Approach to Introductory Statistics. Symposium on Data Science and Statistics, Salt Lake City, UT. <https://ww2.amstat.org/meetings/sdss/2025/>

Zhang, I., Zhao, Z., & Son, J.Y. (April, 2025) The Impact of Prior Knowledge on Learning through Reenacted Drawing and Gesture. AERA 2025 Convention, Denver, CO https://www.aera.net/Events-Meetings/AERA-2025-Annual-Meeting

Son, J.Y. (April, 2025). What Should We Use Data For? Designing for Impact, Not Just Clicks. Invited Key Note at Data Science Day @ Fresno State. <https://sites.google.com/mail.fresnostate.edu/datafest/fresnodsd>

Son, J.Y., & Stigler, J.W. (February, 2025). Using Learning Science to Modernize the Teaching of Psychological Statistics. Society for the Teaching of Psychology: Annual Conference on Teaching. <https://teachpsych.org/conferences/act/>

Son, J.Y., Jackson, M., Sutter, C.C., & Rivas, M. (December, 2024). Advancing Racial Equity in Undergraduate Statistics through Systems Improvement. Conference for Teaching to Enhance Research Methods & Statistics in Psychology. <https://www.psychterms.com/>

Metts, E., & Son, J.Y. (October, 2024). Investigating Swing States: Using Data Transformations to Motivate Functions. A workshop presented at the MFA-LA Professional Development Meeting for Math Teacher Fellows. <https://www.mfala.org/what-we-do.html>

Jackson, M., Sutter, C., Givvin, K., Stiger, J.W., & Son, J.Y. (October, 2024). A “Better Book” Approach to Addressing Equity in Statistics Education. Inspire 2024 Convening, Los Angeles, CA, <https://calearninglab.org/inspire-2024/>

Zhang, I., Son, J.Y., & Stigler, J.W. (October, 2024). Testing New Theories in Authentic Contexts Using the CourseKata Curriculum. Inspire 2024 Convening, Los Angeles, CA, <https://calearninglab.org/inspire-2024/>

Son, J.Y. (October, 2024). The “Better Book” Approach: Data-Driven Innovations Towards Equity and Effective Teaching. Inspire 2024 Convening, Los Angeles, CA, <https://calearninglab.org/inspire-2024/>

Son, J.Y. (October, 2024). Pitching with Purpose: A Storytelling Workshop. Inspire 2024 Convening, Los Angeles, CA, <https://calearninglab.org/inspire-2024/>

Son, J.Y. (October, 2024). The Importance of Being Coherent: Using Cognitive Science to Improve Teaching Introductory Statistics at Scale. CUNY Graduate Center, Developmental Brownbag Series.

Metts, E., & Son, J.Y. (September, 2024). Modeling the Opioid Crisis with Functions. A workshop presented at the MFA-LA Professional Development Meeting for Math Teacher Fellows. <https://www.mfala.org/what-we-do.html>

Son, J.Y., & Stigler, J.W. (June, 2024). Using Mathematical Models to Make Introductory Statistics More Relevant and Coherent. [Workshop](https://causeweb.org/cause/ecots/ecots24/program/workshops/using-mathematical-models-make-introductory-statistics-relevant-coherent) at the Electronic Conference On Teaching Statistics (eCOTS).

Son, J.Y. (April, 2024). CourseKata: Making High School Math Relevant and Modern for Students (and Teachers!).CSU Math Summit.

Harding, M., Son, J.Y., & Young-Saver, D. (March, 2024). [Teaching Students to Tell Stories with Data](https://schedule.sxswedu.com/2024/events/PP145750). SXSW Edu, presented by the Bill & Melinda Gates Foundation.

Son, J.Y., (February, 2024). A metaphor about coherence. At the Royal Society, London, UK, part of Transforming Mathematics: A UK & US Symposium on Improving Mathematics Education for All.

Son, J.Y. (December, 2023). The "better book" approach: Using student data to improve introductory statistics materials STEM-NET: A Sampling of CSU California Education Learning Lab (CELL) Awardees.

Robiullah, A., Ramirez, G., Covarrubias, R., Jackson, M., & Son, J.Y. (November, 2023).Examine the importance of cultural capital through wise interventions. Poster presented at Society for Personality and Social Psychology. [10.13140/RG.2.2.21136.99843](http://dx.doi.org/10.13140/RG.2.2.21136.99843)

Givvin, K.G., & Son, J.Y. (October, 2023). The end of dead-end math: How teachers can bring modern statistics to their students. National Council of Supervisors of Mathematics (NCSM), Washington, DC.

Son, J.Y., (October 2023). Data science and statistical modeling in high school mathematics. Invited talk at University of Maryland Center of Mathematics Education and Technology Learning and Leadership Group.

Young-Saver, D., & Son, J.Y. (October, 2023). Bridging AP statistics and data science: A motivating post-exam project. National Council of Teachers of Mathematics (NCTM), Washington, DC.

Daro, P., Hwang, J., Son, J.Y., & Stigler, J.W. (October, 2023). Can data science improve students' learning of algebra? How modeling with functions serves a purpose. National Council of Teachers of Mathematics (NCTM), Washington, DC.

Son, J.Y. & Stigler, J.W. (September, 2023). Using data science to reignite students’ engagement in high school mathematics. IES Math Summit.

Son, J.Y. (August, 2023). How to Teach Hard Things: Practices and Insights from the Cognitive Sciences. Featured speaker for AltaMed faculty.

Son, J.Y. (May, 2023). Towards Flexible and Generalizable Statistics Learning: Using Student Data for Curriculum Improvements. Keynote at Researchers of Statistics Education (RoSE) Network Conference.

Son, J.Y. (March, 2023). Learning Hard Things: Student Success Through Better Teaching and Learning. Featured speaker of the California State University Certificate Program in Student Success Analytics, <https://certificate-program.dashboards.calstate.edu/curriculum.php>

Son, J.Y. (October, 2022). Using Data to Improve the Learning of Data Science. Invited speaker at the 2022 Inspire Convening: Advancing Innovation in Higher Education, <https://calearninglab.org/inspire-convening/>

Son, J.Y. (September, 2022). The Mentorship Model of Jesus. Paper presented at the Lumen Research Institute’s Mentoring Matters Symposium; Indianapolis, IN.

Hwang, J., & Son, J.Y. (July, 2022). Data Science Projects: Agency and Creativity in a Math Class. Presentation for the 2022 National We the People Math Literacy For All Conference.

Son, J.Y. (July, 2022). From Addition to Machine Learning: How Modeling Can Make Math Feel Coherent. Invited keynote presentation for Georgia Department of Education’s 2022 Virtual MathCon.

Son, J.Y. (May, 2022). Data Science in High School: Why does it matter? What could it look like for you? Conference Board of the Mathematical Sciences (CBMS) 3rd Forum on High School to College Mathematics Pathways; Reston, VA.

Salas, J. L., Wang, X. W., Tucker, M. C., & Son, J. Y. (April, 2022). Memorization and performance during the COVID-19 pandemic: Evidence of shifts from an interactive textbook. Paper presented at Western Psychological Conference (WPA) 2022.

Son, J.Y. (April, 2022). The “better book” model of formative assessments: Improving engagement, teaching, and even content. Virtual Assessment Week, California State University, Northridge and the Office of Academic Assessment and Program Review.

Son, J.Y. (February, 2022). Student success through better teaching and learning. CSU Student Success Analytics Certificate Program. <https://certificate-program.dashboards.calstate.edu/index.php>

Son, J. Y., & Givvin, K. B. (October/November, 2021). Modern Statistics and Data Science by the UCLA/Cal State LA/Pierce College project CourseKata.org, Workshop provided to the Chancellor’s Office Statistics Institute.

Son, J.Y. (September, 2021). Practicing Connections: An Instructional Framework for Teaching Hard Things to All Students. University of California Teaching and Learning Virtual Conference. Keynote presentation given virtually; San Diego, CA.

Son, J.Y. (September, 2021). Student Success through Better Teaching and Learning. Invited keynote presentation at the University of Northern Colorado; Greeley, CO.

Son, J.Y. (September, 2021). Statistics and Data Science: Supporting Student Success through Open Access Educational Resources. Invited presentation to the Math Department at the University of Northern Colorado; Greeley, CO.

Son, J.Y. (July, 2020). Practicing Connections: How to Teach Hard Things to All Students. McMaster Conference on Education & Cognition. Plenary presentation given virtually; Hamilton, Ontario, Canada.

Son, J.Y. (November, 2019). The Better Book Project: A continuously-improving interactive textbook for introductory statistics. Professional Development for Student Success in First-Year GE Math/QR, CSU Webcast.

Son, J.Y. (November, 2019). How to apply psychological science to improve teaching and learning. Hoa Sen University, Ho Chi Minh City, Vietnam.

Smith, B., Tchertchian, E.A., & Son, J.Y. (March, 2022) Modernizing Community College Math with Data Science. California Math Council-Community College South (CMC3 South) Spring 2022 Conference.

Stigler, J.W., & Son, J.Y. (June, 2019). The Better Book Project: Building transferable knowledge in complex domains. Google EngEdu Global Summit, Playa Vista, CA.

Son, J.Y., Dennis, J., Davis, C., Nguyen, K., & Zhang, J. (2018) Inside a flipped class: Creating significant math experiences for non-STEM students. PolyTeach, Pomona, CA.

Son, J.Y. (2018) Designing meaningful learning experiences with cognitive science and technology. Invited talk at the Joint Mathematics Meeting, San Diego, CA.

Lawson, A.P., Ayala, B., Rodriguez, D.S., & Son, J.Y. (2018). Why do students make procedural errors? Poster presented at the 30th APS Annual Convention, San Francisco, CA.

Lawson, A.P., Mirinjian, A., & Son, J.Y. (2018). Blocking the compulsion to calculate. Poster presented at the 2018 Annual Meeting of the American Educational Research Association, New York, NY.

Lin, X., Rudd, J., & Son, J.Y. (2016). Assessing general chemistry students' ability to translate between multiple representations. Presentation at the American Chemical Society National Meeting, San Diego, CA.

Rivas, M.J., & Son, J.Y. (2015). Interleaving to distinguish relational categories: When the obvious is irrelevant. Poster presented at the Western Psychological Association Annual Convention, Las Vegas, NV.

Chen, D., Alarcon, C., Son, J.Y., & Stigler, J.W. (2015). Learning among trolls: How negative commentary affects online lecture experience. Poster presented at the Western Psychological Association Annual Convention, Las Vegas, NV.

Son, J.Y., (2015). Using a discrimination case and google docs to anchor students' statistical reasoning. Presentation at the CSU Symposium on University Teaching, Los Angeles, CA.

Lin, Y., Rudd, J., & Son, J.Y. (2014). Evaluating the chemistry triplet: Is there a preferred order of presentation? Presentation at the American Chemical Society National Meeting, San Francisco, CA.

Rivas, M.J., Son, J.Y., Stigler, J.W., & Tikkanen, W. (2014). Learning in the age of MOOCs: Prompts improve understanding of video instruction. Poster presented at the Association for Psychological Science Annual Convention, San Francisco, CA.

Rivas, M.J., & Son, J.Y. (2014). The value of testing transfer: Fostering a robust understanding of correlation v. causation. Poster presented at the Western Psychological Association Annual Convention, Portland, OR.

Alarcon, C., Son, J.Y., Desharnais, R.A., & Narguizian, P. (2014). How virtual laboratories impact conceptual understanding and science attitudes. Poster presented at the annual meeting of the Western Psychological Association, Portland, OR.

Zhang, Y., Son, J.Y., & Chang, A. (2013). The development of cross-cultural differences in relational grouping. Symposium presentation at the Biennial Meeting of the Society for Research in Child Development, Seattle, Washington.

Son, J.Y, & Stigler, J.W. (2012). Fragmented analogies from procedural understanding of mathematics. Symposium presentation at the 34th Annual Meeting of the Cognitive Science Society, Sapporo, Japan.

Castaneda, M., Giddens, A., Reeves, A., Alsina, B., Carrasco, J., & Son, J.Y. (2012). Motor actions impact on cognitive performance: Overcoming mathematical obstacles. Poster presented at the 91st Annual Convention of the Western Psychological Association, San Francisco, CA.

Durantes, B., & Son, J.Y. (2012). Language and thought: How language context and speakers’ background predicts categorization. Poster presented at the 91st Annual Convention of the Western Psychological Association, San Francisco, CA.

Reule, J., Del Real, M., Analuisa, D., Phuong, J., & Son, J.Y. (2012). Does considering the group lead to better self-assessment? Cultural primes on metacognitive accuracy. Poster presented at the 91st Annual Convention of the Western Psychological Association, San Francisco, CA.

Vongvaravipatr, V., Terasawa, C., & Son, J.Y. (2012) Fragmented quantitative reasoning: Statistics students’ conceptual understanding of integers, decimals, and variables. Poster presented at the 91st Annual Convention of the Western Psychological Association, San Francisco, CA.

Phimphasone, P., & Son, J. Y. (2011). Academic success in adolescents: Perceiving is not achieving.Poster presented at the American Psychological Association 119th Annual Convention, Washington, DC.

Son, J. Y. (2011). Connected learning to promote generalizable conceptual knowledge. Chaired symposium presented at the Western Psychological Association Annual Convention, Los Angeles, CA.

Giniel, A. L., Rahbari, M., Alexantarian, M., & Son, J. Y. (2011) Contrasting for learning: Should cases have similar or dissimilar structure? Symposium talk presented at the Western Psychological Association Annual Convention, Los Angeles, CA.

Son, J. Y., Chou, J., Bachian, A., & Beilock, S. (2011). Flexing mathematical muscles: Using motor behaviors to boost performance. Presentation at the Western Psychological Association Annual Convention, Los Angeles, CA.

Phimphasone, P., & Son, J. Y. (2011). Academic success in adolescents: Effort beliefs and academic self-worth. Poster presented at the 2011 Western Psychological Association Convention, Los Angeles, CA.

Zhang, Y., Chang, A., & Son, J. Y. (2011). Culture, language, and categorization: Which go together best? Poster presented at the 2011 Western Psychological Association Convention, Los Angeles, CA.

Son, J.Y, Thai, K.P., Burke, T., & Kellman, P.J. (2011). Perceiving structure in word problems: Applying perceptual learning to elementary math pedagogy. Symposium talk at the 2011 Society for Research in Child Development Biennial Meeting, Montreal, Quebec, Canada.

Phimphasone, P., & Son, J. Y. (2011). Academic success in adolescents: effort beliefs and academic self-worth. Poster presented at the 2011 Society for Research in Child Development Biennial Meeting, Montreal, Quebec, Canada.

Son, J.Y, Thai, K.P., & Kellman, P.J. (2010). Recognizing structure in arithmetic word problems: Solving or structure mapping across multiple instances. Symposium talk presented at the 2010 Western Psychological Association. Cancun, Mexico.

Son, J. Y. (February, 2010). The development of knowledge representations. Invited talk at the UCLA Graduate Developmental Psychology Seminar (Cognitive Development).

Son, J. Y. (February, 2010). A Simple Way of Promoting Generalization. Invited talk at UC Riverside *Developmental Brown Bag.*

Son, J. Y. (October, 2009). Representations. Invited talk at UCLA Technology and Mathematics Learning Seminar.

Son, J. Y., Thai, K. P., Kellman, P. K., & Massey, C. M. (2009). Mind the gap: The development of numberline expertise. Presentation at SO-CAL (Symposium on Cognitive and Language) Development. Los Angeles, CA.

Son, J. Y., & Goldstone, R. L. (2009). Learning and transfer in context. Symposium talk at APS 21st Annual Convention. San Francisco, CA.

Massey, C., Kellman, P. J., Roth, Z., Son, J. Y., Burke, T., & Longmire, W. (2009). Perceptual learning in mathematics education: Units and fractions. Poster presented at Institute of Education Sciences 2009 Research Conference. Washington, DC.

Son, J. Y. (March, 2008). Learning in context. Invited talk at SFSU’s COR (Career Opportunities in Research) Seminar.

Son, J. Y., Smith, L. B., & Goldstone, R. L. (2008). Simplicity, a short-cut to generalization. Presentation at SO-CAL (Symposium on Cognitive and Language) Development. Irvine, CA.

Kuwabara, M., Son, J.Y., & Smith, L.B. (2008). Trait or situation? Cultural differences in judgments of emotion. Poster presented at the 30th Annual Meeting of the Cognitive Science Society, Washington, DC.

Massey, C., Kellman, P. J., Roth, Z., Burke, T., Longmire, W., & Son, J. Y. (2008). Perceptual learning in mathematics education: Measurement. Poster presented at Institute of Education Sciences 2008 Research Conference. Washington, DC.

Son, J.Y., Leslie, M.L., & Smith, L.B. (2007). Optimally vague comparisons: How words provide abstract interpretations. Poster presented at the Biennial Meeting of the Cognitive Development Society, Santa Fe, NM.

Goldstone, R. L., & Son, J. Y. (2007). Learning and transfer in context. Symposium talk at the 29th Annual Conference of the Cognitive Science Society. Nashville, TN.

Son, J.Y., & Goldstone, R.L. (2007). General or specific: Interpreting models of complex systems for transferable learning. Presented at International Study Group for Mathematical Modeling and Applications (ICTMA) International Conference. Bloomington, IN.

Son, J.Y., & Goldstone, R.L. (2007). The role of experience in acquiring generalizable knowledge. Poster presented at Institute of Education Sciences 2007 Research Conference. Washington, DC.

Son, J.Y., & Goldstone, R.L. (2007). Contexts that support transfer of scientific knowledge. Poster presented at Society of Research in Adult Development. Boston, MA.

Son, J.Y., & Smith, L.B. (2007). Learning with simplified objects for better category generalization: A case where less is more. Poster presented at Society of Research in Child Development Biennial Meeting. Boston, MA.

Son, J.Y., & Smith, L.B. (2007). A Gestalt for relations? Appreciating relational similarity through perceptual comparison. Poster presented at Society of Research in Child Development Biennial Meeting. Boston, MA.

Son, J.Y., & Goldstone, R.L. (2006). Concrete words with perceptual simulations: A potential combination for abstract scientific transfer? Poster presented at Institute of Education Sciences 2006 Research Conference. Washington, DC.

Son, J.Y., & Goldstone, R.L. (2006). How are ants like "lids"? Concrete labels help learners in the face of perceptual dissimilarity. Presentation at 77th Annual Midwestern Psychological Association Annual Meeting. Chicago, IL.

Son, J.Y., & Smith, L.B. (2006). How labels enhance relational similarity. Presentation at Hoosier Mental Life 2006. Bloomington, IN.

Son, J.Y., & Goldstone, R.L. (2005). What kind of teacher is experience? Looking at signal detectors learning Signal Detection Theory. Poster presented at Symbols, Embodiment, and Meaning: A Workshop and Debate. Garachico, Tenerife, Canary Islands.

Son, J.Y., & Smith, L.B. (2005). The value of simplicity for shape generalization. Poster presented at 4th Biennial Meeting of the Cognitive Development Society. San Diego, CA.

Son, J.Y., & Goldstone, R.L. (2005). What do you learn through experience? Presentation at 77th Annual Meeting of the Midwestern Psychological Association. Chicago, IL.

Son, J.Y., & Goldstone, R.L. (2004). What transfers? How analogies are influenced by spatial consistency and perceptual concreteness. Presentation at 76th Annual Meeting of the Midwestern Psychological Association. Chicago, IL.

Son, J.Y., & Goldstone, R.L. (2003). The role of perceptual concreteness in analogical mapping and transfer. Presentation at 25th Annual Meeting of the Cognitive Science Society. Chicago, IL.

Son, J.Y., & Goldstone, R.L. (2003). The influence of concrete pictures on analogical mapping. Presentation at Hoosier Mental Life 2003. West Lafayette, IN.

Goldstone, R. L., Son, J. Y., & Patton, Z. (2003). The transfer of scientific principles using concrete and idealized simulations. Presentation at the 44st Annual Meeting of the Psychonomic Society. Vancouver, Canada.

# Academic Honors

Irving J. Saltzman Award for Outstanding Graduate Achievement (Indiana University, 2010)

Cognitive Science Summer Research Fellowship (Indiana University, 2006)

Developmental Processes Training Grant, Trainee (Indiana University, 2006)

Cognitive Science Summer Research Fellowship (Indiana University, 2005)

Developmental Processes Training Grant, Trainee (Indiana University, 2005)

Research and University Graduate School (RUGS) Summer Research Incentive Fellowship (Indiana University, 2004)

Graduate Research Fellowship Program, National Science Foundation (NSF), Honorable Mention (2004)

RUGS Summer Research Incentive Fellowship (Indiana University, 2003)

Graduate Research Fellowship Program, NSF, Honorable Mention (2003)

Cognitive Science Fellowship (Indiana University, 2002-2003)

Phi Beta Kappa

Highest honors (UCLA Psychology, 2002)

Magna cum laude (UCLA, 2002)

## Coverage of Research in Popular Press

* New York Times, Perceptual Learning Modules: https://www.nytimes.com/2015/03/29/sunday-review/learning-to-see-data.html
* NPR, Using research to change how statistics is taught: <https://www.scpr.org/news/2019/10/21/90506/vexed-by-college-statistics-courses-new-approaches/>
* Scientific American, Effects of gesturing during learning: <https://www.scientificamerican.com/article/students-who-gesture-during-learning-grasp-concepts-better/>

## Other Research and Professional Activities

### ***Service to CSU and Cal State LA***

* STEM NET University Faculty Advisor (2024 - )
* CAIQR
* Oct 2021, Emcee at Graduation Initiative 2025 Convening

### ***Professional Affiliations***

Cognitive Science Society Member (2002-present)

Midwestern Psychological Association Member (2002-2007)

Society for Research in Child Development Member (2005-present)

Cognitive Development Society Member (2005-present)

### ***Service to Journals***

Ad hoc Reviewer for (in alphabetical order): *British Journal of Developmental Psychology; Child Development; Cognition; Cognitive Psychology; Cognitive Science; Developmental Psychology; Educational Psychologist; Educational Psychology; Educational Researcher; Frontiers in Developmental Psychology; Journal of Applied Research in Memory and Cognition; Journal of Cognitive Science; Journal of Computer Assisted Learning; Journal of Educational Psychology; Journal of Experimental Child Psychology; Journal of Experimental Psychology: General; Journal of the Learning Sciences; Memory and Cognition; Pragmatics and Cognition*

### ***Organizing Workshops and Conferences***

Conference Organizer, 2011 Symposium on Cognitive and Language (SOCAL) Development,

<http://www.calstatela.edu/centers/learnlab/socal2011/>

Webmaster, 2009 Symposium on Cognitive and Language (SOCAL) Development

<http://www.calstatela.edu/centers/learnlab/socal2009/>

 Colloquium Organizer (Fall 2010-present), Cal State LA Psychology Colloquium Series

<https://sites.google.com/site/psycolloquium/>

## Other Experience

In the City, *Senior Researcher*, 2014-2019

In the City, *Board Chair,* 2016-2019

Harvest Learning Group, *Chief Scientist*, Winter 2007-2018

Cal State LA Recreational Sports, *Group Exercise Leader* (Cardio Kickboxing), Winter 2011-Spring 2011

IU Recreational Sports, *Group Exercise Leader* (Cardio Kickboxing), Summer 2006-Summer 2007