Darren J. **Yeo**

Ph.D. Candidate | Neuroscience

I am broadly interested in understanding how the brain supports learning and to use that knowledge to help students *learn how to optimize their learning*. My current focus is on the acquisition of basic numerical knowledge and complex math skills. Aside from research, I write math curricular materials, and am an author of Grade 1 and 2 books of the forthcoming 2021 U.S. edition of *Primary Mathematics* (the original "Singapore Math®" series).

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Education

2016 —	Ph.D. in Neuroscience, **Vanderbilt University** Advisor: Gavin R. Price, Ph.D.
2014 — 2016	M.Ed. in Child Studies, **Vanderbilt University**
2009 — 2010	PGDE in Primary Education, **National Institute of Education, Nanyang Technological University**
2005 — 2009	B. Soc. Sci. in Psychology, Second Class Honours (Upper), **National University of Singapore and University of California Irvine** *Honors Thesis: The synchronizing influence of task-irrelevant auditory rhythm on visual processing speed: An exploratory analysis of behavioral markers*

Professional

2016 —	**Teaching Assistant (*on study leave till Summer 2021*)**, School of Social Sciences, Nanyang Technological University.
2013 —	**Freelance math curriculum contributor**, Marshall Cavendish Education. Commissioned titles include: *My Pals Are Here! Mathematics Series*: Primary 2 (3rd Edition, 2014) Teacher's Planning Guide, Primary 3 (3rd Edition, 2015) Teacher's Planning Guide, Primary 4 (3rd Edition, 2016) Textbook, Workbook, Teacher's Planning Guide, Primary 6 (3rd Edition, 2018) Textbook and Workbook; *Primary Mathematics* (US Common Core Edition, 2014) – Grades 3 and 4 Textbooks, Workbooks and Teacher's Guides; *My Math Path* (Ontario, Canada) – Reteach Books Grades 1 – 3.
2013 — 2014	**Lead tutor**, Edufront Learning Centre, Singapore. **Mathematics coach**, Oodles Learning and OnSponge Pte Ltd, Singapore.
2010 — 2013	**Public elementary school teacher**, Government of Singapore Ministry of Education.

Scholarship

Icons link to additional content

Google Scholar metrics as of *2020-03-18*: **Total citations**: 200 **h-index**: 6 **i10-index**: 4

Peer-Reviewed Publications

2020

12. **Yeo, D. J.**, Pollack, C., Merkley, R., Ansari, D., & Price, G. R. (2020). The "Inferior Temporal Numeral Area" distinguishes numerals from other character categories during passive viewing: A representational similarity analysis. *NeuroImage*, *213*, 116716. doi: 10.1016/j.neuroimage.2020.116716

11. **Yeo, D. J.**, & Price, G. R. (2020). Probing the associative mechanism of numerosity-to-numeral mappings and its relation to math competence. *Psychological Research*, doi: 10.1007/s00426-020-01299-z

2019

10. **Yeo, D. J.**, Wilkey, E. D., & Price, G. R. (2019). Malleability of mappings between Arabic numerals and approximate quantities: Factors underlying individual differences and the relation to math. *Acta Psychologica*, *198*, 102877. doi: 10.1016/j.actpsy.2019.102877

9. Cheong, K. H., Koh, J. M., **Yeo, D. J.**, Tan, Z. X., Boo, O. E. B., & Lee, G. Y. (2019). Paradoxical Simulations to Enhance Education in Mathematics. *IEEE Access*, *7*, 17941–17950. doi: 10.1109/ACCESS.2019.2892742

8. **Yeo, D. J.**, & Fazio, L. K. (2019). The optimal learning strategy depends on learning goals and processes: Retrieval practice versus worked examples. *Journal of Educational Psychology*, *111*(1), 73–90. doi: 10.1037/edu0000268

2018

7. Price, G. R., **Yeo, D. J.**, Wilkey, E. D., & Cutting, L. E. (2018). Prospective relations between resting-state connectivity of parietal subdivisions and arithmetic competence. *Developmental Cognitive Neuroscience*, *30*, 280–290. doi: 10.1016/j.dcn.2017.02.006

2017

6. **Yeo, D. J.**, Wilkey, E. D., & Price, G. R. (2017). The search for the number form area: A functional neuroimaging meta-analysis. *Neuroscience & Biobehavioral Reviews*, *78*, 145–160. doi: 10.1016/j.neubiorev.2017.04.027

5. Price, G. R., Wilkey, E. D., & **Yeo, D. J.** (2017). Eye-movement patterns during numerical magnitude comparison and their relation to math calculation skills. *Acta Psychologica*, *176*, 47–57. doi: 10.1016/j.actpsy.2017.03.012

2016

4. Price, G. R., Wilkey, E. D., **Yeo, D. J.**, & Cutting, L. E. (2016). The relation between 1st grade grey matter volume and 2nd grade math competence. *NeuroImage*, *124*, 232–237. doi: 10.1016/j.neuroimage.2015.08.046

2014 3. Lee, N. H., **Yeo, D. J.**, & Hong, S. E. (2014). A metacognitive-based instruction for Primary Four studentsto approach non-routine mathematical word problems. *ZDM Mathematics Education*, *46*, 465–480. doi: 10.1007/s11858-014-0599-6

2010 2. Escoffier, N., **Yeo, D. J.**, & Schirmer, A. (2010). Unattended musical beats enhance visual processing. *Acta Psychologica*, *135*(1), 12–16. doi: 10.1016/j.actpsy.2010.04.005

2008 1. **Yeo, D. J.** (2008). The "multiple choice question" of 21st century education: Can "choice" keep the meritocratic dream alive in United States and Singapore?. *PRISM: The USP Undergraduate Journal*, *1*(1), 49–56.

Manuscripts Under Review for Publication

1. Conrad, B., Wilkey, E. D., **Yeo, D. J.**, & Price, G. R. (under revision). Network topology of symbolic and nonsymbolic number comparison.

Books/Book Chapters

2021 5. **Yeo, D. J.** (forthcoming). *Primary Mathematics (2021 Edition) Student Book 1A*. Singapore: Marshall Cavendish Education.

4. **Yeo, D. J.** (forthcoming). *Primary Mathematics (2021 Edition) Student Book 1B*. Singapore: Marshall Cavendish Education.

3. **Yeo, D. J.** (forthcoming). *Primary Mathematics (2021 Edition) Student Book 2A*. Singapore: Marshall Cavendish Education.

2014 2. Leong, Y. H., Tay, E. G., Quek, K. S., Yap, S. F., Lee, H.T.C., Tong, C. L., Toh, W. Y. K., Xie, X. R., & **Yeo, D. J.** (2014). *MProVE: Negative Numbers*. Singapore: National Institute of Education, Nanyang Technological University.

1. Leong, Y. H., Tay, E. G., Quek, K. S., Yap, S. F., Tong, C. L., Toh, W. Y. K., Xie, X. R., & **Yeo, D. J.** (2014). *MProVE: Number Patterns*. Singapore: National Institute of Education, Nanyang Technological University.

National & International Conference Presentations

2020 19. **Yeo, D. J.**, Pollack, C., Ansari, D., & Price, G. R. (June, 2020). *Representational distinction of numbers, letters, and novel characters in the "number form area"*. Poster selected to be presented at the cancelled annual meeting of the Organization for Human Brain Mapping, Montreal, QC, Canada.

18. **Yeo, D. J.**, Pollack, C., Ansari, D., & Price, G. R. (May, 2020). *"Number form area" distinguishes between numerals and other character categories during passive viewing: A meta-synthesis of representational similarity analyses with three studies*. Talk selected to be presented at the cancelled annual meeting of the Vision Sciences Society, St. Pete Beach, FL, USA.

2019

17. **Yeo, D. J.**, & Price, G. R. (June, 2019). *Individual and developmental differences in the neurocognitive integration of number notations and their relation to math competence*. Poster presented at the annual meeting of the Mathematical Cognition and Learning Society, Ottawa, ON, Canada.

16. **Yeo, D. J.** (January, 2019). *What do numerical tasks measure? Insights from calibration paradigms*. Talk presented at the 1st Methods in Numerical Cognition Workshop,Budapest, Hungary.

2018

15. **Yeo, D. J.**, Pollack, C., Ansari, D., & Price, G. R. (November, 2018). *A search for the representational content in the putative number form area*. Poster presented at the annual meeting of the Society for Neuroscience, San Diego, CA, USA.

14. **Yeo, D. J.**, & Price, G. R. (September, 2018). *Probing the associative mechanism of numerosity-to-numeral mappings and its relation to math competence*. Poster presented at the International Mind, Brain, & Education Society, Los Angeles, CA, USA.

13. **Yeo, D. J.**, Wilkey, E. D., & Price, G. R. (June, 2018). *Malleability of mapping between Arabic numerals and approximate quantities: Factors underlying individual differences and the relation to math*. Poster presented at the Mathematics Education Centre's 3rd annual symposium: The symbol grounding problem, Loughborough, UK.

12. **Yeo, D. J.**, Pollack, C., & Price, G. R. (March, 2018). *A search for the representational content in the putative number form area*. Poster presented at the annual meeting of the Cognitive Neuroscience Society, Boston, MA, USA.

2017

11. Fazio, L. K. & **Yeo, D. J.** (November, 2017). *The optimal learning strategy depends on learning goals and processes: Repeated testing versus repeated studying*. Talk presented at the annual meeting of the Psychonomic Society, Chicago, IL, USA.

10. **Yeo, D. J.**, Wilkey, E. D., & Price, G. R. (June, 2017). *An ALE meta-analytical search for the putative number form area and its associated network*. Poster presented at the annual meeting of the Organization for Human Brain Mapping, Vancouver, BC, Canada.

9. **Yeo, D. J.**, & Fazio, L. K. (May, 2017). *The optimal learning strategy depends on learning goals and processes: Repeated testing versus repeated studying*. Poster presented at the annual meeting of the Association for Psychological Science, Boston, MA, USA.

8. **Yeo, D. J.**, Wilkey, E. D., & Price, G. R. (March, 2017). *The search for the putative number form area: A meta-analysis*. Poster presented at the annual meeting of the Cognitive Neuroscience Society, San Francisco, CA, USA.

2016

7. **Yeo, D. J.**, Wilkey, E. D., & Price, G. R. (September, 2016). *The role of numerical estimation flexibility in mathematical competence*. Poster presented at the International Mind, Brain, & Education Society, Toronto, ON, Canada.

6. Hong, M., **Yeo, D. J.**, Rittle-Johnson, B., Fazio, L. K. (August, 2016). *Are there hidden costs to teaching mathematics with incorrect examples?*. Poster presented at the annual meeting of the Cognitive Science Society, Philadelphia, PA, USA.

5. **Yeo, D. J.**, Wilkey, E. D., & Price, G. R. (May, 2016). *Eye movement patterns underlying symbolic and nonsymbolic numerical magnitude comparison*. Poster presented at the 4th NIH Math Cognition Conference, Fort Worth, TX, USA.

2015

4. **Yeo, D. J.**, Koedinger, K. R., & Fazio, L. K. (November, 2015). *Retrieval practice vs. worked examples: Matching learning strategies to learning goals*. Poster presented at the annual meeting of the Psychonomic Society, Chicago, IL, USA.

3. Price, G. R., Wilkey, E. D., **Yeo, D. J.**, & Cutting, L. (October, 2015). *Resting state connectivity at 1st grade predicts math competence at 2nd grade*. Poster presented at the annual meeting of the Society for Neuroscience, Chicago, IL, USA.

2012

2. Hong, S.E., Lee, N.H., &, **Yeo, D. J.** (July, 2012). *Metacognitive approach in kick-starting the understanding and planning phases of mathematical problem solving*. Talk presented at the annual meeting of the International Congress on Mathematical Education, Seoul, Korea.

2010

1. Escoffier, N., **Yeo, D. J.**, & Schirmer, A. (August, 2010). *Unattended "silent" beats enhance visual processing*. Poster presented at the International Conference on Music Perception and Cognition, Seattle, WA, USA.

Regional Conference Presentations

2019

4. **Yeo, D. J.**, Pollack, C., Ansari, D., & Price, G. R. (September, 2019). *A search for the representational content in the putative number form area*. Poster presented at the annual meeting of the Vanderbilt Kennedy Center's 2019 Science Day, Nashville, TN, USA.

3. **Yeo, D. J.**, Pollack, C., Ansari, D., & Price, G. R. (August, 2019). *A search for the representational content in the putative number form area*. Poster presented at the Singaporean Researchers Global Summit, Singapore, Singapore.

2016 2. **Yeo, D. J.**, Wilkey, E. D., & Price, G. R. (September, 2016). *The role of numerical estimation flexibility in mathematical competence*. Poster presented at the annual meeting of the Vanderbilt Kennedy Center's 2016 Science Day, Nashville, TN, USA.

2012 1. **Yeo, D. J.**, Hong, S. E., Parthiben, M., Amalina Bte Batcha Sahib, & Kam, C. L. (June, 2012). *Metacognitive approach in kick-starting the understanding and planning phases of mathematical problem solving*. Poster presented at the 6th Teachers' Conference, Singapore, Singapore.

Grants

Icons link to additional content

Completed projects

1. *Ignite4!* School-based Curriculum Research Grant: Metacognitive Approach In Kick-starting The Understanding and Planning Phases Of Mathematical Problem Solving. January 2011 to December 2012. Total budget: $10,000 SGD. **Role:** Project leader. FTE: 0.40.

Teaching

Guest-Lecturing

1. *Introduction to Educational Neuroscience (Undergraduate) [Topic: Reading and Dyslexia]*. (Spring, 2019).
2. *Introduction to Educational Neuroscience (Undergraduate) [Topic: Reading and Dyslexia]*. (Fall, 2018).
3. *Introduction to Educational Neuroscience (Undergraduate) [Topic: Reading and Dyslexia]*. (Spring, 2018).

Teaching Assistantship

1. *Computation Neuroscience (Undergraduate & Graduate) [Assignment grader]*. (Spring, 2020).
2. *Introduction to Statistical Analysis (Undergraduate) [Led two tutorial sections each week]*. (Spring, 2016).
3. *Statistical Inference (Graduate) [Assignment grader]*. (Fall, 2015).
4. *Introduction to Statistical Analysis (Undergraduate) [Led two tutorial sections each week]*. (Spring, 2015).

Additional Training

Connectivity course: Structural and functional brain connectivity via MRI and fMRI (2017). Athinoula A Martinos Center for Biomedical Imaging, Boston, MA

Professional Service

Mentoring

1. Olivia Lasala (undergraduate honors student in psychology). (Fall 2017-Spring 2018). Vanderbilt University.

Peer-Reviewing

I have served as an ad-hoc reviewer for the following journals and grants/awards:

Association for Psychological Science Student Caucus' Student Grant Competition	Journal of Experimental Psychology: Learning, Memory, and Cognition
Association for Psychological Science Student Research Award	Journal of Neuroscience
Brain Imaging and Behavior	NeuroImage
Child Development	NeuroImage Clinical
Developmental Science	Neuroscience & Biobehavioral Reviews
Journal of Cognitive Neuroscience	ZDM Mathematics Education

Awards & Honors

2018	**7th Latin American School for Education, Cognitive and Neural Sciences Fellowship**, Santiago, Chile. Fellowship for tuition, room, and board.
2017 — 2021	**Peabody Dean's Fellowship**, Peabody College, Vanderbilt University.
2016 — 2019	**Graduate School Travel Grant**, Vanderbilt University.
2016 — 2021	**Humanities, Arts, and Social Sciences International PhD Scholarship**, Nanyang Technological University and Government of Singapore (Ministry of Education).
2016 — 2021	**Peabody Graduate Honors Scholarship**, Peabody College, Vanderbilt University. Declined.
2016	**Math Cognition Conference Invited Participant**, National Institutes of Health, United States. Travel Award.
2014 — 2016	**Dean's Tuition Scholarship**, Peabody College, Vanderbilt University.
2012	**Mee Toh School Inspiring Teacher Award**, Mee Toh School, Singapore.
2012	**Mee Toh School Outstanding Contribution Award (Team) for School-based Curriculum Innovation**, Mee Toh School, Singapore.
2008	**University Scholars Program Senior Honor Roll**, National University of Singapore.
2007	**Dean's Honor List**, University of California Irvine.
2007	**Overseas Exchange Program Grant**, Government of Singapore (Ministry of Education) and National University of Singapore.
2007	**Travel Grant for University Scholars Program-Stanford University Summer Research Program**, Government of Singapore (Ministry of Education).
2006	**Dean's List**, National University of Singapore.
2006 — 2009	**Full Undergraduate Scholarship (Teaching Award)**, Government of Singapore (Ministry of Education).
2005 — 2009	**University Scholar**, National University of Singapore.
2005	**Undergraduate Bursary Award**, National University of Singapore.

Current Professional Affiliations

Vision Science Society

Organization for Human Brain Mapping