

Darko Odic

CONTACT INFORMATION

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Last Updated: March 29, 2018

RESEARCH INTERESTS Cognitive development, number and quantity perception, interface of vision and language, confidence representations, psychophysics, language acquisition.

EMPLOYMENT

University of British Columbia, Vancouver, British Columbia, Canada

Assistant Professor, Department of Psychology

Jul 2014 - present.

EDUCATION

Johns Hopkins University, Baltimore, Maryland, USA

Ph.D., Psychology, May 2010 - June 2014.

M.A., Psychology Sep 2009 - May 2010.

- Advisor: Justin Halberda
- Thesis: Objects and Substances in Vision, Language, and Development

University of Toronto, Toronto, Ontario, Canada

Hon. B.S., Psychology, September 2004 - May 2008.

- Advisors: Jay Pratt and Lynn Hasher
- Honour's Thesis: The effects of aging on the attentional blink

GRANTS

Social Sciences and Humanities Research Council (SSHRC) Insight Grant (PI)

"The role of intuitive number error monitoring in learning mathematics" \$94,620

Sep 2018 - 2023

Natural Sciences and Engineering Research Council (NSERC) Discovery Grant (PI)

"The psychophysics of number, time, and space" \$125,000

Sep 2016 - 2021

Social Sciences and Humanities Research Council Insight Development Grant (PI)

"Measuring individual and developmental differences in confidence" \$64,073.

Sep 2015 - 2017

Canadian Foundation for Innovation (CFI) Leaders Opportunity Fund (PI)

"Building the Centre for Cognitive Development" \$117,648.

Jun 2015 - 2016

University of British Columbia Hampton Research Endowment Fund (PI)

"The psychology and psychophysics of confidence" \$10,000.

Oct 2014 - 2016

PUBLICATIONS

Odic, D. & Starr, A.B. (in press) An Introduction to the Approximate Number System *Perspectives in Child Development*.

Odic, D., Pietroski, P., Hunter, T., Lidz, J., and Halberda, J. (in press) Individuals and Non-Individuals in Cognition and Semantics. *Glossa*.

Odic, D. (2018) Children's intuitive sense of number develops independently of their perception of area, density, length and time. *Developmental Science*, 21, e12533.

Odic, D. (2017) The contributions of non-numeric dimensions to number encoding, representations, and decision-making factors. *Behavioral and Brain Sciences*, 40, 34-35.

Hunter, T., Lidz, J., **Odic, D.**, & Wellwood, A. (2017) On how verification tasks are related to verification procedures: A reply to Kotek et al. *Natural Language Semantics*, 25(2), 91-107.

Wang, J., **Odic, D.**, Halberda, J., & Feigenson, L. (2017) Better together: Multiple lines of evidence for a link between approximate and exact number representations. A reply to Merkley, Matejko & Ansari. *Journal of Experimental Child Psychology*, 153, 168-172.

Libertus, M., **Odic, D.**, Feigenson, L., and Halberda, J. (2016) The Precision of Mapping Between Number Words and the Approximate Number System Predicts Children's Formal Math Abilities. *Journal of Experimental Child Psychology*, 150, 207-226.

Wang, J., **Odic, D.**, Halberda, J., & Feigenson, L. (2016) Changing preschoolers' approximate number system changes their symbolic math performance. *Journal of Experimental Child Psychology*, 147, 82-99.

Odic, D., Im, H.Y., Eisenger, R., Ly, R., and Halberda, J. (2016) PsiMLE: A maximum-likelihood approach to estimating psychophysical scaling and variability more reliably, efficiently, and flexibly. *Behavior Research Methods*, 48(2), 445-462.

Shusterman, A., Slusser, E., Halberda, J., & **Odic, D.** (2016) Acquisition of the Cardinal Principle Coincides with Improvement in Approximate Number System Acuity in Preschoolers. *PLoS ONE*, 11(4).

Odic, D., Valle Lisboa, J., Eisinger, R., Gonzalez Olivera, M., Maiche, A., & Halberda, J. (2016) Approximate number and approximate time each correlate with school math abilities in children. *Acta Psychologica*, 163, 17-26.

Odic, D. and Halberda, J. (2015) Eye movements reveal distinct encoding patterns of number and cumulative surface area in random dot arrays. *Journal of Vision*, 15(15), 15-15.

Libertus, M., **Odic, D.**, Feigenson, L., and Halberda, J. (2015) A developmental vocabulary assessment for parents (DVAP): validating parental report of vocabulary size in 2-7 year-old children. *Journal of Cognition and Development*. 16(3), 442-454.

Odic, D., Le Corre, M., and Halberda, J. (2015) Children's mappings between number words and the approximate number system. *Cognition*. 138, 102-121.

Halberda, J., and **Odic, D.** (2014) The precision and internal confidence of our approximate number thoughts. In D. C. Geary, D. Berch, & K. Koepke (Eds.) *Evolutionary Origins and Early Development of Basic Number Processing* (p. 305-333). Academic Press.

Odic, D., Hock, H., and Halberda, J. (2014) Hysteresis affects approximate number discrimination in young children. *Journal of Experimental Psychology: General*, 143(1), 255-265.

Odic, D., Libertus, M., Feigenson, L., and Halberda, J. (2013) Developmental change in the acuity of approximating area and approximating number. *Developmental Psychology*, 49, 1103-1112.

Odic, D., Pietroski, P., Hunter, T., Lidz, J., and Halberda, J. (2013) Children's understanding of 'more' and discrimination of number and surface area. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 39, 451-461.

Libertus, M., **Odic, D.**, and Halberda, J. (2012) Intuitive sense of number correlates with scores on college-entrance examination. *Acta Psychologica*, 141, 373-379.

Odic, D., Roth, O., and Flombaum, J. (2012) The relationship between apparent motion and object files. *Visual Cognition*, 20, 1082-1094.

Pietroski, P., Lidz, J., Hunter, T., **Odic, D.**, and Halberda, J. (2011) Seeing what you mean, mostly. *Syntax & Semantics*, 37, 181-218.

Odic, D., and Pratt, J. (2010). Differential activation theory can account for the Ternus display: Rejoinder to Petersik. *Perception*, 39(5), 711-717.

Odic, D., and Pratt, J. (2008). Solving the correspondence problem within the Ternus display: The differential-activation theory. *Perception*, 37(12), 1790 - 1804.

UNDER REVIEW

Baer, C., & **Odic, D.** (under review) A domain-general sense of confidence in children. *Open Mind*.

Odic, D. & Wojcik, E. (under review) The publication gender gap in psychology. *Psychological Science*.

Picon, E., Dramkin, D., & **Odic, D.** (under review) Visual illusions reveal the primitives of number perception. *Journal of Experimental Psychology: General*.

IN PREPARATION
(AVAILABLE UPON
REQUEST)

Baer, C., & **Odic, D.** (in prep) Measuring individual and developmental differences in children's sense of confidence.

Wong, H., & **Odic, D.** (in prep) Sorry, you've got the wrong number: The intuitive number sense predicts formal symbolic equation error monitoring abilities.

Gonzalez, A., **Odic, D.**, Schmader, T., & Baron, A. (in prep) Stereotypes impair preschool girls' number sense.

INVITED TALKS

Laboratoire Psychologie de la Perception Seminar (Paris, France) **Jun 2018**
"The psychophysics and semantics of number, time, and space representations"

York University Perceptual Capacities and Magnitudes Workshop (Toronto, Canada) **May 2018**
"The psychophysics and semantics of number, time, and space representations"

Northwestern University Cognitive Science Colloquium (Evanston, USA) **Oct 2015**
"Acquiring the interface between Language and Cognition: Challenges and Benefits"

More On Development 2015 (Columbus, USA) **Oct 2015**
"Interfacing the Approximate Number System with Number Words"

University of Queensland Psychology Colloquium (Brisbane, Australia) **Jun 2015**
"Acquiring the interface between Language and Cognition: Challenges and Benefits"

PEER-REVIEWED
CONFERENCE
TALKS

Picon, E., and **Odic, D.** (2017) Finding maximal elements is capacity unlimited and massively parallel. *Talk at VSS 2017, St. Pete's, FL*.

Odic, D. (2016) The role of contour length, convex hull, and density in early versus late visual number encoding. *Talk at VSS 2016, St. Pete's, FL*.

Halberda, J., Libertus M., Wang, J., **Odic, D.**, and Feigenson, L.(2013) Intervention and Transfer in the Approximate Number System (ANS) *Talk at CDS 2013, Memphis, TN*.

Odic, D., and Halberda, J. (2013) The Independence of Visual Number and Area Processing: Evidence from Psychophysics, Development, and Eye-Tracking. *Talk at VSS 2013, Naples, Florida*.

Wellwood, A., Halberda, J., Hunter, T., **Odic, D.**, Pietroski, P., and Lidz, J. (2012) Meaning more or most: evidence from 3-year-olds. *Talk and Proceedings at Chicago Linguistics Society 2012, Chicago.*

Wellwood, A., **Odic, D.**, Halberda, J., and Lidz, J. (2012) Choosing quantity over quality: syntax guides interpretive preferences for novel superlatives. *Talk and Proceedings at Cog Sci 2012, Japan.*

Odic, D. (2018) Confusing the Trees for the Forest: Number Estimation in Real-World Scenes *Poster presented at VSS 2018, St. Pete's Beach, USA.*

Baer, C. and **Odic, D.** (2017) Individual Differences in Confidence Monitoring Correlate with Selective Social Learning *Poster presented at CDS 2017, Portland, USA.*

Dramkin, D., and **Odic, D.** (2017) Number Stroop-like interference effects can be eliminated by language. *Poster presented at CDS 2017, Portland, USA.*

Picon, E. and **Odic, D.** (2017) The Verification of Superlatives is Massively Parallel and Memory-Unlimited. *Poster presented at SPP 2017, Baltimore, USA.*

Odic, D., Hunter, T., Wong, A., Pietroski, P., Lidz, J., and Halberda, J. (2017) The Count/Mass Distinction in Language and Cognition *Poster presented at SPP 2017, Baltimore, USA.*

Odic, D. and Baer, C. (2017) Domain-General Individual and Developmental Differences in Confidence Acuity. *Poster presented at VSS 2017, St. Pete's Beach, USA.*

Baer, C. and **Odic, D.** (2017) Team Players: children cooperatively adjust the difficulty of problems to their partner's skill level. *Poster presented at SRCD 2017, Austin, USA.*

Baer, C. and **Odic, D.** (2017) Measuring individual and developmental differences in children's confidence acuity. *Poster presented at SRCD 2017, Austin, USA.*

Picon, E. and **Odic, D.** (2017) Capacity-unlimited magnitude comparison in 2-9 year-olds. *Poster presented at SRCD 2017, Austin, USA.*

Baer, C. and **Odic, D.** (2016) Measuring individual and developmental differences in children's sense of confidence. *Poster presented at CogSci 2016, Philadelphia, USA.*

Odic, D. (2015) Domain-specific development of number, time, and space perception in 2-12 year-old children. *Poster presented at CDS 2015, Columbus, USA.*

Odic, D., and Halberda, J. (2013) Visual magnitude comparison is massively parallel for objects and ensembles. *Poster presented at OPAM 2013, Toronto, Canada.*

Odic, D., Libertus, M., Feigenson, L., and Halberda, J. (2013) Quantity of Quantity: are visual area and number represented by one systems, or two?. *Poster presented at SRCD 2013, Seattle.*

Odic, D., Wellwood, A., Pietroski, P., Lidz, J., Hunter, T., and Halberda, J. (2013) How word meanings interface with cognition: a case-study of children's acquisition of most. *Poster presented at SRCD 2013, Seattle.*

Odic, D., Libertus, M., Feigenson, L., and Halberda, J. (2012) Developmental change in the acuity of approximating area and approximating number. *Poster presented at ICIS 2012, Minnesota.*

Odic, D. and Halberda, J. (2012) Representations of Difficulty and Confidence in Numerical Discrimination. *Poster presented at VSS 2012, Naples, Florida.*

Odic, D., Libertus, M., Feigenson, L., and Halberda, J. (2012) Developmental change in the acuity of approximating area and approximating number. *Poster presented at ICIS 2012, Minneapolis.*

Odic, D., Hock, H., and Halberda, J. (2011) The effect of confidence hysteresis on numerical perception and decision making. *Poster presented at Cog Sci 2011, Boston, Mass.*

Odic, D., Hock, H., and Halberda, J. (2011) The effect of confidence hysteresis on numerical discrimination. *Poster presented at VSS 2011, Naples, Florida.*

Roth, O., **Odic, D.**, and Flombaum, J. (2011) The interaction of apparent motion and object files. *Poster presented at VSS 2011, Naples, Florida.*

Odic, D., Hunter, T., Pietroski, P., Lidz, J., and Halberda, J. (2011) Children's understanding of mass-noun. *Poster presented at 2011 SRCD conference in Montreal, Canada.*

Libertus, M., Stevenson, A., **Odic, D.**, Feigenson, L., and Halberda, J. (2011) The developmental vocabulary assessment for parents (DVAP): a novel tool to measure vocabulary size in 3-5 year olds. *Poster presented at 2011 SRCD conference in Montreal, Canada.*

Shusterman, A., Slusser, E., **Odic, D.**, and Halberda, J. (2011) Connecting early number word knowledge and approximate number acuity. *Poster presented at 2011 SRCD conference in Montreal, Canada.*

Odic, D., Ly, R., Hunter, T., Pietroski, P., Lidz, J., and Halberda, J. (2010) Number and area discrimination engage similar representations: evidence from discrimination tasks. *Poster presented at 2010 VSS conference in Naples, Florida.*

Halberda, J., Le Corre, M., **Odic, D.**, and Stevenson, A. (2010) Young children's mapping between exact and approximate meanings for number words. *Poster presented at the 2010 ISIS conference in Baltimore, Maryland.*

ADVISING	Carolyn Baer, <i>Ph.D. Student</i>	Sep 2015 - present
	Cory Bonn, <i>Postdoctoral Fellow</i>	Jan 2018 - present
	Denitza (Denny) Dramkin, <i>M.A. Student</i>	Sep 2016 - present

TEACHING	<i>PSYC102: Introduction to Psychology (UBC)</i>	Jan 2015 - 2018
	The second half of the introduction to psychology course covering Intelligence, Personality, Emotion, Motivation, Social, Health, Developmental, and Clinical Psychology. Typical class size is 200 - 360 students. Course evaluations and lectures slides available upon request.	

<i>COGS303: Methods in Cognitive Science (UBC)</i>	Jan 2017
This class focuses on developing skills relevant to thinking like a cognitive scientist. Students participate in a variety of "flipped" activities, including debates, essay analyses, presentations, etc. Typical class size is 20-30.	

<i>Psychology of the Unscientific (JHU)</i>	Jan 2013, 2014
Independently developed and lectured a 18 hour intensive course on how psychologists study consciousness, free will, ESP, dreams, art, and religion. Course evaluations for both 2013 and 2014 available upon request.	

HONOURS AND AWARDS	University of British Columbia Robert E. Knox Master Teaching Award	2017
	Johns Hopkins G. Stanley Hall Excellence in Research Award	2013

Natural Sciences and Engineering Research Council of Canada Alexander Bell PGS-D	2010-2013
Natural Sciences and Engineering Research Council of Canada Alexander Bell PGS-M	2009-2010
Natural Sciences and Engineering Research Council of Canada Alexander Bell CGS-M	declined
University of Toronto Excellence in Natural Sciences and Engineering Award	2006-2008