

Lien Peters

Contact

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Current and previous positions

Postdoctoral Associate

University of Western Ontario, Canada

Since September 2017

Postdoctoral Associate

University of Leuven, Belgium

Dec. 2016 – August 2017

Education

Doctoral Degree – Doctor in Psychology, Ph.D.

University of Leuven, Belgium

November 2016

Dissertation title: What counts in the brain? The neural correlates of arithmetic in adults and children with and without learning disorders

Supervisors: Dr. Bert De Smedt & Dr. Hans Op De Beeck

Teacher's Degree

CVO De Oranjerie, Diest/Leuven, Belgium

June 2016

In Belgium, this degree licenses me to teach in high school and higher education (i.e., university and college). The degree comprised both lectures on pedagogy and educational systems, as well as practical internships.

Master's Degree – Psychology: Theory and Research

University of Leuven, Belgium

July 2012, *magna cum laude*

Master thesis: Face and race: Searching for a relation between face recognition skills and implicit racial bias

Supervisor: Dr. Hans Op de Beeck

Bachelor's Degree – Psychology

University of Leuven, Belgium

July 2010, *cum laude*

Research visits

2-month research stay at the University of Western Ontario Sept. – Nov. 2016

Research stay in the context of Doctoral degree

Supervisor: Dr. Daniel Ansari

8-month research internship at the University of Hull, UK Sept. 2011 – Apr. 2012

“Comparing the structure of past and future events”

Supervisor: Dr. Rachel Anderson

Teaching experience

Lecturer of the course “Mind, Brain and Education” (2019-2020), University of Western Ontario. This course has been offered at Western for 10 years. When I took over the full course this year, I integrated a community engaged learning component to the course, during which the students collaborated with a community partner working around an educationally relevant topic.

Guest lecturer in the courses “Cognitive Science”, “Introduction to Developmental Cognitive Neuroscience”, “Development of the Mathematical Brain” and “Mind, Brain and Education” (2018-2019), University of Western Ontario, Canada.

Teaching assistant for the courses “Educational Neuroscience” and “Methods in Research in Educational Sciences, pt. 1” (Bachelor in Educational Sciences, 2014-2016), University of Leuven, Belgium.

Honors and awards

- Internal Research Grant Fund awarded by Children’s Health Research Institute (CHRI) in collaboration with Dr. Daniel Ansari and Dr. Marc Joanisse (June 2019)
- SRCD Small Grant awarded by Society of Research on Child Development in collaboration with Dr. Kiran Vanbinst, University of Leuven (April 2019)
- Travel grant award by BrainsCAN to attend a workshop on Open Science at University College Cork, Ireland (October 2018)
- BMI Postdoctoral Award by the Brain and Mind Institute (April 2018, 2 years)
- Travel grant awarded by FWO Flanders for a 2-month research stay at the University of Western Ontario (September 2016).
- Presentation selected for invited talk at the scientific meeting “The origin of numerical abilities: the future” at Milton Keynes, UK (February 2017).

Research contributions

Articles published in ISI-ranked peer reviewed journals:

- **Peters, L.**, & Ansari, D. (2019). Are specific learning disorders truly specific, and are they disorders? *Trends in Neuroscience and Education*, *17*, 100151.
- **Peters, L.**, Bulthé, J., Daniels, N., Op de Beeck, H., & De Smedt, B. (2018.) Dyscalculia and dyslexia: Different behavioral, yet similar brain activity profiles. *NeuroImage: Clinical*, *18*, 663-674.
- Vanbinst, K., Ceulemans, E., Ghesquière, P., **Peters, L.**, & De Smedt, B. (2018). Developmental trajectories of children's symbolic numerical magnitude processing skills and associated cognitive competencies. *Journal of Experimental Child Psychology*, *166*, 232-250.
- **Peters, L.**, & De Smedt, B. (2018). Arithmetic in the developing brain: A review of brain imaging studies. *Developmental Cognitive Neuroscience*, *30*, 265-279.
- Polspoel, B., **Peters, L.**, Vandermosten, M., & De Smedt, B. (2017). Strategy over operation: Neural activation in subtraction and multiplication during fact retrieval and procedural strategy use in children. *Human Brain Mapping* (accepted for publication).
- **Peters, L.**, Polspoel, B., Op de Beeck, H., & De Smedt, B. (2016). Brain activity during arithmetic in symbolic and non-symbolic formats in 9-12 year old children. *Neuropsychologia*, *86*, 19-28.
- **Peters, L.**, De Smedt, B., & Op de Beeck, H. P. (2015). The neural representation of Arabic digits in visual cortex. *Frontiers in Human Neuroscience*, *9*, art. nr. 517.
- Anderson, R., **Peters, L.**, & Dewhurst, S. (2015). Episodic elaboration: Investigating the structure of retrieved past events and imagined future events. *Consciousness and Cognition*, *33*, 112-124.

Book chapter

- De Smedt, B., **Peters, L.**, & Ghesquiere, P. (2018). Neurobiological origins of mathematical learning disabilities or dyscalculia: A review of brain imaging data. In A. Fritz-Stratmann, V. Haase & P. Rasanen (Eds.), *The International Handbook of Mathematical Learning Difficulties: From the Laboratory to the Classroom*. New York, NY: Springer.

Manuscripts in preparation

- Sokolowski, H. M., Hawes, Z., **Peters, L.**, & Ansari, D. Symbols are special: An fMRI adaptation study of symbolic, nonsymbolic and non-numerical magnitude processing in the human brain. (*Submitted*). Preprint: 10.31234/osf.io/xw2fq

- Alvarez Rivero, A., Sokolowski, H. M., **Peters, L.**, & Ansari, D. How does the brain process mirror numerals? An fMRI adaptation study. (*Submitted to Cortex as a first stage registered report*).

International peer-reviewed conference presentations:

- **Peters L.**, Vanbinst K., De Smedt B., & Ansari D. (2019). The effect of formal math education: A cross-national study. Mathematical Cognition and Learning Society Conference. Ottawa, Canada, 16-18 June 2019.
- **Organizer** and **discussant** of symposium "Associated domains of learning: On the overlap between reading and arithmetic". International Mind Brain and Education Society Conference. Los Angeles (CA), USA, 27-29 September 2018.
- **Peters L.**, Bulthé J., Daniëls N., Op de Beeck H., & De Smedt B. (2017). On dyscalculia, dyslexia & their comorbidity: Similar or different neural correlates? British Dyslexia Association. Telford, UK, 12-14 April 2018.
- **Organizer** and **discussant** of symposium "Arithmetic and reading: Related building blocks". Mathematical Cognition and Learning Society Conference. Oxford, UK, 8-9 April 2018.
- **Peters L.**, Bulthé J., Daniëls N., Op de Beeck H., & De Smedt B. (2017). Dyslexia and dyscalculia: Similar or different neural correlates? Mathematical Cognition and Learning Society Conference. Oxford, UK, 8-9 April 2018.
- **Peters L.**, Bulthé J., Daniëls N., Op de Beeck H., & De Smedt B. (2017). On dyscalculia, dyslexia & their comorbidity: Similar or different neural correlates? Society for Research in Child Development. Austin (TX), USA, 6-8 April 2017.
- Vanbinst K., Ceulemans E., Ghesquière P., **Peters L.**, & De Smedt B. (2017). Developmental trajectories of children's symbolic numerical magnitude processing skills and supporting cognitive competencies. Society for Research in Child Development. Austin (TX), USA, 6-8 April 2017.
- Polspoel B., **Peters L.**, & De Smedt B. (2017). Strategy or operation? Neural activity in subtraction and multiplication during retrieval and procedural strategies in children. Society for Research in Child Development. Austin (TX), USA, 6-8 April 2017.
- **Peters L.**, Bulthé J., Op de Beeck H., De Smedt B. (2017). Dyscalculia and dyslexia: Different behavioral, yet similar neural profiles. The origin of numerical abilities: the future. Milton Keynes, UK, 22-23 February 2017.
- **Peters L.**, Bulthé J., Op de Beeck H., De Smedt B. (2016). Arithmetic in children with dyslexia, dyscalculia and comorbid dyslexia/dyscalculia: Different behavioral, yet similar brain activity profiles. The origin of numerical abilities. London, UK, 20-21 February 2017.

- **Peters L.**, Bulthé J., Op de Beeck H., De Smedt B. (2016). Arithmetic in children with dyslexia, dyscalculia and comorbid dyslexia/dyscalculia: Different behavioral, yet similar brain activity profiles. IMBES. Toronto, Canada, 15-17 September 2016.
- **Peters L.**, Bulthé J., Op de Beeck H., De Smedt B. (2016). Arithmetic in children with dyslexia, dyscalculia and comorbid dyslexia/dyscalculia: Different behavioral, yet similar brain activity profiles. Flux: The International Society for Integrative Developmental Cognitive Neuroscience. St. Louis (MO), USA, 8-10 September 2016.
- Polspoel B., **Peters L.**, De Smedt B. (2016). Strategy over operation: Neural activation in subtraction and multiplication during fact retrieval and procedural strategy use in children. SIG22 Neuroscience and Education meeting. Amsterdam, The Netherlands, 23-25 June 2016.
- **Peters L.**, Bulthé J., Op de Beeck H., De Smedt B. (2016). Arithmetic in children with dyslexia, dyscalculia and comorbid dyslexia/dyscalculia: Different behavioral, yet similar brain activity profiles. SIG22 Neuroscience and Education meeting. Amsterdam, The Netherlands, 23-25 June 2016.
- **Peters L.**, Op de Beeck H., De Smedt B. (2015). The effect of symbolic and non-symbolic formats on arithmetic in children with and without learning disorders: preliminary results of an fMRI study. Flux: The International Society for Integrative Developmental Cognitive Neuroscience. Leiden, The Netherlands, 17-19 September 2015.
- **Peters L.**, Op de Beeck H., De Smedt B. (2015). The effect of symbolic and non-symbolic formats on arithmetic in children: an fMRI study. Society for Research in Child Development. Philadelphia (PA), USA, 19-21 March 2015.
- **Peters L.**, Op de Beeck H., De Smedt B. (2015). The effect of symbolic and non-symbolic formats on arithmetic in children: A developmental fMRI study. International Convention of Psychological Science. Amsterdam, The Netherlands, 12-14 March 2015.
- **Peters L.**, Op de Beeck H., De Smedt B. (2014). Neural representations of numerical magnitudes in different formats in children. Workshop Educational Neuroscience of Mathematics. Tübingen, Germany, 3-4 October 2014.
- **Peters L.**, Op de Beeck H., De Smedt B. (2014). Neural representations of numerical magnitudes in different formats in children. Earli SIG Neuroscience and Education. Göttingen, Germany, 12 – 14 June 2014.
- **Peters L.**, Op de Beeck H., De Smedt B. (2014). Numerical magnitudes in visual cortex. Expert Meeting on Mathematical Thinking and Learning. University of Leiden, The Netherlands, 4 April 2014.
- **Peters L.**, Bulthé J., Op de Beeck H., De Smedt B. (2013). Neural representations in visual cortex for numerical magnitudes presented in different formats. Society for Neuroscience. San Diego, USA, 9-13 November 2013.

Review work

Invited to review articles for *NeuroImage*, *NeuroImage: Clinical*, *Trends in Neuroscience and Education*, *Scientific Reports*, *Mind Brain and Education*, *PloS ONE*, *Cortex*, *Journal of Neuroscience*, *Cognition*, *Journal of Experimental Psychology*, *Acta Psychologica*, *European Journal of Neuroscience*, *Scientific Studies of Reading* and *Frontiers in Psychology*.

Invited talks

- Open Science Workshop
(Mathematical Cognition and Learning Society Conference, Ottawa, June 2019)
- Open Science Workshop
(University of Western Ontario, November 2018)
- Arithmetic in dyscalculia and dyslexia: Similar or different neural correlates?
(University of Toronto, November 2018).
- Arithmetic in dyscalculia and dyslexia: Similar or different neural correlates?
(Center for the Study of Learning, Georgetown University, April 2017).
- Multivariate pattern analyses in fMRI: Why, what, and how
(Center for the Study of Learning, Georgetown University, April 2017).

Research skills

- Psychological experiment building in E-Prime, Open Sesame and PsychToolbox
- MRI-data acquisition and analyses in Matlab and SPM
- Statistical analyses using SPSS, Matlab, R, JASP and Jamovi

Supervision of students

Master theses

- Caroline Halsberghe (2014-2016, University of Leuven)
- Elise Reynders (2013-2015, University of Leuven)
- Brecht Polspoel (2013-2015, University of Leuven)

Undergraduate honors theses

- Beatrice Arsenaault-Dufour (2019-2020, University of Western Ontario)
- Diana Samoil (2017-2018, University of Western Ontario)

Research internships

- Wesley Campana (2015-2016, University of Leuven)
- Mara Otten (2013-2014, University of Leuven)

Research assistants

- Amit Sayal (2019-2020, University of Western Ontario) – Scholars Elective Student
- Kameela Alibhai (2017-2019, University of Western Ontario) – Scholars Elective Student and recipient of an NSERC Undergraduate Student Research Award (2019)
- Vanessa Di Cecca (2018-2020, University of Western Ontario)
- Saja Alrubaiey (2019-2020, University of Western Ontario)
- Armaan Kumar (2019-2020, University of Western Ontario)
- Morolayo Ilori (2019-2020, University of Western Ontario)
- Praja Vaikuntharajan (2018-2019, University of Western Ontario)

Science outreach

- Girl Guides visit at the Brain and Mind Institute, London Ontario (2019-2020)
- Information booth at "Science Rendezvous", London Ontario (2018-2019)
- Neuroscience workshop at "Children's University", Leuven (2013-2016)
- High school teaching experience, Flanders (2015-2016)
- Psychology workshop at "Ateliers for the Future", Brussels (2015-2016)
- Primary school visits, Flanders (2015-2016)
- Information booth on neuroscience at "I-Brain festival", Leuven (2014-2015)
- Information booth on neuroscience at "Science Day", Leuven (2014-2015)
- Information booth at "Leuven: City of Ideas", Leuven (2013-2014)
- Psychology workshop at "Technopolis", Mechelen (2013-2014)

Internal service

Poster review committee member for international conferences

- Association for Psychological Science, Washington DC, USA (2019)
- International Mind Brain and Education Society Conference, Los Angeles (CA), USA (2018)

Pre- and postdoctoral staff representative at the faculty of Psychology and Educational Sciences, University of Leuven

- Faculty Education Committee (2015-2016)
- Faculty Council (2014-2016)
- Research Master Committee (2014-2015)
- Doctoral Degree Committee (2013-2015)

External service

- Secretary of the Executive Board of Directors at the Learning Disabilities Association – London Region (since 2018)
- Board member at Akindo, a Belgian non-profit organization organizing summer camps for underprivileged children and youth (2012-2017)
- Camp counselor at Akindo, a Belgian non-profit organization organizing summer camps for underprivileged children and youth (2009-2017)
- Board member at De Piccolo's, a Belgian choir for children and youth (2006-2013)

References

Dr. Daniel Ansari

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Department of Psychology – Brain and Mind Institute
University of Western Ontario, Canada

Dr. Marc Joanisse

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