Dr. Jason Locklin, Ph.D.

Research Officer
Research and Organizational Transformation
Waterloo Region District School Board
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Profile Summary

Leader in Education Research, Analytics, and Organizational Transformation

Innovative leadership in student-centred education research, managing large-scale projects with skilled research design, advanced statistical analysis and effective knowledge mobilization. Adept at translating complex data into actionable insights to support organizational goals and strategic plans.

Proven ability to lead organizational transformation through evidence-based decision-making, professional development, and program evaluation. Fosters a data-driven culture while efficiently resourcing initiatives. Committed to centering education community and student voice.

Professional Vision:

Lead transformative, equitable change in education systems through evidence-based decision making, cutting edge research and skilled data analytics, effective strategic planning and capacity building. My goal is to remove barriers and create conditions where students and staff can thrive, unconstrained by social location or identity. I strive to model a spirit of inquiry, growth mindset, and social responsibility in all aspects of organizational leadership.

Education

University of Waterloo:

Ph.D., Psychology, Behavioural and Cognitive Neuroscience 2015

- Dissertation: *Perceptual and Memory Deficits in Unilateral Neglect*
- Area of Study: Stroke, Perception, and Memory.

M.A., Psychology, Behavioural and Cognitive Neuroscience 2009

- Thesis: *Development of a Measure of Visuomotor Control for Assessing the Long-term Effects of Concussion*
- Area of Study: Fine Motor Control, Concussion Research.

B.Sc. (Honours), Psychology, Biology (minor) 2007

- Course load including strong mix of Psychology with Natural and Life Sciences.

Professional Experience

Research Officer, Waterloo Region District School Board 2018 to Present

- Spearhead the development and implementation of system-level measurements aligned with WRDSB's Strategic Plan and Board Improvement and Equity Plan / Student Achievement Plan, focusing on enhancing educational outcomes and operational efficiency through evidence-based practices.
- Maintain a student demographic data tool that leverages Canadian Census data and guide senior team on using it to support WRDSB equity goals for a more equitable allocation of resources to schools.
- Lead complex research projects from conception to completion, addressing the board's goals and ministry initiatives. For example, developed an innovative statistical model to identify at-risk students, contributing to a 5% increase in graduation rates over three years.
- Deliver a major, district-wide longitudinal student well-being research project involving tens of thousands of students completing both a normed, standardized measurement, the Middle Years Development Instrument, and locally developed questions. Produce analytics and data visualizations using R to automate the creation of customized PDF reports for every school.
- Lead professional development workshops for WRDSB school administrators, translating complex research into practical school leadership strategies, and guiding the integration of data into School Learning and Improvement Plans.
- Manage several major projects supporting student achievement and well-being, including the implementation of the staff well-being "Guarding Minds at Work" survey. Oversee all stages from planning and data collection to qualitative and quantitative analytics and results communication.
- Collaborate with senior administrators and key stakeholders to provide actionable insights, facilitating data-informed decision-making to improve program effectiveness and student well-being.
- Demonstrate leadership among peers by cultivating a culture of respect, innovation, and accountability, motivating team members and fostering an inclusive work environment that recognizes the strengths that come from diversity.

Research Associate, Centre for Family Medicine 2016 - 2018

- Contributed to a multi-disciplinary team of researchers and healthcare professionals to develop, evaluate, and disseminate innovative primary-care programs, fostering a culture of inquiry and creative thinking to improve quality-of-care for persons with dementia, frailty, and related geriatric issues.
- Successfully managed and completed an innovative pilot frailty screening measure for the Waterloo Region Local Health Network, demonstrating project management skills and ability to meet strategic objectives.
- Initiated and developed a collaboration between a family health organization and a community pharmacy to deliver an empathetic screening program, showcasing ability to build partnerships and implement community-focused initiatives.
- Conducted field testing of the screening measure with medical professionals, utilizing feedback to refine implementation strategies and improve program effectiveness.
- Applied qualitative research methods to evaluate improvements in clinician confidence, self-reported competence, and capacity following participation in a memory-clinic training program, demonstrating skills in program evaluation and professional development assessment.
- Trained and supervised co-op students and volunteer research assistants, exhibiting leadership and mentorship capabilities.

Statistical Consultant, Centre for Family Medicine 2016

- Collected, tracked and made use of identity-based data from clinical and administrative databases, outcome data, survey methodologies, and clinical measures for statistical analysis to evaluate new and existing procedures in primary care.
- Completed statistical reports with R, including data cleaning and validation, as well as visualization.

Graduate and Undergraduate Research Employment, Department of Psychology, University of Waterloo:

Research Assistant; Perception, action and brain injury. 2007 - 2015

- Develop a motor-accuracy task for the measurement of concussion symptoms.
- Test neurological patients using a variety of neuropsychological tests and procedures, including Prism Adaptation.
- Develop and test a gaze-contingent task using real-time eye-tracking equipment.
- Supervise undergraduate research assistants

Research Assistant; Decision making. 2007

- Develop web-based decision making experiments and collect data.

Research Assistant; Psychophysics. 2005 - 2006

- Develop a computer-based task for a graduate student's project.

Laboratory Coordinator; Attention and clinical depression. 2005 - 2006

- Coordinate several covert-orienting experiments.
- Supervise volunteer research assistants

Research Assistant; Attention and clinical depression. (volunteer) 2004 - 2005

- Conduct experimental psychology research experiments.

Affiliations

Ontario Data User Grop	2018 - Present
Association of Educational Researchers of Ontario	2018 - Present
Danckert Attention and Action Group	2008 - 2015
Bad Science Watch (Advisory Council)	2012
Vision Sciences Society	2006

Service Activities

Executive Member at Large, Association of Educational Researchers of Ontario (AERO-AOCE) 2023 - Present

- Serving as an executive member at large for AERO-AOCE, helping to drive the promotion and improvement of research, evaluation, planning, and development within Ontario's school systems.
- Contributing to initiatives that underscore the importance and impact of educational research in enhancing board of education strategies and outcomes.

Host/Facilitator, AERO-AOCE Fall Conference 2023

- Topic: Student Census, focusing on the analysis, reporting and community engagement phases of the project.
- Contributed to organization and conference delivery and introduction of speakers.

Host/Facilitator, AERO-AOCE Spring Special Interest Group 2023

- Topic: Climate Surveys: Student, Staff & Parent.
- MC role and contributed to organization and program delivery.

WRDSB Accessibility Plan Implementation Committee 2020 - Present

- Contributing to board-wide planning and implementation of AODA requirements.
- Providing research and data analysis support for accessibility planning and monitoring.

Science Advisor, Advisory Committee: Bad Science Watch. 2012

- Provided support and science advice for the non-profit public interest advocacy group.
- Contributed to white paper for science-based journalism.

President: U.W. Undergraduate Psychology Society. 2005 - 2007

- Student organization, administration of 8, over 600 members.

Teaching and Training Delivery

Research and Analytics Workshop Delivery:

Introduction to R for Education Research: Full-Day Workshop 2024

- Delivered comprehensive training to TCDSB research team, progressing from R fundamentals to creating publication-quality visualizations.
- Developed and provided persistent online documentation supporting continued learning and implementation.
- Facilitated hands-on experimental approach building confidence with R, RStudio, and tidyverse packages.

AERO Lunch & Learn: Virtual Workshop 2024

- Led professional development session introducing R for data analysis and reporting practices for education researchers in Ontario school boards.
- Demonstrated innovative approaches to research analysis and visualization.
- Generated follow-up requests for additional in-person workshops from participating boards.

School Climate Survey Results: Family of Schools Training Sessions 2019-2024

- Facilitate annual professional development for WRDSB administrators on interpreting and implementing school climate survey data.
- Guide administrators through analysis of Middle Years Development Instrument results and other climate measures.
- Guide development of data-informed school improvement planning using climate survey indicators.

Department of Psychology, University of Waterloo Teaching Assistantships:

Physiological Psychology: T.A. 2011 & 2014

- Provide weekly office hour extra instruction to students.

Human Neuropsychology: T.A. 2012

- Provide weekly office hour extra instruction to students.

Res. in Human Cognitive Neuroscience: T.A. 2010

- Provide assistance and feedback to students developing a research paper.

Physiological Psychology: T.A. 2009

- Provide weekly office hour extra instruction to students.

Cognitive Processes: T.A. 2008

- Provide extra instruction during office hours, grade term papers, give feedback to students.

Basic Data Analysis: T.A. & Lab Instructor 2008

- Instruct a weekly tutorial for 30 students, consisting of a 30 minute review lecture of the week's topic, and 30 minutes of practical instruction on solving data analytic problems.
- Develop weekly tutorial lesson plans in cooperation with other teaching assistants.

Advanced Data Analysis: T.A. & Lab Instructor 2007

- Develop and lead regular 1 hour tutorials instructing 30 students to utilize the statistical software package SPSS in analyzing real world experimental and observational data.

Professional Development

Leading for Change: Understanding Colonialism, Human Rights and Equity; WRDSB 2024

- Course explored the nuanced concepts of colonialism, human rights and equity —how they are each unique, different, and how they relate to one another, to education and to leadership.
- Interactive, experiential learning exploring notions of colonialism, oppression, and racism and uncovering how these impact all aspects of education, while considering personal identity and one's own role in upholding these structures.

WRDSB Microsoft Power BI Hands-On Training; Go Analytics 2023

- Mastered the full spectrum of Power BI tools, from data connection to publishing dynamic dashboards.
- Learned from Microsoft Certified instructor Klayton Gonçalves, leveraging his extensive data analytics expertise.
- Gained proficiency in Power Query for data transformation and DAX for creating calculated columns and measures.
- Developed skills in building interactive visualizations and employing best practices for effective data presentation.

The Scientist Knowledge Translation Training (SKTT™); SickKids 2018

- Completed intense 2-day workshop focused on effective research dissemination across fields like health, education, and social sciences.
- Learned from Dr. Melanie Barwick, an expert in implementation science and knowledge translation, on enhancing research impact.
- Acquired strategies for making complex scientific information accessible to non-academic audiences.
- Developed skills in creating impactful knowledge translation plans tailored to diverse user groups.

University of Waterloo, selected examples follow:

Multiple Regression (Psychology 632)
Analysis of Variance (Psychology 630)
Experimental Design (Statistics 830)
Data Analysis in Neuroscience (Biology 681)
Visual Perception (Psychology 287)
Nature & Computational Correlations of Intelligence (Psychology 670)
Cognitive Neuropsychology I (Psychology 779A)
Human Neuroanatomy and Neuropathology (Psychology 784)

Mathematical Expertise

Basic Statistics and Data Analysis

- Hypothesis testing via means comparisons and correlations, including techniques for the prevention of elevated experiment-wise error.
- Data reduction and simplification using measures of central tendency, variance, and periodicity.
- Data visualization, including experience with the problem of communicating high-dimensional data on paper/screen.
- Experiment power and effect size calculations.
- Experimental design optimization.
- Literate programming and reproducible research practices.
- Advanced data mining and statistical modeling for educational data.

Advanced Statistics

- Analysis of Variance and Covariance, as well as Logistic Regression (Generalized Linear Models).
- Multiple Regression, including model comparisons and variable coding for non-typical data sets.
- Bayesian hypothesis testing.
- Predictive modeling and machine learning applications in education.

Technical Skills

Statistical / Data Analytical Software

- R, statistics programming, data visualization, and automated report generation.
- SPSS, statistical analysis for social sciences.
- Power BI, Data modelling, dash-boarding and interactive visualizations.
- Python programming language, combined with Jupyter notebooks.
- SAS, data management and advanced statistical analysis.
- Scipy/Pylab, Python library for scientific computation, data visualization.
- Matlab, high-level technical computing language.
- Qualtrics, survey creation and data collection.

Database / Data Management Systems

- Aspen student information system.
- Trillium Student information system.
- Oracle, MySQL, SQLite databases.
- Microsoft Access desktop database software.
- File based CSV, Parquet, other columnar data storage formats, Native data storage formats including Python pickle and R RDS/RData files.
- Experience optimizing data storage for analysis performance.
- Experience with data governance and data lake development.

Development and Collaboration Tools

- Git version control and GitHub/Forgejo for collaborative development.
- Continuous integration for automated workflows.
- Self-hosted development infrastructure and data storage on Linux and OpenBSD.
- Experience building secure, on-premises data science solutions.

Other Programming and Scripting Languages

- Day-to-day familiarity with several scripting languages including Python, UNIX shell scripting (BASH).
- Experience using a variety of programming languages (C, Pascal, and Java).
- Experience using PHP with HTML and CSS in the development of web-based research experiments.

Publishing

- Experience with R Notebooks, RMarkdown, Pandoc Markdown, and Shiny for interactive applications and dynamic documents.
- Comfortable writing with LaTeX (this document is produced with LaTeX), and BibTeX for technical and scientific documents, as well as common office suites such as GSuite, Microsoft Office, and LibreOffice.
- Experience creating automated, reproducible technical documentation.

Publications

Refereed:

Lee, L., **Locklin, J.**, Patel, T., Lu, S. K., Hillier, L. M. (2022) Recruitment of participants for dementia research: interprofessional perspectives from primary care-based memory clinics. Neurodegenerative Disease Management. 12 (3), 117-127 doi:10.2217/nmt-2021-0053

Lee, L., Hillier, L., **Locklin, J.**, Lee, J., Slonim, K. (2019) Advanced care planning for persons with dementia in primary care: Attitudes and barriers among health-care professionals. Journal of palliative care, 34 (4), 248-254. doi:10.1177/0825859718812463

Lee, L., Hillier, L., **Locklin, J.**, Lumley-Leger, K., Molnar, F. (2019) Specialist and family physician collaboration: Insights from primary care-based memory clinics. Health & Social Care in the Community. 27 (4), e522-e533. doi:10.1111/hsc.12751

Lee, L., Patel, T., **Locklin, J.**, Milligan., J., Pefanis, J., Costa, A., Lee, J., Slonim, K., Giangregorio, L., Hunter, S., Keller, H., Boscart, V. (2018). Frailty screening and case-finding for complex chronic conditions in older adults in primary care. Geriatrics, 3 (3), 39. doi:10.3390/geriatrics3030039

Locklin, J. (2015). *Perceptual and Memory Deficits in Unilateral Neglect.* (Dissertation, University of Waterloo, Waterloo, Canada).
Retrieve from hdl.handle.net/10012/9590

Locklin, J., Bunn, L., Roy, E. & Danckert, J. (2010). Measuring Deficits in Visually Guided Action Post-Concussion. *Sports Medicine*, *40*, 183-187.
doi:10.2165/11319440-000000000-00000

Locklin, J. (2009). *Development of a measure of visuomotor control for assessing the long-term effects of concussion.* (Master's thesis, University of Waterloo, Waterloo, Canada).
Retrieve from hdl.handle.net/10012/4740

Striemer, C., **Locklin, J.**, Blangero, A., Rossetti, Y., Pisella, L. & Danckert, J. (2008). Attention for action? Examining the link between attention and visuomotor control deficits in a patient with optic ataxia. *Neuropsychologia*, *47*, 1491-1499.
doi:10.1016/j.neuropsychologia.2008.12.021

Non-Refereed:

Locklin, J. (2024) R training workship notes. Retrieve from rpubs.com/jasonL/module1, rpubs.com/jasonL/module2, and rpubs.com/jasonL/module3

Locklin, J. (2024). AERO Lunch and Learn notes. Retrieve from Rpubs.com/jasonL/LandL

2022-2023 Safe, Caring and Inclusive School Survey – Summary Report (2024). Public report produced by the Waterloo Region District School Board. Retrieve from wrdsb.ca/about-the-wrdsb/research/reports/scis/2022-2023-safe-caring-and-inclusive-school-survey-summary-report/

Newman, G., Duffy, C., Powell, A., Gray, R., & **Locklin, J.** (2012). Position Paper on Electromagnetic Hypersensitivity (Idiopathic Environmental Intolerance Attributed to Electromagnetic Fields). Canada: *Bad Science Watch.*
Retrieve from www.badsciencewatch.ca/projects/investigation-of-anti-wifi-activism-in-canada

Locklin, J., & Danckert, J. (2010). Do we have Independent Visual Streams for Perception and Action? a Response. Preprint.
Retrieve from cogprints.org/6854/

Locklin, J., Danckert, J. (2009). Changes in Visuomotor Performance of Concussed Individuals. Poster. Abstract published in *Journal of Vision*, *9:8*, 1103-1103.
doi:10.1167/9.8.1103

Law, A., McCabe, S., **Locklin, J.**, Tan, C., & Morris, S. (2006). Perceptions of social rank as a predictor of anger and depression symptoms. Poster presented at the Graduate Student Research Conference, University of Waterloo, Waterloo, Canada.