

Eric D. Wilkey, PhD

Contact Information

Department of Psychology
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EDUCATION

- Ph.D.** 2013 – 2018
Neuroscience
Vanderbilt University, Nashville TN
- M. Ed.** 2010 – 2011
Mind, Brain and Education
Harvard University, Cambridge, MA
- B.A.** 2003 – 2007
Philosophy, minors in Classical Greek and Studio Art
Belmont University, Nashville, TN

APPOINTMENTS

- Assistant Professor** *starting Jan 2022*
Department of Psychology
Louisiana State University
- Assistant Professor** *starting Jan 2022*
Center for Computation & Technology
Louisiana State University
- Postdoc** 2018 – *present*
Brain and Mind Institute
Western University, London, ON, Canada
Advisor: Dr. Daniel Ansari
- Research Analyst** 2011 – 2013
Vanderbilt University, Peabody Research Institute
- Large-scale meta-analysis of predictors of school success
 - City-wide Kindergarten reading intervention assessment

FELLOWSHIPS & AWARDS

- 2021 Western University Postdoctoral Scholar of the Year
- 2019–2021 *Banting Postdoctoral Fellowship* (only 70 awarded yearly across Canada), awarded by The Natural Sciences and Engineering Research Council of Canada (NSERC) \$140,000 CAD (\$70K per year CAD).
- 2019–2021 *BrainsCAN Tier I Postdoctoral Fellowship Award Top-Up*, University of Western Ontario, \$20,000 CAD (\$10K per year CAD).
- 2018 Travel grant award by BrainsCAN to attend a workshop on Open Science at University College Cork, Ireland (October 2018)
- 2017–2018 *Hardy Culver Wilcoxon Award*, presented by the Peabody College Department of Psychology & Human Development (Vanderbilt University) to the graduate student with the most distinguished doctoral dissertation in any area of Psychological Inquiry.
- 2017 Competitive *Research-Achievement Fellowship* from Vanderbilt Department of Psychology and Human Development. Award provides stipend for one semester to pursue research aims that build on a previous first-author publication.
- 2016 Fellow at Kavli Summer Institute in Cognitive Neuroscience, UC Santa Barbara, 2016. Fellowship for tuition, room, and board.
- 2016 Stipend awarded from NIH to present at NIH and IES funded Math Cognition and Learning Conference special topic: The Role of Linguistic and Cultural Factors in Mathematical Cognitive Development, Ft. Worth, Texas.
- 2015–2018 Peabody Dean's Fellowship for PhD (Vanderbilt University).
- 2013–2018 Peabody Graduate Honors Scholarship (Vanderbilt University)
- 2014 IMBES outstanding poster award at International Mind, Brain and Education Society, Fort Worth, TX.

GRANTS

- 2020-2023 Co-Investigator (PI David Purpura), *My Math Stories: Taking My Place in Our Mathematical World*, NewSchools Venture Fund, \$2,000,000 USD.

PUBLICATIONS | [ORCiD](#) | [Google Scholar](#) | [ResearchGate](#)

Peer-Reviewed Articles (n = 15)

Wilkey, E. D., Conrad, B. N., Yeo, D. J. & Price, G. R. (2020). Individual differences in format- and task-dependent coding of symbolic and nonsymbolic numerosity. *Cerebral Cortex Communications*. <https://doi.org/10.1093/texcom/tgaa038>

Conrad, B. N., **Wilkey, E. D.**, Yeo, D. J. & Price, G. R. (2020). Network topology of symbolic and nonsymbolic number comparison. *Network Neuroscience*. https://doi.org/10.1162/netn_a_00144

Wilkey, E.D., Pollack, C., Price, G. R. (2020). Dyscalculia and typical math achievement are associated with individual differences in number specific executive function. *Child Development*, 91(2), 596-619. <https://doi.org/10.1111/cdev.13194>

Wilkey, E. D., & Ansari, D. (2020). Challenging the neurobiological link between number sense and symbolic numerical abilities. *Annals of the New York Academy of Sciences*. <https://doi.org/10.1111/nyas.14225>

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

Wilkey, E. D., & Price, G. R. (2019). Attention to number: The convergence of numerical magnitude processing, attention, and mathematics in the inferior frontal gyrus. *Human Brain Mapping*, 1–16. <https://doi.org/10.1002/hbm.24422>

Wilkey, E. D., Cutting, L. E., & Price, G. R. (2018). Neuroanatomical correlates of performance in a state-wide test of math achievement. *Developmental Science*, 21(2), e12545. <http://doi.org/10.1111/desc.12545>

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. <http://doi.org/10.1016/j.dcn.2017.02.006>

Wilkey, E. D., Barone, J. C., Mazzocco, M. M. M., Vogel, S. E., & Price, G. R. (2017). The effect of visual parameters on neural activation during nonsymbolic number comparison and its relation to math competency. *NeuroImage*, 159 (August), 430–442. <http://doi.org/10.1016/j.neuroimage.2017.08.023>

Price, G. R. & **Wilkey, E. D.** (2017). Cognitive mechanisms underlying the relation between nonsymbolic and symbolic magnitude processing and their relation to math. *Cognitive Development*, 44(September), 139–149. <http://doi.org/10.1016/j.cogdev.2017.09.003>

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(April), 145

160. <http://doi.org/10.1016/j.neubiorev.2017.04.027>

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

*Merkley, R., **Wilkey, E. D.**, & Matejko, A. A. (2016). Exploring the Origins and Development of the Visual Number Form Area: A Functionally Specialized and Domain-Specific Region for the Processing of Number Symbols? *Journal of Neuroscience*. 36, 4659–4661. DOI: <http://dx.doi.org/10.1523/JNEUROSCI.0710-16.2016>

* **co-first-author publication**

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. <https://doi.org/10.1016/j.neuroimage.2015.08.046>

Tripney, J., Hombrados, T. J., Newman, M., Hovish, K., Brown, C., Steinka-Fry, K., & **Wilkey, E. D.** (2013). Technical and Vocational Education and Training Training (TVET) Interventions to Improve the Employability and Employment of Young People in Low- and Middle Income Countries : Systematic Review. *Campbell Systematic Reviews*, 9. [doi:10.4073/csr.2013.9](https://doi.org/10.4073/csr.2013.9)

Book Chapters, Encyclopedia Entries, and Reports (n = 3)

Price, G. R. & **Wilkey, E. D.** (2018). Developmental Dyscalculia. In The SAGE encyclopedia of intellectual and developmental disorders. E. B. Braaten (Ed.). (Vol. 1, pp 379-383). Thousand Oaks, CA. Sage. <http://dx.doi.org/10.4135/9781483392271.n125>

Wilson, S. J., & **Wilkey, E. D.** (2012). Final evaluation report: Enhanced Language and Literacy Project. Unpublished manuscript. Nashville, TN: Peabody Research Institute, Vanderbilt University.

Cerruti, C., **Wilkey, E. D.**, (2011) Verbal overshadowing and verbal facilitation in creative cognition. In L. DellaPietra (Ed.), *Perspectives on Creativity Vol. 2.* (pp. 178-187). Cambridge, UK: Cambridge Scholars Press. [download](#).

Manuscripts In Progress

Lau, T. T., **Wilkey, E. D.**, Soltanlou, M., Lagacé-Cusiac, R., Peters, L., Tremblay, P., Goffin, C., Starling Alves, I., Ribner, A. D., Thompson, C., Van Hoof, J., Bahnmüller, J., Alvarez, A., Bellon, E., Coolen, I., Ollivier, F., Ansari, D. (*Stage 1 Registered Report Accepted; Royal Society Open Science*) Numeracy and COVID-19: examining interrelationships between numeracy, health numeracy and behaviour. Project page: <https://osf.io/qpdnt/>

Pollack, C., **Wilkey, E. D.**, Price, G. R. (revision under review) Predictors of middle school students' growth in symbolic number comparison performance.

Wilkey, E. D., Shanley, L., Sabb, F., Ansari, D., Cohen, J. C., Men, V., Heller, N., Clarke, B. (Revision 1 under review). Congruency in nonsymbolic number comparison across first grade. Preregistration [here](#).

Smith, J., **Wilkey, E. D.**, Clarke, B., Shanley, L., Men, V., Fair, D., Sabb, F. W. (in prep). Can this data be saved? Techniques for high motion resting state scans of first grade children.

PRESENTATIONS

International Conference Talks & Poster Presentations (** indicates conference talk) (n = 27)

Lynn, Andrew, **Wilkey, E. D.**, Price, G. R. (2021). Predicting children's math skills from functional brain network connectivity. **Poster to be presented at** the Organization of Human Brain Mapping Annual Meeting. June 2021 2021.

Lynn, Andrew, **Wilkey, E. D.**, Price, G. R. (2021). Canonical network functional connectivity predicts math achievement in childhood: A connectome-based predictive modeling approach. **Poster to be presented at** the Flux Virtual Congress. September 2021.

****Wilkey, E. D.** (accepted). Attention to Number: The convergence of numerical magnitude processing, attention, and mathematics development. **Symposium talk to be presented at** the biennial conference of the International Mind, Brain, and Education Society, Montreal, Canada. June 2020.

****Wilkey, E. D.**, Conrad, B. N., Price, G. R. (2020) Shared Representation of Symbolic and Nonsymbolic Number, But Overlap Negatively Predicts Math. **Symposium talk presented at** the annual conference of the Organization of Human Brain Mapping, Montreal, Canada. June 2020.

Wilkey, E. D., Conrad, B. N., Price, G. R. (2020) Shared Representation of Symbolic and Nonsymbolic Number, But Overlap Negatively Predicts Math. **Poster to be presented at** the annual conference of the Organization of Human Brain Mapping, Montreal, Canada. June 2020.

Wilkey, E. D., Conrad, B. N., Price, G. R. (2020) Individual Differences in Shared Representation of Symbolic and Nonsymbolic Number at 7T fMRI. **Poster to be presented at** the annual conference of the Association for Psychological Science, Chicago Illinois. May 2020.

****Wilkey, E. D.** & Price, G. R. (2019). Attention to Number: The convergence of numerical magnitude processing, attention, and mathematics. **Symposium talk presented at** the annual conference of the Mathematical Cognition and Learning Society, Ottawa, Ontario. June 2019.

Pollack, C., **Wilkey, E. D.**, Price, G. R. (2019) What predicts middle school students' growth in symbolic number comparison performance? **Poster presented at** the biennial conference of the Society for Research in Child Development, Baltimore, Maryland, USA. March 2019.

Wilkey, E.D. & Price, G. R. (2018). The influence of attentional modulation on numerical magnitude processing mechanisms and their relation to math achievement. **Poster presented at** the biennial

conference of the International Mind, Brain, and Education Society, Los Angeles, USA. September 2018.

Conrad, B. N., **Wilkey, E. D.**, & Price, G. R. (2018). Frontoparietal reorganization during symbolic and nonsymbolic number processing. **Poster presented at** the annual conference of the Society for Neuroscience, San Diego. November 2018.

Yeo, D. J., **Wilkey, E.D.**, Price, G. R. (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 Center's 3rd annual symposium: The symbol grounding problem, Loughborough, UK. June 2018.

Wilkey, E.D., Pollack, C., & Price, G.R. (2018). ANS acuity, mathematics achievement, and dyscalculia: Evidence for a domain-specific executive function relation. **Poster presented at** the Annual Meeting of the Cognitive Neuroscience Society, Boston, MA. March 2018.

Conrad, B. N., **Wilkey, E. D., & Price, G. R. (2018). Network Topology of Symbolic and Nonsymbolic Number Processing: A 7T fMRI Study. **Data blitz talk presented at** the Annual Meeting of the Cognitive Neuroscience Society, Boston, MA. March 2018.

Conrad, B. N., **Wilkey, E. D.**, & Price, G. R. (2018). Network Topology of Symbolic and Nonsymbolic Number Processing: A 7T fMRI Study. **Poster presented at** the Annual Meeting of the Cognitive Neuroscience Society, Boston, MA. March 2018.

****Wilkey, E.D.**, Barone, J. C., Mazzocco, M. M. M., Vogel, S. E., & Price, G. R. (2017). The Influence of Visual Cues on Nonsymbolic Number Comparison and Their Relation to Math Competency. **Nanosymposium talk presented at** the annual conference of the Society for Neuroscience, Washington, DC. November, 2017.

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

Wilkey, E. D., & Price, G. R. (2017). Symbolic and Nonsymbolic Magnitude Processing, the Neural Distance Effect, and Math Achievement. **Poster presented at** the annual conference of the Organization of Human Brain Mapping, Vancouver, Canada. June 2017.

Wilkey, E.D., Barone, J. C., Mazzocco, M. M. M., Vogel, S. E., & Price, G. R. (2017). The Influence of Visual Cues on Nonsymbolic Number Comparison and Their Relation to Math Competency. **Poster presented at** the Annual Meeting of the Cognitive Neuroscience Society, San Francisco, CA March 2017.

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

Wilkey, E.D., Barone, J. C., Mazzocco, M. M., Vogel, S. E., Price, G. R. (2016). The Influence of Non-Numeric Visual Parameters on Performance and Neural Activation Patterns During Nonsymbolic Number Comparison. **Poster presented at** the biannual conference of the International Mind, Brain, and Education Society, Toronto, Canada. September 2016.

Yeo, D. J., **Wilkey, E.D.**, Price, G. R. (2016). The relation between numerical estimation flexibility and mathematical competence. **Poster presented at** the biannual conference of the International Mind, Brain, and Education Society, Toronto, Canada. September 2016.

Wilkey, E.D., Price, G. R. (2016). Eight-Year Growth in Math Skills and Its Relationship to Nonsymbolic and Symbolic Number Processing. **Poster presented at** the NIH and IES funded Math Cognition and Learning Conference special topic: The Role of Linguistic and Cultural Factors in Mathematical Cognitive Development, Ft. Worth , Texas. May 2016.

Yeo, D. J. , **Wilkey, E.D.**, Price, G. R. (2016). Eye movement patterns underlying symbolic and nonsymbolic numerical magnitude comparison. **Poster presented at** the NIH and IES funded Math Cognition and Learning Conference special topic: The Role of Linguistic and Cultural Factors in Mathematical Cognitive Development, Ft. Worth, Texas. May 2016.

Wilkey, E.D., Price, G. R. (2016). Task-Specific Processing of Arabic Digits in the Left Angular Gyrus. **Poster presented at** the annual conference of Cognitive Neuroscience Society, New York City, NY. April 2016.

Price, G. R., **Wilkey, E.D.**, Yeo, D. J., Cutting, L. E. (2015). Resting-State Connectivity At 1st Grade Predicts Math Competence at 2nd Grade. **Poster presented at** the annual conference of the Society for Neuroscience, Chicago, IL. October 2015.

Wilkey, E.D., Price, G. R., Cutting, L. E. (2015). Neuroanatomical Correlates of Performance in State-Wide Test of Math Achievement. **Poster presented at** the annual conference of the Cognitive Neuroscience Society, San Francisco, CA March 2015.

* Price, G. R., **Wilkey, E.D.**, Cutting, L. E. (2014). Neuroanatomical predictors of 3rd Grade Math Competence. **Poster presented at** the biannual conference of the International Mind, Brain and Education Society, Fort Worth, TX. November 2014.

* outstanding poster award; only one award for research posters at conference

Invited Talks

Title: Foundations of Mathematics
Date: September 16th, 2020
Event: Educational Psychology Colloquium
Location: University of Alabama, Tuscaloosa

Title: Going for the Big Prize
Date: February 26th, 2020
Event: Scholars to Leaders Speaker Series

Location: Western University; London, Ontario

Title: Open Science in Numerical Cognition (workshop)

Date: June 16th, 2019

Event: Workshop, Mathematical Cognition and Learning Society Annual Conference

Location: Carleton University; Ottawa, Ontario

Title: Attention to Number, Neurocognitive Foundations of Mathematical Competence

Date: May 31st, 2019

Event: Visiting Scholar, Research Group Talk

Location: University of Oregon; Eugene, Oregon

Title: Panel Discussion on Securing a Postdoctoral Fellowship

Date: May 2nd, 2019

Event: Postdoctoral Research Forum

Location: Western University; London, Ontario; Canada

Title: Open Science

Date: November 13th, 2018

Event: Knowledge dissemination; sponsored workshop

Location: Western University, London, ON

Title: *Learning and the Brain: Where are we now (keynote address)*

Date: July 20, 2016

Conference: Making Math Matter: Integrating Math Skills in Grades PK – 8; Teacher Training

Location: Memphis, TN

Title: *The Mathematical Brain*

Date: July 19, 2016

Conference: Making Math Matter: Integrating Math Skills in Grades PK – 8; Teacher Training

Location: Memphis, TN

Title: *The Mathematical Brain*

Date: March 1, 2016

Event: Brain Awareness Month; talk open to the general public

Location: Nashville, TN

Title: *Neuroanatomical Correlates of Math Competence*

Date: February 18th, 2016

Event: Cross-Departmental talk for Vanderbilt Cognition & Cognitive Neuroscience

Location: Nashville, TN

Title: *Neuroanatomical Correlates of Math Competence*

Date: January 15th, 2016

Event: Cross-Departmental talk for Vanderbilt Psychology & Human Development Department

Location: Nashville, TN

TEACHING

Vanderbilt University

Guest Lecturer (2 Classes): Spring 2018

Undergraduate seminar: Educational Neuroscience

- Neuroanatomy
- Neuropharmacology and “Smart Drugs”

Guest Lecturer (4 Classes): Fall 2017

Master’s and undergraduate seminar: Educational Neuroscience

- Neuropharmacology and “Smart Drugs”
- Behavioral Testing for Educational Neuroscience

Guest Lecturer (4 Classes): Spring 2017

Master’s and undergraduate seminars: Educational Neuroscience

- Introduction to numerical cognition and neuroimaging
- Behavioral Testing for Educational Neuroscience

Guest Lecturer (2 classes): Fall 2016

Undergraduate seminar: Educational Neuroscience

- Neuropharmacology and “Smart Drugs”
- Behavioral Testing for Educational Neuroscience

Guest Lecturer (3 classes): Fall 2015

Undergraduate seminar: Numerical Cognition

- Lectures on Intro to neuroimaging & numerical cognition and guided paper discussions.

Teaching assistant: Spring 2015

Undergraduate course: Introduction to Neuroscience

- TA evaluations available upon request

Teaching assistant: Fall 2014

Undergraduate course: Introduction to Statistical Analysis

- Independently taught 2 sections of 20 students one day a week; lecture and statistics lab
- TA evaluations available upon request

MENTORING

Western University

Julia Schmid (2019 - current), honors undergraduate in Neuroscience

- co-advisor for NSERC award (Summer 2021)
- co-advisor for independent study (Spring 2021)

Ashini Peiris (2019 - current), honors undergraduate in Neuroscience
 - co-advisor for Diversity in Neuroscience Summer Internship (2021)
 - co-advisor for USRI award (undergraduate summer research internship, 2020)

Ira Gupta (2019 - current), honors undergraduate in Neuroscience
 - co-advisor for USRI award (undergraduate summer research internship, 2021)
 - co-advisor for USRI award (undergraduate summer research internship, 2020)

Vanderbilt University

Gabrielle Freitag (2015-2018), honors undergraduate in Psychology
 Current position: enrolled in PhD program at Florida International University

Ellen Andrews (2015-2017), honors undergraduate in Neuroscience
 Current position: enrolled in Clinical Psych PhD at the U of Texas, DALLAS

Mary Liz Kim (2014-2017), honors undergraduate in Neuroscience
 Current position: enrolled in University of Southern California Medical School

Jordan Barone (2014-2016), honors undergraduate in Neuroscience
 Current position: enrolled in Md/PhD at U Chicago

SERVICE

Journal Article Reviews:

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| Acta Psychologica | Journal of Cognitive Neuroscience |
| Attention, Perception, & Psychophysics | Journal of Educational Psychology |
| Child Development | Journal of Experimental Child Psychology |
| Child Neuropsychology | Journal of Experimental Psychology: Human Perception and Performance |
| Cognition | Journal of Neuroscience |
| Cognitive Science | Neuroimage |
| Communications Biology | Neuroimage-Clinical |
| Developmental Psychology | NPJ Science of Learning |
| Developmental Cognitive Neuroscience | Trends in Neuroscience & Education |
| eLife | |
| Human Brain Mapping | |

Grant Review Committees:

2020 National Science Foundation (*ad hoc reviewer*)
 2020 Singapore National Institute of Education
 2020 National Science Foundation, panel member
 2019 National Science Foundation (*ad hoc reviewer*)
 2019 Postdoctoral Fellowship Reviewer, University of Western Ontario

Conference Committees:

2021 Mathematical Cognition and Learning Society, Abstract Reviews

2018 International Mind, Brain, and Education Conference Poster Committee (Co-Chair)

Thesis Committees:

2018 Undergraduate Honors Thesis Committee; Olivia Lasala, Vanderbilt University

2018 Undergraduate Honors Thesis Committee; Jack Lyden, Vanderbilt University

2017 Undergraduate Honors Thesis Committee; Rachel Telles, Vanderbilt University

Academic Committees:

2016 Neuroscience Student Organization- elected to Curriculum Committee, Vanderbilt University

2015 Neuroscience Student Organization- elected to Curriculum Committee, Vanderbilt University

University Event Organizing:

2021 Western University – Brain and Mind Institute: *Lab Fair Event Organizer*: see below

2020 Western University – Brain and Mind Institute: *Lab Fair Event Organizer*: see below

2019 Western University – Brain and Mind Institute: *Lab Fair Event Organizer*: Proposed and help organize inaugural Lab Fair event for undergraduates interested in research to connect with research labs at the Brain and Mind Institute

ADVANCED COURSES ATTENDED

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| 2020 | NeuroHackademy | online: https://neurohackademy.org/ |
| 2018 | Open Science Workshop | Cork, Ireland |
| 2017 | Connectivity Course: Structural and Functional | Boston, USA |
| 2016 | Summer Institute in Cognitive Neuroscience | UC Santa Barbara, USA |
| 2015 | Freesurfer Training Course | Boston, USA |

LANGUAGE, SOFTWARE, AND CODING SKILLS

- **English:** mother tongue; **Spanish:** upper intermediate/advanced
- Proficient at handling large-scale datasets, complex analyses, and creating graphical displays in: **R, MATLAB, jamovi, Python, SPSS, STATA, JASP** (in order of competency).
- Proficient at neuroimaging analysis in: **fMRIPrep, Brainvoyager (Neuro-elf, batch processing, Python scripting), Freesurfer, MATLAB, CONN Toolbox, and SPM.**
- Coding skills in: **R, Python, BASH, and C++, Markdown, R Markdown, Git, MATLAB**
- Experiment presentation in: **PsychoPy, EPrime, PsychToolbox, Experiment Builder, Presentation, Pavlovia, Qualtrics, Open Sesame**
- Database creation and management using REDCAP & Filemaker