

EMILY A. WILLOUGHBY

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EDUCATION

- Doctor of Philosophy (Psychology)** *September 2016 – January 2021*
University of Minnesota Twin Cities • Minneapolis, MN
Personality, individual differences & behavior genetics
- Master of Arts (Psychology)** *September 2016 – September 2019*
University of Minnesota Twin Cities • Minneapolis, MN
Personality, individual differences & behavior genetics
- Bachelor of Arts (Biology)** *September 2008 – December 2012*
Thomas Edison State University • Trenton, NJ

PROFESSIONAL EXPERIENCE

- Postdoctoral Researcher in the lab of James J. Lee** *2021 – 2022*
University of Minnesota, Minneapolis, MN
- Co-Instructor: Introduction to Individual Differences (PSY 3135)** *Fall 2020*
University of Minnesota, Minneapolis, MN
- Instructor: Introduction to Individual Differences (PSY 3135)** *Spring 2020*
University of Minnesota, Minneapolis, MN
- Instructor: Introduction to Individual Differences (PSY 3135)** *Fall 2019*
University of Minnesota, Minneapolis, MN
- Co-Instructor: Introduction to Individual Differences (PSY 3135)** *Spring 2019*
University of Minnesota, Minneapolis, MN
- Teaching Assistant: Introduction to Individual Differences (PSY 3135)** *Fall 2018*
University of Minnesota, Minneapolis, MN
- Instructor: Dr. James J. Lee
- Teaching Assistant: Introduction to Behavior Genetics (PSY 5137)** *Fall 2017*
University of Minnesota, Minneapolis, MN
- Instructor: Dr. Matt McGue
- Graduate Research Assistant: Parsing information flow in speeded cognitive tasks** *2016 – 2018*
University of Minnesota, Minneapolis, MN
- Designed tasks in E-Prime for experiment on intelligence and reaction time
 - Oversaw training and management of undergraduate research assistants
 - Faculty advisor: Dr. James J. Lee
- Graduate Research Assistant: Minnesota Center for Twin and Family Research** *2016 – 2020*
University of Minnesota, Minneapolis, MN
- Sibling Interaction and Behavior Study (various projects)

- Minnesota Twin Family Study (various projects)

Graduate Research Assistant: An adoption study of free will & determinism 2016 – 2019
University of Minnesota, Minneapolis, MN • John Templeton Foundation

- Oversaw programming and technical details, contributed to item and test construction
- Principal investigators: Drs. Matt McGue & James J. Lee

Undergraduate Research Assistant: Cognition & perception laboratory 2015 – 2016
University of North Carolina, Asheville, NC

- Designed and programmed a flanker-type Stroop task, a series of reaction time paradigms, and a cognitive assessment test; collected & analyzed data; created poster
- Principal investigator: Dr. Tracy L. Brown

AWARDS AND HONORS

Nomination: Best Dissertation Award March 2021
University of Minnesota, Minneapolis, MN

Nomination: Excellence in Teaching Award December 2020
University of Minnesota, Minneapolis, MN

Doctoral Dissertation Fellowship - \$25,000 Fall 2020–Spring 2021
University of Minnesota, Minneapolis, MN

DDF Conference Presentation Grant - \$1,000 Fall 2020–Spring 2021
University of Minnesota, Minneapolis, MN

Graduate Summer Research Fellowship - \$4,000 Summer 2020
University of Minnesota, Minneapolis, MN

2019 ISIR Best Student Paper Award - \$500 Summer 2019
International Society for Intelligence Research • Minneapolis, MN

Department of Psychology Travel Award - \$600 Summer 2019
University of Minnesota, Minneapolis, MN

BGA Travel Grant - \$150 Summer 2019
Behavior Genetics Association • Stockholm, Sweden

Graduate Summer Research Fellowship - \$4,000 Summer 2019
University of Minnesota, Minneapolis, MN

Graduate Summer Research Fellowship - \$4,000 Summer 2018
University of Minnesota, Minneapolis, MN

David Campbell Graduate Research Fellowship - \$2,000 Spring 2018
University of Minnesota, Minneapolis, MN

ISIR Travel Grant - \$1,500 Spring 2018
International Society for Intelligence Research • Edinburgh, UK

BGA Travel Grant - \$350 Spring 2018
Behavior Genetics Association • Boston, MA

2017 ISIR Best Student Paper Award - \$1,000 Summer 2017
International Society for Intelligence Research • Montreal, Quebec

Graduate Summer Research Fellowship - \$4,000 Summer 2017
University of Minnesota, Minneapolis, MN

David Campbell Graduate Research Fellowship - \$1,200 Spring 2017
University of Minnesota, Minneapolis, MN

ISIR Travel Grant - \$1,000 Spring 2017
International Society for Intelligence Research • Montreal, Quebec

Department of Psychology Graduate Fellowship - \$20,000 Fall 2016 – Spring 2017
University of Minnesota, Minneapolis, MN

PUBLICATIONS

Research

- Willoughby, E. A.**, McGue, M., Iacono, W. G., & Lee, James J. (Under review at *Intelligence*). The heritability of intelligence estimated in biological and adoptive families with 30-year-old offspring.
- Willoughby, E. A.**, & Lee, James J. (In press). Parsing information flow in speeded cognitive tasks: The associations of g with perception and decision time. *Journal of Experimental Psychology: Learning, Memory and Cognition*. DOI: [10.1037/xlm0001026](https://doi.org/10.1037/xlm0001026)
- Willoughby, E. A.**, Giannelis, A., Ludeke, S., Klemmensen, R., Nørgaard, A. S., Iacono, W. G., Lee, J. J., & McGue, M. (In press). Parent contributions to the development of political attitudes in adoptive and non-adoptive families. *Psychological Science*.
- Anderson, E. L., Saunders, G. R. B., **Willoughby, E. A.**, Iacono, W. G., McGue, M. (2020). The role of the shared environment in college attainment: An adoption study. *Journal of Personality, online first*. DOI: [10.1111/jopy.12600](https://doi.org/10.1111/jopy.12600)
- McGue, M., **Willoughby, E. A.**, Rustichini, A., Johnson, W., Iacono, W., & Lee, J. J. (2020). The contribution of cognitive and non-cognitive skills to intergenerational social mobility. *Psychological Science*, 31(7), 835–847. DOI: [10.1177/0956797620924677](https://doi.org/10.1177/0956797620924677)
- Gulsuner, S., Stein, D. J., Susser, E. S., Sibeko, G., Pretorius, A., Walsh, T., Majara, L., Mndini, M. M., Mqulwana, S. G., Ntola, O. A., Casadei, S., Ngqengelele, L. L., Korchina, V., van der Merwe, C., Malan, M., Fader, K. M., Feng, M., **Willoughby, E. A.** . . . & McClellan, J. M. (2020). Genetics of schizophrenia in the South African Xhosa. *Science*, 367(6477), 569–573. DOI: [10.1126/science.aay8833](https://doi.org/10.1126/science.aay8833)
- Willoughby, E. A.**, McGue, M., Iacono, W., Rustichini, A., & Lee, J. J. (2020). The role of parental genotype in predicting offspring years of education: Evidence for genetic nurture. *Molecular Psychiatry, online first*. DOI: [10.1038/s41380-019-0494-1](https://doi.org/10.1038/s41380-019-0494-1)
- Willoughby, E. A.**, Love, A. C., McGue, M., Iacono, W. G., Quigley, J., & Lee, J. J. (2019). Free will, determinism, and intuitive judgments about the heritability of behavior. *Behavior Genetics*, 49(2), 136–153. DOI: [10.1007/s10519-018-9931-1](https://doi.org/10.1007/s10519-018-9931-1)
- Willoughby, E. A.** & Boutwell, B. B. (2018). Importance of intelligence and emotional intelligence for physicians. *Journal of the American Medical Association*, 320(2), 205. DOI: [10.1001/jama.2018.6278](https://doi.org/10.1001/jama.2018.6278)
- Lee, J. J., Wedow, R., Okbay, A., Kong, E., Maghzian, O., Zacher, M., Nguyen-Viet, T. A., Bowers, P., Sidorenko, J., Linner, R. K., Fontana, M. A., Kundu, T., Lee, C., Li, H., Li, R., Royer, R., Timshel, P. N., Walters, R. K., **Willoughby, E. A.** . . . Cesarini, D. (2018). Gene discovery and polygenic prediction from a 1.1-million-person GWAS of educational attainment. *Nature Genetics*, 50(8), 1112–1121. DOI: [10.1038/s41588-018-0147-3](https://doi.org/10.1038/s41588-018-0147-3)

Books & Chapters

- Willoughby, E. A.** (In press). Drawing and painting dinosaurs. Marlborough, UK: The Crowood Press. Projected publication: October 2021.
- Willoughby, E. A.** & Lee, J. J. (In press). Predicting cognitive ability differences from brain imaging and genetics data. In: *The Cambridge handbook of intelligence and neuroscience*.
- Kane, J., & **Willoughby, E.** (2016). *God's word or human reason? (2nd ed.)* Portland, Oregon: Inkwater Press. ISBN: [978-1629016382](https://doi.org/10.1007/978-1629016382). (Author & lead illustrator)

SELECTED TALKS & POSTERS

Oral Papers

- Willoughby, E. A. et al. (2020, January). The first longitudinal investigation of cognitive ability in adult adoptive families. Talk presented at 2nd Biennial Heterodoxy in Psychology Conference in Orange, CA.
- Willoughby, E. A. et al. (2019, July). The first longitudinal investigation of cognitive ability in adult adoptive families. Talk presented at the annual conference of the International Society for Intelligence Research in Minneapolis, Minnesota.
- Willoughby, E. A. et al. (2019, June). The first longitudinal investigation of cognitive ability in adult adoptive families. Talk presented at annual conference of the Behavior Genetics Association in Stockholm, Sweden.
- Willoughby, E. A. et al. (2019, May). An adoption study of human agentic beliefs: Preliminary findings. Talk presented at the Genetics & Human Agency third annual meeting in Wintergreen, VA.
- Willoughby, E. A. (2018, August). Behavior genetics and the role of ability and achievement in society. Talk presented at the Heterodox Psychology Workshop in Orange, CA.
- Willoughby, E.A. & Lee, J. J. (2018, July). Parsing information flow in speeded cognitive tasks. Talk presented at the annual conference of the International Society for Intelligence Research in Edinburgh, U.K.
- Willoughby, E. A. et al. (2018, June). Free will, determinism, and intuitive judgments about the heritability. Talk presented at the annual conference of the Behavior Genetics Association in Boston, MA.
- Willoughby, E. A. et al. (2018, May). Free will, determinism, and intuitive judgments about the heritability of behavior. Talk presented at the Genetics & Human Agency second annual meeting in Charlottesville, VA.
- Willoughby, E. A. & Lee, J. J. (2017, July). Parent and offspring polygenic scores as predictors of offspring years of education. Talk presented at the annual conference of the International Society for Intelligence Research in Montreal, Quebec.
- Willoughby, E. A. & Lee, J. J. (2017, June). Parent and offspring polygenic scores as predictors of offspring years of education. Talk presented at annual conference of the Behavior Genetics Association in Oslo, Norway.
- Willoughby, E. A. (2016, June). Stroop interference and general intelligence: Does less interference mean 'smarter'? Talk presented at annual conference of Northeastern Evolutionary Psychology Society in Halifax, Nova Scotia.
- Willoughby, E. A. (2015, February). God's word or human reason? Talk presented at the annual Darwin Week conference of The College of Charleston, Charleston, SC.

Posters

- Willoughby, E. A. & Brown, Tracy L. (2016, April). Stroop interference and general intelligence: Does less interference mean 'smarter'? Poster presented at the annual conference of the Osher Lifelong Learning Institute neuroscience lecture series at the University of North Carolina, Asheville, NC.

SERVICE TO PROFESSION

Elected Appointments

- International Society for Intelligence Research: Board Member

Spring 2020–Spring 2023

Peer Review

Fall 2019–Spring 2021

- *Journal of School Choice: International Research and Reform*
- *npj Science of Learning*
- *American Political Science Review*
- *Intelligence*

Memberships and Affiliations

2015–2021

- International Society for Intelligence Research
- American Psychological Association
- Society of Vertebrate Paleontology
- Northeastern Evolutionary Psychology Society
- National Center for Science Education
- Behavior Genetics Association

RESEARCH SPECIALTIES

Classic behavioral genetics. Experience with twin, family and adoption study data and models; within-family analysis; longitudinal data.

Bioinformatics. Proficient at using various genome-wide association techniques and software including GCTA, BOLT-LMM, MaCH, PLINK, Eigensoft; polygenic score construction and analysis; DEPICT.

Cognitive ability and related phenotypes. Experienced with studies of individual differences; reaction time and diffusion modeling; attention, performance and working memory; behavior genetics applications; cognitive psychology paradigms and applications.

Statistical inference. Experience using and interpreting (e.g.) various ANOVA models, multivariate methods, item analysis, SEM, etc.

Open science initiatives. Experienced with the [Open Science Framework](#), preregistration, de-identifying data, etc.

TECHNICAL SKILLS

Operating systems. Windows 2000/XP/Vista/7/10, DOS, Macintosh OS, iOS.

Programming languages and development tools. Presentation Control Language, LaTeX, E-BASIC, HTML, R, Unix command line, Bash, Python.

Software. Presentation, E-Prime and E-Studio, SPSS, R and R Studio, Sphinx voice recognition, OpenMX, Microsoft Office applications, Adobe Photoshop and Illustrator, survey software (e.g., Amazon Mechanical Turk, SurveyMonkey, Qualtrics).

Hardware. Psychology Software Tools responses boxes (Serial Response Box, Chronos), Cedrus response box, ETL-300 and ETL-500 eye-tracking systems.

Graphical. Photoshop, Illustrator, InDesign, Acrobat, and free hand technical and scientific illustration.

Other technical skills. PC building, soldering, bug testing/troubleshooting, computer and hardware testing and repair.