
CASSONDRA GRIGER

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Iowa City, Iowa

EDUCATION

<i>Educational Measurement and Statistics, Ph.D.</i>	University of Iowa	Expected July 2024
◇ <i>Dissertation: Confirming cognitive structures: A multi-group hierarchical factor analysis of clinical and normative samples in broad cognitive abilities</i>		
◇ <i>Candidacy Thesis: Developing and validating an adaptive neurocognitive assessment to screen elementary-aged school children susceptible to adverse childhood experiences (ACEs)</i>		
<i>Educational Measurement and Statistics, M.A.</i>	University of Iowa	October 2023
<i>School Psychology, Ph.D.</i>	Duquesne University	Transferred December 2020
<i>Child Psychology, M.S.Ed.</i>	Duquesne University	May 2018
<i>Psychology, B.S.</i>	Mansfield University of Pennsylvania	August 2013

TECHNICAL STRENGTHS

Languages / Software	R, MPlus, SAS, Python, SQL, JSON, Stata
Authoring Tools	LaTeX, Rmarkdown, ExamSpark, Quarto, Qualtrics, TAO
Collaboration	Notion, Git, OneDrive, GoogleDrive, Dropbox, Discord, Slack

INDUSTRY EXPERIENCE

<i>Psychometric Extern</i>	Cognia, Inc.	2024 - Present
◇ Rescoring technology enhanced items (TEIs) and STEM responses across grades 3-11 to evaluate precision and bias of scoring algorithms		
◇ Initiated use of psychometric framework to refine TEI development with content standards, improve validity, and maximize cost-benefit to traditional selected-response items		
<i>Assessment Reviewer</i>	Innovative Assessment Solutions, LLC. (IAS)	2022 - Present
◇ Audited over 1,000 TEIs in reading (ELA), mathematics, science, and social studies for state standardized field testing to quality control and minimize operation errors		
◇ Forecasted psychometric and statistical considerations for operational item and exam performance with answer simplification, alternative solutions, and item dependency		
<i>Psychometrician / Statistician Consultant</i>	Cassandra Griger, Sole Prop.	2021 - Present
◇ National Science Foundation, Discovery Research K-12 (DRL-1813760; PI: Yasemin Copur-Gencturk, University of Southern California): <i>Usable Measures of Teacher Understanding: Exploring Diagnostic Classification Models and Topic Analysis as Tools for Assessing Proportional Reasoning for Teaching</i>		
◇ Evaluated pre-service teacher's language and knowledge patterns in proportional reasoning with topic models to validate formative measure of professional development		
◇ Optimized script automation with applied iterative coding, achieving an 83% reduction in time per item from 60 to 7 minutes when running unsupervised topic models		
◇ Mentored remote research assistants with video and written communication on data structures, quantitative analysis and qualitative analysis, and statistical analysis		

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- ◇ Joan Herman and Richard Rasiej Mathematics Initiative (PI: Yasemin Copur-Gencturk, University of Southern California)
 - ◇ Consulted cross-functional work on identifying gender and racial bias in teacher's procedural and conceptual feedback to stimuli featuring diverse student's written work using LICW (Linguistic Inquiry and Word Count) dictionary with supervised and unsupervised latent Dirichlet allocation (LDA) models

RESEARCH EXPERIENCE

ⁱ University of Iowa; ^d Duquesne University; ^c Carnegie Mellon University

Research Assistant | Quantitative Methods Lab, Jonathan Templin, Ph.D.ⁱ 2021 - Present

- ◇ Evaluating algorithm efficacy of an item-level Computer Adaptive Test (CAT) with routing stage to decrease test time and increase precision with item response theory (IRT) scoring
- ◇ Curating instructional material on growth modeling with multidimensional, school readiness data to educate education stakeholders on statistical methods for district-wide data
- ◇ Assembled mixture models for designing an effective routing stage of a two-stage Multi-stage Test (MST) to establish classification accuracy based on controlled test constraints

Research Assistant | Neuropsychology Lab, Ara Schmitt, Ph.D.^d 2018 - 2020

- ◇ Conducted systematic review for mapping pediatric chronic illness with neuropsychoeuducational domains to identify performance differences and prevalence of empirical evidence
- ◇ Validated efficacy of text-to-speech and speech-to-text assistive technology software programs on 4th - 9th grade reading passages to inform treatment integrity of interventions

Research Assistantship | Sports Concussion Lab, Erica Beidler, Ph.D.^d 2017 - 2020

- ◇ Managed collection of cross-sectional concussion survey data of matched participants to understand relationship of concussion knowledge among parent-child dyads
- ◇ Supervised undergraduates' analysis of survey data to disseminate findings on PA school concussion care compliance and management protocols per Safety in Youth Sport Act

Lab Manager | Developmental Cognitive Lab, Robert S. Siegler, Ph.D.^c 2016 - 2018

Research Associate | Developmental Cognitive Lab, Robert S. Siegler, Ph.D.^c 2014 - 2016

- ◇ Maintained IRB protocols for Institute of Education Sciences (IES) funded experiments
- ◇ Collaborated with PI, post-doctoral fellows, and graduate students in assessment and coding scheme development to analyze students' conceptual and procedural strategy and errors on rational number arithmetic
- ◇ Recruited, established, and managed 7 public school district partnerships yielding 1700+ participants with abilities ranging from gifted students to students with learning disabilities
- ◇ Initiated partnership debriefing protocol in connecting results to classroom practice through consultation of instructional strategies for 4th-8th grade public school educators
- ◇ Initiated online consent that increased participant recruitment response rate by 30%

Research Associate | Simon Initiative's LearnLab, Kenneth Koedinger, Ph.D.^c 2013 - 2014

- ◇ Executed multi-year longitudinal intervention study of 371 students across 2 middle schools
- ◇ Investigated human-computer interactions via data mining techniques to discover learning patterns when using instructional scaffolding with cognitive tutors

GRANTS

Principal Investigator. *Developing and validating an adaptive neurocognitive assessment to screen elementary-aged school children susceptible to adverse childhood experiences (ACEs).* \$24,790 Total Cost. American Psychological Association (APA) & American Psychological Foundation (APF) Elizabeth Munsterberg Koppitz Child Psychology Graduate Student Fellowship. Submitted November 2023. Not accepted.

ENTREPRENEURIAL EXPERIENCE

Founder | AssessmentQuo, LLC. 2023 - Present

- ◇ Navigating technology transfer to facilitate public use of computerized measure to screen and identify children enduring adverse experiences and trauma
- ◇ Lead small team in development of comprehensive assessment database for educational stakeholder's early detection of learning disabilities and cognitive adversities in learners
- ◇ Advise in application of analytic tools to assist in personalized instruction and skill-building
- ◇ Secure incubator and small business funding to support talent acquisition and business expenses for developer needs in technology, security, and data

Founder | CassWoodCustoms, Sole Prop. 2018 - 2021

- ◇ Served the local Pittsburgh community in building custom wood furniture with mathematical measurement, CNC mill, laser cutter, and power tools at urban makerspace
- ◇ Developed and led 6-hour experiential sessions where students practice power tool safety and crafted their own cutting board out of live edge lumber

TEACHING EXPERIENCE

TA | Factor Analysis & Structural Equation Models, Lesa Hoffman, Ph.D. ⁱ 2024 Spring

- ◇ Support graduate students' development in latent variable modeling using R and MPLUS
- ◇ Lead formative assessment discussions that cover student responses and gaps in knowledge

TA | Clustered Multilevel Models, Lesa Hoffman, Ph.D. ⁱ 2023 Fall

- ◇ Supported graduate students' development in multilevel modeling using R, SAS, and Stata

Instructor | Psychological Testing, Duquesne University 2019 & 2020 Spring

- ◇ Delivered direct instruction to graduate-level counseling students with a focus on standardized tests, cognitive and achievement assessments, and personality and interest inventories
- ◇ Lectured principles of test theory and development, psychometric methodologies, and measurement interpretation using applications of clinical research and health services research

Academic Tutor | Law Clinic, Duquesne University 2020 Fall

- ◇ Contracted to provide academic interventions for a 3rd grade student involved in a social justice case law with a neighboring school district

WORKSHOPS

Griger, C. & Copur-Gencturk, Y. (2023, June). *Natural Language Processing (NLP) Data Techniques with Symbolic and Nonsymbolic Mathematical Language.* Workshop presented at the Discovery Research PreK-12 PI Meeting, Arlington, VA.

- ◇ Led data integrity workshop for 30 NSF Principal Investigators to demonstrate optimized preprocessing for symbolic and non-symbolic text using math-based constructed responses

CLINICAL EXPERIENCE

Cognitive Assessment	WPPSI-4, WISC-5, WJ-IV COG, UNIT-2, SB-5
Neuropsychological Assessment	NEPSY, D-KEFS
Achievement Assessment	WJ-IV ACH, WIAT-4
Adaptive / Behavioral Rating Scales	BASC-3, Conners-3, Vineland-3, ABAS-3
Speech / Language Tests	WJ-IV OL, SOLOM
Social Scales	SSIS, SRS
Personality / Projective Tests	MMPI-2, Rorschach-PAS, Thematic Apperception, Figure Drawings, Sentence Completion

Advanced Doctoral Practicum | Hampton Township School District | 280 Hours 2020 - 2021

- ◇ Conducted 8 end-to-end clinical evaluations and reports under supervision of licensed School Psychologist and special education law serving K-12 urban, public students
- ◇ Supervised two 2nd year practicum students' consultation and counseling cases and scaffolded case conceptualization to guide competency development

Integrated Practicum | Carlynton School District | 272.5 Hours 2019 - 2020

- ◇ Conducted 3 end-to-end clinical evaluations and reports under supervision of licensed School Psychologist and special education law serving K-12 urban, public students
- ◇ Consulted with educators and parents/guardians to implement interventions within the general classroom, special education settings, and home

Behavioral/Academic Intervention | Bethel Park School District | 43.75 Hours 2018 - 2019

- ◇ Evaluated K-5 students WITH functional behavioral assessment (FBA) and curriculum-based measurement (CBM) to support Response to Intervention (RtI) placement
- ◇ Provided academic interventions and counseling services to address case needs

PUBLICATIONS

- Tian, J., Leib, E. R., **Griger, C.**, Oppenzato, C. O., & Siegler, R. S. (2022). Biased problem distributions in assignments parallel those in textbooks: Evidence from fraction and decimal arithmetic. *Journal of Numerical Cognition*, 8(1), 73-88. <https://doi.org/10.5964/jnc.6365>
- Benno, M. T., **Griger, C.**, Tracy, B., Nayyar, A., Conaway, R. B., Franklin, K., & Schmitt, A. J. (2021). Mapping of pediatric chronic illness sequelae to inform evaluation planning. *Communiqué*, 50(2).
- Beidler, E., Schmitt, A. J., Matta, M., & **Griger, C.** (2021). Diagnosed and nondisclosed sport-related concussion: An exploratory comparison study by ADHD status in collegiate athletes. *Journal of Attention Disorders*, 26(4). doi: 10.1177/10870547211015432
- Matsuda, N., **Griger, C.**, Barbalios, N., Stylianides, G., Cohen, W. W., & Koedinger, K. R. (2014). Investigating the effect of meta-cognitive scaffolding for learning by teaching. In S. Trausen-Matu, K. Boyer, M. Crosby, & K. Panourgia (Eds.), *Proceedings of the International Conference on Intelligent Tutoring Systems* (pp. 104-113). Switzerland: Springer.

ACKNOWLEDGEMENTS

Methodological contributions to the following projects.

- McMullen, J., Hannula-Sormunen, M. M., Lehtinen, E., Siegler, R. S. (2021). Predicting adaptive expertise with rational number arithmetic. *British Journal of Educational Psychology*, 92(2), 688-706. doi: 10.1111/bjep.12471
- Braithwaite, D. W. & Siegler, R. S. (2020). Putting Fractions Together. *Journal of Educational Psychology*, 113(3), 556-571. doi: 10.1037/edu0000477
- McMullen, J., & Siegler, R. (2020). Spontaneous focusing on multiplicative relations and fraction magnitude knowledge. *Mathematical Thinking and Learning*, 1-9. doi:10.1080/10986065.2020.1816284
- Tian, J., Braithwaite, D. W., & Siegler, R. S. (2020). How do people choose among rational number notations? *Cognitive Psychology*, 123, 101333. <https://doi.org/10.1016/j.cogpsych.2020.101333>
- Tian, J., Braithwaite, D. W., & Siegler, R. S. (2020). Distributions of textbook problems predict student learning: Data from decimal arithmetic. *Journal of Educational Psychology*, 113(3), 516-529. doi: 10.1037/edu0000618

SELECTED CONFERENCE PRESENTATIONS

- Griger, C.**, Bediwy, A., & Templin, J. (2024, April). Evaluating Algorithm Efficacy of an Item-Level Computer Adaptive Test with Routing Stage. Paper will be presented at the National Council on Measurement in Education, Philadelphia, PA.
- Griger, C.**, & Templin, J. (2024, February). Replicability and Tutorial of School Readiness Profile and Growth Analyses. Paper will be presented at the National Association of School Psychologists, New Orleans, LA.
- Bediwy, A., **Griger, C.**, & Templin, J. (2023, April). Identifying Methods for Multistage Testing (MST) Routing with Mixture Modeling. Paper presented at the National Council on Measurement in Education, Chicago, IL.
- Nayyar, A., Conaway, B., Benno, M., **Griger, C.**, Tracy, B., & Schmitt, A. (2021, February). *Evaluation planning for pediatric chronic illnesses through neuro-psychoeducational sequelae mapping*. Poster presented at the National Association of School Psychologists, Virtual.
- Benno, M., **Griger, C.**, Tracy, B., Schmitt, A.J., & McCallum, E. (2019, August). *Accuracy of text-to-speech and speech-to-text assistive technology*. Poster presented at the American Psychological Association Annual Convention, Chicago, IL.
- Mostow, J., Weinberg, G., & **Griger, C.** (2014, July). *What's the difference? Linguistic model comparison using bayesian knowledge tracing*. Poster presented at Simon Initiative's LearnLab Summer School: Educational Data Mining, Carnegie Mellon University, Pittsburgh, PA.
- Matsuda, N., **Griger, C.**, Barbalios, N., Stylianides, G., Cohen, W. W., & Koedinger, K. R. (2014, June). *Investigating the effect of meta-cognitive scaffolding for learning by teaching*. Poster presented at the 12th International Conference on Intelligent Tutoring Systems, Honolulu, HI.

SERVICE

- 2024** *Panelist* | NSF NIER Graduate Student Incubator
2023 *Chair* | Graduate Measurement & Statistics Student (GMASS)ⁱ
2022 *Co-Founder* | E.F. Lindquist Chapter of AERAⁱ
Co-Editor | Educational Measurement and Statistics Handbookⁱ
Social Chair | Graduate Measurement & Statistics Student (GMASS)ⁱ
2019 *Volunteer Chair* | Student Affiliates in School Psychology (SASP)^d
2018 *Co-Curator* | Conference on Rational Numbers^c
2017 *Co-Curator* | K-8 In-Service Professional Development, Bethel Park School District^c
2016 *Discussion Facilitator* | BrainHub's Neurons to Neighborhoods Community Outreach Event^c

AWARDS

- 2024** College of Education Scholarship (\$4,000)ⁱ
Graduate College Post-Comprehensive Fellowship (\$10,500)ⁱ
Graduate College Summer Fellowship (\$5,000)ⁱ
Blommers-Hieronymus-Feldt Fellowship (\$2,000)ⁱ
NSF NIER Graduate Student Incubator (\$250)ⁱ
2023 OVPR Limited Submission (University Representative)ⁱ
Fellowship Incentive Program (FIP)(\$250)ⁱ
Office of the Dean Graduate Student Travel Award (\$300)ⁱ
Audrey Qualls Travel Award (\$300)ⁱ
2022 AERA Cognition and Assessment SIG Conference Scholarship (Registration Covered)