MATT J. DAVIDSON

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EDUCATION		
	Doctoral Student, Measurement and Statistics, *College of Education, University of Washington* Advisor: Dr. Min Li	Sep 2017 –
	Master of Education, Learning Sciences, *College of Education, University of Washington* Advisor: Dr. Virginia W. Berninger Thesis: Thinking Aloud before Composing: Effects of Oral Production of Ideas and Plans for Writing on Essays	Jun 2014
	Bachelor of Arts, History, Philosophy, and English, *College of Liberal Arts, University of Texas*	Dec 2007
	Certification Massachusetts Preliminary Teacher Certification, English 8-12	Feb 2015
	Workshops National Assessment of Educational Progress (NAEP) Data Training Workshop, *Washington, D.C.*	Jun 2018
	International Baccalaureate Theory of Knowledge Category 1, *GEMS World School, Singapore*	Feb 2016
	International Baccalaureate Psychology Category 1, *Online*	Apr 2016

RESEARCH EXPERIENCE		
	Research Assistant, *University of Washington: Seattle, WA* Automatically Synthesizing Valid, Personalized, Formative Assessments of CS1 Concepts (NSF-1735123) PI: Dr. Amy J. Ko, The Information School Co-PI: Dr. Min Li, College of Education	Sep 2017 – Mar 2020

- Analyzed existing computer science assessments using psychometric methods like item response theory, confirmatory factor analysis, and generalizability theory
- Provided measurement guidance and expertise to the research group in concert with co-PI, such as choosing measurement models, methods for estimating student knowledge, and validation of automatically generated items
- Designed, proposed, and conducted think aloud study to explore student response processes for CS1 test items
- Actively collaborated with research group members on study designs, publications, and conference presentations

Psychometric Intern, *National Commission on Certification of Physician Assistants: Johns Creek, Georgia*   Jun 2019 –
Aug 2019

- Collaborated with psychometrics team to develop and explore research questions arising from new recertification exam format
- Investigated data from pilot recertification exam to assess whether model assumptions hold in a longitudinal context
- Learned how to fit and interpret multidimensional item response theory models with and without person-level covariates using flexMIRT 3.0
- Wrote and submitted proposal to NCME 2020 based on the substantive questions and preliminary findings
- Worked remotely to complete project and internship requirements under the guidance of mentor, Dr. Fen Fan

PUBLICATIONS
& CONFERENCE
PRESENTATIONS

Davidson, M.J., Fan, F. Dallas, D., Goodman, J., Weir, J.B. (2020, April). *Modeling Latent Ability Change in a Longitudinal Assessment: a MIRT Approach*. Accepted for presentation at National Council on Measurement in Education Annual Meeting, original location San Francisco, California.

Davidson M.J., Dong, D., Xie, B., Li, M., & Ko, A. (2019, April). *Exploring Item Difficulty in Assessments of Computer Programming with Cognitive Interviews*. Accepted for presentation at National Council on Measurement in Education Annual Meeting, Toronto, Ontario, Canada.

Xie, B., **Davidson, M.J.**, Li, M. & Ko, A. (2019, February). *An Item Response Theory Evaluation of a Language-Independent CS1 Knowledge Assessment*. Presented at the Association of Computing Machinery (ACM) Special Interest Group on Computer Science Education Technical Symposium, Minneapolis, Minnesota.

Xie, B., Loksa, D., Nelson, G.L., **Davidson, M.J.**, Dong, D., Kwik, H., Tan, A.H., Hwa, L., Li, M., & Ko, A.J. (2019). A Theory of Instruction for Introductory Programming Skills. *Computer Science Education*. https://doi.org/10.1080/08993408.2019.1565235

Davidson, M., Dong, D., Xie, B., Loska, D., Li, M., & Ko, A. (2018, June). *Assessing Programming Knowledge and Skills: A Theory-based Approach*. Presented at the International Test Commission, Montreal, Ontario, Canada

Davidson, M., & Berninger, V. (2016). Informative, Compare and Contrast, and Persuasive Essay Composing of Fifth and Seventh Graders: Not All Essay Writing Is the Same. *Journal of Psychoeducational Assessment*, *34*(4), 311-321.

Davidson, M., & Berninger, V. (2016). Thinking aloud during idea generating and planning before written translation: Developmental changes from ages 10 to 12 in expressing and defending opinions. *Cogent Psychology*, *3*(1), 1276514. https://doi.org/10.1080/23311908.2016.1276514

Hole, B., **Davidson, M.,** Keller, R.D., & Keller, R.D. (2014, April). *Transferring Principles of Metacognition and Alignment to Different Learning Environments*. Presented at the annual Symposium on Teaching and Learning, University of Washington, Seattle, Washington.

Davidson, M., Halpin, J., Zhao, Y., Shi, B., & Pahang, J. (2013, October). *Do-It-Together: Collaborative Group-Work with Second-Language Writers*. Presented at Pacific Northwest Writing Centers Association Annual Conference, Cornish College of the Arts, Seattle, Washington.

Halpin, J., **Davidson, M.**, & Zhao, Y. (2013, November). *"Who Are You?" (Oh, now what?): When Identity Cues Over-Determine Tutor Response*. Presented at National Conference on Peer Tutors in Writing, Tampa, Florida.

TEACHING EXPERIENCE

K-12

High School Teacher, Grades 9-12, *American International School Vietnam: Ho Chi Minh City, Vietnam*

Aug 2015 – Aug 2017

- Taught IB Psychology, IB Theory of Knowledge, AP Psychology, English 9, AP English Language
- Developed unit plans and daily lessons for all subjects based on the principles of Understanding By Design
- Analyzed statistical properties of assessment data to guide instructional choices and interventions
- Differentiated content, exams, and instruction for entirely English Language Learner international student population
- Facilitated and chaperoned service-learning trip to local city schools in Siem Reap, Cambodia

Classroom Instructor, Grades 4-9, *ACE Academy: Austin, TX*

Aug 2008 – Aug 2011

- Taught Social Studies 4th -9th, Philosophy and Logic 3rd-8th, Language Arts 4th-9th, Debate 7th-9th
- Designed and taught personalized, inquiry-based unit plans and daily lessons to meet the learning needs of gifted and twice exceptional students
- Collaborated with teachers and administration to create and implement new high school program
- Led effort to include Philosophy and symbolic logic instruction for all students
- Coached students for Texas Forensic Association debate competition

Postsecondary

Assistant Director, *Odegaard Writing and Research Center (OWRC): Seattle, WA*

Jul 2013 – Aug 2014

- Designed and facilitated workshops on topics such as the writing process, encouraging metacognition, and supporting English Language Learners
- Facilitated close staff connections through mentoring program, quarterly interviews, and community-building activities
- Established collaborative partnerships across university to facilitate discussion on English Language Learners and teaching and learning of writing
- Reviewed applications, interviewed applicants, and made hiring decisions
- Developed assessment and record-keeping procedures to evaluate current practices and plan for future growth

Teaching Assistant, *College of Education, University of Washington: Seattle, WA*

Sep 2013 – Sep 2014

- Conducted one-on-one meetings with College of Education students to provide feedback on writing process and written work
- Utilized respectful, responsive tutoring practices to foster strong cross-cultural relationships

- Collaborated with Student Services and faculty to assess students' writing needs in the College of Education
- Designed and facilitated workshops to address APA style, crafting thesis statements, and structuring essays

Writing Consultant, *Odegaard Writing and Research Center: Seattle, WA*

Aug 2012 – Aug 2014

- Employed a question-based approach to better understand students' goals and anxieties with writing
- Taught writers transferable strategies for writing to aid in their development as academic English writers
- Collaborated regularly with administrators and colleagues to ensure continued growth and reflection in tutoring practice

Tutor, Targeted Tutoring Program, *Odegaard Writing and Research Center: Seattle, WA*

Sep 2013

- Utilized culturally responsive pedagogy to lead international students in weekly meetings about writing assignments for composition courses
- Facilitated students' development of strategies for second language writing and acquisition of academic English proficiency
- Conducted qualitative research to analyze effects of using home language in discussions to make sense of concepts and assignments presented in English

Writing Consultant, *University of Texas Undergraduate Writing Center: Austin, TX*

Aug 2005 – Dec 2007

- Practiced non-directive peer tutoring methods to ensure writers' ownership of work and agency during consultation
- Assisted writers from numerous cultural and linguistic backgrounds on a variety of academic writing projects
- Developed grammar handouts with other writing center employees and piloted methods of using the handouts effectively in consultations

COMMUNITY ENGAGEMENT

Member, Design Use Build Group (DUB), *University of Washington: Seattle, WA*

Mar 2018 –

Data Team Member, *Academic Student Employees Union (UAW 4121), University of Washington: Seattle, WA*

Jan 2018

Model United Nations Sponsor, *American International School, Vietnam: Ho Chi Minh City, Vietnam*

Aug 2015 – Jun 2016

PROFESSIONAL AFFILIATIONS

American Education Research Association (AERA), Division D
National Council on Measurement in Education (NCME)
American Psychological Association (APA), Committee of Teachers of Psychology in Secondary Schools (TOPSS)
Special Interest Group in Computer Science Education (SIGCSE)

STATISTICAL COMPUTING

- R (tidyverse, modeling using lavaan, sem, ltm, eRm, mirt, rstan, lme4, survival, pscl, tile, simcf, TraMineR)
- *flex*MIRT 3.0
- HLM 7

- (ur)GENOVA
- *Mplus*
- Python (numpy, pandas, matplotlib, scikit-learn)

LANGUAGES

English: Native Language
Spanish: Novice Listening and Speaking, Intermediate Reading and Writing
French: Novice Listening and Speaking, Advanced Intermediate Reading and Writing
Vietnamese: Novice