

# MATT J. DAVIDSON

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EDUCATION	<b>Doctoral Student, Measurement and Statistics</b> , <i>College of Education, University of Washington</i> Advisor: Dr. Min Li	Sep 2017 –
	<b>Master of Education, Learning Sciences</b> , <i>College of Education, University of Washington</i> Advisor: Dr. Virginia W. Berninger Thesis: Thinking Aloud before Composing: Effects of Oral Production of Ideas and Plans for Writing on Essays	Jun 2014
	<b>Bachelor of Arts, History, Philosophy, and English</b> , <i>College of Liberal Arts, University of Texas</i>	Dec 2007
	<b>Certification</b> Massachusetts Preliminary Teacher Certification, English 8-12	Feb 2015
	<b>Workshops</b> National Assessment of Educational Progress (NAEP) Data Training Workshop, <i>Washington, D.C.</i>	Jun 2018
	International Baccalaureate Theory of Knowledge Category 1, <i>GEMS World School, Singapore</i>	Feb 2016
	International Baccalaureate Psychology Category 1, <i>Online</i>	Apr 2016
RESEARCH EXPERIENCE	<b>Research Assistant</b> , <i>University of Washington: Seattle, WA</i> 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 <ul style="list-style-type: none"><li>Analyzed existing computer science assessments using psychometric methods like item response theory, confirmatory factor analysis, and generalizability theory</li><li>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</li><li>Designed, proposed, and conducted think aloud study to explore student response processes for CS1 test items</li><li>Actively collaborated with research group members on study designs, publications, and conference presentations</li></ul>	Sep 2017 – Mar 2020

- Developed and independently explored 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 CSI 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 4<sup>th</sup> -9<sup>th</sup>, Philosophy and Logic 3<sup>rd</sup>-8<sup>th</sup>, Language Arts 4<sup>th</sup>-9<sup>th</sup>, Debate 7<sup>th</sup>-9<sup>th</sup>
- 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

	<ul style="list-style-type: none"> <li>Collaborated with Student Services and faculty to assess students' writing needs in the College of Education</li> <li>Designed and facilitated workshops to address APA style, crafting thesis statements, and structuring essays</li> </ul>	Aug 2012 – Aug 2014
	<p><b>Writing Consultant, Odegaard Writing and Research Center: Seattle, WA</b></p> <ul style="list-style-type: none"> <li>Employed a question-based approach to better understand students' goals and anxieties with writing</li> <li>Taught writers transferable strategies for writing to aid in their development as academic English writers</li> <li>Collaborated regularly with administrators and colleagues to ensure continued growth and reflection in tutoring practice</li> </ul>	Sep 2013
	<p><b>Tutor, Targeted Tutoring Program, Odegaard Writing and Research Center: Seattle, WA</b></p> <ul style="list-style-type: none"> <li>Utilized culturally responsive pedagogy to lead international students in weekly meetings about writing assignments for composition courses</li> <li>Facilitated students' development of strategies for second language writing and acquisition of academic English proficiency</li> <li>Conducted qualitative research to analyze effects of using home language in discussions to make sense of concepts and assignments presented in English</li> </ul>	
	<p><b>Writing Consultant, University of Texas Undergraduate Writing Center: Austin, TX</b></p> <ul style="list-style-type: none"> <li>Practiced non-directive peer tutoring methods to ensure writers' ownership of work and agency during consultation</li> <li>Assisted writers from numerous cultural and linguistic backgrounds on a variety of academic writing projects</li> <li>Developed grammar handouts with other writing center employees and piloted methods of using the handouts effectively in consultations</li> </ul>	Aug 2005 – Dec 2007
COMMUNITY ENGAGEMENT	<p><b>Member, Design Use Build Group (DUB), University of Washington: Seattle, WA</b></p>	Mar 2018 –
	<p><b>Data Team Member, Academic Student Employees Union (UAW 4121), University of Washington: Seattle, WA</b></p>	Jan 2018
	<p><b>Model United Nations Sponsor, American International School, Vietnam: Ho Chi Minh City, Vietnam</b></p>	Aug 2015 – Jun 2016
PROFESSIONAL AFFILIATIONS	<p>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) Association for Computing Machinery Special Interest Group in Computer Science Education (SIGCSE) Anita B.org</p>	
STATISTICAL COMPUTING	<ul style="list-style-type: none"> <li>R (tidyverse, modeling using lavaan, sem, ltm, eRm, mirt, rstan, lme4, survival, pscl, tile, simcf, TraMineR)</li> </ul>	

- *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