Hsiaolin Hsieh

Curriculum Vitae

May 2023

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Ms. Hsiaolin Hsieh is a doctoral candidate at the Stanford Graduate School of Education in the Developmental and Psychological Sciences program. Her research agenda addresses how to facilitate equitable opportunities and access to learning for bi/multilingual learners. Specifically, she uses natural language processing and computational linguistics to analyze complex student dialogic participations in the classrooms, for which she developed *LogoSearch*, an online repository to collect, archive, and evaluate student conversations to support research and teacher professional development opportunities. Formally trained in educational measurement and assessment, a great deal of her work focuses on the design, implementation, evaluation, and interpretation of tests used in the K-12 context and is useful in examining how educational technology can be leveraged to assist student learning. Her experience in quasi-experimental research supporting upper elementary students' literacy and reading comprehension equips her with the knowledge and skills for large-scale data collection and analysis. Through long-term, research-practice partnerships, she has supported school districts in identifying and removing barriers that limit English learners' equitable access to mathematics courses. Being a mix-methods researcher, she draws on both qualitative approaches (interviews, think-aloud, collaborative/independent coding, and classroom observations) and quantitative techniques (e.g., statistical modeling, natural language processing, and machine learning algorithms) to generate research findings and to present those findings using clear and creative graphical representations. Ms. Hsieh has worked with stakeholders in local educational systems, including teachers, instructional coaches, school and district administrators, and philanthropic foundations.

EDUCATION

Ph.D., Stanford University 2018-
Developmental and Psychological Sciences, Graduate School of Education
Certificate in Research Practice Partnership

M.A., Stanford University 2013
Learning, Design, and Technology, Graduate School of Education

M.A., National Central University, Taiwan 2009
English and American Literature

B.A., National Chengchi University, Taiwan 2005

Journalism

Diploma in Teaching Chinese as a Foreign Language, National Taiwan University, Taiwan   2011

GRANTS

"Probing with *LogoSearch*: Research on Equity and Fairness in Linguistically Diverse Classrooms." Recipient of Technology for Equity in Learning Opportunities (TELOS), $7,500 (Stanford, 2019)

Co-founder of "Learning, Assessment, Measurement and Analytics at Stanford (LAMAS)" Recipient of the GSE Community Organization Fund, $2,045 (Stanford, 2019) Recipient of the VPGE Student Projects for Intellectual Community Enhancement (SPICE) grant, $850 (Stanford, 2019)

PUBLICATIONS

Peer-Reviewed Articles

Levine, S., **Hsieh, H.**, Southerton, E., & Silverman, R. (2023). "How High School Students Used Speech-to-Text as a Composition Tool." *Computers and Composition, 68*, 102775.

Hsieh, H., Wiles, S., & Solano-Flores, G. (2023). "How different are English learners from their native English-speaking peers? Evidence of equivalent lexical competence in classroom conversations." *International Multilingual Research Journal*, 17(2), 87-106.

Biernacki, P. J., Altavilla, J., Kanopka, K., **Hsieh, H.**, & Solano-Flores, G. (2023). "Long-term English learners' mathematics course trajectories: downstream consequences of early remediation on college preparation." *International Multilingual Research Journal*, 17(2), 122-138.

Rutherford-Quach, S., Kuo, A., & **Hsieh, H**. (2018). "Understanding their language: Online professional development for teachers of ELLs," *American Educator*, 42(3), 27.

Silverman, R., Keane, K., **Hsieh, H.**, Southerton, E., Scott, R., & Brunskill, E. "Texting and tutoring: Effects on K-3 reading during the pandemic." [Manuscript submitted for publication].

Silverman, R., **Hsieh, H.**, Southerton, E., Keane, K., Scott, R., & Deutscher, R. "Supporting Reading in the Summer: Effects of Remote Tutoring and Family Text Messaging." [Manuscript submitted for publication].

Hsieh, H., Delaney, V., & Wiles, S. "Predicting the constructiveness of student-student classroom conversations: A comparison between human and machine learning approaches." [Manuscript in preparation]

Hsieh, H., & Solano-Flores, G. "A Recipe for Meaningful Classroom Discussions: Analyzing the Language Ecology in Peer Interactions." [Manuscript in preparation]

<u>Conference Papers</u>

Hsieh, H., Delaney, V., & Wiles, S. "Predicting the Constructiveness of Student-Student Classroom Conversations: An Exploratory Study on Uptake," American Educational Research Association (AERA), Chicago, 2023.

Hsieh, H. "Examining and Representing Middle-School Math Course Heterogeneity," American Educational Association (AERA), Chicago, 2023.

Hsieh, H., & Solano-Flores, G. "Understanding the What and How of English Learners' Language Use Through Classroom Conversations," American Educational Research Association (AERA), San Diego, 2022.

Hsieh, H., Wiles, S., & Solano-Flores, G. "Access to Learning: Examining Group Arrangements and English Learners' Language Use in Classrooms," American Educational Research Association (AERA), Florida (Virtual), 2021.

Southerton, E., Levine, S., & **Hsieh, H.** "How High School Students Responded to Speech-to-Text as a Composition Tool," American Educational Research Association (AERA), Florida, 2021.

Southerton, E., **Hsieh, H.**, & Wilsey, M. ""Who am I?": An Exploration of Student Identity through Unsupervised Learning on Poems Written by Middle Grade and Secondary Students from Diverse and Low-Socioeconomic Status Schools," 9th International Conference on Education and Social Justice, Hawai'i, 2019.

Rutherford-Quach, S., Zwiers, J., & **Hsieh, H.** "What Can We Learn? Insights and Challenges Related to Data Generated from Professional Development Courses Focused on Student Language Use", *American Educational Research Association* (AERA), New York City, 2018.

Williams, B., & **Hsieh, H.** "Teams of Learners in a Teacher Professional Development MOOC," *American Educational Research Association* (AERA), Chicago, 2015.

Technical Reports

Solano-Flores, G. (P.I), Martínez, R. A. (P.I), Biernacki, P. J., **Hsieh, H.**, Nalbandyan, R., Siebert, J., & Melgarejo, V. (2022). *Comprehensive analysis of systemic practices and individual critical events in mathematics instruction and assessment of English learners. Year 5 (2021-2022) Report.* September 28. Stanford, CA: Stanford University and Stanford-Sequoia K-12 Research Collaborative.

Solano-Flores, G. (P.I.), Valdés, G. (P.I.), Altavilla, J. M., Biernacki, P. J., Cabral, B., **Hsieh, H.**, Melgarejo, V., Nalbandyan, R., Siebert, J., Stepter, C., & Taube, J. (2021). *Systemic practices and individual critical events in elementary and middle school mathematics instruction and assessment for English learners. Year 4 (2020-2021) Report.* June 30, Stanford, CA: Stanford University and Stanford-Sequoia K-12 Research Collaborative.

Solano-Flores, G. (P.I.), Valdés, G. (P.I.), Altavilla, J. M., Biernacki, P., Cabral, B., **Hsieh, H.**, Kanopka, K., Melgarejo V., Siebert, J., & Stepter, C. (2020). *Long term English language learners (LTELs): Policy and practice implications of a new category. Year 3 (2019-2020) Report: Cohort analysis and case studies.* September 24, Stanford, CA: Stanford University and Stanford-Sequoia K-12 Research Collaborative.

Other Conference and Workshop Presentations

"The Tri-District Partnership: Supporting Policy and Practice for Long-Term English Learner Instruction & Assessment" presented at the K-12 Research Collaborative Annual Meeting (Stanford, 2022)

"'Who am I?': An Exploration of Student Identity Through Unsupervised Learning on Poems Written by Middle Grade and Secondary Students from Diverse and Low-Socioeconomic Status Schools", presented at SWAYWO (Stanford, 2019)

"Blended Learning & Teacher Professional Development," presented at *Teaching with Technology Workshop: VPTL Grant* (Stanford, 2017)

"MOOC-based Professional Development: Learning the Language," presented at *MOOCs in Teacher Professional Development* (National Geographic, 2014)

"Collaborative MOOCs for Teacher Professional Development," presented at *Human Subjects' Protections in the Digital Age: IRB, Privacy and Big Data* (GMU, 2014)

"MOOCs as Collaborative Tools to Support Teacher Learning," presented at *Pacific Neighborhood Consortium Annual Conference and Joint Meetings* (Taipei, 2014)

"MOOCs as Collaborative Tools to Support Teacher Learning," presented at *Learning with MOOCs* (MIT, 2014)

<u>Digital Humanities Publications in Chinese</u>

[Chinese Classics Full-text Database Digitization Procedures and Guidelines] 漢籍全文數位化工作流程指南. Taipei: Taiwan E-learning and Digital Archive Program 數位典藏與數位學習國家型科技計畫, 2011. ISBN: 978-986-02-8253-5 [co-authored in Chinese with Ya-ping Wang]

[Chinese TEI – A guide to using TEI with Chinese texts] TEI 使用指南: 運用 TEI 處理中文文獻, ed. 馬德偉 a.k.a. Marcus Bingenheimer. Taipei: Taiwan E-learning and Digital Archive Program 數位典藏與數位學習國家型 科技計畫, 2009. ISBN: 978-986-01-8092-3 [co-translated into Chinese with Weining Wang and Hsi-chin Jung] *This is the Chinese localization of the Text Encoding Initiative (TEI) markup standard.*

[Illustration of Digitization Procedures: Chinese Full Text] 數位化工作流程圖文說明:漢籍全文主題小組. Taipei: National Digital Archive Program 數位典藏國家型科技計畫, 2006.

RESEARCH ACTIVITIES

"Examining Diagnostic Practices and Disseminating Knowledge on Course-Taking Paths in Support of English Learners." PI: Guillermo Solano-Flores. Sponsored by the Stanford-Sequoia K-12 Research Collaborative, 2022-

"Ravenswood Reads." PIs: Rebecca Silverman, Emma Brunskill, and Renee Scott. Partnered Stanford's Haas Center for Public Service with the Graduate School of Education and the Ravenswood City School District, 2022-

"Evaluating the Efficacy of the CLAVES Intervention: An Intervention Focused on Comprehension, Academic Language, and Vocabulary for English Learner Students." PIs: Rebecca Silverman, Patrick Proctor, and Jeffrey Harring. Sponsored by the Institute of Education Sciences, 2021-

"Trans-Semiosis and Fairness in the Design of Testing Accommodations/Accessibility Resources for Students with Special Needs." PIs: Guillermo Solano-Flores and Ramon Martinez. Sponsored by Stanford Transforming Learning Accelerator, 2021-2022

"The Tri-District Partnership: Supporting Policy and Practice for Long-Term English Learner Instruction & Assessment." PIs: Guillermo Solano-Flores and Ramon Martinez. Sponsored by the Stanford-Sequoia K-12 Research Collaborative, 2019-2022

"Semiotic Analysis of Test Items (SATI)." PI: Guillermo Solano-Flores. Collaborated with the Center for Interdisciplinary Digital Research (CIDR) at Stanford Libraries, 2020-2021

"Exploring Writing and Technology Across Grade Levels." PIs: Sarah Levine and Rebecca Silverman. Sponsored by Technology for Equity in Learning Opportunities (TELOS) at Stanford University, 2019-2020

"Development of a Searchable Repository of Language-Based Interactions: A Tool for Research on Equity and Fairness in Linguistically Diverse Classrooms." PI: Guillermo Solano-Flores, Sponsored by Technology for Equity in Learning Opportunities (TELOS) at Stanford University, 2016-2017

PREVIOUS EMPLOYMENT

2013 - 2018 (internship between April 2013 -Aug 2013)
Director of Technology, Data, and Systems: Understanding Language Initiative, Stanford University

- Responsible for MOOC production and management (curriculum design, video production, operating platforms and courses, data management, IP licensing), and directing the research and development of course-related databases and applications, and grant proposal writing.

- Developed and managed about 30 offerings of MOOCs and 11 learning modules.

I led the research and development of a classroom discourse platform (*LogoSearch*) which collects and provides thousands of real-life student-to-student dialogues for researchers and practitioners to improve teaching and learning. I was engaged in and responsible for projects supporting our educator PD program (Hewlett Foundation; Gates Foundation); in translating College-and-Career Ready standards into classroom applications (Smarter Balanced Assessment Consortium; ELPA21 Consortium); in linguistic research (Education Testing Services (ETS); TELOS); in employing micro-credentials to enrich adult learning opportunities (Carnegie Corporation of New York; Digital Promise); and in developing educator leadership in the K-12 system (WestEd). In this role I had the opportunity to accumulate a wealth of skills and experience in a wide variety of learning contexts supporting K-12 educators.

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2010-2012

Primary Liaison and Organizing Officer for the Fourth International Conference on Sinology: Academia Sinica, Taiwan

- Planning of the program and schedule, managing the conference information system, budget control, and overseas and domestic liaison and communications.

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2007-2009 (part-time while studying for an M.A.)

Project Coordinator and translator for the TEI Localization Project: Academia Sinica, Taiwan

- Full Chinese localization of the TEI/XML standard, published in 2009 with Weining Wang and Hsi-chin Jung, edited by Marcus Bingenheimer.

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2005-2006

Research Assistant of the National Digital Archives Program (subsequently the Taiwan E-Learning and Digital Archives Project): Academia Sinica, Taiwan

- Published Chinese Classics Full-text Database Digitization Procedures and Guidelines; organized and interpreted at TEI workshops.

SKILLS

- Experience with mixed methods research approaches in educational settings (including, focused group, survey design and analysis, qualitative coding, quasi-experimental research design, statistical modeling, text mining, natural language processing, and machine learning).

- Statistical analysis and text mining (R and Python).

- Grant proposal writing and project management.

- Knowledge of intellectual property, licensing, research, and IRB clearance issues, especially with regard to the production, administration, and management of online learning materials and to working with minors.

- Expertise with Learning Management Systems (LMS), Drupal, and related technologies.

- Expertise with TEI/XML mark-up and associated technologies, and varying familiarity with computer programming languages (including HTML and CSS, Python etc.) and technology stacks.

- A broad range of multimedia skills, including digital content production, website management, traditional and digital photography, and computer graphics.

LANGUAGES

- Fluent English

- Native Mandarin, Taiwanese, and Hakka (my mother tongues)

- Intermediate Japanese

SELECTED GENERAL EXPERIENCE

- Conference and Workshop organizing, including a major international conference in Sinology at Academia Sinica in Taipei, and a series of international workshops on TEI as part of the TEI Chinese Localization Project and TELDAP (Taiwan E-Learning and Digital Archives Project, a major Government-funded project to promote digital education and research in Taiwan).

- Teaching Chinese and English as second languages, both in classroom and private-tutoring environments.

- Learning games design and play-testing (intern for Kidaptive, Inc., 2012).

- Many years as a freelance writer, journalist, and graphic artist (in Chinese), including regular contributions to *The Humanistic Education Journal* (Taipei) and a long-running illustrated column in the *China Daily News.*

- Editorial and research assistantships (including at Taiwan's National Central University, and for the East-Asian poetry journal *Full-Tilt*, 2007-2009).

- Extensive experience as a translator and interpreter, including freelance work for (then-) President Ma Ying-Jeou of Taiwan, the respected literary journal *The Chinese PEN*, and internationally renowned film director Tsai Ming-liang.