Anthony Schmidt

Data Science and Applied Research

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Curriculum Vitae
September 2023

Professional Appointments

2021-present	**Senior Data Scientist**	Remote/Brooklyn, NY
	Amplify Education	
2019-2021	**Data Visualization Researcher**	Knoxville, TN
	College and University Professional Association for Human Resources (CUPA-HR)	
2014-2019	**Teaching Associate**	Knoxville, TN
	English Language Institute, University of Tennessee	
2012-2014	**English Language Instructor**	Busan, South Korea
	Department of English Language and Literature, Pukyong National University	

Education

2022	**PhD, Educational Psychology and Research**	Knoxville, TN
	University of Tennessee, Knoxville	

- Concentration: Evaluation, Statistics, and Methodology
- Minor: Statistics and Data Science
- Dissertation: Science Education to the Rescue? Assessing the Relationship Between Scientific Literacy and Carbon Emissions

2011	**MSEd, Language, Literacy, and Cultural Education**	Bloomington, IN
	Indiana University, Bloomington	

- Concentration: TESOL

2006	**BA, Anthropology**	Tampa, FL
	University of South Florida	

Professional Research Experience

2021-present — Embedded Assessment
Amplify Education

- Collaborated on the development of a logistic knowledge tracing (LKT) model to provide ongoing insights to teachers regarding students' math abilities.
- Onboarded research team to our math data, created datasets for model fitting, built a custom cross-validation function, and built a custom AWS Lambda workflow in python that places the model into production.

2021-present — Closing the Loop
Amplify Education

- Built an automated quarterly report that flagged math items for further review. This report provided psychometric measures to assist the math content team in revising difficult or otherwise problematic student-facing math content. Measures included item difficulty, item discrimination, readability, and isolation forest scores. This has led to improvements in item quality and changes in authoring practices to avoid certain issues highlighted by the reports.

2023 — Cross-Product Licenses and Product Usage
Amplify Education

- Examined the relationship between users who are licensed to multiple Amplify products and their product usage behaviors using mixed zero-inflated models. This research highlighted to complex interplay between student and teacher roles, products, and district sizes.

2023	**Teacher Comment Analysis**
	Amplify Education

- Examined the use of teacher comments on student work and provided descriptive statistics, n-gram analysis, sentiment analysis, and topic models to teams responsible for implementing this feature. This research will be used to shape the development of future feedback tools, including AI-based feedback prompts.

2022	**Math Impact Analysis**
	Amplify Education

- Led a project using mixed models to examine the usage of our math product and its relationship to our math assessments. This helped stakeholders understand how the product was being used by teachers and its potential impact on learning.

2021	**Minority-Serving Institutions**
	CUPA-HR

- Used internal CUPA-HR salary data combined with IPEDS, IPUMS, and other secondary data sets to examine salary and diversity at Minority-Serving Institutions.

Graduate Research Experience

2022	`mlmhelpr`
	University of Tennessee, Knoxville

- Co-developed an R package to provide helper functions for researchers fitting multilevel models.

2021	**Sustainable Energy Working Group**
	Office of Sustainability, University of Tennessee, Knoxville

- Lead the development and implementation of a large, university-wide survey. Lead design, sampling, and analysis. Click here to view nteractive dashboard.

2021-2022	**Air Travel Research**
	Office of Sustainability, University of Tennessee, Knoxville

- Analyzed carbon footprint of UTK faculty from air travel. Provided predictive analyses on how various university climate policies could mitigate greenhouse gas emissions from air travel.

2020 Fall	**Applied Statistics III**
	University of Tennessee, Knoxville

- Developed educational materials on learning R for data cleaning, data analysis, and advanced statistics. Offered R office hours to help students learn and troubleshoot R.

2020-2021	**Twitter and Data Visualiuzation**
	University of Tennessee, Knoxville

- Conducted social media research through text mining, twitter analytics, and survey develpment. Used planned missing data designs, imputation, and modeling for analysis.

2020 Summer	**R Handbook for ESM Students**
	University of Tennessee, Knoxville

- Developed a handbook to learn R, tailored to evaluation, statistics and measurement students. Available at https://bookdown.org/aschmi11/RESMHandbook/

2019-2020	**Planting the Seeds for Computer Science**
	University of Tennessee, Knoxville

- Needs analysis for the creation of professional development sessions to introduce new K-8 computer science standards. Work included survey design, analysis, and reporting.

Software

Schmidt, A. (in progress). *tidyctt* [R package].

Janda, K., Gamble, H., Lama, T., Crane, S., **Schmidt, A.** (2023). *amplifyR* [Internal R package].

Rocconi, L. & **Schmidt, A.** (2022). *mlmhelpr* [R package]. https://cran.r-project.org/web/packages/mlmhelpr/index.html

Schmidt, A. & Kulma, K. (2020). *footprint: Calculate air travel emissions* [R package]. https://cran.r-project.org/web/packages/footprint/index.html

Publications

Peer Reviewed Journal Articles

Schmidt, A. (2022). University air travel and greenhouse gas mitigation: an analysis of higher education climate policies *International Journal of Sustainability in Higher Education.* https://www.emerald.com/insight/content/doi/10.1108/IJSHE-07-2021-0318/full/html?skipTracking=true

Schmidt, A. (2020). Are international students getting a bang for their buck? The relationship between expenditures and international student graduation rates. *Journal of International Students.* 10(3). 10.32674/jis.v10i3.1279

Schmidt, A. (2016). Listening journals for extensive and intensive listening practice. *English Teaching Forum.* 54. https://eric.ed.gov/?id=EJ1104020

Pre-Prints and Unpublished Manuscripts

Schmidt, A. & Rocconi, L. (2021). *STARS and stripes: Political and institutional factors that affect higher education sustainability ratings.* EdArXiv. https://doi.org/10.35542/osf.io/d5bku

Schmidt, A. (2021). *Comparing intensive English program (IEP) and directly-admitted international students' academic achievement.* EdArXiv. https://doi.org/10.35542/osf.io/vm37t

Book Reviews

Schmidt, A. (2021). Review of the book International students in first-year writing: A journey through socio-academic space, by M. Siczek *Journal of International Students.* 9(3). https://doi.org/10.32674/jis.v0i0.907

Technical Reports

Schmidt, A. (2022, Febraury). *The representation of women and racial/ethnic minorities in the workforce of minority-serving higher education institutions* [Research report]. CUPA-HR. https://www.cupahr.org/surveys/research-briefs/women-minorities-msi-workforce-february-2022/

Schmidt, A., & Jones, S. N. (2021, September). *Sustainabe energy attitudes report* [Research report]. University of Tennessee, Knoxville. https://acircleda.shinyapps.io/SustainableEnergySurvey

Pritchard, A. & **Schmidt, A.** (2020, July). *The Higher Ed HR Workforce* [Research report]. CUPA-HR. https://www.cupahr.org/surveys/research-briefs/

Bichsel, J., McChesney, J., & **Schmidt, A.** (2019). *Focus on psychology faculty: Salaries, pay equity, minority representation, and the growth of non-tenure-track faculty* [Research report]. CUPA-HR. https://www.cupahr.org/surveys/research-briefs/

Nadel, S., **Schmidt, A.**, & Bichesel, J. (2019). *The impact of the FSLA overtime rule on higher education* [Research report]. CUPA-HR. https://www.cupahr.org/surveys/research-briefs/

Schmidt, A., Rocconi, L., Morrow, J. A., Berry, B. (2019). *College of Architecture and Design's undergraduate advising 2019 report* [Research report]. Evaluation, Statistics, and Measurement (ESM) Program Research Group.

Morrow, J. A., Rocconi, L., Butler, B., & **Schmidt, A.** (2019). *University of Tennessee's undergraduate advising 2019 evaluation end of year report* [Research report]. Evaluation, Statistics, and Measurement (ESM) Program Research Group.

Conference Papers and Presentations

International/National Conferences

Schmidt, A. (2021, October). *University air travel and GHG mitigation: An analysis of higher education climate policies* [Paper presentation]. Global Conference on Sustainability in Higher Education.

Schmidt, A. & Rocconi, L. (2021, August). *From click to code: Insights from instructors and students on moving from SPSS to R in a graduate-level applied statistics course* [Paper presentation]. Joint Statistical Meetings.

Schmidt, A. (2020, September). *Principles and practices for great data visualization* [Conference session]. CUPA-HR Annual Conference.

Rosenberg, J., **Schmidt, A.**, Rosenberg, A., Longnecker, J., & Mann, M. (2020, June). *Becoming Tidier Over Time: Studying #tidytuesday as a Social Media-Based Context for Learning to Visualize Data* [Paper presentation]. International Society of the Learning Sciences. https://repository.isls.org/handle/1/6455.

Schmidt, A. (2019, October). *A comparison of direct admit and IEP student academic achievement* [Paper presentation]. TESOL International Conference, Atlanta, Georgia.

Schmidt, A. (2017, March). *Off course: A comparison of university and EAP coursebook writing tasks* [Paper presentation]. TESOL International Conference, Seattle, Washington.

Regional Conferences

Rosenberg, J. M., Hodge, L., Aydeniz, M., **Schmidt, A.**, Lishinski, A., Rich, K., Longnecker, J., Mann. M., & Sadovnik, A. (2020, January). *A survey of teachers and administrators regarding the implementation of new K-8 computing education standards in Tennessee* [Paper presentation]. 14th Annual Tennessee STEM Education Research Conference, Cookeville, Tennessee.

Schmidt, A. (2016, October). *Academic reading circles* [Conference session]. Southeast TESOL Regional Conference, Louisville, Kentucky.

Schmidt, A. (2016, May). *Principled washback: Integrating test prep to foster academic skills* [Conference session]. Toronto TESOL Conference, Toronto, Canada.

Schmidt, A. (2016, February). *Academic reading circles and collaborative meaning construction* [Conference session]. GATESOL IEP Mini-Conference, Atlanta, Georgia.

Schmidt, A. (2015, October). *Audio diaries for improved spoken grammatical accuracy and pronunciation* [Conference session]. Southeast TESOL Regional Conference, New Orleans, Louisiana.

Poster Presentations

Schmidt, A. (2020, March). *Becoming "tidyr" over time: Data visualization development in an online community of practice* [Poster presentation]. University of Tennessee, Knoxville College of Education, Health, and Human Sciences Graduate Research Colloquium.

Schmidt, A. (2019, March). *A comparison of direct-admit and IEP undergraduate international student achievement* [Poster presentation]. University of Tennessee, Knoxville College of Education, Health, and Human Sciences Graduate Research Colloquium.

Schmidt, A. & Chitty, E. (2018, May). *Making history: Supporting language through content in intensive English programs* [Poster presentation]. NAFSA Annual Conference, Philadelphia, Pennsylvania.

Campus & Department Talks

Schmidt, A. (2020, October). *University air travel and GHG mitigation: Examining institutional policies through the lens of #flyingless* [Invited presentation]. Committee for the Campus Environment, University of Tennessee, Knoxville.

Schmidt, A. & Chitty, E. (2018, March). *Teaching international students: Improving learning for all.* [Workshop]. Teaching and Learning Innovation, University of Tennessee, Knoxville.

Schmidt, A. (2016, November). *Intensive reading for learner engagement.* [Conference session]. Re-Imagine: Teaching and Learning Innovation Symposium, University of Tennessee, Knoxville.

Invited Talks

Schmidt, A. (2018, March). *Two hot topics in OLL research: Corpus linguistics and telecollaboration* [Webinar]. OLLReN, Cambridge University Press.

Professional Workshops, Webinars, and Trainings

Schmidt, A. (2020, December). *Research Skills Lab: Data Visualization Basics* [Workshop]. CUPA-HR.

Schmidt, A. (2020, October). *Data Visualization in R* [Workshop]. Fall 2020 Evaluation, Statistics, and Measurement seminar, University of Tennessee, Knoxville.

Pritchard, A. & **Schmidt, A.** (2020, September). *Snapshot of the higher ed HR workforce* [Webinar]. CUPA-HR.

Schmidt, A. (2020, April). *Tableau training: Building your first dashboard* [Workshop]. Spring 2020 Evaluation, Statistics, and Measurement seminar, University of Tennessee, Knoxville.

Teaching Experience

Full-Time Experience

2014-2019	**English Language Institute, University of Tennessee** Teaching Associate • Courses (non-credit): Grammar, Reading, Writing, Listening/Speaking • Levels: Beginner to Advanced	Knoxville, TN
2012-2014	**Department of English Language and Literature, Pukyong National University** English Language Instructor • Undergraduate (3-credit): Intermediate Composition, Advanced Composition, Lower-Intermediate Conversation, Upper-Intermediate Conversation • Graduate (2-credit): TESOL Methodology, Pronunciation for TESOL Teachers	Busan, South Korea

Other Teaching Experience

2023 Spring	**University of Tennessee, Knoxville** Clinical Instructor • Designed syllabus and course materials to teach Data Visualization in R as part of the Educational Data Science Graduate Certificate	Knoxville, TN
2021 Spring	**University of Tennessee, Knoxville** Graduate Teaching Assistant • Designed materials to teach R for Applied Statistics III	Knoxville, TN
2018 (Summer)	**Southeast University** Visiting Instructor, Department of Foreign Languages • Course: Cross-Cultural Communication (1 credit, undergraduate)	Nanjing, China
2012-2014	**Samsung Electronics/Pukyong National University** English Language Instructor • Course: English Communication (3 credits, Intercultural Communication Undergraduate Program)	Busan, South Korea
2010-2012	**Yangun Middle School** English Teacher	Busan, South Korea
2009	**Tsukuno Junior High School** English Teacher	Osaka, Japan
2007-2009	**Daicheong Middle School** English Teacher	Busan, South Korea

Teacher Training Experience

2012	**Pukyong National University** In-Service Secondary School Teacher Trainer • National English Ability Test (NEAT) Writing Composition Training Program	Busan, South Korea
2010-2012	**Busan Education Training Institute** In-Service Primary School Teacher Trainer	Busan, South Korea

Awards and Honors

2022	**Hackathon Winner: "A Day in the Life" Shiny App** Amplify Education	
2020	**Friends of Educational Psychology and Counseling Research Grant** University of Tennessee	$400
2020	**Graduate Student Colloquium Travel Award for Best Poster** University of Tennessee	$250

2019	**Graduate Student Senate Travel Award**	$780
	University of Tennessee	
2018	**Diversity Professional Development Fund for Staff**	$1,000
	University of Tennessee	
2018	**Travel Fund**	$500
	Tennessee Association of International Educators	
2017	**Travel Grant for IEP Instructors**	$1,500
	University of Pittsburgh	
2012	**Teaching Excellence Award**	$300
	Pukyong National University, Department of Humanities	

Skills

Languages	R, SQL, Python
Infrastructure	Git/Github, Snowflake, dbt, AWS
Data Visualization	R, Shiny, Tableau, Looker, Figma, Illustrator
Statistical Skills	Real-World Experience: Gaussian and non-gaussian regression modeling, MLM, machine learning, outlier analysis, logistic knowledge tracing, CFA, CTT, IRT, survey weighting, multiple imputation
	Training In: SEM, propensity score matching, causal inference, MLOps
Other Computer Languages	HTML, CSS, Javascript (basic)
Other Software	SPSS, Audacity, TinkerCAD
Natural Languages	English (native), French (intermediate), Korean (basic)
Other Skills	R Package Development, Agile, Notion

Current Memberships

- American Educational Research Association
- American Statistical Society
- American Associate for Public Opinion Research

Notes

This CV is reproducible. All the source code behind this CV is available on my Github repo.