

YALE QUAN

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EDUCATION

- Exp. Jun 2026 **Ph.D. Measurement & Statistics**
College of Education
University of Washington. Seattle WA
Advisor: Chun Wang, Ph.D.
- Dec 2020 **M.S. Applied Statistics**
College of Natural Sciences and Mathematics
California State University, Long Beach. Long Beach CA
Committee: Sung Eun Kim Ph.D. (Chair), Kagba Suaray Ph.D., Jen-Mei Chang Ph.D.,

Thesis Title: A Multivariate Statistical Analysis of Major Change Patterns and Significant Factors That Influence Graduation Rates: A Case Study at California State University, Long Beach
- May 2013 **B.S. Criminal Justice**
College of Health and Human Services
California State University, Long Beach. Long Beach CA
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INTERESTS

As an educator and researcher, I have a passion for ensuring that assessments provide equitable high-quality measurement. With this objective in mind, my primary research area surrounds the development and interpretation of multidimensional nonlinear latent variable models with a focus on ensuring equitable measurement of key educational constructs across non-equivalent groups. My substantive research focuses on the intersection of psychometrics and effective instructional decision making. I have a solid understanding of various statistical modeling approaches and proficiency in implementing them using R. I excel in effectively communicating research results to diverse audiences through compelling visualizations and establishing actionable and insightful connections.

AWARDS/HONORS

- 2022-2025 **Community Partner Doctoral Three-Year Fellowship Award,**
College of Education, University of Washington. Seattle WA
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PROFESSIONAL TRAININGS AND CERTIFICATIONS

- 2024 **Data Science Methods for Digital Learning Platforms Certification**
University of Pennsylvania. Philadelphia, PA
- 2023 **The National Assessment of Educational Progress Winter Data Training**
American Institutes for Research. Arlington VA
- 2020 **National Assessment of Educational Progress Process Data Summer Training Series**
American Institutes for Research. Arlington VA
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RESEARCH INTERNSHIPS

June 2024 – August 2024 **Graduate Research Assistant**

Data Science 4 Everyone. University of Chicago. Chicago, IL
Supervisors: Zarek Drozda, Sarah Miller, Sean Sukol

- Developed and wrote a systematic literature review using PRISMA to support research on developing a nationwide assessment for measuring data science and data literacy competency in grades K-12.
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RESEARCH EXPERIENCE

August 2022 – Present **Community Partner Doctoral Fellow**

Equal Opportunity Schools. Seattle, WA
Supervisors: Erin Bogan Ph.D., Alaina Boyle Ph.D., Jessica Paulson

Examined the psychometric validity and reliability of the student belonging survey and provide recommendations on areas the survey can be improved. Develop and implement advanced statistical methods including linear conditional growth models, multilevel modeling, and structural equation modeling to uncover and understand patterns in student level data to support evidence-based decisions for education policy. Created Tableau dashboards and storyboards that provide insight on equitable distribution of school resources.

Projects:

- Developing an Equitable Machine Learning Algorithm to Identify Students at Risk of Chronic Absenteesim
- Predicting Advanced Course Taking Success from Measures of Student Belonging
- Using Categorical Structural Equation Models to Identify Facets of Student Belonging.
- Reliable Measurement of Student Belonging. A Reliability and Validity Study of a Student Belonging Survey.

June 2021 – August 2021 **Educational Research Consultant**

Center for Social Science Computation and Research University of Washington, Seattle, WA

- Provided statistical and programming consulting services to students and faculty across University of Washington Seattle campus.
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PUBLICATIONS

Quan, Y., & Wang, C. (In Press) Collapsing or not? A Practical Guide to Handling Sparse Responses for Polytomous Items. *Methodology*

Quan, Y. (2020). *A Multivariate Statistical Analysis of Major Change Patterns and Significant Factors That Influence Graduation Rates: A Case Study at California State University, Long Beach* (Publication No. 28155286) [Master's Thesis, California State University Long Beach]. ProQuest Dissertations and Theses Global.

MANUSCRIPTS UNDER REVIEW

Quan, Y., Sager, M. (Under Review) *Identifying Core Formal Assessment Competencies and Informal Learning Outcomes of Data Science and Data Literacy*

Quan, Y., & Wang, C. (Under Review) *Calibrating Multidimensional Assessments with Structural Missingness, An Application of a Multiple-Group Higher-Order IRT Model*

PRESENTATIONS

Quan, Y., & Ren, H. (2024, December 4) *Sample Size and Test Length Recommendations for the Diagnostic Facet Status Model* [Poster Presentation]. Center for Statistics and The Social Sciences Student Research Presentation, Seattle, WA, United States.

Quan, Y., & Wang, C. (2024, November 17-18) *A New Item Fit Test for the Diagnostic Facet Test Model (DFSM)* [Paper Presentation]. Annual Pacific Northwest Research on Psychometrics and Applied Statistics Conference, Pullman, WA, United States.

Quan, Y. (2024, June 4) *Introduction to Bayesian Item Response Theory*, [Poster Presentation]. Center for Statistics and The Social Sciences Student Research Presentation, Seattle, WA, United States.

Quan, Y. (2024, October 18) *Item Response Theory (IRT) Model Selection and Applications* [Invited Talk]. University of Washington Behavioral Research Center for HIV, Seattle, WA, United States.

Quan, Y., & Wang, C. (2024, April 11-14) *Parameter Recovery from Higher Order Item Response Theory Models with Structural Missingness* [Paper Presentation]. National Council on Measurement in Education 2024 Annual Meeting, Philadelphia, PA, United States

Quan, Y., & Wang, C. (2024, April 11-14) *Collapsing or not? A Practical Guide to Handling Sparse Responses for Polytomous Items*, [Poster Presentation, Paper Presentation], American Educational Research Association 2024 Annual Meeting, Philadelphia, PA, United States. <https://doi.org/10.3102/2102869>

Quan, Y., & Xiao, T. (2024, March 11) *The Effects of Measurement Error on Multilevel Linear Growth Model Parameter Estimates*, [Poster Presentation]. Center for Statistics and The Social Sciences Student Research Presentation, Seattle, WA, United States.

Quan, Y., & Wang, C. (2023, November 16-17). *A Multiple-group Higher-Order IRT Approach to Calibrate Multidimensional Assessments with Structural Missingness* [Paper Presentation]. Annual Pacific Northwest Research on Psychometrics and Applied Statistics Conference, Seattle, WA, United States.

- Quan, Y., & Wang, C.** (2022, April 12-15) *The Effects of Sample Size and Collapse Direction on Parameter Recovery* [Poster Presentation]. National Council on Measurement in Education 2023 Annual Meeting, Chicago, IL, United States
- Quan, Y.** (2021, December 3). *Clustering Education Data Using K-Medoids with Partitioning Around the Medoids Algorithm* [Seminar Presentation]. Measurement & Statistics Seminar, University of Washington. Seattle, WA, United States
- Quan, Y.** (2020, November 17). *A Multivariate Statistical Analysis of Major Change Patterns and Significant Factors That Influence Graduation Rates: A Case Study at California State University, Long Beach* [Paper Presentation]. Beyond the First Year, Long Beach, CA, United States
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TEACHING EXPERIENCE

University of Washington. Seattle, WA

March 2022 – June 2022 **Teaching Assistant**

College of Education

- EDPSY 490 - Basic Educational Statistics

Aug 2021 – March 2022 **Teaching Assistant**

Department of Psychology

- PSYCH 209 - Fundamentals of Psychological Research

California State University, Long Beach

Dec 2020 – Jan 2021 **Lecturer**

Department of Mathematics and Statistics

- STAT 108 - Statistics for Everyday Life*

Aug 2018 – Dec 2020 **Teaching Associate**

Department of Mathematics and Statistics

- STAT 108 - Statistics for Everyday Life
- MATH 112B - Essential Algebra B
- MATH 108 - The Power of Mathematics*

Aug 2017 – Aug 2018 **Supplemental Instructor**

Department of Mathematics and Statistics

- MATH 115 - Business Calculus*
- MATH 122 - Calculus I*

* Instructor of Record

PROFESSIONAL SERVICE

2023– Present	Reviewer - American Educational Research Association (AERA) Annual Meeting <ul style="list-style-type: none">- Educational Measurement, Psychometrics, and Assessment- Measurement and Research Methodology- Quantitative Methods and Statistical Theory
2023 – Present	Reviewer – Journal of Educational Measurement (JEM)
2022 – Present	Reviewer - National Council on Measurement in Education (NCME)

MEMBERSHIPS

2022 – Present	National Council on Measurement in Education (NCME)
2022 – Present	American Educational Research Association (AERA), Division D
2019 – Present	Phi Kappa Phi Honor Society
