YALE QUAN

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EDUCATION

Exp. Jun 2026 **Ph.D. Measurement & Statistics**
University of Washington. Seattle WA.
Advisor: Chun Wang, PhD

Dec 2020 **M.S. Applied Statistics**
California State University, Long Beach. Long Beach CA
Committee: Kagba Suaray, Jen-Mei Chang, Sung Eun Kim (Chair)

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**
California State University, Long Beach. Long Beach CA

INTERESTS

My research passion lies at the intersection between Applied Statistics, and Education and is focused on issues of education inequality that exist in higher education. My two main Statistical methodological research interest are the development and interpretation of multidimensional nonlinear latent variable models used in Psychometric models and the refinement and development of statistical models used to perform nonlinear multidimensional clustering with mixed data types. My Educational research interest focuses on identifying educational opportunity gaps and evaluating programs and policies in education.

In addition to my methodological interests, I am passionate about educational and behavioral science research that promotes equity and social good. When I'm not working, I enjoy spending time with my family and friends exploring the outdoors.

AWARDS/HONORS

2022 **Community Partner Doctoral Fellowship Award,**
College of Education, University of Washington. Seattle WA.

2020 **Graduate Student Honors Award**,
Department of Mathematics and Statistics, California State University Long Beach. Long Beach, CA

2019 **Kenneth E. Lindgren Teaching Scholarship**,
Department of Mathematics and Statistics, California State University Long Beach. Long Beach, CA

RESEARCH

2022-Present
Community Partner Fellow

Equal Opportunity Schools. Seattle WA

Develop and implement advanced statistical methods including Longitudinal Item Response Theory 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 provided insight on equitable distribution of school resources.

Supervisors: Holly Karakos PhD, Alejandro Torres PhD

2022 – Present

Effects of Sample Size and Direction of Category Collapse on IRT Parameter Recovery

A simulation study is in progress to determine how parameter estimates from the Graded Response and Generalized Partial Credit psychometric models are influenced by the collapse of polytomous items. Recommendations for the use of GRM and GPCM with collapsed data will be provided.

Summer 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 From across University of Washington Seattle campus.

PRESENTATIONS AND PUBLICATONS

Liu, A., Liu, L., Nguyen, J., **Quan, Y.B.*** (2022, March 11) *Quantitative Inquiry* [Poster presentation]. EDLPS 526 Educational Inquiry: End of Quarter Poster Presentation. https://tinyurl.com/2p86jfwk

Quan, Y.B. (2021, November). *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. B. (2020, November). *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.

Quan, Y. B. (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.

***** All authors have contributed equally

PROJECTS

Quan, Y. B. (2022) *A Reliability and Validity Study of EPDSY 490 Spring 2022*

Performed a reliability and validity study of assessments administered to Spring 2022 EPDSY 490 students. The goal of this project was to determine if (1) The assessment was a reliable measure of the course content, (2) Determine what, if any, biases may be present in the assessment, and (3) Study the construct validity of the assessment and its underlying factor structure. Methodology primarily consisted of Exploratory Factor Analysis, Chronbach's Alpha, and applications of Classical Test Theory methodology. Analysis was performed using R and SPSS.

Britt, S., Cho, E. Nguyen, J., **Quan, Y.B.**, Xu, L.* (2022). *Evaluation Design for ESSHB 1546*

A proposed evaluation of ESSHB 1546 (commonly known as Running Start) was drafted to respond for a Request for Proposals from The WT Grant Foundation. Our proposal suggested using a mixed methods evaluation consisting of qualitative and quantitative methods to evaluate how Running Start addresses the existing higher education opportunity gap and to suggest further ways to support historically marginalized students in Washington.

Quan, Y. B. (2022). *Teacher Retention in Washington; An Event History Analysis*

An analysis of teacher retention from 2017-2020 in Washington using data publicly available from the Washington State Office of Superintendent of Public Instruction (OSPI). The OSPI S275 datasets for each year were merged with other publicly available OSPI datasets to create a comprehensive public dataset of Washington teachers. Methodology primarily consisted of non-parametric modeling techniques including Non-Parametric Maximum Likelihood Estimation (NPMLE). Analysis was performed in R and SPSS.

Quan, Y. B. (2021). *An Item Response Theory Analysis of Biology Freshman Survey*

A psychometric analysis of a survey administered to incoming freshman at California State University, Long Beach who were admitted into the Biological Sciences major. The goal of the analysis was to determine if there is any significant difference between the latent trait estimates of students who were admitted as Biological Sciences Majors in 2020 as compared to students admitted in 2021, in latent trait estimates between male and female students, and if there are any significant correlations between latent trait estimates. Analysis was performed in R.

Quan, Y.B. (2021). *Predicting Growth Mindset*

This project contributes to the literature on fostering growth mindset in students by using the 2018 Programme for International Student Assessment (PISA) dataset and focusing on the association between student's perception of their school and teachers and growth mindset in the context of students in grades eight through twelve in the United States. Due to the hierarchical structure of the data (students within schools) survey data, a Multilevel Logistic Model was fit to the data. Analysis was performed in R.

Quan, Y. B. (2020). *Master's Thesis*

Applied a combination of χ^2 hypothesis testing and correlation analysis to determine if students who changed majors graduate at a significantly different rate than students who did not. A multinomial logistic model was developed to identify significant factors that influence a student's graduation. Fishers' Multi-population Linear Discriminate was implemented to develop a classification system which can be used to classify and predict a student's time to graduation. Analysis was performed in R, Python, Excel, and SPSS.

Quan, Y. B. (2020). *Detecting and Classifying Suspicious Yelp Reviews*

Analysis of the Yelp Dataset using Sentiment Analysis and Natural Language Processing to develop a decision tree classification model that could classify reviews as suspicious. Analysis was conducted using Python

***** All authors have contributed equally

TEACHING EXPERIENCE

Aug 2021 – Present
Teaching Assistant

University of Washington — ***Seattle, WA***

- EDPSY 490 – **Basic Educational Statistics**
  Course content includes measurement scales, sampling distributions, confidence intervals, 1- and 2-group z/t/chi-square tests, and simple linear regression.

- PSYCH 209 - **Fundamentals of Psychological Research**
  Topics include the logic of hypothesis testing, experimental design, research strategies and techniques, fundamentals of scientific writing, searching and evaluation of research literature in psychology, and ethical issues in psychological research.

Dec 2020
Lecturer

California State University, Long Beach — ***Long Beach, CA***

- STAT 108* - **Statistics for Everyday Life**
  Topics include exploratory data analysis, methods of visualizing data, descriptive statistics, misuse, and manipulation of data in statistical analysis, probability, binomial and normal distributions, confidence intervals, hypothesis testing, correlation and regression, contingency tables.

Aug 2018 – Dec 2020
Teaching Associate

California State University, Long Beach — ***Long Beach, CA***

- STAT 108 - **Statistics for Everyday Life**
  Topics include exploratory data analysis, methods of visualizing data, descriptive statistics, misuse, and manipulation of data in statistical analysis, probability, binomial and normal distributions, confidence intervals, hypothesis testing, correlation and regression, contingency tables.

- MATH 112B - **Essential Algebra B**
  Topic included recognizing, relating, describing, manipulating, and applying functions and equations that are polynomial, rational, exponential, and logarithmic.

- MATH 104/94* - **The Power of Mathematics**
  Topics that demonstrate the power and art of mathematical thinking. Development of quantitative and financial literacy; number sense and computational skills; mathematical habits of mind; communication skills across various mathematical forms; and ability to analyze realistic problems with mathematical tools.

Aug 2017 – Aug 2018
Supplemental Instructor

California State University, Long Beach — ***Long Beach, CA***

- MATH 115/SI 60* - **Business Calculus**
  Content includes functions, derivatives, optimization problems, graphs, partial derivatives. Applications to business and economics. Emphasis on problem-solving techniques.

- MATH 122/SI 60* - **Calculus I**
  Content includes Continuous functions. Derivatives and applications including graphing, related rates, and optimization. Transcendental functions. L'Hospital's Rule. Antiderivatives. Definite integrals. Area under a curve**.**

***** Instructor of Record

PROFESSIONAL EXPERIENCE

2023	**Reviewer - Journal of Educational Measurement**
2022	**2023 National Council on Measurement in Education (NCME) Training Proposal Reviewer**

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**

TRAININGS ATTENDED

2023	**Winter 2023 NAEP Data Training Workshop**
2020	**National Center for Education Statistics (NCES)** • Process Data Summer Training Series