Xuran Wang, Ph.D.

https://www.linkedin.com/in/xuran-wang/
Email: wangxur1@msu.edu

Education

Ph.D.	Measurement and Quantitative Methods (MQM), College of Education, Michigan State University	2024
M.S.	Applied Statistics, Department of Statistics and Probability, Michigan State University	2023
M.A.	Educational Psychology and Quantitative Methods, Graduate School of Education, State University of New York at Buffalo	2015
B.E.	Computer Science, Capital Normal University, Beijing, China	2011
B.S.	Psychology, Capital Normal University, Beijing, China	2011

Academic Positions

Data Analyst	Office for Public Engagement and Scholarship, Michigan State University	2025.07 - Current
Research Associate	National Assessment Center of Education Quality (NAEQ), Beijing, China	2015.07 - 2018.07

Grants and Fellowships

2023 Dissertation Completion Fellowship, Michigan State University, $7,000
2021 Summer Research Fellowships, Michigan State University, $6,000
2020 Summer Research Fellowships, Michigan State University, $6,000
2019 Summer Research Development Fellowships, Michigan State University, $5,000
2019 Robert L. Ebel Endowed Scholarship, $5,000
2018 Robert L. Ebel Endowed Scholarship, $5,000

Quantitative Methods

- **Educational measurement and statistics skills**
  - Linear Regression Modeling
  - Design of Experiments (DOE)
  - Multivariate Data Analysis
  - Generalized Linear Model (GLM)
  - Propensity Score Matching (PSM)
  - Factor Analysis (FA)
  - Item Response Theory (IRT)
  - Multilevel Data Analysis (MLM)
  - Structural Equation Modeling (SEM)
- **Computer skills**
  - Proficiency in R, SPSS, Python, HLM, Mplus, and SAS
  - Experience in programming using Java and C

Publications

- **Peer reviewed journal publications**

  1. **Wang, X.**, Houang, R.T., Schmidt, W.H. & Kelly, K. (2024). Relationship between opportunity to learn, mathematics self-efficacy, and math performance: Evidence from PISA 2012 in 63 countries and economies. *International Journal of Science and Mathematics Education.* Accepted on January 18, DOI: 10.1007/s10763-024-10446-6.

  2. Schmidt, W.H., Xin, T., Guo, S. & **Wang, X.** (2022). Achieving excellence and equality in mathematics: Two degrees of freedom? *Journal of Curriculum Studies*, *54*(6), 772-791. DOI: 10.1080/00220272.2022.2098536.

  3. Xin, T., Jiang, Y. & **Wang, X.** (2018). From opportunity of education to opportunity to learn: A new perspective of educational equity, *Tsinghua Journal of Education*, *2*, 18-24. DOI:10.14138/j.1001-4519.2018.02.001807

- **Technical reports**

  1. Andersson, B., Chen, P., **Wang, X.** & Xin, T. (2016). Methodological improvements for the national assessment of basic education quality. (for internal use only)

- **Working papers**

  1. **Wang, X.,** Schmidt, W.H., Houang, R.T. & Yeager, D. S. (in preparation). Exploring sequencing features of major textbook components: Visual and Markov chain approaches.

  2. **Wang, X.,** Schmidt, W.H. & Houang, R.T. (major revision). Visual and model-based methods for exploring sequencing features of content topics in Algebra textbooks.

  3. **Wang, X.** (in preparation). Does the relationship between opportunity to learn, mathematics self-efficacy, and math performance change over time? A multigroup SEM approach with PISA 2012 and 2022.

  4. **Wang, X.**, Zhou, Y. & Xin, T. (in preparation). Exploring the impact of reduced class size on mathematics achievement in China: An optimal multilevel matching strategy approach.

Conference Presentations

- **Invited speaker session**

  1. Cogan, L. & **Wang, X.** (2018, April). Insights on educational excellence from the international context of PISA 2012. Invited Speaker Session at the 2018 American Educational Research Association (AERA) Annual Meeting, New York City, NY.

- **Other sessions (Paper, Roundtable, Poster)**

  1. **Wang, X.,** Schmidt, W.H. & Houang, R.T. (2025, April). Visual and model-based methods for exploring sequencing features of content topics in Algebra textbooks. Accepted by the 2025 AERA Annual Meeting, Denver, CO.

2. **Wang, X.**, Zhou, Y. & Xin, T. (2024, April). Exploring the impact of reduced class size on mathematics achievement in China: An optimal multilevel matching strategy approach. Presented at the 2024 AERA Annual Meeting, Philadelphia, PA.

3. **Wang, X.** (2023, April). Using cluster analysis for data mining in the large-scale research. Presented at the 2023 AERA Annual Meeting, Chicago, IL.

4. **Wang, X.** & Wu, Y. (2022, April). Path analysis of opportunity to learn, mathematics self-efficacy and performance: Evidence from PISA 2012. Presented at the 2022 AERA Annual Meeting, San Diego, CA.

5. **Wang, X.** (2021, July). The common trends and differences of students' opportunity to learn, cognitive activation and their effects on the mathematics literacy: Evidence from six countries/districts. Accepted by the 2021 World Education Research Association (WERA) Visual Focal Meeting.

6. **Wang, X.** (2021, April). Effects of opportunity to learn on students' mathematics self-efficacy and math performance: Regression analysis with PISA 2012 63 countries and economies. Presented at the 2021 AERA Visual Annual Meeting.

7. **Wang, X.** & Wu, Y. (2020, April). Exploring the effects of math self-efficacy on the gender gap in mathematics literacy: New findings from PISA 2012. Presented at the 2020 AERA Visual Annual Meeting.

8. **Wang, X.** & Xin, T. (2017, April). The role of opportunity to learn on math study: Evidence from PISA 2012 China trial. Presented at the 2017 AERA Annual Meeting, San Antonio, TX.

9. **Wang, X.** & Xin, T. (2016, April). The effect of time involved in math activities on performance: Multilevel analysis from PISA 2012. Presented at the 2016 AERA Annual Meeting, Washington, D.C.

10. **Wang, X.** (2015, April). Exploring the effects of single-sex schooling and math self-efficacy on the gender gap in mathematics performance: Multilevel analysis of PISA 2012 data from South Korea and Hong Kong. Presented at the 2015 AERA Annual Meeting, Chicago, IL.

Research Experience

- **Data Analyst** **2025 – current**

Michigan OST Funding (32N) Project **Michigan State University**

- Led quantitative and mixed methods analyses of youth, family, site, and attendance data across 600+ program sites.
- Developed visualizations, clustering models, and summary tables to identify operating and participation patterns.
- Applied topic modeling to open-ended survey responses, uncovering key themes in youth and parent responses.
- Produced 100+ grantee-specific reports linking OST participation to improvements in academic performance and soft-skill development.

Michigan Great Start Readiness Program Evaluation **Michigan State University**

- Addressed methodological challenges (school mobility, ordinal outcomes, nonignorable missing data) using cross-classified random effects models (CCREMs).
- Estimated program impacts on long-term academic outcomes and absenteeism to inform education policy and practice.

- **Research Assistant** **2019 - 2024**

Center for the Study of Curriculum Policy **Michigan State University**

Developed and analyzed the sequential characteristics of textbook.

- Developed a graphical way to visually represent the sequencing of entire textbooks.
- Utilized Markov chain techniques and model-based approach to generate quantitative indicators for measuring sequencing characteristics.
- One first-authored manuscript is currently under major revision, another first-authored manuscript is prepared to submit.

Center for the Study of Curriculum Policy **Michigan State University**

Applied quantitative methods to explore approximations of causal mechanisms in classroom.

- Developed a new conceptual framework.
- Utilized path analysis (PA) and regression models to reveal the relationships between students' math self-efficacy, learning opportunities and math performance.
- Published in the *International Journal of Science and Mathematics Education* in 2024.

Office of the Provost **Michigan State University**

Analyzed and evaluated the impact of living on campus on student outcomes.

- Cleaned and merged various students' datasets by key variables.
- Conducted a descriptive analysis of the differences between students live-on and-off campus by different groups.
- Conducted propensity score matching (PSM) modeling to minimize selection bias when examining the relationship between living on campus in the second year and student outcomes.

- **Research Associate** **2015 - 2018**

National Assessment Center of Education Quality **Beijing Normal University**

- Analyzed a restricted Chinese dataset to explore the relationship between learning opportunities, socioeconomic status, and math performance using HLM.
- Published in the *Journal of Curriculum Studies* in 2022

National Assessment Center of Education Quality **Beijing Normal University**

Examined the class size reduction and its impact on student performance in China.

- Used an optimal multilevel matching method to evaluate the effect of class size on students' performance.
- Applied non-linear modeling to determine the optimal class size range for maximizing student learning outcome.
- Accepted by the 2024 American Educational Research Association (AERA) Meeting.

Teaching Experiences

- **Teaching at MSU (graduate level)**

  Teaching Assistant

  CEP 932: Quantitative Methods in Educational Research I

  Fall 2019, 2020 & Spring 2022

  CEP 933: Quantitative Methods in Educational Research II

  Spring 2020, 2021 & 2024

Short Courses Taken

- **Short-term workshops**

1. 2024.01: Structural Equation Modeling and Longitudinal Structural Equation and Latent Growth Modeling (with certificates)
   Sponsor: University of Maryland
   Instructors: Dr. Gregory Hancock

2. 2023.03: Hierarchical Linear Models (HLM) and Multilevel Causal Inference
   Sponsor: Institute for Statistical Science
   Instructors: Dr. Stephen Raudenbush

3. 2020.04: Analyzing NAEP Process Data Using R
   Sponsor: Professional Development and Training Committee, American Educational Research Association (AERA)
   Instructors: Dr. Emmanuel Sikali, Dr. Ruhan Circi, Dr. Fusun Sahin, et al.

4. 2019.04: An Introduction to Multiple Imputation for Educational Research
   Sponsor: Professional Development and Training Committee, American Educational Research Association (AERA)
   Instructors: Dr. Craig K. Enders

5. 2016.04: Propensity Score Methods for Causal Inference in Educational Research
   Sponsor: Professional Development and Training Committee, American Educational Research Association (AERA)
   Instructors: Dr. Wei Pan, Dr. Haiyan Bai, Dr. Christopher Swoboda

Professional Services

- **Ad hoc reviewer (Journal)**
  1. Educational Researcher
  2. International Journal of Educational Research
  3. Mathematical Thinking and Learning
- **Conference reviewer**
  1. American Educational Research Association (AERA) Annual Meeting
     - Division D – Measurement and Research Methodology – Section 2 2023

- SIG – Advanced Studies of National Databases 2017, 2021, 2023, 2024
- SIG – NAEP Studies 2017, 2021
- SIG – Multilevel Modeling 2017, 2020

- **Other Services**
  1. 2025 AERA Roundtable Session Chair

Professional Affiliations

American Educational Research Association (AERA)
Society for Research on Educational Effectiveness (SREE)

Last updated: September, 2025