

Zhina Shen**CONTACT INFORMATION**

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CURRENT WORK APPOINTMENT

Director of Research & Evaluation **January 2024 - Present**

Division of Research and Evaluation, Innovative Learning Center, LLC. Atlanta, Georgia

- Develop evaluation plan/proposal on various projects included National Science Foundation projects.
- Interfere with clients from different organizations including universities and other non-profit organizations.
- Develop a data collection plan that outlines: the metrics/variables required for measuring short- and long-term outcomes, suggested data collection tools/methodologies (e.g., surveys, focus group, etc.) for tracking outcomes, when and how often data collection should occur.
- Develop qualitative or quantitative data analysis plan.
- Outreach to clients for project collaboration.

EDUCATION

The University of Texas at Austin, Austin, TX

Ph.D. in Learning Disabilities & Behavior Disorders in the Department of Special Education

Academic advisory: Sarah R. Powell, Ph.D.

August 2019 – December 2023

The University of Texas at Austin, Austin, TX

Master in Statistics in the Department of Natural Science

August 2019 – May 2023

The University of Texas at Austin, Austin, TX

Master in Learning Disabilities & Behavior Disorders in the Department of Special Education

August 2016 – August 2018

EXPERTISE

K-12 school-based intervention: intervention design, participants recruitment, consent and assent forms development, intervention implementation, implementation fidelity checklist development and evaluation, data collection and analysis, school and parents' communications, etc.

Professional writing: peer-reviewed article publication, conference abstract, book chapter, grant proposal, project report to IRB and other institutions, etc.

Quantitative research: randomized controlled trial, quasi-experimental design, meta-analysis, correlational research, other secondary data analysis, etc.

Qualitative research: survey, interview, questionnaire, implementation fidelity evaluation, literature review, etc.

Teaching experience: k-12 special and general education teaching experience, college level teaching assistant, college level teaching specialist.

Data analysis software: STATA, R, Atlas.ti, SPSS, M-Plus, Excel

K-12 Special Education Work and Research Experience

Research Consultant

RGK Center for Philanthropy & Community Service, Joshua's Stage, Austin, TX

September 2023 – December 2023

- Oversee teaching implementation and ongoing data collection and analysis.
- Compile, clean, and analyze historical program participant data.
- Develop a data collection plan that outlines: the metrics/variables required for measuring short- and long-term outcomes, suggested data collection tools/methodologies (e.g., surveys, focus group, etc.) for tracking outcomes, when and how often data collection should occur.
- Present to stakeholders regarding recommendations outlining methods to improve current data collection process and program implementation.

Principle Investigator, The University of Texas at Austin, Rawson Saunders Elementary School, Austin, TX

October 2022 – December 2023

The Effectiveness of Concrete-Representational-Abstract Framework within Word-Problem Solving for Students Experiencing Mathematics Difficulty

- Submitted an intervention research proposal to division of learning disabilities of council for exceptional children, and was awarded the *Candace* innovative research grant.
- Designed randomized controlled trial based on rigorous studies standard, and detected a significant difference between CRA-S intervention and schema-alone intervention.
- Prepared program recruitment flier for school professionals and parents, and recruited 8 classroom teachers and 36 students from grade 2 to 4.
- Interviewed 20 potentially participating mathematics teachers, 20 parents, and 40 students through virtual and in-person communication, and identified students struggling areas, home classroom instructions, social economic and demographic background, etc.
- Generated teachers' surveys and parents' consent forms, students assent forms, and resolved any related questions they had regarding intervention schedule, teaching content, group size, expected outcomes, and emotional and behavior issues, etc.
- Actively and intensively communicated with IRB team in UT Austin, and clarified substantial amounts of confusions.
- Developed detailed lesson plans, lesson scripts, and lesson materials for 10 teaching sessions consisted of 5 intervention activities.
- Supervised and collaborated with another three doctoral students to implement the teaching based on the lesson plan I developed.
- Composed implementation checklist to evaluate three other tutors' implementation fidelity through in-person observation and audio recording, and built a 93% implementation fidelity.
- Conducted *t*-test and multiple linear regression analysis, and determined significant effect of CRA-S intervention comparing to schema-alone intervention. Furthermore, my moderation analysis also indicated the effect differed significantly between students with different levels of word-problem solving prior knowledge.
- Submitted a journal proposal for publication.

Project Leader, The University of Texas at Austin, Austin, TX November 2022 – Present
The effect of manipulative-based interventions on improving whole number computations for K-12 students with mathematics difficulties.

- Led the meta-analysis project to detect the effect of manipulative-based interventions for students who have challenges learning mathematics.
- Collaborated with three other colleagues to achieve 0.97 coding reliability and to prepare manuscript for submission.
- Conducted systematic literature search from five electronic databases including academic search complete, ERIC, PsycINFO, ProQuest, and Education source yielding 1,831 abstracts.
- Screened from the 1,831 abstracts based on inclusion criteria, and identified 27 studies on manipulative interventions for analysis.
- Generated coding book based on research questions resulting in 23 coding categories.
- Conducted literature review on relevant studies to identify innovation of my project comparing to previous studies.
- Analyzed the coding data based on single case design and group design studies separately using between case standardized mean difference and random-effect model with Knapp-Hartung correction respectively, resulting in large effect size (2.518) for single case design studies, and large effect size (1.356) for group design studies.
- Established moderation analysis and determined that the effect of manipulative-based intervention differed significantly between implementers (special education teachers, general education teachers and researchers), content of measures (addition, subtraction, multiplication, and division).

Project Leader, The University of Texas at Austin, Austin, TX October 2022 – January 2023
The role of reading, arithmetic, and cognitive skills in mathematical word-problem solving for students with mathematics difficulties.

- Employed the random-effects meta regression model with RVE correction, and detected a medium to large effect between reading, arithmetic, and cognitive skills and word-problem solving skill.
- Submitted one manuscript for publication based on this project.
- Conducted literature review followed PRISMA flow chart, and identified 210 correlation coefficients from 26 articles on students with mathematics difficulties.
- Performed meta regression analysis based on the 210 correlation coefficients, calculated Pearson's r , and converted to Fisher's Z for the convenience of analysis.
- Consolidated previous research finding showing mathematics computation and mathematics knowledge significantly correlated with word-problem solving, which provided important direction for intervention design especially for special education practitioners.

Graduate Research Assistant, Meadows Center for Preventing Academic Risk, The University of Texas at Austin, Austin, TX. May 2023 – Present
Scalability, capacity, and learning engagement in fraction learning

- Evaluate intervention program from the perspective of teaching professionals.
- Collaborate with other colleagues to develop and organize intervention materials for all 8 tutors.

- Cleaned and analyzed survey data for a total of 40 questionnaires.

Graduate Research Assistant, Meadows Center for Preventing Academic Risk, The University of Texas at Austin, Austin, TX August 2021 – May 2022

Teaching Early Math by Providing Language Exploration (TEMPLE) project

- Edited and organized survey materials and consent forms for a total of 10 schools in Austin area.
- Designed recruitment flier including content preparation, technical writing, and grammar check.
- Performed survey data coding, data cleaning, preliminary data analysis for a total of 40 teachers survey with 20 questions in each one.
- Pretested 40 kindergarten ESL and non-ESL students with learning difficulties on mathematics vocabulary, and mathematics knowledge.

Graduate Research Assistant, Meadows Center for Preventing Academic Risk, The University of Texas at Austin, Austin, TX August – October 2021

Effectiveness and Responsiveness of a Fraction Vocabulary Intervention for Students Experiencing Mathematics Difficulty in Grade 4

- Tutored 8 fourth-grade students with mathematics difficulties in 3 different schools within 8 weeks on fraction vocabulary lessons, and improved students fraction vocabulary knowledge significantly by the end of the intervention period.
- Collected and recorded 8 students' progress monitoring data to be ready for analysis.
- Collaborated with 4 other team members to optimize quasi-experimental research design, normality detection, power analysis, utilizing focus groups, interviews and textual analysis.

Graduate Research Assistant, Meadows Center for Preventing Academic Risk, The University of Texas at Austin, Austin, TX October – November 2021

The Role of Algebraic Reasoning within Additive and Multiplicative Multi-step Problem Solving for Students with Mathematics Difficulties

- Collaborated with the project manager in developing tutoring agenda, lesson scripts edits, pseudo lessons, lessons activities for a total of 15 lessons.
- Tutored and worked with ESL and non-ESL 4th grade students with mathematics difficulties 3 times per week for a total of 16 weeks on word-problem solving.
- Actively communicated with 3 classroom teachers on class and students' assessment schedule, survey questions, and other ongoing students' behavior issues, and resolved many problems.
- Collected and analyzed students' progress monitoring test score on word-problem solving for a total of 144 questions.

PUBLICATIONS

Published or In Press

Pullen, P. C., Powell, S. R., Shen, Z., King, S. G., Lane, H. B., Ashworth, K. E., Lovelace, S. P., & Hallahan, D. P. (2024). *Specific learning disabilities*. In J. M. Kauffman, D. P. Hallahan, & P. C. Pullen (Eds.), *Handbook of special education* (3rd ed., pp. 268–300). Routledge.

Xu, H., Jiang, S., **Shen, Z.**, Zhao, C., Wu, C. (2018) Genome-wide association analysis reveals a novel locus for hypoxia adaptability in Tibetan chicken. *Animal Genetics*, 49(4): 337-339.
<https://doi.org/10.1111/age.12678>

Shen, Z., Xu, H., Han, W., & Zhao, C. (2011) Analysis of three species in southwest local chicken, *Sixteenth Chinese Animal Genetics and Breeding Science Forum*, Yangzhou, Jiangsu, China.

Rojo, M., Gersib, J., Powell, S.R., **Shen, Z.**, King, & S. G., Akther, S.S., Arsenault, T. L., Bos, S. E., Lariviere, D. O., & Lin, X. A Meta-Analysis of Mathematics Interventions: Examining the Impacts of Intervention Characteristics. *Educ Psychol Rev* 36, 9 (2024). <https://doi.org/10.1007/s10648-023-09843-0>

Forthcoming

Gersib, J. A., Rojo, M., King, S. G., Arsenault, T. A., Lariviere, D., Bos, S., Lin, X., **Shen, Z.**, & Akther, S. S. (2023) *How do cognitive and behavioral intervention components impact mathematical outcomes? a meta-analysis*. [Accepted]

Lin, X., Peng, P., **Shen, Z.** & Xie, H. (2023) *Understanding longitudinal predictors of mathematics word-problem solving with a double mediation model*. [Manuscript submitted for publication]

Shen, Z., Powell, S. R., Lin, X., & Cheng, C. (2023) *Analyzing the role of reading, arithmetic, and cognitive skills in mathematical word-problem solving for students with mathematics difficulties*. [Manuscript submitted for publication].

Shen, Z., Powell, S. R., & Arsenault, T. A. (2023) *Effect of manipulative-based interventions on improving mathematics computation outcomes for students with mathematics difficulties*. [Manuscript in preparation].

EVALUATION REPORTS

Okland, S., Correa, K., **Shen, Z.**, & Blackmon, A. T. (2025). *Enhancing aviation maintenance technician training with nondestructive testing skills: Formative external evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/UWOA8679>

Okland, S., **Shen, Z.**, & Blackmon, A. T. (2025). *Advancing next generation bio-technician preparedness in Northeast Florida: Year 1 formative external evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/XESM1665>

Okland, S., **Shen, Z.**, & Blackmon, A. T. (2025). *Enhancing aviation maintenance technician training with nondestructive testing skills: Summative external evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/UWOA8680>

Okland, S., **Shen, Z.**, & Blackmon, A. T. (2025). *Improving technician training in automation technologies for advanced manufacturing: Summative external evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/DEBI8648>

- Okland, S., **Shen, Z.**, & Blackmon, A. T. (2025). *Improving technician training in automation technologies for advanced manufacturing: Year 4 formative external evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/YSJC6977>
- Shen, Z.**, Correa, K. A., & Blackmon, A. T. (2024, June). *Future Foundation 21st Century Community Learning Center Afterschool Program Banneker and McNair High School summative evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/AKZT2871>
- Shen, Z.**, Correa, K. A., & Blackmon, A. T. (2024, June). *Future Foundation 21st Century Community Learning Center Afterschool Program Reef House Teen and Learning Center summative evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/POES9269>
- Shen, Z.**, Correa, K. A., & Blackmon, A. T. (2024, June). *Future Foundation 21st Century Community Learning Center Afterschool Program Sandtown Middle School summative evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/VZNK7846>
- Shen, Z.**, Okland, S., & Blackmon, A. T. (2025). *Creating new aerospace technician pathways using space materials design and fabrication skills training: Year three formative external evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/XESM1664>
- Shen, Z.**, Okland, S., & Blackmon, A. T. (2025). *Year 2 formative evaluation report: Strengthening building & construction technician training with alternative energy sources to advance sustainability*. Innovative Learning Center, LLC. <https://doi.org/10.52012/EITR4138>
- Shen, Z.**, Okland, S., Su, R., & Blackmon, A. T. (2025, September). *Spelman Strategic and Security Studies Center year one formative external evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/TODK2124>
- Sklenar, A., **Shen, Z.**, Okland, S., & Blackmon, A. T. (2025). *Improving technician training in battery technology: Formative external evaluation report*. Innovative Learning Center, LLC. <https://doi.org/10.52012/DEBI8649>

PRESENTATION IN CONFERENCES

- Powell, S. R., T Brafford, & **Shen, Z.** (2023, October 25-28). *Enhancing the Math Experience for Exceptional Learners: Essentials for Instruction*. National Council of Teachers of Mathematics (NCTM), Washington, DC (presentation accepted).
- Shen, Z.**, & Powell, S. R. (2023, February 1-3). *Effect of manipulative-based interventions on whole number computation*. Pacific Coast Research Conference (PCRC), Coronado, CA.
- Shen, Z.**, & Powell, S. R. (2022, February 17-19). *Analyzing the role of reading skills, arithmetic skills, and cognitive skills in mathematical word-problem solving for students with mathematics difficulties*. Pacific Coast Research Conference (PCRC), Coronado, CA.
- Powell, S. R., Arsenault, T., Bos, S., Lin, X., & **Shen, Z.** (2022, January 16-19). *Designing your instructional platform for math intervention*. Poster accepted at the Council for Exceptional Children Convention and Expo (CEC), Orlando, FL.

Shen, Z., & Powell, S. R. (2022, January 16-19). *Teaching Addition and Subtraction by Using Manipulative Approach*. Presentation accepted at the Council for Exceptional Children Convention and Expo (CEC), Orlando, FL.

Shen, Z., & Powell, S. R. (2021, March 8-13). *How effective are manipulative-based interventions for improving students with mathematics difficulties on math addition and subtraction*. Council for Exceptional Children Convention and Expo. online.

GRANTS

Fall 2022: Awarded *Candace S. Bos Innovative Project Grant* by Division for Learning Disabilities (DLD) of Council for Exceptional Children (CEC).

TEACHING EXPERIENCE K-12

Fall 2017 Special Education Student Teacher, Grade 3-Grade 5, Cunningham Elementary School, Austin, TX

Spring 2017 Special Education Student Teacher, Grade K, Boone Elementary School, Austin, TX.

Spring 2010 Biology Student Teacher, Grade 9, Zhaozhou Number 1 High School, Daqing, China

Fall 2010 Mathematics Teacher, Grade 5-8, New Orient School, Harbin, China

2006-2010 English Teacher, Grade 6-8, Part-time Individual Coach, Zhaodong, Harbin, China

TEACHING EXPERIENCE IN COLLEGE LEVEL

Fall 2022 Teaching Assistant in *Mathematics (EDC370E)*

Department of Special Education, The University of Texas at Austin

2019-2022 Teaching Assistant in *General Microbiology Laboratory (BIO226L)*

Department of Biology, The University of Texas at Austin

2018-2019 Teaching Specialist in General Microbiology Laboratory (BIO226L)

Department of Biology, The University of Texas at Austin

Fall 2017 Teaching Assistant in Biology, *Introduction Biology Laboratory (BIO 206L)*

Department of Biology, The University of Texas at Austin

2017 Teaching Assistant in Biology, *Introduction Biology (BIO 311C)*

Department of Biology, The University of Texas at Austin

Fall 2016 Teaching Assistant in *Pharmacy (PHM 480C)*

Department of Pharmacy, The University of Texas at Austin

GUEST LECTURE TEACHING IN COLLEGE LEVEL

Fall 2022 Guest lecture in mathematics language, *Mathematics (EDC370E)*

Department of Special Education, The University of Texas at Austin

Fall 2022 Guest lecture in exponents, function, and expressions, *Mathematics (EDC370E)*

Department of Special Education, The University of Texas at Austin

Fall 2022 Guest lecture in geometry, *Mathematics (EDC370E)*

Department of Special Education, The University of Texas at Austin

Spring 2021 Guest lecture in teaching virtual manipulatives to students with learning difficulties,

Teaching Mathematics to Students with Disabilities (SED 378T)

Department of Special Education, The University of Texas at Austin

TEACHING CERTIFICATION

High School Teaching Certification, China, July, 2010 (Certification number: 20102320 042010871).

EC-12 Special Education Teaching Certification, Austin, TX.

AWARDS

2024	HI-TECH ATE Travelling Award
2023	Dissertation Writing Fellowship (The University of Texas at Austin)
2022	Professional Development Award (The University of Texas at Austin)
2021	Professional Development Award (The University of Texas at Austin)
2020-2022	General ISSS financial aid award
2019	Nominated as “Excellent Teaching Assistant” by Biology Department at The University of Texas at Austin
2019	Recruitment and Texas Scholar Fellowship
2016	Moran Endowed Presidential Fellowship in the University of Texas at Austin
2016, 2017	Austin Independent School District Scholarship
2008-2009	The Second Prize Scholarship in Harbin Normal University
2007-2008	The First Prize Scholarship in Harbin Normal University

PROFESSIONAL SERVICE

American Evaluation Association

Member since 2024

Manuscript ReviewSpring 2022 *The Journal of Texas Education Review***Affiliations**

Members-at-large of American Education Association (2023)

Membership of *Council for Exceptional Children* (2020-present)Membership of *American Educational Research Association* (2022)Membership of *Council for Learning Disabilities* (2020-present)

Membership of National Council of Teachers of Mathematics (2023)