

Lance M. Kruse, Ph.D.

www.lancekruse.net

lancekruse1@gmail.com

EDUCATION

Ph.D. University of Toledo

Foundations in Educational Research and Measurement

Aug. 2016 – Dec. 2019

Advisor: Gregory Stone, Ph.D.

Dissertation: Item-Reduction Methodologies for Complex Educational Assessments: A Comparative Methodological Exploration

M. Ed. Bowling Green State University

Aug. 2016

Master of Education: Curriculum and Teaching

Advisor: Jonathan Bostic, Ph.D.

Project: Exploring Protocol-Centered Professional Development about the Standards for Mathematical Practice

B. S. Bowling Green State University

May 2015

Secondary Education Integrated Mathematics, *summa cum laude*

PROFESSIONAL EXPERIENCE

North Carolina State University

2019 – Present

Research Scholar, *STEM Education*

- Assistant Director, *AEOP Evaluation*
 - Provide research and evaluation support for Army Educational Outreach Program;
 - Lead the management and administration of program databases for AEOP;
 - Conduct survey development and administration, interviews, site visits, and observations for AEOP evaluations;
 - Compose annual evaluation reports.
- Research Analyst, *Purdue Cybersecurity Apprenticeship Program*
 - Compose reporting documentation for program partners;
 - Aggregate program data from partners into comprehensive reporting database.
- Research Analyst, *Friday Institute Professional Learning Online Modules*
 - Conduct quantitative statistical analysis for survey, assessment, and course activity data for course evaluation;
 - Implement A/B testing protocol to evaluate program design and effectiveness;
 - Conduct interviews for participating students related to program effectiveness.
- Research Analyst, *NCSU Artificial Intelligence Academy*
 - Lead the management and administration of applicant and participant data;
 - Compose reporting documentation for program partners;
 - Aggregate program data into comprehensive reporting database.
- Research Analyst, *Indiana GEAR UP Program*
 - Aggregate student performance data into comprehensive SPSS database;
 - Evaluate program performance across student performance indicators;
 - Compose technical evaluation report for district, school, and program performance.

MetriKs Amerique

2017 – Present

Research Associate

- Assist in program evaluation, measurement, and research projects for research grants, non-profits, and educational systems.

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AEOP Alumni Management Team Member

- Manage the Army Education Outreach Program (AEOP) Alumni database, which houses participant information from the 11 national AEOPs;
- Annually collect, clean, and upload new participant information into the existing database;
- Perform complex database searches to support programmatic efforts;
- Assist in writing evaluation reports for the AEOP Alumni Management Team.

Psychometric Consultant

- Lead meeting with medical board members responsible for test development;
- Conduct and review psychometric analysis of previous test results to guide test revision and new item development;
- Apply psychometric principles to high-stakes test development.

Clarity Assessment System

2016 – 2017

Psychometric Consultant Internship

- Intern to Clarity Assessment Systems, a national provider of high-stakes test development services, primarily to medical organizations;
- Assisted in conducting meeting with medical board members for test development;
- Conducted and reviewed psychometric analysis of previous test results to guide test revision and new item development;
- Application of psychometric principles to medical high-stakes test development.

CONSULTING EXPERIENCE

Perkins Eastman, DC & Drexel University

2019 - Present

Statistical and Research Methodologist Consultant

- Research consultant for Perkins Eastman and Drexel University, who are the Co-PIs for the 2019 Latrobe Grant research project;
- Advise and design a cross-sectional study evaluating the impact of renovated schools in the Washington D.C. and Baltimore City Public School districts;
- Advise and design data collection tools including surveys, interview protocols, and school archival data;
- Perform descriptive and inferential statistical analysis for occupant perception survey results, school performance data, and correlational analysis;
- Write comprehensive technical report sharing the findings from the analysis.

Bowling Green State University

2019 - 2020

External Evaluator

- Evaluate state-funded planning grant for developing a new inclusive middle childhood education program at Bowling Green State University;
- Conduct meeting observations and evaluations;
- Evaluate the team's progression towards fulfilling their state deliverables;
- Conduct individual leadership team interviews for evaluating the team's progress;
- Write comprehensive evaluation reports to convey the findings to the leadership team.

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Perkins Eastman, DC

2018

External Evaluator

- Hired as external evaluator for Perkins Eastman cross-sectional study evaluating the impact of renovated schools in the Washing D.C. Public School district;
- Performed descriptive and inferential statistical analysis for occupant perception survey results, school performance data, and correlational analysis;
- Created comprehensive technical report sharing the findings from the analysis.

Purdue University

2017 – 2019

Research Consultant

- Conduct site visits for a program evaluation for the Army Educational Outreach Program, being overseen by Purdue University;
- Plan and conduct participant observations, focus-group interviews, and one-on-one interviews with student participants and local program coordinators;
- Conduct phone-interviews with student and mentor participants.

TEACHING EXPERIENCE

Adjunct Assistant Professor

Drexel University

2019 – Present

School of Education

Department of Teaching Learning and Curriculum

- EDU 780: Capstone Research
- EDUC 522: Evaluation of Instruction

Adjunct Assistant Professor

Bowling Green State University

2017 – Present

College of Education and Human Development

School of Educational Foundations, Leadership and Policy

- EDFI 6410: Statistics in Education
- EDFI 6420: Educational Research
- EDFI 6450: Using K-12 Assessment Data

Graduate Assistant

Benjamin Drake Wright Scholar Program

2016 – 2019

Metriks Amerique, CEO Gregory Stone, Ph. D.

Department of Educational Foundations & Leadership

University of Toledo

- Assist with research, measurement, and evaluation contracts.

Teaching Assistant

University of Toledo

Jan 2019 – May 2019

Judith Herb College of Education

Department of Educational Foundations & Leadership

- RESM 6/8340: Qualitative Research II: Design & Analysis

Adjunct Assistant Professor

University of Toledo

Jan 2019 – May 2019

Judith Herb College of Education

Department of Educational Foundations & Leadership

- RESM 5/7210: Testing and Grading

Substitute Teacher

Sylvania School District

2015 – 2019

- Substitute teacher for Sylvania School District for 7th and 8th grade mathematics and science classes

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Graduate Assistant	Mathematics Education Jonathan Bostic, Ph. D. School of Teaching and Learning Bowling Green State University	2015 – 2016
	<ul style="list-style-type: none"> • Teaching assistant for middle school mathematics methods, introduction to secondary mathematics education, and introduction to middle school mathematics education • Assist in current mathematics education research for state awarded grants 	

SCHOLARSHIP AND SERVICE

Journal Reviewer	Research Council on Mathematics Learning <i>Investigations in Mathematics Learning</i>	2016 – Present
Proceedings Reviewer	Research Council on Mathematics Learning Annual Conference	2016 – Present
Co-Chair & Sr. Rep.	AERA Division D Graduate Student Council	2019 – 2020
Co-Chair & Jr. Rep.	AERA Division D Graduate Student Council	2018 – 2019
Math Camp	Bowling Green State University	2015 – 2017
Undergraduate Researcher	ACTION Scholarship Program	2013 – 2015
Study Abroad	Bowling Green Council Teachers of Mathematics – Thailand	2013
Undergraduate Researcher	Northwest Ohio Center for STEM Education	2011 – 2012

PUBLICATIONS

Kruse, L., Gregory, S. E., Sondergeld, T. A., & Bostic, J. D. (under review). Validity and test-length reduction strategies for complex assessments. *Journal of Applied Measurement*.

Kruse, L. M., Sondergeld, T. A., Bostic, J., Waddell, E. A., Ibarrola Recalde, G. D., & Stone, G. (2020). Evaluating the impact of the common core for achievement middle grades mathematical proficiency program. *Pennsylvania Educational Leadership*, 39(2), 5-33.

Sondergeld, T., Stone, G., **Kruse, L.**, Bostic, J., & Matney, G. (under review). Evaluating the differential impact of dichotomous and partial credit scoring models on student problem-solving assessment outcomes. *School Science and Mathematics*.

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Kruse, L., Impellizeri, W., Witherel, C., & Sondergeld, T. (2020). Evaluating the impact of an assessment course on preservice teachers' classroom assessment literacy and self-efficacy. *Mid-Western Educational Research Association, 32*(2), 107-132.

Lavery, M. R., Bostic, J., **Kruse, L.,** Krupa, E., & Carney, M. (2020). Arguments surrounding argument-based validation: A systematic review of validation methodology. *Educational Measurement: Issues and Practice.*

Sondergeld, T., Stone, G., & **Kruse, L.** (2018). The importance of objective standard setting in educational assessment to inform decision making. *Educational Policy.*

Kruse, L., Schlosser, M., & Bostic, J. (2017). Shifting perspectives about the Standards for Mathematical Practice. *Ohio Journal of School Mathematics, 77,* 34-43.

Bostic, J., Sondergeld, T., **Kruse, L.,** & Folger, T. (2016). PSM7 and PSM8: Validating two problem-solving measures. *Journal of Applied Measurement, 18*(2), 151-162.

Bostic, J. & **Kruse, L.** (2016). A book review of mathematics in middle and secondary school: a problem solving approach. [Review of the book *Mathematics in middle and secondary school: A problem solving approach*, by A. Karp & N. Wasserman]. Teachers College Record.

Kruse, L. (2015). Student perspective and frequency of mathematical textbook use. *ScholarWorks BGSU.* Paper 207.

PRESENTATIONS

International

Kruse, L., Sondergeld, T. A., Impellizeri, W., & Witherel, C. (April, 2019). Evaluating the impact of an assessment course on preservice teachers' classroom assessment literacy and self-efficacy. Presented at the 2019 Annual Meeting of the American Educational Research Association. Toronto, CA.

Lavery, M., Carney, M., Bostic, J., Shih, J., Krupa, E., Wilson, M., & **Kruse, L.** (April, 2018). *Examining the Arguments Surrounding the Argument-Based Approach to Validation: A Systematic Review of Validation Methodology.* Proceedings of the 2018 Meeting of the American Educational Research Association: New York, NY.

Kruse, L. & Stone, G. E. (January, 2018). *Early Career Teacher Effectiveness and Retention: A Survey Research Study from an Alternative Teacher Education Program.* Proceedings of the 2018 Annual Meeting of the Hawaii International Conference on Education: Honolulu, HI.

Kruse, L., McCloskey, T., & McCarthy, D. (November, 2017). *Patients, preschoolers, and queer students: Forgetting and remembering human dignity in educational policies and practices.* Proceedings of the 2017 Annual Meeting of the American Educational Studies Association. Pittsburg, PA.

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Sondergeld, T. A., Stone, G. E., & **Kruse, L.** (May, 2016). *Measuring achievement: Shifting the paradigm*. Proceedings of the 2016 Annual Meeting of the Athens Institute for Education and Research. Athens, Greece.

National

Kruse, L., Waddell, E.A., Ibarrola Recalde, G. D., Sondergeld, T. A., & Bostic, J. D. (April, 2020). Evaluating the impact of a multi-year mathematics proficiency program. Accepted to present at the 2020 Annual Meeting of the American Educational Research Association (cancelled). San Francisco, CA.

Sondergeld, T.A., Stone, G. E., **Kruse, L.**, Bostic, J. D., & Matney, G. (April, 2020) Evaluating dichotomous and partial-credit scoring within a constructed-response assessment: Is more information always psychometrically better? Accepted to present at the 2020 Annual Meeting of the American Educational Research Association (cancelled). San Francisco, CA.

Kruse, L. & Nicholson, T. (February, 2019). Evaluating response processes validity evidence for problem solving measures. Research Council on Mathematics Learning. Charlotte, NC.

Kruse, L., Schlosser, M. M., & Bostic, J. D. (February, 2016). Exploring preservice and inservice educators sensemaking of the standards for mathematical practice. Research Council on Mathematics Learning. Orlando, FL.

State

Bostic, J., **Kruse, L.**, & Nielsen, M. (March, 2017). *Middle and secondary mathematics teacher apprentices engaged in a field-centric preparation model*. Michigan Association of Mathematics Teacher Educators conference conversations among colleagues, East Lansing, MI.

Koestler, C., **Kruse, L.**, Schlosser, M. M., & Bostic, J. D. (March, 2016). Connecting the NCTM process standards and the CCSSM practices with prospective and practicing teachers. Michigan Association of Mathematics Teacher Educators. Kalamazoo, MI.

Matney, G., Walston, A., Bostic, J., **Kruse, L.**, Sullivan, C., Schlosser, M., Coder, H., Knapke, K., Nielsen, M., Gerges, R., Largent, K., & Lustgarten, A. (October, 2015). Mathematics camps activities: Pathways to student enjoyment of mathematics. Ohio Council Teachers of Mathematics Conference. Cincinnati, OH.

Coder, H., Matney, G., **Kruse, L.**, Sullivan, C., Schlosser, M., Haynes, E. (October, 2015). Mathematics camps activities: Pathways to student enjoyment of mathematics part 2. Ohio Council Teachers of Mathematics Conference. Cincinnati, OH.

Schlosser, M. M., **Kruse, L.**, & Bostic, J. D. (October, 2015). Examining instruction through action research and how you can too. Ohio Council Teachers of Mathematics Conference. Cincinnati, OH.

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Matney, G., Bostic, J., Matney, T., Haynes, E., **Kruse, L.**, Schlosser, M., & Sullivan, C. (October, 2014). Mathematics camps: Overcoming the stigma. Ohio Council Teachers of Mathematics Conference. Cleveland, OH.

Brahier, D., **Kruse, L.**, Poling, B., Dowe, M., High, S. (October, 2013). When are we ever going to use this? Ohio Council Teachers of Mathematics Conference. Dayton, OH.

Regional

Kruse, L. & Nielsen, M. E. (April, 2016). How to “Walk the walk” and “Talk the talk”: Exploring Principles to Action’s mathematics teaching practices – representations and mathematical discourse. Bowling Green Council Teachers of Mathematics. Bowling Green, OH.

Kruse, L. & Schlosser, M. M. (December, 2015). Unpacking the standards for mathematical practice: Professional development for inservice teachers. Bowling Green Council Teachers of Mathematics. Bowling Green, OH.

Schlosser, M. M. & **Kruse, L.** (November, 2015). Unpacking the standards for mathematical practice: Professional development for preservice teachers. Bowling Green Council Teachers of Mathematics. Bowling Green, OH.

TECHNICAL REPORTS

Sondergeld, T. A., & **Kruse, L.** (2020). Evaluation of the Indiana GEAR UP Program from 2016 to 2019, *Purdue University*, 1–53.

Kruse, L. (2018). Evaluation of Indoor Evaluation Quality Perceptions and Impact within Washington D.C. Public Schools, *Perkins Eastman, DC*, 1–26.

Sondergeld, T. A., & **Kruse, L.** (2017). Content alignment study: American Board Mathematics Standards compared to Common Core Mathematics Standards, *American Board for Certification of Teacher Excellence*, 1–17.

Sondergeld, T. A., & **Kruse, L.** (2017). Content alignment study: American Board PTK Standards compared to InTASC National Standards, *American Board for Certification of Teacher Excellence*, 1–17.

MEMBERSHIPS

The American Educational Research Association, Division D	2017 – Present
Research Council of Mathematics Learning	2015 – Present

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HONORS AND AWARDS

Certificate of Research Excellence from the Environmental Design Research Association	2019
AERA Division D GSC, Co-Chair & Senior Representative	2019 – 2020
Judith Herb College of Education Award	2018 – 2019
AERA Division D GSC, Co-Chair & Junior Representative	2018 – 2019
Robert R. Buell Memorial Achievement Award	2017 – 2018
The University of Toledo Alumni Affiliate Scholarship	2017 – 2018
Robert J. and Wrey Warner Barber Scholarship	2017 – 2019
Validity Evidence for Measurement in Mathematics Education (VMED) Conference Graduate Scholar Award	2017
Benjamin Drake Wright Scholar Program	2016 – 2019
BGSU President's Award, Summa Cum Laude	2015
Group Excellence in Service-Learning and Civic Engagement, Math Camp	2015