

Margaret A. Bowman, Ph.D.

A: 35 Delaware Dr., Delaware, OH 43015 | P: 330-601-3927 | E: Margaret.a.bowman@gmail.com

EDUCATION AND CREDENTIALS

Doctor of Philosophy in Educational Studies 2021

Learning Technologies Specialization

The Ohio State University, Columbus, OH

Dissertation title: Examining the effects of digital mathematics curriculum on students' performance: The mediating role of utility value and expectancies of success in mathematics

Advisor: Kui Xie

Master of Education 2010

Tiffin University, Tiffin, OH

Bachelor of Science in Education 2006

Middle Grades Education, Math and Language Arts Concentrations

Ashland University, Ashland, OH

Graduated Magna cum Laude

PROFESSIONAL EMPLOYMENT

Miami University

Instructional Design & Technology Program, Educational Psychology Department

Visiting Assistant Professor

- Instructed online asynchronous courses for undergraduate and graduate students.
- Designed and implemented online courses in Canvas using instructional design and universal design principles.
- Served on Master's degree committees.

Medical Human Factors (medHF)

Senior Human Factors Research Consultant

- Lead human factors research projects for pharmaceutical clients.
- Analyzed qualitative and quantitative data.
- Built and maintained databases
- Recommended changes to products, instructions, and packaging to improve user experience.

McGraw-Hill Education

Academic Designer

- Managed seventh-grade Florida Mathematics and sixth-grade National Mathematics programs.
- Lead a team of academic designers to write, design, and build print and digital mathematics materials.
- Promotion to full Academic Designer after demonstrating leadership in grade-level projects.
- Researched theories of social and emotional learning (SEL) and performed needs analysis to design math program components that help students and teachers address their social and emotional needs.
- Lead train the trainer sessions for academic design teams in SEL strategies and ways to implement techniques into the core math programs.
- Continued lifelong learning, such as by researching mathematical modeling and participating in professional development opportunities to continue my commitment to learning and growing in the field.
- Analyzed national and state math standards.
- Conducted gap analysis of current math programs with new learning standards.
- Wrote lessons to address math standards, including hands-on and collaborative activities for students.
- Wrote differentiated teacher materials to support teachers in meeting the needs of all students, with a focus on equity and inclusion.
- Negotiated with multiple internal and external stakeholders, including UX, Creative, Project Management, and Research teams to design and develop new curriculum.
- Collaborated with Instructional Design team to develop digital math program and digital tools using Mayer's Multimedia Learning Principles.
- Built e-learning experiences for middle school math students and teachers.
- Designed engaging videos and animations to motivate students and immerse them in learning.
- Designed learning experiences using Geometer's Sketchpad.

RESEARCH EXPERIENCE

The Research Laboratory for Digital Learning

The Ohio State University, Columbus, OH

Graduate Research Associate

College Ready Ohio (CRO)

Research and Evaluation Team Member

- Teacher professional development program, funded by a grant from the Ohio Department of Education, focusing on emphasizing implementing technology resources in classrooms and lesson plans. The research and evaluation team conducted and disseminated original research through collection of multiple data sources.

Evaluating Digital Content for Instructional and Teaching Excellence (EDCITE)

Research and Evaluation Team Member

- Professional development experience for K-12 teachers, funded by a grant from the Ohio Department of Education, focusing on locating, evaluating, and aligning digital content in specific content areas to Ohio's Learner Standards. The research and evaluation team conducted and disseminated original research through collection of multiple data sources.

RESEARCH INTERESTS**Human Factors Research**

- Best practices in medication delivery methods
- Product usability

Education Research

- Digital curriculum
- Equity in digital education practices
- Social justice in online education
- Social and Emotional Learning in online environments
- Teacher education
- Teacher professional development
- Teachers' technology integration practices
- Students' motivation to learn
- Instructional design

ADVISING AND CONSULTING**Education Advisor**

MentaMorph

- Advised the creator of MentaMorph Money, a financial literacy app/game, on Social-Emotional Learning (SEL) strategies.

K-12 TEACHING EXPERIENCE**6th Grade Language Arts Teacher**

Willetts Middle School, Brunswick, OH

- Taught reading and writing curriculum to the 6th grade students in a block-schedule, team setting.
- Coordinated lesson plans with another 6th grade LA teacher.
- Created interdisciplinary units with the social studies and science teachers, including Inventions and Ancient Egypt.
- Requested classroom observations by the Principal and Assistant Principal
- Learned how to use iPods and Smart Notebook in my classroom and taught others to use new technology.

Math Coach

Edgewood Middle School, Wooster, OH

- Co-taught with all 7th and 8th grade Math teachers during Math 7, Math 8 and Pre-Algebra classes.
- Created standards-based Algebra 1 and Math 7 tests and quizzes.
- Developed standards-based curriculum.
- Trained teachers in using CPS Machines (“Clickers”) and software, including writing a Quick Start Guide.
- Created quizzes for use with clickers.
- Educated in and used Mobi handheld whiteboards.
- Formed small groups of students, based on OAA test scores to prepare for test.
- Coordinated with Math teachers to give timely interventions to struggling students.
- Wrote lessons for tutor sessions based on OAA tests, test prep books, current curriculum, and online resources.
- Attended IEP Writing training seminar which included EMIS form writing and all legal requirements of IEP meetings.
- Attended Professional Development opportunities that included methods of using TWIRL, Balanced Literacy, and the Graduated Release Model in the classroom.
- Received excellent evaluations from the principal for both in-class and small group sessions.

Long Term Language Arts and Math Substitute Teacher

Hillsdale Middle School, Jeromesville, OH

- Assumed role as full-time classroom instructor for teacher of Algebra I, 7th grade LA, and 8th grade LA.
- Developed curriculum, wrote lesson plans, graded assignments, made and sent mid-terms and grade cards, worked cooperatively with teachers, and maintained classroom as my own

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PUBLICATIONS

Bowman, M.A., Xie, K., & Hawk, N.A. (2023). The motivational features of digital math curricula: A framework for supporting pre-service teachers. In A. Zimmerman (Ed.), *Handbook of Research on Advancing Teaching and Teacher Education in the Context of a Virtual Age*. (pp. 229-249). IGI-Global.

Hawk, N.A., **Bowman, M.A.**, & Xie, K. (2021). Theory-Based Intervention Framework to Improve Mathematics Teachers' Motivation to Engage in Online Professional Development. In: Hollebrands K., Anderson R., Oliver K. (eds) *Online Learning in Mathematics Education. Research in Mathematics Education*. (pp. 207-225). Springer, Cham. https://doi.org/10.1007/978-3-030-80230-1_11.

Hawk, N.A., Vongkulluksn, V.W., Xie, K., & **Bowman, M.A.** (2021). Cognitive tasks in the core content areas: Factors that influence students' technology use in high-school classrooms. *Journal of Computer Assisted Learning*, 37(4), 1077-1090. <https://doi.org/10.1111/jcal.12547>.

North, C., Shortt, M., **Bowman, M.A.**, & Akinkuolie, B. (2021). How instructional design is operationalized in various industries for job-seeking learning designers: Engaging the Talent Development Capability Model. *TechTrends*, 65, 713-730. <https://doi.org/10.1007/s11528-021-00636-2>.

Bowman, M.A., Vongkulluksn, V.W., Jiang, Z., & Xie, K. (2022). Teachers' exposure to professional development and the quality of their instructional technology use: The mediating role of teachers' value and ability beliefs. *Journal of Research on Technology in Education*, 54(2), 188-204, <https://doi.org/10.1080/15391523.2020.1830895>. (Online first, 2020)

Vongkulluksn, V.W., Xie, K., & **Bowman, M.A.** (2018). The role of value on teachers' internalization of external barriers and externalization of personal beliefs for classroom technology integration. *Computers & Education*, 118, 70-81. <https://doi.org/10.1016/j.compedu.2017.11.009>.

WHITE PAPERS

Trowery, L., **Bowman, M.A.**, & Snyder, A. (2020). *K-5 Reveal Math Research Foundations: A research summary of program focused outcomes*. McGraw-Hill Education. <http://ecommerce-prod.mheducation.com.s3.amazonaws.com/unitas/school/explore/sites/reveal-math/white-paper-program-focused-outcomes.pdf>.

PRESENTATIONS INTERNATIONAL CONFERENCES

Bowman, M.A. (2023, August). *How digital mathematics curricula can affect performance: A focus on motivational features*

Poster session at the bi-annual convention of the European Association for Research on Learning and Instruction, Thessaloniki, Greece

Bowman, M.A., Hawk, N.A., & Xie, K. (2022, October). *Digital Curriculum in the Mathematics Classroom: A Framework for Supporting Pre-Service Teachers*
Paper session at the annual convention of the Association for Educational Communications and Technology, Las Vegas, NV, USA

Hawk, N.A., **Bowman, M.A.**, & Xie, K. (2021, November). *Theory-Based Intervention Framework to Improve Mathematics Teachers' Motivation to Engage in Online Professional Development*

Paper session at the annual convention of the Association for Educational Communications and Technology, Chicago, IL, USA

Bowman, M.A., Vongkulluksn, V.W., Jiang, Z., & Xie, K. (2019, April). *PD Exposure and Teachers' Use of Instructional Technology: The Mediating Role of Teacher Beliefs*

Poster session at the annual convention of the American Educational Research Association, Toronto, Ontario, CA

Vongkulluksn, V.W., Xie, K., & **Bowman, M.A.** (2018, April). *The Role of Value on Teachers' Internalization of External Barriers and Externalization of Personal Beliefs for Classroom Technology Integration*

Paper session at the annual convention of the American Educational Research Association, New York City, NY, USA

PROFESSIONAL BLOG: GUEST CONTRIBUTOR

MDR

[Students Deserve an Answer When They Ask, "When Will I Ever Use This?" In Math Class](#)

Medium

[Why Every Math Classroom Should Include Social and Emotional Learning](#)

[5 Ways to Create an Equitable Math Classroom](#)

[Instructional Routines in K-5 Mathematics](#)

[Why Fluency is Critical in K-5 Math Classrooms \(And How to Promote Fluency in Math Instruction\)](#)

[How to Encourage Productive Struggle in Math](#)

[Mathematical Discourse Promotes Educational Equity](#)

Metacognitive Strategies in the Math Classroom

We Are Teachers

Ask the Experts: Differentiation in Middle School Math

Ask the Experts: Assessment in Middle School Math

PROFESSIONAL MEMBERSHIP

American Educational Research Association: Division C; Design and Technology SIG;

Instructional Technology SIG

Association for Educational Communications and Technology

European Association for Research on Learning and Instruction

PROFESSIONAL SERVICE

Peer Reviewer

Journal of Research on Technology in Education

Computers & Education

TECHNOLOGY SKILLS

Microsoft Office

Geometer's Sketchpad

Mplus

Adobe Acrobat Pro

Mobile Devices

SPSS

Articulate Rise 360

Mac and PC

Zoom

Canvas

Adobe InCopy