

Ana C. Stephens

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EDUCATION

- 2004 Ph.D. in Curriculum and Instruction (Mathematics Education), Minor in Educational Psychology
University of Wisconsin-Madison
Dissertation: *Preservice Elementary Teachers' Conceptions of Algebra and Algebraic Equivalence*
- 2001 M.S. in Curriculum and Instruction (Mathematics Education)
University of Wisconsin-Madison
- 1996 B.S. in Curriculum and Instruction (Secondary Mathematics Education)
University of Wisconsin-Madison

PROFESSIONAL POSITIONS

- 2019– Researcher, Wisconsin Center for Education Research, University of Wisconsin-Madison
- 2020– Instructor (online), State University of New York at Albany
- 2009–2019 Associate Researcher, Wisconsin Center for Education Research, University of Wisconsin-Madison
- 2008 Lecturer, Department of Curriculum and Instruction, University of Wisconsin-Madison
- 2007–2009 Student Teaching Supervisor, Department of Curriculum and Instruction, University of Wisconsin-Madison
- 2006–2007 Instructor (online), State University of New York at Albany
- 2005–2007 Assistant Researcher, Wisconsin Center for Education Research, University of Wisconsin-Madison
- 2003–2004 Teaching Assistant, Department of Curriculum & Instruction, University of Wisconsin-Madison
- 2001–2005 Project Assistant, Wisconsin Center for Education Research, University of Wisconsin-Madison
- 2001–2002 Project Assistant, Department of Psychology, University of Wisconsin-Madison
- 2000–2001 Project Assistant, Department of Curriculum and Instruction, University of Wisconsin-Madison
- 1998–2000 Mathematics Teacher, Mount Horeb High School, Mount Horeb, WI
- 1996–1998 Mathematics Teacher, Wisconsin Dells High School, Wisconsin Dells, WI

RESEARCH GRANTS

- 2023–2028 National Science Foundation, EDU Core Research (ECR), DRL-20301010 (PI, with Martha Alibali, co-PI; Percival Matthews, co-PI; Alexandria Viegut, co-PI; and Daniel Bolt, co-PI) “A longitudinal exploration of relations between fractions and algebra knowledge: An interdisciplinary approach” [\$2,499,995]
- 2018–2021 National Science Foundation, Science of Learning, Discovery Research K–12, DRL-1824182 (co-PI, with Percival Matthews, PI and Martha Alibali, co-PI) “Cultivating Knowledge of Mathematical Equivalence” [\$670,986]
- 2017–2021 Institute of Education Sciences, STEM Education, R305A170378 (co-PI, with Maria Blanton, PI; Angela Murphy Gardiner, co-PI; Rena Stroud, co-PI; and Eric Knuth, co-PI) “Project LEAP: Extending a Grades 3–5 Early Algebra Progression into Grades K–2” [\$1,399,920]
- 2017–2021 National Science Foundation, Discovery Research K–12, DRL-1729912 (co-PI, with Eric Knuth, PI; Maria Blanton, co-PI; Angela Murphy Gardiner, co-PI; and Despina Stylianou, co-PI) “Identifying Effective Instructional Practices that Foster the Development of Algebraic Thinking in Elementary School” [\$1,378,542]
- 2017–2020 National Science Foundation, Discovery Research K–12, DRL-1720129 (co-PI, with Maria Blanton, PI; Angela Murphy Gardiner, co-PI; Rena Stroud, co-PI; and Eric Knuth, co-PI) “Building a Grades K–2 Early Algebra Learning Progression for Diverse Populations” [\$1,617,966]
- 2015–2017 National Science Foundation, Discovery Research K–12, DRL-1550897 (co-PI, with Maria Blanton, PI and Eric Knuth, co-PI) “RAPID: Retention of Early Algebraic Understanding” [\$97,919]
- 2014–2018 Institute of Education Sciences, STEM Education, R305A140092 (co-PI, with Maria Blanton, PI; Eric Knuth, co-PI, Despina Stylianou, co-PI; and Lindsay Demers, co-PI) “The Impact of a Teacher-Led Early Algebra Intervention on Children's Algebra-Readiness for Middle School” [\$3,475,975]
- 2012–2015 National Science Foundation, Discovery Research K–12, DRL-1219605/06 (co-PI, with Maria Blanton, PI and Eric Knuth, co-PI) “The Impact of Early Algebra on Students’ Algebra-Readiness” [\$942,792]

PUBLICATIONS

Journal Articles

- Strachota, S., Stephens, A., Morton, K., Veltri Torres, R., Blanton, M., Gardiner A., Sung, Y., Stroud R., & Knuth, E. (In press). How tools mediate elementary students’ algebraic reasoning about evens and odds. *Mathematics Education Research Journal*.
- Donovan, A. M., Stephens, A., Alapala, B., Monday, A., Szkudlarek, E., Alibali, M. W., & Matthews, P. G. (2022). Is a substitute the same? Learning from lessons centering different relational conceptions of the equal sign. *ZDM–Mathematics Education*, 54, 1199–1213.

- Blanton, M., Gardiner, A., M., Ristroph, I., Stephens, A., Knuth, E., Stroud, R. (2022). Progressions in young learners' understandings of parity arguments. *Mathematical Thinking and Learning*. doi.org/10.1080/10986065.2022.2053775
- Stephens, A., Sung, Y., Strachota, S., Veltri Torres, R., Morton, K., Gardiner, A.M., Blanton, M., Knuth, E., & Stroud, R. (2022). The role of balance scales in supporting productive thinking about equations among diverse learners. *Mathematical Thinking and Learning*, 24(1), 1–18.
- Stephens, A., Veltri Torres, R., Sung, Y., Strachota, S., Murphy Gardiner, A., Blanton, M., Stroud, R., & Knuth, E. (2021). From "You have to have three numbers and plus sign" to "It's the exact same thing": K–1 students learn to think relationally about equations. *Journal of Mathematical Behavior*, 62. doi.org/10.1016/j.jmathb.2021.100871
- Stephens, A., Stroud, R., Strachota, S., Stylianou, D., Blanton, M., Knuth, E., & Gardiner, A. M. (2021). What early algebra knowledge persists one year after an elementary grades intervention? *Journal for Research in Mathematics Education*, 52(3), 332–348.
- Sung, Y., Stephens, A., Blanton, M., Gardiner, A. M., Knuth, E., & Stroud, R. (2021). Positive emotions in early algebra meaning-making. *Didactica Mathematicae*, 43, 31–59.
- Blanton, M., Stroud, R., Stephens, A., Gardiner, A., Stylianou, D., Knuth, E., Isler, I., & Strachota, S. (2019). Does early algebra matter? The effectiveness of an early algebra intervention in grades 3–5. *American Educational Research Journal*, 56(5), 1930–1972.
- Blanton, M., Isler-Baykal, I., Stroud, R., Stephens, A., Knuth, E., & Murphy Gardiner, A. (2019). Growth in children's understanding of generalizing and representing mathematical structure and relationships. *Educational Studies in Mathematics*, 102, 193–219.
- Stylianou, D., Stroud, R., Cassidy, M., Gardiner, A., Stephens, A., Knuth, E., Demers, L. (2019). Putting early algebra in the hands of elementary school teachers: Examining fidelity of implementation and its relation to student performance. *Journal for the study of education and development/Infancia y Aprendizaje* (Special Issue: Early Algebra), 42(3), 523–569.
- Fonger, N. L., Stephens, A., Blanton, M., Isler, I., Knuth, E., & Gardiner, A. M. (2018). Developing a learning progression for curriculum, instruction, and student learning: An example from early algebra research. *Cognition and Instruction*, 36(1), 30–55.
- Stephens, A. C., Fonger, N. L., Strachota, S., Isler, I., Blanton, M., Knuth, E., & Gardiner, A. (2017). A learning progression for elementary students' functional thinking. *Mathematical Thinking and Learning*, 19(3), 143–166.
- Knuth, E., Stephens, A., Blanton, M., & Gardiner, A. (2016). Building an early foundation for algebra success. *Phi Delta Kappan*, 97(6), 65–68.
- Blanton, M., Stephens, A., Knuth, E., Gardiner, A., Isler, I., & Kim, J. (2015). The development of children's algebraic thinking: The impact of a comprehensive early algebra intervention in third grade. *Journal for Research in Mathematics Education*, 46(1), 39–87.
- Stephens, A., Blanton, M., Knuth, E., Isler, I., & Gardiner, A. (2015). Just say YES to early algebra! *Teaching Children Mathematics*, 22(2), 92–101.

- Alibali, M. W., Stephens, A. C., Brown, A. N., Kao, Y. S., & Nathan, M. J. (2014). Middle school students' conceptual understanding of equations: Evidence from writing story problems. *International Journal of Educational Psychology*, 3(3), 235–264.
- Isler, I., Marum, T., Stephens, A., Blanton, M., Knuth, E., & Gardiner, A. (2014). The string task: Not just for high school. *Teaching Children Mathematics*, 21(5), 282–292.
- Stephens, A. C., Knuth, E. J., Blanton, M. L., Isler, I., Gardiner, A., & Marum, T. (2013). Equation structure and the meaning of the equal sign: The impact of task selection in eliciting elementary students' understandings. *Journal of Mathematical Behavior*, 32(2), 173–182.
- Bottge, B. A., Grant, T. S., Stephens, A. C., Rueda, E. (2010). Advancing the math skills of middle school students in technology education classrooms. *NASSP Bulletin*, 94(2), 81–106.
- Bottge, B. A., Rueda, E., Grant, T. S., Stephens, A. C., & LaRoque, P. T. (2010). Anchoring problem-solving and computation instruction in context-rich learning environments. *Exceptional Children*, 76(4), 417–437.
- McNeil, N. M., Weinberg, A., Hattikudur, S., Stephens, A. C., Asquith, P., Knuth, E. J., & Alibali, M. W. (2010). A is for apple: Mnemonic symbols hinder the interpretation of algebraic expressions. *Journal of Educational Psychology*, 102(3), 625–634.
- Stephens, A. C., Bottge, B. A., & Rueda, E. (2009). Ramping up on fractions. *Mathematics Teaching in the Middle School*, 14(9), 520–526.
- Stephens, A. C. (2008). What “counts” as algebra in the eyes of preservice elementary teachers? *Journal of Mathematical Behavior*, 27(1), 33–47.
- Knuth, E. J., Alibali, M. W., Hattikudur, S., McNeil, N. M., & Stephens, A. C. (2008). The importance of equal sign understanding in the middle grades. *Mathematics Teaching in the Middle School*, 13(9), 514–519.
- Alibali, M. W., Knuth, E. J., Hattikudur, S., McNeil, N. M., & Stephens, A. C. (2007). A longitudinal examination of middle school students' understandings of the equal sign and equivalent equations. *Mathematical Thinking and Learning*, 9(3), 221–247.
- Asquith, P., Stephens, A. C., Knuth, E. J., & Alibali, M. W. (2007). Middle school mathematics teachers' knowledge of students' understanding of core algebraic concepts: Equal sign and variable. *Mathematical Thinking and Learning*, 9(3), 249–272.
- Stephens, A. C. (2006). Equivalence and relational thinking: Preservice elementary teachers' awareness of opportunities and misconceptions. *Journal of Mathematics Teacher Education*, 9(3), 249–278.
- Stephens, A. C., & Lamers, C. (2006). Assessment design: Helping preservice teachers focus on student thinking. *Teaching Children Mathematics*, 13(2), 118–123.
- Knuth, E. J., Stephens, A. C., McNeil, N. M., & Alibali, M. W. (2006). Does understanding the equal sign matter? Evidence from solving equations. *Journal for Research in Mathematics Education*, 37(4), 297–312.

McNeil, N. M., Grandau, L., Knuth, E. J., Alibali, M. W., Stephens, A. C., Hattikudur, S., & Krill, D. E. (2006). Middle-school students' understanding of the equal sign: The books they read can't help. *Cognition and Instruction*, 24(3), 367–385.

Grandau, L., & Stephens, A. C. (2006). Algebraic thinking and geometry. *Mathematics Teaching in the Middle School*, 11(7), 344–349.

Stephens, A. C. (2005). Developing students' understandings of variable. *Mathematics Teaching in the Middle School*, 11(2), 96–100.

Knuth, E. J., Alibali, M. W., McNeil, N. M., Weinberg, A., & Stephens, A. C. (2005). Middle school students' understanding of core algebraic concepts: Equivalence and variable. *Zentralblatt für Didaktik der Mathematik*, 37(1), 68–76.

Stephens, A. C., & Hartmann, C. E. (2004). A successful professional development project's failure to promote online discussion about teaching mathematics with technology. *Journal of Technology and Teacher Education*, 12(1), 57–73.

Stephens, A. C. (2003). Another look at word problems. *Mathematics Teacher*, 96(1), 63–66.

Book Chapters

Blanton, M., Brizuela, B., Stephens, A., Knuth, E., Isler, I., Gardiner, A., Stroud, R., Fonger, N., & Stylianou, D. (2018). Implementing a framework for early algebra. In C. Kieran (Ed.), *Teaching and Learning Algebraic Thinking with 5- to 12-year-olds. The Global Evolution of an Emerging Field of Research and Practice* (pp. 27–49). Springer International Publishing.

Stephens, A., Ellis, A., Blanton, M., & Brizuela, B. (2017). Algebraic thinking in the elementary and middle grades. In J. Cai (Ed.), *Compendium for research in mathematics education* (pp. 386–420). National Council of Teachers of Mathematics.

Stephens, A., & Knuth, E. (2017). Algebraic reasoning in grades 6–8. In M. Battista (Ed.), *Reasoning and Sense Making in Grades 6–8* (pp. 47–71). National Council of Teachers of Mathematics.

Knuth, E., & Stephens, A. (2016). The equal sign *does* matter. In E. Silver & P. Kenney (Eds.), *More lessons learned from research: Volume 2: Helping all students understand important mathematics* (pp. 135–140). National Council of Teachers of Mathematics.

Stephens, A., with Blanton, M. (2016). Algebraic reasoning in prekindergarten–grade 2. In M. Battista (Ed.), *Reasoning and Sense Making in Prekindergarten–Grade 2* (pp. 71–104). National Council of Teachers of Mathematics.

Knuth, E., Alibali, M., Weinberg, A., Stephens, A., & McNeil, N. (2011). Middle school students' understanding of core algebraic concepts: Equivalence & variable. In Knuth, E. & J. Cai (Eds.), *Early Algebraization: A Global Dialogue from Multiple Perspectives* (pp. 135–139). Advances in Mathematics Education Monograph Series. Springer.

Conference Proceedings

- Sung, Y., Stephens, A., Veltri Torres, R., Strachota, S., Blanton, M., Gardiner, A., Stroud, R., & Knuth, E. (2022). Teacher language and gesture in an intervention focused on developing kindergarteners' understandings of the equal sign. In A. E. Lischka, E. B. Dyer, R. S. Jones, J. N. Lovett, J. Strayer, & S. Drown (Eds.), *Proceedings of the forty-fourth annual meeting of the North American chapter of the international group for the psychology of mathematics education* (pp. 321–330). Middle Tennessee State University.
- Stephens, A., Stroud, R., Strachota, S., Blanton, M., Stylianou, D., Knuth, E., Veltri Torres, R., Murphy Gardiner, A., & Sung, Y. (2019). Sixth-grade students' retention of early algebra understandings after an elementary grades intervention. In S. Otten, A. G. Candela, Z. de Araujo, C. Haines, & C. Munter (Eds.), *Proceedings of the forty-first annual meeting of the North American chapter of the international group for the psychology of mathematics education* (pp. 147–156). University of Missouri.
- Isler, I., Strachota, S., Stephens, A., Fonger, N., Blanton, M., Gardiner, A., & Knuth, E. (2017). Grade 6 students' abilities to represent function rules. In T. Dooley, & G. Gueudet (Eds.), *Proceedings of the Tenth Congress of the European Society for Research in Mathematics Education* (pp. 432–439). DCU Institute of Education and ERME.
- Strachota, S., Stephens, A., Knuth, E., Blanton, M., Isler, I., & Gardiner, A. (2017). The interplay between students' understandings of proportional and functional relationships. In E. Galindo., & J. Newton (Eds.), *Proceedings of the thirty-ninth annual meeting of the North American chapter of the international group for the psychology of mathematics education* (pp. 251–258). Hoosier Association of Mathematics Teacher Educators.
- Cassidy, M., Stroud, R., Stylianou, D., Blanton, M., Gardiner, A., Knuth, E. & Stephens, A. (2017). Examining the fidelity of implementation of an early algebra intervention and student learning. In E Galindo, & J. Newton, (Eds.), *Proceedings of the thirty-ninth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 299–302). Hoosier Association of Mathematics Teacher Educators.
- Prough, S., Strachota, S., Veltri, R., Isler, I., Blanton, M., Gardiner, A., Knuth, E., & Stephens, A. (2017). Fostering generalizations: a classroom discourse analysis. In E. Galindo, & J. Newton (Eds.), *Proceedings of the thirty-ninth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 287–298). Hoosier Association of Mathematics Teacher Educators.
- Strachota, S., Fonger, N., Stephens, A., Blanton, M., Knuth, E., & Gardiner, A. M. (2016). Understanding variation in elementary students' functional thinking. In C. Csíkos, A. Rausch, & J. Szitányi (Eds.), *Proceedings of the 40th Annual Conference of the International Group for the Psychology of Mathematics Education*, (pp. 243–250). Szeged, Hungary.
- Fonger, N., Stephens, A., Blanton, M., & Knuth, E. (2015). A learning progressions approach to early algebra research and practice. In T. G. Bartell, K. N. Bieda, R. T. Putnam, K. Bradfield, & H. Dominguez (Eds.), *Proceedings of the thirty-seventh annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 201–204). Michigan State University.
- Isler, I., Blanton, M., Murphy Gardiner, A., Knuth, E., Stephens, A., & Kang, H. (2014). A comparison of elementary and middle grade students' algebraic reasoning. In S. Oesterle, C. Nicol, P. Liljedahl, &

- D. Allan (Eds.), *Proceedings of the Joint Meeting of PME 38 and PME-NA 36* (Vol. 6: pp. 110). PME.
- Isler, I., Stephens, A., Gardiner, A., Knuth, E., & Blanton, M. (2013). Third-graders' generalizations about even numbers and odd numbers: The impact of an early algebra intervention. In M. Martinez, & A. Castro Superfine (Eds.), *Proceedings of the thirty-fifth annual meeting of the North American chapter of the international group for the psychology of mathematics education* (pp. 140–143). ERIC Clearinghouse for Science, Mathematics, and Environmental Education.
- Stephens, A., Isler, I., Marum, T., Blanton, M., Knuth, E., & Gardiner, A. (2012). From recursive pattern to correspondence rule: Developing students' abilities to engage in functional thinking. In L. R. Van Zoest, J. J. Lo, & J. L. Kratky (Eds.), *Proceedings of the thirty-fourth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 821–828). Western Michigan University.
- Marum, T., Isler, I., Stephens, A., Gardiner, A., Blanton, M., Knuth, E. (2011). From specific value to variable: Developing students' abilities to represent unknowns. In L. R. Wiest & T. Lamberg (Eds.), *Proceedings of the thirty-third annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 106–113). University of Nevada, Reno.
- McNeil, N. M., Grandau, L., Stephens, A. C., Krill, D. E., Alibali, M. W., & Knuth, E. J. (2004). Middle-school students' experience with the equal sign: *Saxon Math* does not equal *Connected Mathematics*. In D. McDougall (Ed.), *Proceedings of the twenty-sixth annual meeting of the North American chapter of the international group for the psychology of mathematics education* (pp. 271–276). ERIC Clearinghouse for Science, Mathematics, and Environmental Education.
- Nathan, M. J., Stephens, A. C., Masarik, K., Alibali, M. W., & Koedinger, K. R. (2002). Representational fluency in the middle school: A classroom study. In D. S. Mewborn, P. Sztajn, D. Y. White, H. G. Wiegel, R. L. Bryant, & K. Nooney (Eds.), *Proceedings of the twenty-fourth annual meeting of the North American chapter of the international group for the psychology of mathematics education* (pp. 463–472). ERIC Clearinghouse for Science, Mathematics, and Environmental Education.
- Stephens, A. C. (2001). A study of students' translations from equations to word problems. In R. Speiser, C. A. Mahar, & C. N. Walter (Eds.), *Proceedings of the twenty-third annual meeting of the North American chapter of the international group for the psychology of mathematics education* (pp. 133–134). ERIC Clearinghouse for Science, Mathematics, and Environmental Education.

Working papers

- Nathan, M. J., Masarik, K., Stephens, A. C., Alibali, M. W., Koedinger, K. R. (2010). Enhancing middle school students' representational fluency: A classroom-based study. Wisconsin Center for Education Research. Working Paper No. 2010-9.
- Alibali, M. W., Brown, A. N., Stephens, A. C., Kao, Y. S., & Nathan, M. J. (2009). Middle school students' conceptual understanding of equations: Evidence from writing story problems. Wisconsin Center for Education Research. Working Paper No. 2009-3.

Blog

Isler, I., Stephens, A., & Kang, H. (2016). Even and odd numbers: A journey into the algebraic thinking practice of justification. *Teaching Children Mathematics*. [Web log]. Retrieved from <http://www.nctm.org/tcm-blog>

RESEARCH PRESENTATIONS

Stephens, A. C., Sung, Y., Blanton, M., Gardiner, A., Stroud, R., & Knuth, E. J. (2023). Kindergarten–Grade 2 students' algebraic reasoning before and after a one-year early algebra intervention. Paper presented at the Annual Meeting of the American Education Research Association, Chicago, IL.

Sung, Y., Stephens, A. C., Blanton, M., Gardiner, A., Knuth, E. J., & Stroud, R. (2023). K–2 early algebra students' understanding of the commutative property of addition. Paper presented at the Annual Meeting of the American Education Research Association, Chicago, IL.

Viegut, A., Stephens, A. C., Matthews, P. G. (2023). How does fractions knowledge support algebra knowledge? An interdisciplinary investigation. Paper presented at the Annual Meeting of the American Education Research Association, Chicago, IL.

Viegut, A. A., Stephens, A. C., & Matthews, P. G. (2022). Which aspects of fractions knowledge support knowledge of algebra concepts, procedures, and flexibility? Poster presented at the Mathematical Cognition and Learning Society Conference, Antwerp, Belgium.

Viegut, A. A., Stephens, A. C., & Matthews, P. G. (2022). Why does fractions knowledge support algebra knowledge? Investigating multiple paths. Poster presented at the Mathematical Cognition and Learning Society Conference, Antwerp, Belgium.

Donovan, A. M., Alapala, B., Stephens, A., Monday, A., Szkudlarek, E., Alibali, M. W., & Matthews, P. G. (2022). Does a substitutive conception of the equal sign enhance students' understanding of equivalence and algebraic problem solving? Poster presented at the Biennial Conference of the Cognitive Development Society, Madison, WI.

Gardiner, A. M., & Stephens, A. (2021). The impact of algebra in the elementary math curriculum. Presentation at the Annual Meeting of the National Council of Teachers of Mathematics. (Virtual conference)

Stephens, A., Sung, Y., Strachota, S., Veltri Torres, R., Morton, K., Murphy Gardiner, A., Blanton, M., Knuth, E., & Stroud, R. (2020). How do balance scales shape K–2 students' understandings of equations? Poster to be presented at the Annual Conference of the Society for Research on Educational Effectiveness, Washington, DC. (Conference cancelled)

Stephens, A., Knuth, E., Blanton, M., Gardiner, A., Stylianou, D., & Stroud, R. (2019). A comprehensive approach to early algebra. Presentation at the Annual Meeting of the American Education Research Association as part of the symposium *Exploring Diversity and Synergy Across Research Programs within Early Algebra*, Toronto, CA.

Stroud, R., Blanton, M., Gardiner, A., Knuth, E., Stephens, A., & Stylianou, D. (2019). Project LEAP: Results of a grades 3–5 early algebra intervention with at-risk populations. Paper presented at the Annual Meeting of the American Education Research Association, Toronto, CA.

- Veltri Torres, R., Prough, S., Strachota, S., Stephens, A., Sung, Y., Gardiner, A., Blanton, M., & Knuth, E., (2019). Describing the unknown: Moving toward variable notation and algebraic thinking in kindergarten. Paper presented at the Annual Meeting of the American Educational Research Association, Toronto, Canada.
- Strachota, S., Blanton, M., Stephens, A., Murphy Gardiner, A., & Ristroph, I. (2019). Supporting instruction that fosters algebraic thinking. Paper presented at the Association of Mathematics Teacher Educators Annual Conference, Orlando, FL.
- Gardiner, A., Stylianou, D., Stephens, A., Knuth, E., Blanton, M., & Stroud, R. (2018). Pedagogy that Advances Algebraic Reasoning in Elementary Grades. Presentation at the Annual Meeting of the National Council of Teachers of Mathematics, Washington, DC.
- Stylianou, D., Cassidy, M., Stroud, R., Blanton, M., Knuth, E., Gardiner, A., & Stephens, A. (2018). Fidelity of Implementation: Exploring instructional characteristics in a large-scale early algebra intervention. Paper presented at the Annual Meeting of the American Educational Research Association.
- Prough, S., Veltri, R., Blanton, M., Gardiner, A., Stroud, R., Knuth, E., Stylianou, D., & Stephens, A. (2018). Preparing Elementary Students for Algebra: Results of a Grade 3–5 Early Algebra Intervention. Presentation at the NSF STEM Video Showcase.
- Stephens, A., Stroud, R., Knuth, E., Blanton, M., Stylianou, D., Strachota, S., Isler, I., & Gardiner, A. (2017). The impact of a large-scale early algebra intervention. Paper presented at the National Council of Teachers of Mathematics Research Conference, San Antonio, TX.
- Blanton, M., Isler, I., Stephens, A., Gardiner, A., Knuth, E., Demers, L., & Strachota, S. (2017). Longitudinal growth in children's algebraic thinking: Results of a 3-year early algebra intervention. Paper presented at the Research Conference of the National Council of Teachers of Mathematics, San Antonio, TX.
- Strachota, S., Knuth, E., Stephens, A., & Blanton, M. (2017). The co-development of Functional Thinking and Equivalence. Paper presented at the National Council of Teachers of Mathematics Research Conference, San Antonio, TX.
- Veltri, R., Prough, S., Strachota, S., Knuth, E., Stephens, A., Stylianou, D., Blanton, M., Stroud, R., & Gardiner, A. (2017). The Impact of a teacher-led early algebra intervention. Poster presented at the thirty-ninth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics, Indianapolis, IN.
- Prough, S., Veltri, R., Strachota, S., Stephens, A., Knuth, E., & Blanton, M. (2017). *Supporting Students' Algebraic Reasoning in the Early Grades*. Presentation at Wisconsin Mathematics Council Annual Conference (National Council of Teachers of Mathematics-Affiliate), Green Lake, WI.
- Blanton, M., Brizuela, B., & Stephens, A. (2016). Children's understanding and use of variable notation. Paper presented at the 13th International Congress on Mathematics Education. Hamburg, Germany.
- Blanton, M., Brizuela, B., & Stephens, A. (2016). Elementary children's algebraic thinking. Paper presented at the 13th International Congress on Mathematics Education. Hamburg, Germany.
- Stephens, A., Fonger, N., Blanton, M., Knuth, E., Strachota, S., & Isler, I. (2016). Elementary students' generalization and representation of functional relationships: A learning progressions approach.

- Poster presented at the Annual Meeting of the American Education Research Association, Washington, DC.
- Blanton, M., Isler, I., Stephens, A., Knuth, E., Gardiner, A., Strachota, S. (2016). A longitudinal study of elementary students' use of variable notation to represent mathematical generalizations. Paper presented at the Annual Meeting of the American Education Research Association, Washington, DC.
- Blanton, M., Knuth, E., Stephens, A., Stylianou, D., Stroud, R., Gardiner, A., Isler, I., & Strachota, S. (2016). The impact of a teacher-led early algebra intervention on children's algebra-readiness for middle school: Grade 3 results. Presentation at the Annual Institute of Education Sciences Principal Investigators' Meeting, Washington, DC.
- Fonger, N. L., Stephens, A., Isler, I., Strachota, S. Blanton, M., Knuth, E. (2016). An early algebra learning progression for characterizing and supporting students' generalization and representation of functions: A longitudinal approach to integrating curriculum, instruction, assessment, and student learning. Presented at the Institute of Education Sciences Principal Investigators' Meeting, Washington, DC.
- Strachota, S., Isler, I., Kang, H., Stephens, A., Blanton, M., Knuth, E., & Gardiner, A. (2015). Arithmetic properties as a route into algebraic reasoning. Poster presented at the thirty-seventh annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, East Lansing, MI.
- Kang, H., Stephens, A., Blanton, M., Gardiner, A., Isler, I., & Knuth, E. (2015). Examining students' algebraic thinking through interview assessments. Paper presented at the National Council of Teachers of Mathematics Research Conference, Boston, MA.
- Stephens, A. C. (2013). Extending arithmetic to algebraic reasoning. Invited presentation for NCTM's Learn-Reflect Strand at the Annual Meeting of the Wisconsin Math Council (National Council of Teachers of Mathematics-Affiliate), Green Lake, WI.
- Isler, I., Stephens, A., Gardiner, A., Blanton, M., & Knuth, E. (2013). Fourth-grade students' abilities to write algebraic expressions and equations. Poster presented at the National Council of Teachers of Mathematics Research Pre-session, Denver, CO.
- Blanton, M., Knuth, E., Stephens, A., Gardiner, A., Isler, I., & Marum, T. (2012). Shifts in children's algebra understanding using a learning progressions approach to early algebra. Paper presented as part of the Research Symposium "Measuring early algebra impact: Quantitative studies of children's algebra learning" at the National Council of Teachers of Mathematics Research Pre-session, Philadelphia, PA.
- Stephens, A. C., Blanton, M. L., Knuth, E. J., Gardiner, A. M., Marum, T., & Isler, I. (2012). Aligning early algebra learning progressions and assessments in grades 3-8. Working session presented at the National Council of Teachers of Mathematics Research Pre-session, Philadelphia, PA.
- Blanton, M., Knuth, E., Stephens, A., Gardiner, A., Isler, I., & Marum, T. (2012). Within-grade impacts of an early algebra classroom intervention. Paper presented at the National Council of Teachers of Mathematics Research Pre-session, Philadelphia, PA.

- Blanton, M., Stephens, A., Gardiner, A., Marum, T., Knuth, E., & Isler, I. (2012). Aligning early algebra learning progressions and assessments in grades 6–7. Working session presented at the National Council of Teachers of Mathematics Research Pre-session, Philadelphia, PA.
- Isler, I., Stephens, A. C., Blanton, M. L., Knuth, E. J., Marum, T., & Gardiner, A. (2012). Elementary students' recognition of algebraic structure: Not all tasks are created equal. Paper presented at the Annual Meeting of the American Education Research Association, Vancouver, BC.
- Blanton, M., Stephens, A., Marum, T., Gardiner, A. M., & Knuth, E. (2011). Investigating early algebra learning progressions for grades 3–8. Working session presented at the National Council of Teachers of Mathematics Research Pre-session, Indianapolis, IN.
- Stephens, A. C., Rueda-Sarmiento, E., & Bottge, B. A. (2008). Advancing students' problem-solving competence and procedural skill using Enhanced Anchored Instruction. Paper presented at the Annual Meeting of the American Education Research Association, New York, NY.
- Bottge, B. A., Rueda, E., & Stephens, A. C. (2007). Advancing the Math Skills of Low-Achieving Adolescents in Technology-Rich Learning Environments. Poster presented at the Institute of Education Sciences Research Principal Investigators' Meeting, Washington, DC.
- LaRoque, P. T., Stephens, A. C., Glass, M., & Bottge, B. A. (2007). Confronting "classroom realities": The importance of a mixed-methods approach. Paper presented at the Annual Meeting of the American Education Research Association, Chicago, IL.
- Asquith, P., Alibali, M. W., Knuth, E. J., & Stephens, A. C. (2007). Misconceptions in early algebra learning: The case of the equal sign. Session presented at the Annual Meeting of the Wisconsin Mathematics Council, Green Lake, WI.
- Stephens, A. C. (2006). What "counts" as algebra in the eyes of preservice elementary teachers? Paper presented at the Annual Meeting of the American Education Research Association, San Francisco, CA.
- Asquith, P., Stephens, A. C., Knuth, E. J., & Alibali, M.W. (2006). Middle-school teachers' predictions of student reasoning on equality and variable tasks. Paper presented at the Annual Meeting of the American Education Research Association, San Francisco, CA.
- Asquith, P., Stephens, A. C., Grandau, L., Knuth, E. J., & Alibali, M.W. (2005). Investigating middle school teachers' perceptions of algebraic thinking. Paper presented at the Annual Meeting of the American Education Research Association, Montreal, Canada.
- Stephens, A. C., Grandau, L., Asquith, P., Knuth, E. J., & Alibali, M.W. (2004). Developing teachers' attention to students' algebraic thinking. Paper presented at the Annual Meeting of the American Education Research Association, San Diego, CA.
- Weinberg, A. D., Stephens, A. C., McNeil, N. M., Krill, D. E., Knuth, E. J., & Alibali, M. W. (2004). Students' initial and developing conceptions of variable. Paper presented at the Annual Meeting of the American Education Research Association, San Diego, CA.
- Stephens, A. C. & Hartmann, C. E. (2002). Using an online discussion forum to engage secondary mathematics teachers in teaching with technology. Paper presented at the Annual Meeting of the American Education Research Association, New Orleans, LA.

PROFESSIONAL SERVICE

Conference submission reviewer

American Education Research Association annual meetings

Psychology of Mathematics Education, North American Chapter annual meetings

Journal article reviewer

Cognition and Instruction

Cognitive Development

Educational Studies in Mathematics

The Elementary School Journal

Journal of Mathematical Behavior

Journal of Mathematics Teacher Education

Journal for Research in Mathematics Education

Learning and Individual Differences

Mathematical Thinking and Learning

Mathematics Teacher: Learning and Teaching

Mathematics Teaching in the Middle School

National Association of Secondary School Principals Bulletin

Research in Mathematics Education

Teaching Children Mathematics

Teaching and Teacher Education

ZDM–Mathematics Education

Proposal Review Panel Member

National Science Foundation EHR Core Research Program

PROFESSIONAL MEMBERSHIPS

American Educational Research Association

National Council of Teachers of Mathematics

Psychology of Mathematics Education North American Chapter

COMMUNITY INVOLVEMENT

2022 Tutor, Madison East High School, Madison, WI

2010–2020 Classroom volunteer, Gompers Elementary School, Madison, WI

2016–2019 Treasurer, East Madison Little League, Madison, WI