
ERIN R. OTTMAR

Worcester Polytechnic Institute
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Social Science and Policy Studies
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EDUCATION

Post-Doctoral Training 2011-2014
UNIVERSITY OF RICHMOND, Department of Psychology
Concentrations: Mathematics Learning and Cognition

Ph.D. UNIVERSITY OF VIRGINIA, Curry School of Education May 2011
Educational Psychology: Applied Developmental Science
Concentrations: Mathematics Education
Classroom Interventions
Social and Emotional Development of Children

B.A. UNIVERSITY OF RICHMOND May 2005
Psychology and Elementary Education, *Cum Laude*
Minor: Studio Art

Virginia Professional Teaching License (Pre-K-6)

SCHOLARLY INTERESTS

Mathematical Cognition and Development; Educational Technology; Embodied Cognition; Interventions in Schools; Math Teaching and Learning; Perceptual Learning; Social and Emotional Learning and Development; Observational Measurement Teacher/Child Interactions; Motivation and Engagement; Teacher Change

PROFESSIONAL RESEARCH EXPERIENCE

Worcester Polytechnic Institute, Social Science and Policy Studies Department 2022-present
Associate Professor of Learning Sciences and Psychology

Worcester Polytechnic Institute, Social Science and Policy Studies Department 2015-2022
Assistant Professor of Learning Sciences and Psychology

Indiana University, Department of Psychological and Brain Sciences 2014-2015
Visiting Research Associate

University of Richmond, Department of Psychology 2011-2014
Post-doctoral Research Scientist

University of Virginia, Curry School of Education, Social Development Lab 2007-2011
Graduate Researcher

University of Virginia, Center for Advanced Study of Teaching and Learning (CASTL) 2007-2011
Graduate Researcher

University of Richmond, Department of Psychology 2001-2005

Undergraduate Research Assistant

AWARDS/DISTINCTIONS/FELLOWSHIPS

2022 NSF CAREER Grant	2022
2022 Sigma Xi Outstanding Junior Faculty Researcher Award-WPI	2022
2019 WPI Trustee's Faculty Achievement Award	2020
2018 WPI Trustee's Faculty Achievement Award	2019
2018 AERA Division C New Faculty Mentoring Program Awardee	2018
2017 Data Consortium Fellow	2017
2016 WPI Trustee's Faculty Achievement Award	2017
AERA Early Career Fellow- Study of Deeper Learning (AERA-SDL)	2016-18
#6 Most Read Article in Education Research in 2015 by AERA (AERJ)	2016
Society for Research in Child Development (SRCD) Teaching Mentee	2013-2014
AERA Statistical Institute Grantee- <i>Mathematics Education and Equity</i>	2012
NCTM Linking Research and Practice Outstanding Publication Award	2011
Institute for Education Sciences (IES) Predoctoral Interdisciplinary Training Fellowship	2007-2011
Society for Research in Child Development (SRCD) Student Award (\$500)	2011
Tomorrow's Professor Today Fellow, University of Virginia	2010-11
Fulbright Scholar Recipient – Malaysia (<i>declined due to political unrest</i>)	2005-06
Departmental Honors in Psychology and Elementary Education	2005
University of Richmond Undergraduate Research Grant	2005
PsiChi, National Psychology Honor Society	2004-present
Kappa Delta Pi, International Honor Society in Education	2003-present
Golden Key International Honor Society	2003-present
Three-time Academic All-American (Scholar-Athlete)	2003-2005

FUNDED EXTERNAL GRANTS

- Ottmar, E.** (2022-2026) CAREER: Grasping understandings of students' mathematical and perceptual strategies using real-time teacher orchestration tools. (NSF CAREER-RETTL), \$700,000.
- Weitnauer, E., **Ottmar, E.**, Botelho, A., & Landy, D. (2021). Graspable Teams. Schmidt Tools Competition, \$100,000.
- Whitehill, J., **Ottmar, E.**, Locasale-Crouch, J., & Harrison, L. (2020-2021). RET Supplement. National Science Foundation (NSF-Cyberlearning EXP), \$10,000.
- Arroyo, I., **Ottmar, E.** & Smith, J. (2020-2021). REU Supplement. Funded by the National Science Foundation (NSF-Cyberlearning), \$16,000.
- Weitnauer, E., **Ottmar, E.** Sawrey, K., Chan, J.Y.C., & Matlen, B. (2019-2021). Graspable Math Activities: Increasing Algebra Proficiency with Dynamic Notation Technology. Funded by SBIR- Institute of Education Sciences, \$900,000.
- Arroyo, I., **Ottmar, E.** & Smith, J. (2019-2022). Developing Computational Thinking by Creating Multi-player Physically Active Math Games. Funded by the National Science Foundation (NSF-Cyberlearning), \$745,612.
- Ottmar, E.**, Landy, D., Mason, C., Heffernan, N. & Goldstone, R. (2018-2021). The Efficacy of From Here to There: A Dynamic Technology for Improving Algebraic Understanding. Funded by Institute of Education Science (IES-CASL), \$3,295,403

<https://ies.ed.gov/funding/grantsearch/details.asp?ID=2175>

- Weitnauer, E., **Ottmar, E.**, Landy, D. (2018). Graspable Math Activities: Increasing Algebra Proficiency with Dynamic Notation Technology. Funded by SBIR- Institute of Education Sciences, \$199,681. <https://ies.ed.gov/funding/grantsearch/details.asp?ID=2107>
- Whitehill, J., **Ottmar, E.**, Locasale-Crouch, J., & Harrison, L. (2018-2021). Teachers are the Learners: Providing Automated Feedback on Classroom Interpersonal Dynamics. National Science Foundation (NSF-Cyberlearning EXP), \$749,969.
- Nathan, M.,...**Ottmar, E** (2019)., DCL: Synthesis and Design Workshop: The Future of Embodied Design for Mathematical Imagination and Cognition. Funded by the National Science Foundation, \$100,000 (workshop organizer)
- Soto, T., Nathan, M....**Ottmar, E.** (2019-2021). Embodied Mathematical Imagination and Cognition: Professional Development for Undergraduate Mathematics Instructors. Funded by the National Science Foundation, \$49,326 (workshop organizer)
- Whitehill, J., **Ottmar, E.**, & Locasale-Crouch, J. (2018-2019). Towards Computer-Assisted Coding of Classroom Observations: A Computer Vision Approach to Measuring Positive Climate. Funded by the Spencer Foundation, \$50,000.
- Arroyo, I., & **Ottmar, E.** (2018-2019). REU Supplement. Funded by the National Science Foundation (NSF-Cyberlearning), \$16,000.
- Arroyo, I., **Ottmar, E.** & Fidler, K. (2016-2018). EAGER: Developing Computational Thinking by Creating Embodied Games: Programming Wearable Devices as Finite State Machines. Funded by the National Science Foundation (NSF-Cyberlearning), \$299,949.
- Ottmar, E.** (2016-2017). The effects of deeper learning opportunities on student achievement: Examining differential pathways across network and non-network schools. The AERA Fellowship Program on the Study of Deeper Learning. American Educational Research Association, \$20,000.
- Ottmar, E.** (2017). Beyond Correct Answers: How Can Measures of Process within Graspable Math, a Dynamic Mathematics Technology Inform Teaching and Learning? NSF Data Consortium Fellowship. \$2,000.

FUNDED INTERNAL GRANTS

- Harrison, A*., & **Ottmar, E.** (2021-22). WIN Young Investigators Fellowship: Providing WPI Students and Faculty with Mentorship and Research Conference Opportunities. (WPI Women's Impact Network), \$23,500.
- Dubosarky, M., Smith, Flinn, R., **Ottmar, E.**, Konrad, R., Meadows, R., Christelle, H, Noel-Grinshteyn, J., Hanna, R. (2021-22). WPI-Supported STEM Childcare: Impact & Opportunities. (WPI Women's Impact Network), \$18,000.
- Harrison, A*., **Ottmar, E.**, & Perez-Lacera, L** (2020-21). WIN Young Investigators Fellowship: Providing WPI Students and Faculty with Mentorship and Research Conference Opportunities. (WPI Women's Impact Network), \$23,000.
- Harrison, A*., Hulse, T*., & Sawrey, K⁺, **Ottmar, E.** & Mitchell, M** (2019-20). WIN Young Investigators Fellowship: Providing WPI Students and Faculty with Mentorship and Research Conference Opportunities. (WPI Women's Impact Network), \$23,000.

- Ottmar, E.**, Douglas, E., Harrison, A*., Hulse, T*., & Daigle, M**.. (2018-19). WIN Young Investigators Fellowship: Providing WPI Students and Faculty with Mentorship and Research Conference Opportunities. (WPI Women’s Impact Network), \$28,000.
- Ottmar, E.** (2017-2018). Graspable Math. Generous gift from WPI Alumni and Donor to support Faculty Research, \$40,000.
- Ottmar, E.**, (2017-2018). Creating Videos to Teach Developmental Concepts. Faculty Learning Community on Project Based Courses. WPI Teaching Innovation Grants Program, \$6000.

PRIOR EXTERNAL GRANTS

- Landy, D. & Goldstone, R. (2011-2015, funded). Teaching the visual structure of algebra through dynamic interactions with notation, Department of Education, Institute of Education Science (IES-CASL), #R305A110060 \$1,120,000, Post-doc and Research Associate.
- Rimm-Kaufman, S. E., Fan, X, Berry, R., & Justice, L. (2007-2011). The Efficacy of the Responsive Classroom approach for improving teacher quality and children's academic performance. Institute of Education Sciences, U.S. Department of Education, Teacher Quality-Mathematics. (\$2,814,668), Graduate Researcher.

GRANT ADVISORY BOARDS

- McNeil, N., & Davenport, J. (2021-2024). Leveraging technology to improve children’s understanding of mathematical equivalence. Department of Education, Institute of Education Science (IES-CASL). Advisory Board member.
- Walkington, C. (2021-2024). Seeing the World through a Mathematical Lens: A Place-Based Mobile App for Creating Math Walks. National Science Foundation (AISL). Advisory Board Member.
- Nathan, M., & Walkington, C. (submitted). Teachers' embodied geometry knowledge and instruction, Department of Education, Institute of Education Science (IES-CASL). Advisory Board member.
- Roschelle, J & Hodkowski, N (submitted). Making noise in mathematics: Instructional coaching and data tools for student discourse. NSF DRK12. Advisory Board Member.

JOURNAL PUBLICATIONS

*indicates graduate student advisee **undergraduate student advisee + postdoc advisee

- Lee, J⁺, Stalin, A*., Ngo, V*, Drzewiecki, K*, Trac, C**., & **Ottmar, E.** (in press). Show the flow: Visualizing students’ problem solving processes in a dynamic algebra notation tool. *Journal of Interactive Learning Research*.
- Lee, J. E⁺, Chan, J. Y. C⁺, Botelho, A*., & Ottmar, E. (in press). Does slow and steady win the race?: Clustering patterns of students’ behaviors in an interactive online mathematics game. *Educational Technology Research and Development*.
- Smith, H*., Closser, A*., H., **Ottmar, E.** & Chan, J. Y. C. ⁺. (2022) The impact of algebra worked example presentations on student learning. *Applied Cognitive Psychology*.
<https://doi.org/10.1002/acp.3925>
- Arroyo, I., Harrison, A*., Castro, F., ,Smith, H*., **Ottmar, E.** & Micciolo, M.. (2022). Supporting technology-augmented game creation and play through a teacher professional development program. *Technology, Knowledge, and Learning*. <https://doi.org/10.1007/s10758-022-09601-1>

- Lee, J. E⁺, Hornburg, C. B., Chan, J. Y. C⁺, & **Ottmar, E.** (2022). Perceptual and number effects on students' solution strategies in an interactive online mathematics game. *Journal of Numerical Cognition*. <https://doi.org/10.5964/jnc.8323>
- Chan, J. Y. C⁺, **Ottmar, E. R.**, & Lee, J. ⁺(2022). Slow down to speed up: Longer pause time before solving problems relates to higher strategy efficiency. *Learning and Individual Differences*. <https://doi.org/10.1016/j.lindif.2021.102109>
- Chan, J. Y. C⁺, Lee, J. ⁺, Mason, C., Sawrey, K. ⁺, & **Ottmar, E.** (2021). Equivalence task in From Here to There!: A digital algebraic notation system impacts conceptual understanding in middle school mathematics. *Journal of Educational Psychology*. <https://doi.org/10.1037/edu0000596>
- Abrahamson, D., Nathan, M., Williams-Pierce, C., Walkington, C., **Ottmar, E.**, Soto, H., & Alibali, M. (2020). The future of embodied design for mathematics teaching and learning. [Special issue]. *Frontiers in Education*. <https://doi.org/10.3389/educ.2020.00147>
- Harrison, A*., Smith, H*., Hulse, T*., & **Ottmar, E.** (2020). Spacing out!: Manipulating spatial features in math expressions affects performance. *Journal of Numerical Cognition*, 6(2), 186-203. doi: <https://doi.org/10.5964/jnc.v6i2.243>
- Smith, H*., Harrison, A*., **Ottmar, E.** & Arroyo, I. (2020). Supporting technology-augmented game creation and play through a teacher professional development program. *Contemporary Issues in Technology and Mathematics Teacher Education*. 20(4).
- Hulse, T*., Daigle, M**., Manzo, D*., Braith, L**., Harrison, A*., & **Ottmar, E.** (2019). From Here to There! Elementary: A game-based approach to developing early algebraic understanding. *Educational Technology Research and Development*. 67(2), 423-44. <https://doi.org/10.1007/s11423-019-09653-8>
- Ottmar, E.R.** (2019). The effects of deeper learning opportunities on student achievement: Examining differential pathways. *Psychology in the Schools*. 56, 840–855. <https://doi.org/10.1002/pits.22237>
- Ottmar, E.** (2018). A review of development of mathematical cognition: neural substrates and genetic influences. *Journal of Numerical Cognition*, 3(3), 716-722. doi:10.5964/jnc.v3i3.143
- Goldstone, R., Marghetis, T., Weitnauer, E., **Ottmar, E.**, & Landy, D. (2017). Adapting perception, action, and technology for mathematical reasoning. *Current Directions in Psychological Science*, 26 (5), 434-441. doi: 10.1177/0963721417704888
- Ottmar, E.R.** & Landy, D. (2017). Concreteness fading of algebraic instruction: Effects on mathematics learning. *Journal of the Learning Sciences*. 26 (1), 51-78. doi:10.1080/10508406.2016.1250212
- Landy, D., Charlesworth, A., & **Ottmar, E.** (2016). Cutting in line: Discontinuities in the use of large numbers. *Cognitive Science*, 1-28. doi: 10.1111/cogs.12342
- Ottmar, E.R.**, Rimm-Kaufman, S.E, Larsen, A., & Berry, R.Q. (2015). Mathematical knowledge for teaching, mathematics teaching practices, and student achievement in the context of the Responsive Classroom Approach. *American Educational Research Journal*. doi: 10.3102/0002831215579484
- Ottmar, E.R.**, Decker, L.E., Cameron, C., Curby, T., & Rimm-Kaufman, S.E. (2014). Classroom instructional quality, exposure to mathematics instruction, and mathematics achievement in fifth grade. *Learning Environments Research*, 17, 243–262. doi: 10.1007/s10984-013-9146-6
- Ottmar, E.R.**, Konold, T.R., Berry, R. Q., Grissmer, D.W., & Cameron, C. (2014). Structural validity of the mathematics teacher questionnaire: A measure of exposure to mathematics instructional

practices and content. *Learning Environments Research*, 17, 127–138.
doi:10.1007/s10984-013-9147-5

- Walkowiak, T.A., Berry, R.Q., Meyer, P., Rimm-Kaufman, S.E., & **Ottmar, E.** (2014). Introducing an observational measure of mathematics instructional quality: Evidence of validity and score reliability. *Educational Studies in Mathematics*, 85(1), 109-128.
- Ottmar, E.R.**, Konold, T.R., Berry, R.Q. & Grissmer, D., & Cameron, C. (2013). Increasing equity and achievement in fifth grade mathematics: The contribution of content exposure. *School Science and Mathematics*, 113(7), 345-355.
- Ottmar, E.R.**, Rimm-Kaufman, S.E., Berry, R.Q. & Larsen, R. A.A. (2013). Results from a randomized controlled trial: Does the *Responsive Classroom* approach affect the use of standards-based mathematics teaching practices? *Elementary School Journal*, 113(3), 434-457.
- Ottmar, E.R.** & Walkowiak, T.A. (2011, Fall). Social emotional learning in the mathematics classroom. *Advances in SEL research*, 5(1), 6-7.
- Merritt, E.G., Berry, R.Q., Rimm-Kaufman, S.E., Walkowiak, T.A., & **McCracken, E.R.** (2010). A framework for reflection: What are the critical components of an effective mathematics lesson? *Teaching Children Mathematics*, 238-248.

BOOK CHAPTERS

- Chan, J. Y.-C., Closser, A. H., Smith, H., Lee, J.-E., Drzewiecki, K. C., & **Ottmar, E.** (*in press*). Grasping patterns of algebraic understanding: Dynamic technology facilitates learning, research, and teaching in mathematics education. In K. M. Robinson, D. Kotsopoulos, & A. Dubé (Eds), *Mathematical Learning and Cognition in Middle Childhood and Early Adolescence: Integrating Interdisciplinary Research Into Practice*.
- Goldstone, R., Weitnauer E., **Ottmar, E.**, Marghetis, T., & Landy, D. (2016). Modeling mathematical reasoning as trained perception-action procedures. In *Design Recommendations for Intelligent Tutoring Systems: Volume 4- Domain Modeling*. Army Research Laboratory.
- Ottmar, E.**, Landy, D., Weitnauer, E., & Goldstone, R. (2015) Graspable mathematics: Using perceptual learning technology to discover algebraic notation. In M. Meletiou-Mavrotheris, K. Mavrou, & E. Papanastasiou (Eds.), *Integrating Touch-Enabled and Mobile Devices into Contemporary Mathematics Education*. Hershey: IGI Global.

WHITE PAPERS

- Nathan, M.J., Williams-Pierce, C., Walkington, C., Abrahamson, D., **Ottmar, E.**, Soto, H., & Alibali, M.W. (2019). DCL synthesis and design workshop: The future of embodied design for mathematical imagination and cognition. White paper available at <https://circlcenter.org/events/synthesis-design-workshops>, and at the Rapid Community Report series (<https://repository.isls.org/handle/1/1229>).

RESEARCH BRIEFS

- Ottmar, E. R.**, Rimm-Kaufman, S, E, Larsen, R. & Berry, R. Q. (2016). Teachers' support for social and emotional learning contributes to improved mathematics teaching and learning. Retrieved from: http://curry.virginia.edu/uploads/resourceLibrary/Teachers_support_for_SEL_contributes_to_improved_math_teaching_and_learningetal.pdf

- Ottmar, E.R.**, Konold, T.R., Berry, R.Q. & Grissmer, D.W. & Cameron, C.E. (2014). Broad exposure to mathematics content matters more for students in racially diverse classrooms. Retrieved from [http://curry.virginia.edu/uploads/resourceLibrary/CASTL_Research_Brief-Ottmar_et_al_\(2014\)_SSM.pdf](http://curry.virginia.edu/uploads/resourceLibrary/CASTL_Research_Brief-Ottmar_et_al_(2014)_SSM.pdf)
- Ottmar, E. R.**, Rimm-Kaufman, S, E, Berry, R. Q. & Larsen, R. A. (2013). The Responsive Classroom Approach increases the use of standards-based mathematics teaching practices. Retrieved from: http://curry.virginia.edu/uploads/resourceLibrary/CASTL_Research_Brief-Ottmar_et_al._%282013%29_ESJ.pdf

REFEREED CONFERENCE PROCEEDINGS PUBLICATIONS

- Liu, A. S., Vanacore, K., & Ottmar, E. (2022). How reward- and error-based feedback systems create micro-failures to support learning strategies. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.). *Proceedings of the 16th International Conference of the Learning Sciences - ICLS 2022* (pp. 1633-1636). Hiroshima, Japan: International Society of the Learning Sciences.
- Norum, R., Lee, J. E., & Ottmar, E. (2022). Student profiling on behavioral patterns in an online mathematics game: Clustering using K-means. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.). *Proceedings of the 16th International Conference of the Learning Sciences - ICLS 2022* (pp. 1942-1943). Hiroshima, Japan: International Society of the Learning Sciences.
- Closser, A. H.*, Smith, H.*, **Chan, J. Y. C.** (2022). Algebra Students' impression of equation solving worked examples in an online environment [Brief Research Report]. In *Proceedings of the Forty-Fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Nashville, TN.
- Closser, A. H.*, **Chan, J. Y. C.**, Smith, H.*, Ottmar, E. (2022). College students' input on the design of worked examples for online environments [Empirical Research Report]. In *Proceedings of the Forty-Fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Nashville, TN.
- Lee, J. E., Stalin, A., Ngo, V., Drzewiecki, K., Trac, C., & Ottmar, E. (2021). Show the flow: Visualization of students' solution strategies with Sankey diagrams in an online mathematics game. In de Vries, E., Hod, Y., & Ahn, J. (Eds). *Proceedings of the International Conference on Learning Sciences* (pp. 887-888). Bochum, Germany: International Society of the Learning Sciences.
- Chan, J. Y. C., Smith, H., Closser, A. H., Drzewiecki, K. C., & Ottmar, E. (2021). Number vs. variable: The effect of symbols on students' math problem solving. In T. Fitch, C. Lamm, H. Leder, K. Teßmar-Raible (Eds), *Proceedings of the Forty-Third Annual Meeting of the Cognitive Science Society*. (pp. 2836-2842). Vienna, Austria: University of Vienna. [\[PDF\]](#)
- Sawrey, K⁺, Chan, J. Y. C⁺, & **Ottmar, E.**, (2020). Equivalence tasks in a digital algebraic notation system promotes performance in middle school mathematics. In M. Gresalfi & I. S. Horn (Eds), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) Vol. 3* (pp. 1657-1660). Nashville, Tennessee: International Society of the Learning Sciences. <https://repository.isls.org/handle/1/6391>. <https://doi.dx.org/10.22318/icls2020.1657>
- Sawrey, K⁺, Chan, J.YC⁺, & **Ottmar, E.** (2020). Equivalence tasks in a digital algebraic notation system promotes performance in middle school mathematics. In Ana Isabel Sacristán & José Carlos Cortés (Eds.) *Proceedings of the 42nd annual conference of*

- the North-American chapter of the International Group for the Psychology of Mathematics Education*. Mazatlán, Sinaloa, Mexico.
- Nathan, M. J., Harrison, A*., Smith, H*., **Ottmar, E.**, Abrahamson, D., & Williams-Pierce, C. (October, 2020). *Embodied Mathematical Imagination and Cognition (EMIC) Working Group*. In Ana Isabel Sacristán & José Carlos Cortés (Eds.) *Proceedings of the 42nd annual conference of the North-American chapter of the International Group for the Psychology of Mathematics Education*. Mazatlán, Sinaloa, Mexico.
- Harrison, A*., Smith, H*., Botelho, A*., **Ottmar, E.**, & Arroyo, I. (June, 2020). For good measure: Identifying student measurement estimation strategies through actions, language, and gesture. Paper accepted to the 2020 International Conference of the Learning Sciences.
- Ramakrishnan, A*., **Ottmar, E.**, LoCasaleCrouch, J., and Whitehill, J. (2019). Toward automated classroom observation: Predicting positive and negative climate". *IEEE Automatic Face & Gesture Recognition*.
- Ottmar, E. R.**, Walkington, C., Abrahamson, D., Nathan, M. J., Harrison, A*., & Smith, C. (2019). Embodied mathematical imagination and cognition (EMIC) working group. Working group conducted at the 2019 conference of the North American Chapter of the Psychology of Mathematics Education.
- Ottmar, E.**, Melcer, E., Abrahamson, D., Nathan, M., Fyfe, E., & Smith, C. (2018). Embodied mathematical imagination and cognition (EMIC) working group. Paper presented at the 2018 conference of the North American Chapter of the Psychology of Mathematics Education (under review)
- Harrison, A. *, Hulse, T*., Manzo, D*., Micciolo, M**., **Ottmar, E.**, & Arroyo, I. (June, 2018). Computational thinking through game creation in STEM classrooms. *Proceedings (Part II) of the 19th International Conference on Artificial Intelligence in Education*. London, U.K. pp. 134-138. (Poster)
- Arroyo, I., Micciollo, M**., Casano, J., **Ottmar, E.**, Hulse, T*, and Mercedes Rodrigo, M. (2017). Wearable learning: Multiplayer embodied games for math. In *Proceedings of the Annual Symposium on Computer-Human Interaction in Play (CHI PLAY '17)*. ACM, New York, NY, USA, 205-216. <https://doi.org/10.1145/3116595.3116637>
- Weitnauer, E., Landy, D., & **Ottmar, E.** (2016). Graspable math: Towards dynamic algebra notations that support learners better than paper. *Future Technologies Conference*. San Fransisco, CA.
- Nathan, M., **Ottmar, E.**, Abrahamson, D., Williams-Pierce, C., Walkington, C., & Nemirovsky, R. (2016). Embodied mathematical imagination and cognition (EMIC) working group. *The Psychology of Mathematics Education Conference*, North American Chapter, Tuscon, Arizona.
- Ottmar, E. R.**, Landy, D., Goldstone, R. L., & Weitnauer, E. (2015). Getting from here to there: Testing the effectiveness of an interactive mathematics intervention embedding perceptual learning. *Proceedings of the Thirty-Seventh Annual Conference of the Cognitive Science Society*. (pp. 1793-1798). Pasadena, CA: Cognitive Science Society.
- Landy, D., Charlesworth, A., & **Ottmar, E.** (2014, July). Cutting in Line: Discontinuities in the use of large numbers by adults. *Proceedings of the 36th Annual Conference of the Cognitive Science Society*. Quebec, Canada: Cognitive Science Society.
- Ottmar, E.**, Landy, D. & Goldstone, R. L. (2012). Teaching the perceptual structure of algebraic expressions: Preliminary findings from the Pushing Symbols intervention. In N. Miyake, D.

Peebles, & R. P. Cooper (Eds.) *Proceedings of the 34th Annual Conference of the Cognitive Science Society* (pp. 2156-2161). Austin, TX: Cognitive Science Society.

Ottmar, E.R. & Landy, D. (2012, November). Pushing symbols: Teaching the structure of algebraic expressions. *Proceedings of the 34th Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (238-241). Kalamazoo, MI.

SUBMITTED MANUSCRIPTS

Chan, J. Y. C., Byrne, C., Jerusal, J., Liu, A., Roberts, J., Ottmar, E. (under review). Keep DRAGging ON: Is solving more problems in DragonBox12+ associated with higher mathematical performance?

Chan, J. Y. C., Closser, A. H., Ngo, V., Smith, H., Liu, A., & Ottmar, E. (under review) Examining shifts in conceptual knowledge, procedural knowledge, and procedural flexibility in the context of two game-based technologies.

Lee, J., Jindal, A., Patki, S., Norum, R., & **Ottmar, E.** (in review). A comparison of machine learning algorithms for predicting student performance in an online mathematics game.

*Paper nominated for 2022 Best Paper Award- AERA Instructional Technology

Iannachionne, A., **Ottmar, E.**, Ngo, V., Mason, C., Chan, J.Y.C, Smith, H., & Shaw, S. (*revision submitted*). Examining relations between math anxiety, prior knowledge, hint usage, and math performance in two different online learning contexts. *Instructional Science*.

Lee, J. E., Chan, J. Y. C., Botelho, A., & Ottmar, E. (*revision submitted*). Does slow and steady win the race?: Clustering patterns of students' behaviors in an interactive online mathematics game.

Chan, J. Y. C., **Ottmar, E.**, Smith, H.*, Closser, A. H.*, & Drzewiecki, K.* (*revision submitted*).

Effects of variables versus numbers on students' problem-solving processes and strategies.

Chan, J. Y. C.^c, Linnell, L. D.⁺, Trac, C.⁺, & Ottmar, E. (under review). Test of Times New Roman: Effects of font type on mathematics performance.

UNPUBLISHED REPORTS

Ottmar, E. R., Lee, J., & Chan, J.Y.C. (2020). The Efficacy of From Here to There Study: Examining the impacts of algebra performance in two technology interventions. Retrieved from: <https://sites.google.com/view/from-here-to-there>

MEASUREMENT DEVELOPMENT

Berry, R. Q., Rimm-Kaufman, S. E., **Ottmar, E.R.**, Walkowiak, T. A., & Merritt, E. (2010). The mathematics scan (M-Scan): A measure of standards-based mathematics teaching practices. University of Virginia.

http://www.socialdevelopmentlab.org/wp-content/uploads/2012/05/M-Scan_measure_Final.pdf

Rimm-Kaufman, S.E., Walkowiak, T.A., & **Ottmar, E.R.** (2010). Mathematics time sampling measure (M-TSM): An observational measure of exposure to mathematics content and instruction. University of Virginia.

CURRICULAR INTERVENTION/TECHNOLOGY DESIGN AND DEVELOPMENT

Graspable Math Activities. A suite of student activities and teacher tools for the classroom. Available at <https://activities.graspablemath.com> Resources can be found at <https://sites.google.com/view/gmactivities>

From Here to There! A web-based application for the exploration of arithmetic, symbolic algebra, and logic. Full version available online at <https://graspablemath.com/projects/fh2t>
 From Here to There: Elementary. Available at <https://graspablemath.com/projects/fh2t-elementary>
 Graspable Math, Canvas and demos available at <http://www.graspablemath.com>
 Graspable Math Sidebar. Available on Google Chrome store.
 The Wearable Learning Cloud Platform (WLCP). Available at <http://wearablelearning.org/>
 Classroom Observation Interactive Learning System (COILS). In Development.

CONFERENCE PRESENTATIONS

- Liu, A. S., Vanacore, K., & Ottmar, E. (2022, June). *How reward- and error-based feedback systems create micro-failures to support learning strategies*. Paper presented at the 16th International Conference of the Learning Sciences, Hiroshima, Japan. (Hybrid conference)
- Liu, A. S., Vanacore, K., & Ottmar, E. (2022, July). How error- and reward-based feedback systems help students persist and learn through failure in game-based learning. In *Developmental perspectives: Digital interventions and mathematics learning in typical and atypical populations*. Symposium to be conducted at the International Mind, Brain, and Education Society Conference, Montreal, Canada.
- Bye, J, Lee, J. E., Chan, J. Y. C., Closser, A. H. *, Shaw, S., **Ottmar, E.** (2022, April) Perceiving precedence: Order of operations errors are predicted by perception of equivalent expressions. Poster presented in the 2022 Annual meeting of the American Educational Research Association (AERA). San Diego, CA.
- Lee, J., Jindal, A., Patki, S., Norum.,R., & **Ottmar, E.** (2022). A comparison of machine learning algorithms for predicting student performance in an online mathematics game. Full paper presented in the 2022 Annual meeting of the American Educational Research Association (AERA). San Diego, CA.
 *Paper nominated for 2022 Best Paper Award- AERA Instructional Technology
- Chan, J. Y. C., Closser, A. H. *, Ngo, V. *, Smith, H. *, **Ottmar, E.** (2022, April) From performance to perception: A laboratory-based task to detect changes in students' perception of math equivalence in technology interventions. Roundtable discussion presented in the 2022 Annual meeting of the American Educational Research Association (AERA). San Diego, CA.
- Norum, R., Lee, J. E., & Ottmar, E. (2022). *Student profiling on behavioral patterns in an online mathematics game: Clustering using K-means*. Poster presented at the International Society of the Learning Sciences Annual Meeting, Hiroshima, Japan.
- Liu, A. S., Vanacore, K., Chan, J. Y.-C., Ottmar, E., Shaw, S., Decker-Woodrow, L. E., & Tu, S. (2022, June). *How math anxiety moderates the relation between feedback and persistence-related behaviors*. Poster accepted for the Mathematical Cognition and Learning Society Conference, Antwerp, Belgium.
- Smith, H., Ngo, V., Sales, A., Closser, A. H., Chan, J. Y. C., & Ottmar, E. (2022, June) *To wait or not to wait: Adding to the debate on immediate vs. delayed feedback* [Poster]. The 16th International Conference of the Learning Sciences (ICLS) 2022, Hiroshima, Japan: International Society of the Learning Sciences.
- Lee, J. E., **Ottmar, E.**, Chan, J. Y. C., Booker, B., Decker-Woodrow, L. (2021) In-Person vs. Virtual: Learning modality choices and movement during COVID-19 varies depending on students'

- ethnicity and prior academic performance. Paper presented at the 2021 Conference of the Society for Research on Educational Effectiveness. Virtual.
- Lee, J. ⁺, Stalin, A.*., Trac, C.**., & **Ottmar, E.** (2021). Show the flow: Visualizing students' problem-solving processes in a dynamic algebraic notation tool. Long paper presented at the 2021 ICLS conference (online).
- Chan, J. Y. C⁺, **Ottmar, E.**, Smith, H*., Harrison, A*., & Drzewiecki, K*. (2021) Effects of numbers vs. variables on students' equation transformation processes and strategies. Paper presented at the 2021 Society for Research in Child Development Conference (online)
- Harrison, A**., Smith, H.**., Chan, J. Y.C***, Trac, C*., & **Ottmar, E. R.** (2021). Worked examples: Do learning and perceived helpfulness align? Short paper presented at the ICLS conference. (online)
- Lee, J. E. ⁺, Hornburg, C. B., Chan, J. Y. C⁺, & **Ottmar., E.** (2021). Perceptual and number effects on students' solution strategies in an interactive online mathematics game. Paper presented at the 2021 Annual meeting of the American Educational Research Association (AERA). Orlando, FL. (online)
- Harrison, A.*., Smith, H.*., Chan, J. Y. C.***, Trac, C.**., & **Ottmar, E. R.** (2021). The effect of worked example presentation on student learning. Paper presented at the 2021 Annual meeting of the American Educational Research Association (AERA). Orlando, FL. (online).
- Chan, J. Y. C. ⁺ Drzewiecki, K. C.*, Linnell, L. D**, Trac, C.** & **Ottmar, E.** (2021) Test of Times New Roman: Effects of font type on mathematics performance. Paper presented at the 2021 Annual meeting of the American Educational Research Association (AERA). Orlando, FL. (online).
- Smith, H.*., Chan, J.Y.C⁺., St. John, J.*, **Ottmar, E.**, & Arroyo, I. (2020) Is bigger better? Comparing the effects of linear board games on children's numerical knowledge. Poster presented at the 2020 Mathematical Learning and Cognition Society Conference. Dublin, Ireland. (online)
- Smith, H*., Harrison, A*., Chan, J.Y.C⁺., & **Ottmar, E.** (2020) Dynamic vs. Static: Which worked examples work best? Poster presented at the 2020 Mathematical Learning and Cognition Society Conference. Dublin, Ireland. (online).
- Drzewiecki, K*. & **Ottmar, E.** (2020). Preliminary exploration of the role of math anxiety on performance outcomes in mathematics learning. Poster accepted for presentation at the 2020 Mathematical Learning and Cognition Society Conference. Dublin, Ireland.
- Ottmar, E.**, Iannacchione, A**., Chan, J.Y.C⁺., & Drzewiecki, K*. (2020). Examining relations of math anxiety and algebra performance in two technology interventions. Poster accepted for presentation at the 2020 Mathematical Learning and Cognition Society Conference. Dublin, Ireland.
- Chan, J. Y. C⁺., **Ottmar, E.**, Sawrey, K. B⁺., & Lee, J. E. ⁺ (2020). Longer pre-solving pause time relates to higher strategy efficiency. In Chan, J.Y.C & Bye, J.K. (Co-chairs), Problem-solving strategy in algebra: From lab to practice. Symposium accepted for presentation at the 2020 Mathematical Learning and Cognition Society Conference. Dublin, Ireland.
- Harrison, A*., Smith, H*., Botelho, A*., **Ottmar, E.**, & Arroyo, I. (June, 2020). For good measure: Identifying student measurement estimation strategies through actions, language, and gesture. Poster paper accepted to the 2020 International Conference of the Learning Sciences.

- Ottmar, E.**, Sawrey, K⁺, Chan, J.Y.C⁺, & Lee, J⁺. (2020). Moving From Here to There!: Improving conceptual understanding of algebraic equivalence. Symposia talk submitted for presentation at the 2020 Mathematical Learning and Cognition Society Conference. Dublin, Ireland.
- Harrison, A^{**}, Razaq, R^{**}, **Ottmar, E.**, & Arroyo, I. (June, 2021). Gestures in geometry: How do gestures contribute to engagement and vocabulary acquisition through game play? In Ana Isabel Sacristán & José Carlos Cortés (Eds.), Proceedings of the 42nd annual conference of the North-American chapter of the International Group for the Psychology of Mathematics Education (pp. TBA). Mazatlán, Sinaloa, Mexico. (Poster)
- Smith, H.^{**}, Harrison, A.^{**}, Chan, J. Y. C⁺, & **Ottmar, E.** (June, 2021). The effects of worked example formats on student learning of algebra. In Ana Isabel Sacristán & José Carlos Cortés (Eds.), Proceedings of the 42nd annual conference of the North-American chapter of the International Group for the Psychology of Mathematics Education (pp. TBA). Mazatlán, Sinaloa, Mexico. (Poster)
- Chan, J. Y. C. ⁺, Sawrey, K. B⁺, Hulse, T.^{*}, & **Ottmar, E.** (2020). Think before you act: Thinking time contributes to math problem-solving efficiency. Paper to be presented at the 2020 Annual meeting of the American Educational Research Association (AERA). San Francisco, CA.
- Harrison, A^{*}., Smith, H^{*}., Hulse, T^{*}., & **Ottmar, E.** Spacing out!: Manipulating spatial features in math expressions affects performance. Paper to be presented at the 2020 Annual meeting of the American Educational Research Association (AERA). San Francisco, CA.
- Harrison, A., Erickson, J., **Ottmar, E. R.**, & Heffernan, N. T. (July, 2020). Causal inference in online tutoring systems: Identifying appropriate analyses for randomized controlled trials. In The Thirteenth International Conference on Educational Data Mining Workshop on Causal Inference in EDM, Virtual Workshop.
- Chan, J.Y.C⁺, Hulse, T.^{*}, Sawrey, K^{***}, & **Ottmar, E.**, (2019, November) Students' behavior in a dynamic algebra notation system as indicators of their algebra skills. Poster presented at the 41st Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education (PME-NA). St. Louis, Missouri.
- Sawrey, K. B⁺, Hulse, T^{*}, Chan, J.Y.C⁺, & **Ottmar, E.**, (2019, November). Experiencing equivalence with Graspable Math: Results from a middle-school study. Brief Research Report presented at 2019 North American Division of the Psychology and Mathematics Education Conference. St. Louis, MO.
- Chan, J.Y.C⁺, Hulse, T^{*}, Sawrey, K⁺, & **Ottmar, E.**, (June, 2019) Experience with a dynamic algebra notation system predicts high-school students' algebra performance. Poster presented at the 2019 Mathematical Cognition and Learning Society Conference, Ottawa, Canada.
- Hulse, T^{*} & **Ottmar, E.** Developing measures of mathematical proficiency in a learning technology. Paper presented at National Council of Teachers of Mathematics Research Conference, April, 2019. San Diego, CA.
- Sawrey, K⁺, **Ottmar, E.**, Hulse, T^{*}, Weitnauer, E., Harrison, A^{*}. (2019). Exploring dynamic learning technologies for experiencing algebraic notation. Discussion session presented at National Council of Teachers of Mathematics Research Conference, April, 2019. San Diego, CA.
- Daigle, M^{**}, & **Ottmar, E.** (2019). Deeper learning in Paraguay: Relations between student social, emotional, and cognitive skills, outcomes, and aspirations. Paper presented at the 2019 International Convention of Psychological Science: Paris, France.

- Smith, H*, Harrison, A*, **Ottmar, E.**, Arroyo, I., (2019). Quantity and quality of gestures are related to performance on an embodied geometric estimation task. Poster presented at the 2019 Mathematical Cognition and Learning Society conference.
- Ottmar, E.**, Melcer, E., Abrahamson, D., Nathan, M., Fyfe, E., & Smith, C. (2018). Embodied mathematical imagination and cognition (EMIC) working group. Paper and working group presented at the 2018 conference of the North American Chapter of the Psychology of Mathematics Education.
- Hulse, T*, Harrison, A*, Arroyo, I., & **Ottmar, E.** (November, 2018). Developing methods to implement embodied game design for mobile learning technologies in STEM classrooms. Poster presented at the 2018 conference of the North American Chapter of the Psychology of Mathematics Education. Greenville, SC.
- Hulse, T*, Harrison, A*, Arroyo, I., & **Ottmar, E.** (2018). Developing methods to implement embodied game design for mobile learning technologies in STEM classrooms. Poster presented at the 2018 conference of the North American Chapter of the Psychology of Mathematics Education.
- Hulse, T*, Harrison, A*, Micciolo, M**, Arroyo, I., & **Ottmar, E.** (2018). Developing and measuring computational thinking through game design in STEM classrooms. National Science Foundation Early Career Researcher Poster presented in the Technology and Instructional Design Category at the London Festival of Learning.
- Valente, R**, Harrison, A*, **Ottmar, E.**, & Arroyo, I. (2019). Using action and movement to develop students' understanding of measurement in a technology-augmented game. Poster presented at the 2019 annual meeting of the Northeastern Educational Research Association. Trumbull, Connecticut.
- Ottmar, E.** (2018). Examining differential pathways of deeper learning. Invited Presentation at the Excellence in Education Research: Early-Career Scholars and Their Work Event.
- Harrison A*, **Ottmar, E.**, Arroyo, I., Rosenbaum, L., Bakker, A., Abrahamson, D., Hulse, T**, Manzo, D*, & Landy, D. (2018, April). Embodiment and action in mathematics games. Symposium conducted at the American Psychological Association's conference on Technology, Mind & Society, April 5-7, 2018, Washington, DC.
- Harrison, A*, Hulse, T*, Manzo, D*, Micciolo, M**, **Ottmar, E.**, & Arroyo, I. (2018). Computational thinking through game creation in STEM classrooms. Poster presented at the 2018 conference on Artificial Intelligence in Education, London, UK.
- Micciolo, M**, Arroyo, I., **Ottmar, E.**, Hulse, T*, & Harrison, A*. (2018). The Wearable Learning Cloud Platform for the creation of embodied multiplayer math games. Paper presented at the 2018 conference on Artificial Intelligence in Education.
- Hulse, T*, Harrison, A**, Arroyo, I., & **Ottmar, E.** Developing methods to implement embodied game design for mobile learning technologies in STEM classrooms. Paper accepted at the 2018 conference of the North American Chapter of the Psychology of Mathematics Education
- Ottmar, E.** (2018). The effects of deeper learning opportunities on student achievement: Examining differential pathways. Paper presented at the American Educational Research Association Conference. New York, NY.
- Manzo, D*, & **Ottmar, E.** (2018). Understanding the student perspective through dynamic technology. Paper presented at the National Council of Teachers of Mathematics Education Research Conference.

- Hulse, T*, Daigle, M**, Manzo, D**, & **Ottmar, E.** (2018). Paper presented at the American Educational Research Association Conference. New York, NY.
- Arroyo, I., Micciollo, M**, Casano, J., **Ottmar, E.**, Hulse, T*, and Mercedes Rodrigo, M. (2017). Wearable Learning: Multiplayer embodied games for math. Paper presented at the Computer-Human Interaction in Play (CHI PLAY '17) Conference. Amsterdam.
- Nathan, M.J., Williams-Pierce, C., Abrahamson, D., **Ottmar, E.**, Landy, D., Smith, C., Walkington, C., DeLiema, D., Soto-Johnson, H., Alibali, M.W., & Boncoddio, R. (2017) Embodied Mathematical Imagination and Cognition (EMIC) Working Group. Working group presented at the Psychology of Mathematics Education – North American Chapter conference.
- Manzo, D*, **Ottmar, E.**, & Landy, D. (2017). Poster presented at The Psychology of Mathematics Education Conference, North American Chapter, Indianapolis, IN.
- Micciolo, M**, Hulse, T*, Daigle, M**, Arroyo, I., & **Ottmar, E.** (2017). From players to creators: teaching computational thinking through playing and creating embodied math games. Poster presented at The Psychology of Mathematics Education Conference, North American Chapter, Indianapolis, IN.
- Ottmar, E** (2017). The effects of deeper learning opportunities on student achievement: Examining differential pathways across network and non-network schools. Invited Presentation at the Excellence in Education Research: Early-Career Scholars and Their Work Event.
- Ottmar, E.**, Manzo, V., & Timko, M. (2017). Whats this? Just Listen: Using Sonification to Reveal the Invisible. Video presented at the 2017 NSF STEM for All Video Showcase. <http://stemforall2017.videohall.com/presentations/1023>
- Arroyo, I., & **Ottmar, E.** (2017). Video presented at the 2017 NSF STEM for All Video Showcase. <http://stemforall2017.videohall.com/presentations/1027>
- Landy, D., **Ottmar, E.**, & Weitnauer, E., (2017). Graspable Math. Video presented at the 2017 NSF STEM for All Video Showcase. <http://stemforall2017.videohall.com/presentations/1017>
- Braith, L**, Daigle, M**, Manzo, D*, & **Ottmar, E.** (2017). Even elementary students can explore algebra!: Testing the feasibility of From Here to There!, a game-based perceptual learning intervention. Poster Presented at the American Psychological Society Conference, Boston, MA.
- Ottmar, E. (2017). Graspable Math: Dynamically Linking Multiple Representations and Revealing Flexible Strategies. Project presented at the Cyberlearning 2017 Gallery Walk. Washington DC.
- Ottmar, E., Landy, D., & Manzo, D*. (2017) Graspable Math: A Technology for Assessing Multiple Strategies at Scale. Discussion Session presented at the National Council for Teachers in Mathematics Research Conference, San Antonio, TX.
- Ottmar, E., Manzo, D*, Landy, D., & Achgill, C**, Weitnauer, E. (2017). Assessing Variation In Mathematical Strategies Using Dynamic Technology At Scale. Paper presented at American Educational Research Association Conference, San Antonio, TX.
- Nathan, M., **Ottmar, E.**, Abrahamson, D., Williams-Pierce, C., Walkington, C., & Nemirovsky, R. (2016). Embodied mathematical imagination and cognition (EMIC) working group. Paper presented at the Psychology of Mathematics Education Conference, North American Chapter, Tuscon, Arizona.
- Manzo, D*, **Ottmar, E.**, & Mercouris, V**. (2016). Getting a grasp on mathematics misconceptions. Poster presented at the Psychology of Mathematics Education Conference, North American Chapter, Tuscon, Arizona.
- Goldstone, R., Landy, D., **Ottmar, E.**, & Weitnauer, E. (2015, November). Algebraic reasoning as

spatial transformations of physical notation : Enhancing education through cognitive psychology. Symposium presented at the annual meeting of the Psychonomics Society, Chicago, Illinois.

- Ottmar, E.R.** Landy, D., & Weitnauer, E. (2015, November). Getting from here to there: Effects of a dynamic algebra intervention. Paper presented at the Psychology of Mathematics Education Conference, North American Chapter, East Lansing, Michigan.
- Ottmar, E.R.**, Landy, D., Goldstone, R., & Weitnauer, E. (2015, August). Getting from here to there!: Testing the effectiveness of an interactive mathematics intervention embedding perceptual learning. Paper presented at the 37th Annual Conference of the Cognitive Science Society, Pasadena, California.
- Ottmar, E.**, Baroody, A. E., & Rimm-Kaufman, S. (2015, April). Can social and emotional learning interventions help decrease the gender achievement gap in mathematics? Paper presented at the Society for Research in Child Development Conference, Philadelphia, PA.
- Ottmar, E.** & Landy, D. (2014, April). Concreteness fading of algebraic instruction: Effects on learning. Paper presented at the American Educational Research Association Conference, Philadelphia, PA.
- Landy, D. & **Ottmar, E.** (2013, September). The pushing symbols intervention: Preliminary results. Presentation given at the Institute of Education Sciences (IES) and Society for Research in Educational Effectiveness (SREE) Conference, Washington, DC.
- Landy, D. & **Ottmar, E.** (2013, July). Mathematics is a game played with symbols. Poster presented at the Games and Learning Society Conference, Madison, WI.
- Landy, D., **Ottmar, E.**, & Goldstone, R. (2013, April). The development of perceptually implemented processes in arithmetic. Paper presented at the Society for Research in Child Development Conference, Seattle, Washington.
- Ottmar, E.**, Hulse, T.*, Pierce, J.**, & Landy, D. (2013, April). Pushing symbols: An intervention to increase understanding of algebraic notion. Work session and paper presented at the National Council of Teachers of Mathematics Research Pre-session, Denver, CO.
- Ottmar, E.R.** & Landy, D. (2012, November). Pushing symbols: Teaching the structure of algebraic expressions. Paper presented at the Psychology of Mathematics Education Conference, North American Chapter, Kalamazoo, MI.
- Ottmar, E.R.**, Landy, D., & Goldstone, R. (2012, August). Teaching the perceptual structure of algebraic expressions: Preliminary findings from the pushing symbols intervention. Paper presented at the 34th Annual Conference of the Cognitive Science Society, Sapporo, Japan.
- Ottmar, E.R.**, Rimm-Kaufman, S.E., & Larsen, R. (2012, April). Relations between mathematical knowledge for teaching, mathematics instructional quality, and student achievement in the context of the Responsive Classroom (RC). Paper presented at the National Council of Teachers of Mathematics Research Pre-session, Philadelphia, PA.
- Ottmar, E.R.**, Rimm-Kaufman, S.E., Larsen, R., & Merritt, E.G. (2011, September). Relations between mathematical knowledge for teaching, mathematics instructional quality, and student achievement in the context of the Responsive Classroom (RC). Paper presented at the Society for Research in Educational Effectiveness, Washington D.C.
- Ottmar, E.R.**, Rimm-Kaufman, S.E., & Berry, R.Q. (2011, April). Predictors of mathematics instructional quality. Poster presented at the Society for Research in Child Development Conference, Montreal, Canada.

- Merritt, E., Rimm-Kaufman, S., Wanless, S., Berry, R., **Ottmar, E.R.**, Walkowiak, T., & Fan, X. (2011, April). Mathematical discourse community in third grade mathematics classrooms as a predictor of achievement. Poster presented at the Society for Research in Child Development Conference, Montreal, Canada.
- Ottmar, E.R.**, Rimm-Kaufman, S.E., & Berry, R.Q. (2011, April). The contributions of mathematical knowledge for teaching and two constructs of mathematics teacher self-efficacy, and the impact of social-emotional learning intervention on mathematics instructional quality. Paper presented at the National Council for Teachers in Mathematics Conference, Research Pre-session, Indianapolis, IN.
- Rimm-Kaufman, S.E., **Ottmar, E.R.**, & Merritt, E. (2011, April). Preliminary findings from the M-Scan: A measure of mathematics instructional quality. A symposium presented at the National Council for Teachers in Mathematics Conference, Research Pre-session, Indianapolis, IN.
- Berry, III, R.Q, **Ottmar, E.**, & Merritt, E. (2011, April). The M-Scan measure of mathematics instructional quality. Presentation at the Research Pre-session of National Council of Teachers of Mathematics Annual Meeting, April 13, 2011. Indianapolis, IN.
- Berry, R.Q., Walkowiak, T.A., **Ottmar, E.R.**, & Rimm-Kaufman, S.E. (2011, January). Mathematics scan (M-Scan): Using a quantitative observational measure to describe mathematics instructional quality. Paper presented at the Association of Mathematics Teacher Educators Conference, Irvine, CA.
- McCracken, E.R.**, Berry, R., & Rimm-Kaufman, S. (2010, June). The contribution of mathematics teacher efficacy on mathematics instructional quality. Poster presented at the Institute for Education Sciences Conference, Washington, DC.
- Walkowiak, T. A., Berry, R. Q., **McCracken, E.R.**, Rimm-Kaufman, S. E., Merritt, E.G. (2010, April). Introducing an observational measure of mathematics instructional quality. Poster presented at the National Council for Teachers in Mathematics Conference, San Diego, CA.
- Walkowiak, T.A., Berry, R.Q., **McCracken, E.R.**, Rimm-Kaufman, S. E., & Meyer, J. P. (2009, September). The validation of an observational measure of mathematics instruction. Poster presented at the Psychology of Mathematics Education Conference, North American Chapter, Atlanta, GA.
- McCracken, E.R.** Grissmer, D., & Berry, R. (2009, June). Standards-based instructional practices and mathematics achievement in the fifth grade. Poster presented at the Institute for Education Sciences Conference, Washington, DC.
- Rimm-Kaufman, S., Berry, R., **McCracken, E.R.**, Merritt, E., & Walkowiak, T. (2009, June). Conducting systematic classroom observations in a randomized controlled trial to examine Responsive Classroom approach outcomes. Poster presented at the Institute for Education Sciences Conference, Washington, DC.
- McCracken, E.R.**, Ponitz, C.C, Rimm-Kaufman, S.E. (2009, April). Classroom instructional quality, exposure to mathematics instruction, and mathematics achievement in fifth grade. Poster presented at the Society for Research in Child Development Conference, Denver, CO.
- McCracken, E.R.**, Decker, L.E., Ponitz, C.C., Curby, T., Rimm-Kaufman, S.E. (2008, June). Classroom instructional quality, time exposed to mathematics instruction, and mathematics achievement in fifth grade. Poster presented at the Institute for Education Sciences Conference, Washington D.C.

Rimm-Kaufman, S.E., Berry, R.Q., Fan, X., **McCracken, E.R.**, Walkowiak, T. (2008, June). The efficacy of the Responsive Classroom approach for improving teacher quality and children's academic performance. Poster presented at the Institute for Education Sciences Conference, Washington D.C.

Whitley, R.**, Rimm-Kaufman, S., & **McCracken, E.R.** (2008, August). Observational validity and time sampling of mathematics instruction in third and fourth grade classrooms. Presentation given at the Leadership Alliance National Symposium, Hartford, CT.

TEACHING/ MENTORING EXPERIENCE

Worcester Polytechnic Institute

Social Sciences and Policy Studies

Undergraduate Psychology Courses

PSY 4800: Embodied Cognition C Term 2019

PSY 1404: Developmental Psychology C Term 2017
D Term 2021

PSY 2140: School Psychology C Term 2016
A Term 2017
D Term 2020
D Term 2022

Graduate Learning Sciences Courses

PSY 501: Foundations of the Learning Sciences Spring 2017
Spring 2020

PSY 4800: Embodied Cognition Spring 2019

ISG: Independent Study/Graduate Research 2016-2022

SS 590: Applied Multilevel Modeling in Education Fall 2015
Spring 2018

PSY 507: Applied Multilevel Modeling in Education Spring 2022

SS590: Writing in the Learning Sciences Fall 2018
Fall 2020

Supervision/Research Mentor of Graduate Students

Tamisha Thompson, Kirk Vanacore, Andrew McReynolds, Alena Egorova, Daniel Manzo, Korinn Ostrow, Taylyn Hulse, Avery Harrison, Hannah Smith, Katie Drzewiecki, Francisco Castro, Jennifer St. John, Anthony Botelho, Rashid Chatani, Sanika Patki, Amisha Jindal, Luisa Perez-Lacera, Aravind Stalin, Vy Ngo, Esther Agbaji, Matthew Micciollo. Andrew McReynolds, Paul Pacheco

Supervision/Research Mentor of Undergraduate Students

Victoria Mercouris, Maria Daigle, Ryan Hartenstein, Trang Dieu, Lindsay Braith, Grace Seiche, Olivia Bogs, Luisa Perez-Lacera, Cindy Trac, Nicholas Chantre, Yveder Joseph, Paul Pacheco, Hailey Anderson, Chloe Byrne, Reilly Norum, Claire Behning, Lilly-Beth Linnell, Stephanie Reis, Julie Andrade, Jackson Perry, Maiya Mitchell, Sarah Fleck, Rimsha Kiyastha, Patrick O'Mullen, Richard Valente, Alisionna Iannachionne, Roman Wicky Van Doyer, Justine Moy, Justin Roberts, Ethan Turret, Janette Jerusal, Molly Mahoney

Research Mentor of Postdoctoral Scholars

Allison, Liu, Jenny Yun-Chen Chan, Ji-Eun Lee, Fransisco Castro, Katie Sawrey

Masters/Dissertation Advisor or Committee Member

1. Korinn Ostrow, PhD (awarded May 2018), Learning Sciences and Technologies
2. Seth Adeji, PhD (awarded May 2018), Computer Science
3. Kim Kelley, PhD (awarded October 2018), Learning Sciences and Technologies
4. Matthew Micciolo, Masters, (awarded December 2018) Interactive Media and Game Design
5. Anthony Botelho, PhD (awarded May 2019), Learning Sciences and Technologies
6. Daniel Manzo, PhD (awarded May 2020), Learning Sciences and Technologies
7. Taylyn Hulse, Masters, (awarded May 2019), Learning Sciences and Technologies
8. Avery Harrison, Masters, (awarded May 2019), Learning Sciences and Technologies
9. Hannah Smith, Masters, (awarded May 2020), Learning Sciences and Technologies
10. Vy Ngo, Masters, (awarded May 2022), Learning Sciences and Technologies
11. Luisa Perez-Lacera, Masters, (awarded May 2022), Learning Sciences and Technologies
12. Avery H. Closser, PhD, (awarded May 2022), Learning Sciences and Technologies

Interactive Qualifying Project (IQP) Advising

B Term 2016

Melbourne Australia Project Center

24 students, 6 Research Projects

1. *Twenty years down under: Documenting the history and assessing the impacts of WPI's Melbourne Project Center*- Lucas Zuccolo, Andrew Callahan, Killian Henson, & Sotorios Flippou
2. *Interactive Environmental Education: Developing an African Village Exhibit*- Guilherme Motta Baracchini, Zachary J. Estrella, Jeremiah R. Leonard, & Nicole C. Sherlock
3. *Sparking a change: Illuminating the path to an all-electric home*- Ryan Conlon, Lorenzo Dube, Dylan Fontana, & Christine Schondek

4. *Inspiring Australian secondary school students through the Science Bootcamp program*- Morgan Garbett, Nicholas Pratt, Jake Rivard, & Kayla Sica
5. *Violence Against Women: Using Interactive Performance to Inspire Change*- Scott Friedlander, Steven Knott, Alyssa Marzella, & Regina Reynolds
6. *Bringing museum audience segmentation to life*- James Beucler, Katherine Comeford, Alessandra Paolucci, & Kendall Rooney

Major Qualifying Project (MQP) Advising

1. *Exploring Math Anxiety, Working Memory, Timed Testing, Math Performance, and Physiological Effects on College Students*
Paul Pacheco 2021-22
2. *K-means Clustering of Student Behavioral Patterns and Advanced Visualization Methods of Learning Technology Data*
Reilly Norum 2021-22
3. *Deeper Learning in Paraguay: Relations between Student Social, Emotional, and Cognitive Skills, Outcomes, and Aspirations* 2018-19
Maria Daigle
** Awarded the Two Towers Prize at WPI (award given to the junior student who best exemplifies the union of theory, research, and practice)
4. *Even Elementary Students Can Explore Algebra!: Testing the Feasibility of from Here to There!, a Game-Based Perceptual Learning Intervention* 2016-17
Lindsay Braith

Master's Theses In Progress

1. Drzewiecki, Kathryn. (expected December 2023). MS candidate in Learning Sciences and Technologies. *Advisor and Committee Chair*.
2. Andrew McReynolds. (expected May 2023). MS candidate in Learning Sciences and Technologies. *Advisor and Committee Chair*.
3. Paul Pacheco (expected May 2023). MS candidate in Learning Sciences and Technologies. *Advisor and Committee Chair*.

Ph.D. Dissertations In Progress

1. Katirci, Nihal. (expected 2022). Ph.D. candidate (ABD), University of Maryland, College of Information Studies. *External Committee Member*.
2. Smith, Hannah. (expected 2024). Ph.D. candidate in Learning Sciences and Technologies. Will propose in 2023. *Advisor*.
3. St. John, Jennifer. (expected 2024). Ph.D. candidate in Learning Sciences and Technologies. Will propose in 2023. *Advisor*.

University of Richmond

Department of Psychology

PSYC 449: Psychological Research in the Schools, Instructor

Spring 2015

PSYC 100: Introduction to Psychological Science, Instructor Spring 2013
 PSYC 329: Educational Psychology in Young Children, Invited Lecturer 2012-2014
 Research mentor for undergraduate students 2011-present

Department of Education
 EDUC327/527: Content and Pedagogy for Elementary Mathematics, Invited Lecturer Summer 2013
 EDUC 207: Diverse Learners and Environments, Invited Lecturer 2011-2012

University of Virginia

Curry School of Education
 EDIS 532: Mathematics in the Elementary School, Instructor Spring 2010
 EDLF 501: Childhood Learning and Development, Instructor Fall 2009
 Improving Math Teaching Using the M-Scan Tool, Instructor Summer 2011
 Observational Measures to Code Mathematics Classrooms, Instructor 2009-2010
 Journal Club and Statistics Leader for Summer Undergraduate Research Program Summer 2010
 Psychology Behind Learning Seminar, Instructor Spring 2010
 Classroom Management Seminar, Instructor Fall 2009
 Primary Research Mentor for Summer Undergraduate Research Program Summer 2008

Charlottesville Catholic School, Charlottesville, VA 2008-09
 Mathematics tutor to a 6th grade student with special needs

Karatsu Board of Education, Saga Prefecture, Japan 2005-2007
 Elementary School English Teacher (Taught K-6th grade in 6 schools)
 Junior High School English Teacher (Taught 7-9th grade in 5 schools)
 Saga Prefecture District Representative

Escuela Sathya Sai, Manabi, Ecuador Summer 2004
 WorldTeach English and Mathematics Teacher (Pre-K-4th grade)

Cold Harbor Elementary School, Hanover County Public Schools, VA 2004-05
 Student Teacher for 1st and 3rd grade

Henrico Public Schools VA and Wachusett Regional School District, MA 2003-2005
 Substitute Teacher

Richmond Public Schools, Richmond, VA 2002-2005
 Elementary school tutor and mentor

INVITED PLENARY SPEAKER

Ottmar, E.R. (2019, January). *EdTech: The Buzz, the Promise, the Evidence, and the Future*. Invited Plenary Panel Speaker at the 2019 Institute of Education Sciences (IES) PI Meeting.

OTHER UNIVERSITY TALKS AND RESEARCH PRESENTATIONS

Ottmar, E.R. (2017, October). Adapting perception, action and technology for mathematical reasoning. IGSD Brown bag given at Worcester Polytechnic Institute.

Ottmar, E. R. (2016, September 21). Categories of large number estimation. Presentation given at WPI's Collective Learning Meeting (CLM).

Ottmar, E.R. (2016, September 17). Graspable Math: Moving student understanding From Here to There. IGSD Presentation given at Worcester Polytechnic Institute's Family Weekend.

Ottmar, E. R. (2016, April 26). The social side of mathematics teaching and learning: Strengthening the instructional system through the creation of Responsive Classrooms. Learning Sciences Brown Bag Talk given at Worcester Polytechnic Institute.

Ottmar, E.R. (2015, December 10). Graspable Math: Moving student understanding From Here to There. IGSD Brown bag given at Worcester Polytechnic Institute.

Ottmar E.R. (2014, February). The social side of mathematics teaching and learning: Strengthening the instructional system through the creation of Responsive Classrooms. Colloquium given at the University of Richmond.

Ottmar E.R. (2013, December). The social side of mathematics teaching and learning: Strengthening the instructional system through the creation of Responsive Classrooms. Presentation given at the College of the Holy Cross.

Berry, III, R. Q., Walkowiak, T. A., Merritt, E., **Ottmar, E.** & Henderson, H. Improving mathematics teaching using the Mathematics Scan (M-Scan). Commonwealth of Virginia District and school level Administrators, Mathematics specialists, and teachers. June 22-23, 2011. Charlottesville, VA.

Ottmar, E.R. (2014, April). Examining the role of elementary mathematics teacher beliefs, knowledge, and quality for promoting student achievement. Presentation given at the School of Education, Virginia Commonwealth University.

Ottmar, E.R. (2011, February). Examining the role of elementary mathematics teacher beliefs, knowledge, and quality for promoting student achievement. Presentation given at Gettysburg College, Department of Education.

Ottmar E.R. (2010, October) Examining the role of elementary mathematics teacher beliefs, knowledge, and quality for promoting student achievement. Presentation given at the University of Richmond, Department of Psychology.

McCracken, E.R. Thinking about graduate school? (2008, November). A session for undergraduate students engaged in research at the University of Richmond, Department of Psychology.

RESEARCH TRAINING/PROFESSIONAL DEVELOPMENT

AERA Div. C New Faculty Mentoring Program	April 2018
IES Grant Writing Workshop	April 2018
Hewlett Foundation Deeper Learning Conference	Sept 2017
AERA Deeper Learning Fellows Workshop	April 2017
Institute for Teaching with Writing (WPI)	July 2016
Mediation and Moderation	June 2013

AERA and NSF Institute on Statistical Analysis for Education Policy on <i>Mathematics Education and Equity</i>	May 2012
Tomorrow's Professor Today Professional Development Program	2010-2011
Mixed Methods Research	May 2011
Randomized Control Trials in Education Research	May 2010
Hierarchical Linear Models for Studying the Effects of Schools	June 2009
Power Analysis	June 2009
Data Management	May 2009
Longitudinal Data Analysis Using Structural Equation Modeling	June 2008
Responsive Classroom I Training	June 2008
Introduction to Randomized Controlled Trials in Education	June 2008
Exploring and Using the NAEP and ECLS-K Data Sets	May 2008
Classroom Observation Scoring System (CLASS): Trained and Reliable Coder	2007-present
DATABASE AND STATISTICAL SOFTWARE TRAINING	
National Institute of Child Health and Human Development (NICHD), Early Childhood Longitudinal Study (ECLS-K, ECLS-B)	
Hierarchical Linear Modeling (HLM), SPSS, Mplus, AMOS, LISREL	

GRANT REVIEW PANELIST

Panel Reviewer, <i>NSF EHR Core</i>	2022
Panel Reviewer, <i>IES Transformative</i>	2021
Ad Hoc Reviewer, <i>NSF SBIR</i>	2019-2020
Panel Reviewer, <i>NSF EHR</i>	2020
Panel Reviewer, AERA Grants	2021
Grant Reviewer, Schmidt Tools	2022

CONFERENCE ORGANIZER

Embodied Mathematics Imagination and Cognition Workshops	2019-2020
The Center for Integrative Research in Computing and Learning Sciences (CIRCLS) Annual Convening	2021

EDITORIAL/SERVICE ACTIVITIES

Ad Hoc Reviewer, <i>Cognition and Instruction</i>
Ad Hoc Reviewer, <i>Cognitive Science</i>
Ad Hoc Reviewer, <i>Journal of Cognitive Science</i>
Ad Hoc Reviewer, <i>Journal of Numerical Cognition</i>
Ad Hoc Reviewer, <i>American Educational Research Journal</i>
Ad Hoc Reviewer, <i>Educational Technology Research and Development</i>
Ad Hoc Reviewer, <i>Educational Psychology Review</i>
Ad Hoc Reviewer, <i>Educational Psychology</i>
Ad Hoc Reviewer, <i>Cognitive Research: Principles and Implications</i>
Ad Hoc Reviewer, <i>Technology, Knowledge, and Learning</i>
Ad Hoc Reviewer, <i>Learning and Instruction</i>

Ad Hoc Reviewer, *Computers and Education*
 Ad Hoc Reviewer, *The Journal of the Learning Sciences*
 Ad Hoc Reviewer, *Educational Policy*
 Ad Hoc Reviewer, *The High School Journal*
 Ad Hoc Reviewer, *International Journal of Science and Mathematics Education*
 Reviewer, *Integrating Touch-Enabled and Mobile Devices into Contemporary Mathematics Education*
 Reviewer, *AT&T Aspire Program- High School Impact Initiative*
 Ad Hoc Reviewer, *Early Education and Development*
 Ad Hoc Reviewer, *Educational Researcher*
 Ad Hoc Reviewer, *Mathematics Teacher*
 Ad Hoc Reviewer, *Journal of Mathematics Education*
 Ad Hoc Reviewer, *School Science and Mathematics*
 Ad Hoc Reviewer, *Teaching Children Mathematics*
 Ad Hoc Reviewer, NCTM Annual Research Conference
 Ad Hoc Reviewer, Society for Research in Child Development (SRCD)
 Ad Hoc Reviewer, Psychology of Math Education (PME-NA) Annual Meeting
 Ad Hoc Reviewer, Association of Mathematics Teacher Educators (AMTE)
 Ad Hoc Reviewer, Curry Research Conference

ADVISORY BOARD PANELIST

AT&T Aspire Program Advisory Board Panelist for High School Impact Initiative	2012-2016
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SERVICE TO UNIVERSITY AND OUTREACH TO LOCAL COMMUNITY

CIRCLS Mentor	2021-2022
WPI Teacher and Games Project- a 14 week PD for local teachers	Spring 2019
Conducted a 2 hour professional developments to teachers	March 2017
Organized a visit and viewing of Curtis Chin's TESTED documentary at WPI	Feb 2016
Invited Speaker at WPI's Family Weekend	Sept 2016
Presented at AWESTem Event	2016-present
TouchTomorrow Faculty Exhibit	June 2016-18
University of Richmond, VA; Office of Multicultural Affairs	March 2012
Helping Hands Career Panelist and Mentor	

PROFESSIONAL AFFILIATIONS

AERA: American Educational Research Association	2009-present
ASCD: Association for Supervision and Curriculum Development	2010-present
Cognitive Science Society	2012-present
NCTM: National Council of Teachers in Mathematics	2007-present
PME-NA: Psychology of Mathematics Education	2012-present
SRCD: Society for Research in Child Development	2007-present
SREE: Society for Research on Educational Effectiveness	2007-present
SSMA: School Science and Mathematics Association	2010-present

NATIONAL MEDIA COVERAGE

- March 16, 2021. Winners Announced in Education Technology Competition Sponsored by Schmidt Futures and Philanthropist Ken Griffin. <https://futuresforumonlearning.org/competition-winners/>
- January 3, 2020 WPI Receives Funding from the National Science Foundation to Develop a Website that Children Can Use to Design and Play Math Games WBUR 90.9
- December 5, 2019 Researchers get \$746K to develop math game site. Worcester Business Journal. <https://www.wbjournal.com/article/wpi-researchers-get-746k-to-develop-math-game-site>
- August 2, 2019 Fund for X: Department of Education awards \$900K to enhance algebra learning technology. <https://news.iu.edu/stories/2019/08/iub/releases/02-graspable-receives-phase-ii-sbir-grant-from-department-of-education.html>
- September 23, 2018 WPI project aims to use artificial intelligence to enhance teacher training <https://www.telegram.com/news/20180923/wpi-project-aims-to-use-artificial-intelligence-to-enhance-teacher-training>
- July 26, 2018 WPI professor and associates get \$3.3M grant to test new algebra learning game. <http://www.telegram.com/news/20180726/wpi-professor-and-associates-get-33m-grant-to-test-new-algebra-learning-game>
- July 29, 2018 WPI Researchers Get \$3.3M Grant to Test Algebra Game. <https://www.usnews.com/news/best-states/massachusetts/articles/2018-07-29/wpi-researchers-get-33m-grant-to-test-algebra-game>
- June 1, 2018 I.E.S. Awards \$8.4 Million to Ed-Tech Businesses to Develop, Test Products. <https://marketbrief.edweek.org/marketplace-k-12/e-s-awards-8-4-million-ed-tech-businesses-develop-test-products/>
- Sept 2, 2017 5 math Gems. <http://www.resourceaholic.com/2017/09/gems76.html>
- Aug 31, 2017 Indiana University-based educational technology startup targets students tackling algebra. https://www.eurekalert.org/pub_releases/2017-08/iu-iue083117.php
- May 11, 2017 IU Researchers Create Math Learning Software to Help Students, Educators. <https://www.aau.edu/research-scholarship/featured-research-topics/iu-researchers-create-math-learning-software-help>
- May 11, 2017 100 Best Resources for Kids who Struggle with Math. <https://homeschoolingwithdyslexia.com/tag/dyscalculia/>
- Jan 25, 2017 IU scientists' math learning software gets boost from campus commercialization group <http://inside.indiana.edu/spotlights-profiles/faculty-staff/2017-01-25-graspable-math.shtml>

- Oct 6, 2016 6 Chrome Tools for Kids with Math Issues. Understood.org.
<https://www.understood.org/en/school-learning/assistive-technology/finding-an-assistive-technology/6-chrome-tools-for-kids-with-math-issues>
- Feb. 10, 2016 AERA Announces Most Read Education Research Articles of 2015.
<http://www.aera.net/Newsroom/News-Releases-and-Statements/AERA-Announces-Most-Read-Education-Research-Articles-of-2015>
- 2015 Teacher Skill Drives Common Core Success: How Responsive Classroom Helps.
https://www.daleadershipinstitute.com/sites/daleadershipinstitute/files/common_core_success.pdf
- Aug 14, 2013 Research Shows Responsive Classroom Approach Increases Use of Standards Based Math Teaching Practice. <http://www.prnewswire.com/news-releases/research-shows-responsive-classroom-approach-increases-use-of-standards-based-math-teaching-practices-219563311.html>
- April 25, 2012 Faculty, Student, Alumni Publication Awarded by NCTM. <http://curry.virginia.edu/news/updates/faculty-student-alumni-publication-awarded-by-nctm>
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WPI MEDIA COVERAGE

- December 5, 2019 WPI Researchers Awarded Grant to Help K-12 Students Design Math Games
<https://www.wpi.edu/news/wpi-researchers-awarded-grant-help-k-12-students-design-math-games>
- November 20, 2019 Helping to Make Math “Graspable”, WPI Researchers Guide Design of Algebra Tool for Students and Teachers
<https://www.wpi.edu/news/helping-make-math-graspable-wpi-researchers-guide-design-algebra-tool-students-and-teachers>
- September 6, 2018 Giving Teachers a Better Lens to Perceive Classroom Dynamics
<https://www.wpi.edu/news/giving-teachers-better-lens-perceive-classroom-dynamic>
- July 26, 2018 Struggling with Algebra? There’s an App – and Game – for That.
<https://www.wpi.edu/news/struggling-algebra-there-s-app-and-game>
- July 26, 2018 Professor Erin Ottmar Studies the Process of How People Learn, Problem Solve
<https://www.wpi.edu/news/professor-erin-ottmar-studies-process-how-people-learn-problem-solve>

- Jan 13, 2017 Math In Motion. My research was the cover story for WPI's *Research Magazine*.
<https://www.wpi.edu/news/math-motion>
- Dec 13, 2016 Understanding What Students Need to be Successful
<https://www.wpi.edu/news/announcements/understanding-what-students-need-be-successful-0>
- 2016 Video featured on WPI's Research website. Graspable Math.
<https://www.youtube.com/watch?v=DzIF-xRKYXw>
- Oct 4, 2016 NSF Awards Grant to WPI to Create Augmented Reality Math Games for Middle Schoolers.
<https://www.wpi.edu/news/announcements/nsf-awards-grant-wpi-%C2%A0create-augmented-reality-math-games-middle-schoolers>
- Oct 6, 2016 Professor Ottmar Selected as American Educational Research Association (AERA) Fellow. <https://www.wpi.edu/news/announcements/professor-erin-ottmar-selected-american-educational-research-association-aera>
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