# MELISSA SOMMERFELD GRESALFI

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## CURRENT APPOINTMENT

2023-present Dean, Residential Colleges and Residential Education

2020-present Professor, Mathematics Education and Learning Sciences, Vanderbilt University

## AREAS OF SPECIALIZATION

**Topics:** Elementary Mathematics; Computational Thinking; Curricular Design; Educational Games; Game-Based Learning; Mathematics Identity; Play

**Theories:** Situative Theory of Learning; Sociocultural Theory of Learning; Ecological Psychology; Participatory and Narrative Identity

**Methods:** Design-Based Research; Discourse Analysis; Interaction Analysis; Emergent Coding; Classroom Video and Interviews

## EDUCATION

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|---|---|
| 2004 | Stanford University. Stanford, CA<br>Ph.D., Educational Psychology |
| 2001 | Stanford University. Stanford, CA<br>M.A., Education |
| 1999 | Franklin & Marshall College, Lancaster, PA<br>B.A., Psychology and French<br>*Cum Laude, Phi Beta Kappa* |

## PROFESSIONAL EXPERIENCE

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|---|---|
| 2019-2023 | Dean, Martha Rivers Ingram Commons, Vanderbilt University |
| 2012- 2020 | Associate Professor, Mathematics Education and Learning Sciences, Vanderbilt University |
| 2011-2012 | Director, Center for Research on Learning and Technology, Indiana University |
| 2006-2012 | Assistant Professor, Learning Sciences, School of Education, Indiana University |
| 2008-2012 | Associate Director, Center for Research on Learning and Technology, Indiana University |

2004-2006 Post-doctoral Research Associate, "Supporting and sustaining the learning of professional teaching communities in the institutional setting of the school and school district" Principal Investigators: Paul Cobb & Kay McClain, Vanderbilt University

2005-2006 Post-doctoral Research Associate, "Research on embodied mathematical cognition, technology, and learning" Principal Investigators: Rogers Hall, Vanderbilt University, Ricardo Nemirovsky, San Diego State University.

**AWARDS/HONORS**

2021 Distinguished Faculty Colleague Award, *Peabody College, Vanderbilt University*

2012 Jere Brophy Paper Award, *Theory into Practice*

2011 Jan Hawkins Award for Early Career Contributions to Humanistic Research & Scholarship in Learning Technologies (2011). *Presented by the American Educational Research Association, Division C (Learning and Instruction)*

Best Empirical Paper (2011), *Media, Culture & Curriculum Special Interest Group, American Educational Research Association*

National Academy of Education Post Doctoral Fellowship, 2009

Best Paper, ICLS (2008). *International Conference of the Learning Sciences, Utrecht, Netherlands*

Active Learning Award (2007). *Award for revising undergraduate of teacher education course*

Summer Profitt Fellowship (2007). *Award to support summer research from Indiana University*

Phi Beta Kappa, *Franklin and Marshall College, 1999*

**BOOKS AND EDITED VOLUMES** (* denotes authorship with student)

Gresalfi, M. and Horn, I. S. (Eds.). (2020). The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020, Volumes 1-3. Nashville, Tennessee: International Society of the Learning Sciences.

Salen-Tekinbas, K., Gresalfi, M., Peppler, K., & *Santo, R. (2014). *Gaming the System: Designing with Gamestar Mechanic*. Cambridge, MA: MIT Press.

Peppler, K., Gresalfi, M., Salen-Tekinbas, K., & *Santo, R. (2014). *Short Circuits: Crafting e-Puppets with DIY Electronics*. Cambridge, MA: MIT Press.

Peppler, K., Gresalfi, M., Salen-Tekinbas, K., & *Santo, R. (2014). *Soft Circuits: Crafting e-Fashion with DIY Electronics*. Cambridge, MA: MIT Press.

Peppler, K., *Santo, R. Gresalfi, M. & Salen-Tekinbas, K., (2014). *Script Changers: Digital Storytelling with Scratch*. Cambridge, MA: MIT Press.

**BOOK CHAPTERS**

Horn, I.S., & Gresalfi, M.S. (2021). Broadening Participation in Mathematical Inquiry. In C. Chinn & R. Duncan, (Eds.), *The International Handbook of Inquiry and Learning, pp. 311-324*. New York: Routledge/Taylor & Francis.

Danish, J.A., & Gresalfi, M.S. (2017). Cognitive and sociocultural perspectives on Learning: The multiple identities that learning scientists take on. In F. Fischer, C.E. Hmelo-Silver, S. R. Goldman, & P. Reimann (Eds), *International Handbook of the Learning Sciences* (pp. 34-43). New York: Routledge/Taylor & Francis.

*Barnes, J., & Gresalfi, M.S. (2017). More Than an Avatar: Unmasking the Player's Impact on an Educational Game. In M. F. Young & S.T. Slota, (Eds.), *Exploding the Castle: Rethinking How Video Games & Game Mechanics Can Shape the Future of Education* (pp. 93-116). Information Age Publishing.

*Bell, A.M., & Gresalfi, M.S. (2017). The Role of a Digital Game in a Classroom Ecology: Exploring Teaching Using Videogames. In M. F. Young & S.T. Slota, (Eds.), *Exploding the Castle: Rethinking How Video Games & Game Mechanics Can Shape the Future of Education* (pp. 67-92). Information Age Publishing.

Gresalfi, M.S. (2017). Game Design. In K. Peppler (Ed.), *The SAGE Encyclopedia of Out of School Learning* (pp. 315-320). Thousand Oaks, CA: Sage Publications.

Barab, S. A., *Pettyjohn, P., & Gresalfi, M., *Solomou, M. (2012). Game-based curricula, personal enagement, and the Modern Prometheus design project. In C. Steinkuehler, K. Squire, and S. A. Barab (Eds.) *Games, Learning, and Society: Learning and meaning in the digital age* (pp. 306-326). Cambridge, MA: Cambridge University Press.

Robinson, J.M., Gresalfi, M.S., *Christensen, T.B., Sievert, A.K., Kearns, K.D., Zolan, M.E. (2012) Talking Across the Disciplines: Building Communicative Competence in a Multidisciplinary Graduate-Student Seminar on Inquiry in Teaching and Learning. In K. McKinney (Ed.), *The Scholarship of Teaching and Learning In and Across the Disciplines* (pp. 186-199). Bloomington, IN: Indiana University Press.

Gresalfi, M.S., Barab, S.A., & Sommerfeld, A.K. (2011). Intelligent Action as a Shared Accomplishment. In D.Y. Dai & R. Sternberg (Eds.), *Design research on learning and teaching in educational settings: Enhancing intellectual growth and functioning* (pp. 41-64). New York: Routledge.

Gresalfi, M.S., *Barnes, J.L., & *Pettyjohn, P. (2011). Why videogames are not teacher-proof: The central role of the teacher when using new technologies in the classroom. In G. Vincenti & J. Braman (Eds.), *Multi-User Virtual Environments for the Classroom: Practical Approaches to Teaching in Virtual Worlds* (pp. 267-284). Hershey, PA: Information Science Reference.

Gresalfi, M.S., & Lester, F. (2009). What's worth knowing in mathematics? In S. Tobias & T.M. Duffy (Eds.), *Constructivist Theory Applied to Instruction: Success or Failure?* (pp.264-290). New York: Routledge.

Cobb, P., Gresalfi, M., Hodge, L.L. (2009). A design research perspective on the identities that students are developing in mathematics classrooms. In B. Schwarz, T.Dreyfus. & R.

Herskowitz (Eds.), *Transformations of Knowledge in Classroom Interactions* (pp. 223-243). Oxon: Routledge Press.

Greeno, J.G., & Gresalfi, M.S. (2008). Opportunities to learn in practice and identity. In P.A. Moss, D.C. Pullin, J.P. Gee, E.H. Haertel, & L.J. Young (Eds.), *Assessment, Equity, and Opportunity to Learn* (pp. 170-199). Cambridge: Cambridge University Press.

Davis, F.E., West, M.M., Greeno, J.G., Gresalfi, M.S., & Martin, T. (2006). Transactions of Mathematical Knowledge in the Algebra Project. In P. Cobb & N. Nasir (Eds.), *Improving Access to Mathematics: Diversity and Equity in the Classroom* (pp. 69–88). New York: Teachers College Press.

Greeno, J. G., Hall, R., Sommerfeld, M., Stenning, K. & Wiebe, M. (2002). Coordinating mathematical with biological multiplication. Conceptual learning as the development of heterogeneous representation systems. In M. Baker, P. Brna, K. Stenning & A. Tiberghien (Eds.) *The role of communication in learning to model* (pp. 3-48). Mahwah, NJ: Lawrence Erlbaum Publishers.

**ARTICLES IN REFEREED JOURNALS**

*Steinberg, S., Gresalfi, M., *Vogelstein, L., & Brady, C. (2022). Coding choreography: Understanding student responses to representational incompatibilities between dance and programming. *Journal of Research on Technology in Education*, 1-18.

*Jasien, L., & Gresalfi, M.S. (2021). Playing with Math: Hybridity between In- and Out-of-School Activities. *Journal of the Learning Sciences, 30(4-5*), 676-706.

*Wisittanawat, P., & Gresalfi, M.S. (2020). The "tricky business" of genre blending: Tensions between frames of video game play and school mathematics. Journal of the Learning Sciences

Gresalfi, M.S., & Hand, V. (2019). Coordinating situated identities in mathematics classrooms with sociohistorical narratives: a consideration for design. *ZDM - The International Journal on Mathematics Education*.

Gresalfi, M.S. (2018). Choosing and using games in the classroom. *Teaching Children Mathematics, 24,7,* 3-7.

Gresalfi, M.S., Rittle-Johnson, B., *Loehr, A., & *Nichols, I. (2018). Design matters: Explorations of Content and Design in Fraction Games. *Educational Technology Research and Development, 66, 3*, 579-596.

*Bell, A.M., & Gresalfi, M.S. (2017). Teaching with Videogames: How Experience Impacts Classroom Integration. *Technology, Knowledge, and Learning, 22,3,* 513-526.

Gresalfi, M.S. (2015) Designing to Support Critical Engagement with Statistics. *ZDM - The International Journal on Mathematics Education 47*:933–946.

Hand, V., & Gresalfi, M.S. (2015). The Joint Accomplishment of Identity. *Educational Psychologist, 50,3,* 190-203.

Gresalfi, M.S., & *Barnes, J. (2015). Designing Feedback in an Immersive Videogame: Supporting Student Mathematical Engagement. *Educational Technology Research and Development, 64,1,* 65-86.

Robinson, J.M, Kearns, K. D., Gresalfi, M.S., Sievert, A. K., & *Christensen, T.B. (2015). Teaching on purpose: A collegium community model for supporting intentional teaching. *Journal on Excellence in College Teaching, 26, 1*, 81-110.

Gresalfi, M.S., *Barnes, J., & Cross, D. (2012). When does an opportunity become an opportunity? Unpacking classroom practice through the lens of ecological psychology. *Educational Studies in Mathematics, 80*, 249-267.

Barab, S. A., *Pettyjohn, P., Gresalfi, M., *Volk, C., & *Solomou, M. (2012). Game-based curriculum and transformational play: Designing to meaningfully position person, content, and context. *Computers & Education*, 50, 518-533.

Gresalfi, M.S., & Barab, S.A. (2011). Learning for a reason: Supporting forms of engagement by designing tasks and orchestrating environments. *Theory into Practice, 50,* 300-310.

Gresalfi, M.S. & Cobb, P. (2011). Negotiating identities for Mathematics teaching in the context of professional development. *Journal for Research In Mathematics Education, 42,3*, 270-304.

Park Rogers, M., Cross, D., Gresalfi, M.S., *Trauth-Nare, A., & Buck, G. (2011). First year implementation of a project-based learning approach: The need for addressing teachers' orientations in the era of reform. *International Journal of Science and Mathematics Education, 9,4*, 893-917.

Barab, S.A., Gresalfi, M.S., & *Ingram-Goble, A. (2010). Transformational Play: Using Games to Position Person, Content, and Context. *Educational Researcher, 39,7,* 525-536.

Barab, S.A., Gresalfi, M.S., *Dodge, T., & *Ingram-Goble, A. (2010). Narratizing Disciplines and Disciplinizing Narratives: Games as 21st Century Curriculum. *Journal for Gaming and Computer Mediated Simulations, 2, 1*. 17-30.

Barab, S.A. Gresalfi, M.S. & Arici, A. (2009). Transformational Play: Why educators should care about games. *Educational Leadership, 67,1,*76-80.

Barab, S.A., Gresalfi, M.S., *Ingram-Goble, A., *Jameson, E., Hickey, D., Akram, S., & Kizer, S. (2009). Transformational Play and Virtual Worlds: Worked Examples from The Quest Atlantis Project. *International Journal of Learning and Media, 1,2*.

Gresalfi, M.S. (2009). Taking up opportunities to learn: Constructing dispositions in mathematics classrooms. *Journal of the Learning Sciences, 18,* 327-369.

Cobb, P., Gresalfi, M.S., & Hodge, L.L. (2009). An Interpretive Scheme for Analyzing the Identities that Students Develop in Mathematics Classrooms. *Journal for Research in Mathematics Education, 40,1,* 40-68.

Gresalfi, M.S., Barab, S., Siyahhan, S., Christensen, T. (2009). Virtual worlds, conceptual understanding, and me: Designing for Critical engagement. *On the Horizon, 17,1,* 21-34.

Gresalfi, M.S., Martin, T., Hand, V., & Greeno, J.G. (2008). Constructing Competence: An Analysis of Student Participation in the Activity Systems of Mathematics Classrooms. *Educational Studies in Mathematics, 70,1,* 49-70.

Gresalfi, M.S., & Cobb, P. (2006). Cultivating students' discipline-specific dispositions as a critical goal for pedagogy and equity. *Pedagogies: An International Journal, 1,* 49-58.

Stenning, K., & Gresalfi, M. (2006). Heterogeneous reasoning in learning to model. *Journal of Experimental & Theoretical Artificial Intelligence, 18,2* 249-266.

**INVITED PUBLICATIONS**

Sullivan, F.R., & Gresalfi, M.S. (2020) Beyond inclusion: the imperative of criticality in CS education research, Computer Science Education, 30:3, 249-253, DOI: 10.1080/08993408.2020.1816445

**PUBLISHED CONFERENCE PROCEEDINGS**

Brady, C., *Vogelstein, l., Gresalfi, M., *Knowe, M. (2021). Circular Reasoning: Shifting Epistemological Frames Across Mathematics and Coding Activities. In Olanoff, D., Johnson, K., & Spitzer, S. M. [Eds.], *Proceedings of the forty-third annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, pp. 1182-1190*. Philadelphia, PA.

*Love, C. Gresalfi, M.S. & *Knowe, M. (2021). The Tragedy of Lost Ideas: Examining Epistemic Injustice in Pair Programming. In Vries, E., Hod, Y., & Ahn J. (Eds.). (2021). *Proceedings of the 15th International Conference of the Learning Sciences, pp. 251-258*. Bochum, Germany: International Society of the Learning Sciences.

*Steinberg, S., & Gresalfi, M.S. (2021). Agency and Expressivity in Programming Play. In Vries, E., Hod, Y., & Ahn J. (Eds.). (2021). *Proceedings of the 15th International Conference of the Learning Sciences, pp. 581-584*. Bochum, Germany: International Society of the Learning Sciences.

*Knowe, M., & Gresalfi, M.S. (2021). Bridging the Divide: Exploring Affordances for Interdisciplinary Learning. In Vries, E., Hod, Y., & Ahn J. (Eds.). (2021). *Proceedings of the 15th International Conference of the Learning Sciences, pp. 235-242*. Bochum, Germany: International Society of the Learning Sciences.

*Bell, A.M., & Gresalfi, M.S. (2020). Two Approaches to Teaching with NetLogo: Examining the Role of Structure and Agency. In M.S. Gresalfi & I.S. Horn [Eds]. *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences*, pp. 2419-2420. Nashville, Tennessee: International Society of the Learning Sciences.

Gresalfi, M.S., Brady, C., *Knowe, M., *Steinberg, S. (2020). Engaging in a New Practice: What Are Students Doing When They Are "Doing" Debugging? In M.S. Gresalfi & I.S. Horn [Eds]. *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Science*, pp. 199-206. Nashville, Tennessee: International Society of the Learning Sciences.

Brady, C., Gresalfi, M.S., *Steinberg, S., & *Knowe, M. Debugging for Art's Sake: Beginning Programmers' Debugging Activity in an Expressive Coding Context. In M.S. Gresalfi & I.S. Horn [Eds]. *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Science*, pp. 1229-1236. Nashville, Tennessee: International Society of the Learning Sciences.

Gresalfi, M.S., *Bell, A.M., & *Cervantes, A. (2019). Developing Relationships, Changing Participation: Computational Identity. In K. Lund, G. Niccolai, E. Lavoué, C. Hmelo-Silver, G. Gweon, and M. Baker, [Eds.], *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference of Computer Supported Collaborative Learning (CSCL) 2019* (pp.336-343). Volume 1. Lyons, France.

Gresalfi, M.S., *Bell, A.M., Brady, C., & *Vogelstein, L. (2019). Same space, new rules: The joint accomplishment of engagement. In K. Lund, G. Niccolai, E. Lavoué, C. Hmelo-Silver, G. Gweon, and M. Baker, [Eds.], *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference of Computer Supported Collaborative Learning (CSCL) 2019* (pp. 775-782). Volume 2. Lyons, France.

Gresalfi, M.S., Horn, I.S., Guyevsky, V., *Jasien, L., Ma, J.Y, Radke, S.C., Sinclair, N, & Wisittanawat, P. (2018). Playful mathematics learning: Beyond early childhood and sugar-coating. In J. Kay and R. Luckin, (Eds.), *Rethinking Learning in the Digital Age: Making the Learning Sciences Count (pp. 1335-1342)*. The International Conference of the Learning Sciences (ICLS) 2018, Volume 2. London, England: International Society of the Learning Sciences.

*Chapman, K., Gresalfi, M.S. & *Bell, A.M. (2018). Room for Everyone: Identification Processes in Crafting Communities In J. Kay and R. Luckin, (Eds.), *Rethinking Learning in the Digital Age: Making the Learning Sciences Count (pp. 1701-1702)*. The International Conference of the Learning Sciences (ICLS) 2018, Volume 3. London, England: International Society of the Learning Sciences.

Gresalfi, M.S., & *Chapman, K. (2017). Recrafting manipulatives: Toward a critical analysis of gender and mathematical practice. In Proceedings of the 9th International Mathematics Education and Society (MES9) Conference, Volos, Greece.

*Bell, A.M., & Gresalfi, M.S. (2016). Teaching with videogames: An exploration of Experience. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), Proceedings of the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 1533-1536). Tucson, AZ: The University of Arizona.

Gresalfi, M.S., *Nichols, I., & *Wisittanawat, P. (2016). Looking at versus looking through: When designs undermine student reasoning. In M. B. Wood, E. E. Turner, M. Civil, & J. A. Eli (Eds.), Proceedings of the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 1095-1098). Tucson, AZ: The University of Arizona.

Gresalfi, M.S., & *Bell, A.M. (2014). Designing for Dispositions: Supporting engagement through the design of tasks. In Polman, J. L., Kyza, E. A., O'Neill, D. K., Tabak, I., Penuel, W. R., Jurow, A. S., O'Connor, K., Lee, T., and D'Amico, L. (Eds.). (2014).

Learning and becoming in practice: The International Conference of the Learning Sciences (ICLS) 2014, Volume 1. Boulder, CO: International Society of the Learning Sciences.

Gresalfi, M.S. (2013). Technology In Mathematics Education: A Discussion Of Affordances. In Martinez, M. & Castro Superfine, A (Eds.). (2013). Proceedings of the 35th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, pp. 16-28. Chicago, IL: University of Illinois at Chicago

Gresalfi, M. S., & *Barnes, J. (2012). Consequential Feedback as a Means of Supporting Student Engagement and Understanding. In J. van Aalst, K. Thompson, M. J. Jacobson & P. Reimann (Eds.), *The Future of Learning: Proceedings of the 10th International Conference of the Learning Sciences* (pp. 403-410). Sydney, Australia: International Society of the Learning Sciences.

Gresalfi, M.S., *Gordon, L., & *Siyahhan, S. (2012). From tacit knowing to explicit explanation: Mining student designs for evidence of systems thinking. In van Aalst, J., Thompson, K., Jacobson, M. J., & Reimann, P. (Eds.) *The Future of Learning: Proceedings of the 10th International Conference of the Learning Sciences, (pp. 545-546)*. International Society of the Learning Sciences: Sydney, Australia.

Gresalfi, M.S., & *Williams, C. (2009). Constructing opportunities to learn: An analysis of teacher moves that position students to engage procedurally and conceptually with content. In S.L. Swars, D.W. Stinson, & S. Lemons-Smith (Eds.), *Proceedings of the 31st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education,* (pp. 312-320). Atlanta, GA: Georgia State University.

Gresalfi, M.S., & *Ingram-Goble, A. (2008). Designing for Dispositions. In G. Kanselaar, V. Jonker, A.A. Kirschner, & F.J. Prins (Eds.), *International Perspectives in the Learning Sciences: Cre8ing a Learning world,* (pp.297-304). International Society of the Learning Sciences: Utrecht, Netherlands.

Gresalfi, M.S., Visnovska, J., Zhao, Q. (2007). The figured worlds of teaching: Finding coherence in teachers' identities. In T. Lamberg & L.R. Wiest (Eds.), *Proceedings of the 29th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. Stateline, NV: University of Nevada, Reno.

Gresalfi, M.S., Hand, V.M., & Hodge, L.L. (2006). Creating opportunities for all: Unpacking equitable practices in mathematics classrooms. In Alatorre, S., Cortina, J.L., Sáiz, M., and Méndez, A.(Eds). *Proceedings of the 28th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. (pp. 515-518). Mérida, México: Universidad Pedagógica Nacional.

Greeno, J.G., Sommerfeld, M.C., and Wiebe, M. (2000). *Practices of questioning and explaining in learning to model*. In L.R. Gleitman and A.K. Joshi (Eds.) Proceedings of the Twenty-Second Annual Conference of the Cognitive Science Society (pp. 669-674). Mahwah, NJ: Lawrence Erlbaum Associates.

Stenning, K., & Sommerfeld, M.C. (2000). *Heterogeneous Reasoning in Learning to Model*. In L.R. Gleitman and A.K. Joshi (Eds.) Proceedings of the Twenty-Second Annual

Conference of the Cognitive Science Society (pp. 669-674). Mahwah, NJ: Lawrence Erlbaum Associates.

**REFEREED TALKS AND PRESENTATIONS**

Gresalfi, M. S., & Knowe, M. (2022). From Engagement to Identity: The Role of Affect in Computing Education. American Educational Research Association, San Diego, CA.

Gresalfi, M. S., Love, C., & Steinberg, S. (2022). From Challenge to Enjoyment: Designing to Support Identification with Computer Science. American Educational Research Association, San Diego, CA.

Gresalfi, M.S. (2019). Safe spaces for Math: Contexts as invitations for participation. Paper presented at the American Educational Research Association Annual Conference, Toronto, CA.

Gresalfi, M.S., *Chapman, K., & *Bell, A.M. (2018). Recrafting mathematics: Toward a critical analysis of gender and mathematical practice. Paper presented at the American Educational Research Association Annual Conference, New York, NY.

Gresalfi, M.S., & *Wisittanawat, P. (2017). Learning Mathematics through problem solving: An exploration of tensions in design. Paper presented at the Annual Meeting of the American Educational Research Association, San Antonio, TX.

*Bell, A.M., & Gresalfi, M.S. (2017). Teaching with games: Experience and Change. Paper presented at the Annual Meeting of the American Educational Research Association, San Antonio, TX.

*Wisittanawat, P., & Gresalfi, M.S. (2017). Games in Class: The Role of Framing on Activity. Paper presented at the National Council for Teachers of Mathematics Research Pre-session, San Antonio, TX.

Bender, S., Chapman, K., Gresalfi, M.S., Keune, A., Peppler, K., Samson, K., Thompson, N., & Wisittanawat, P. (2016). Re-Crafting Mathematics Education: Exploring textile crafts as tangible mathematical manipulatives. Workshop presented at the annual meeting for Digital Media and Learning, Irvine, CA.

Gresalfi, M.S., Chapman, K., & Wisittanawat, P. (2016). Recrafting Mathematics Education. Poster presented at the American Educational Research Association Annual Conference, Washington, D.C.

Gresalfi, M.S., Peppler, K., Bell, A.M., Bender, S., & Keune, A. (2016). Recrafting Mathematics education: Embodying mathematical ideas in crafts. Paper presented at the Annual Meeting for the Association for Women in Science, Baltimore, MD.

Gresalfi, M.S., Rittle-Johnson, B., Loehr, A.M., Nichols, I.T., & McCracken, C. (2016). Slicing and Bouncing: Can Implicit Digital Games Support Transfer to Traditional Assessments as Well as Explicit Digital Games? Paper presented at the American Educational Research Association Annual Conference, Washington, DC.

Bell, A.M., & Gresalfi, M.S. (2015) Student problem solving strategies in inventing with contrasting cases. Paper presented at the American Educational Research Association Annual Conference, Chicago IL.

Gresalfi, M.S. (2014). Identity as patterns of participation. Paper presented at the 9th International Conference on Conceptual Change, Bologna, Italy.

Gresalfi, M.S., Peppler, K., & Barnes, J. (2014). Mining Student Designs for Evidence of Systems Thinking. Paper presented at the American Educational Research Association Annual Conference, Philadelphia, PA.

Gresalfi, M.S., & Barnes, J. (2012). Motivation as joint accomplishment: Narrative and content. Paper presented at the American Educational Research Association Annual Conference, Vancouver, Canada.

Barab, S.A., Gresalfi, M.S., Ingram-Goble, A., & Arici, A. (2012). Playing with theory to build a theory of play. Paper presented at the American Educational Research Association Annual Conference, Vancouver, Canada.

Gresalfi, M.S., & Siyahhan, S. (2012). Systems thinking in designed games. Paper presented at the American Educational Research Association Annual Conference, Vancouver, Canada.

Gresalfi, M.S., Barnes, J., & Pettyjohn, P. (2011, April). *Why Video Games Are Not Teacher-Proof: The Central Role of the Teacher When Using New Technologies in the Classroom*. Paper presented at the American Educational Research Association Annual Conference, New Orleans, LA. (awarded Best Empirical Paper)

Gresalfi, M.S. (2011, April). Designing for Consequential Engagement: The Role of Push-Back on Student Thinking. Paper presented at the American Educational Research Association Annual Conference, New Orleans, LA.

Gresalfi, M.S. (2010, May). *Performance as a Function of Opportunity: How Curricular Modifications Shape Students' Content Engagement*. Paper presented at the American Educational Research Association Annual Conference, Denver, CO.

Gresalfi, M.S. (2010, May). *Ander City: Example 3 of Transformational Play*. Paper presented at the American Educational Research Association Annual Conference, Denver, CO.

Gresalfi, M.S. (2010, May). *Designing for Consequential Engagement: The Role of Push-Back on Student Thinking*. Paper presented at the American Educational Research Association Annual Conference, Denver, CO.

Chase, C., Chin, D., Oppezzo, M., Schwartz, D., & Gresalfi, M. S. (2010). *Why instruction supports or hinders transfer in physics*. Paper presented at the American Educational Research Association, Denver, CO.

Cross, D & Gresalfi, M. (2010, April). *Meeting the needs for Project-based teaching*. Poster presented at the Research Pre-session of the annual meeting of the National Council of Teachers of Mathematics, San Diego, CA, United States.

Gresalfi, M., & Barnes, J. (April, 2010). *Setting Expectations: Competence as Opportunities to Engage*. Paper presented at the Research Pre-session of the annual meeting of the National Council of Teachers of Mathematics, San Diego, CA, United States.

Gresalfi, M.S. (2010). *Designing to enhance students' consequential engagement*. Paper presented at the National Association for Research on Science Teaching, Philadelphia, PA.

Gresalfi, M.S., Lewison, M., & Sanchez, L. (2009). *Taking a closer look: Teachers' identities across different discourse communities*. Paper presented at the American Educational Research Association Annual Conference, San Diego, CA.

Gresalfi, M.S. (2008). *Positioning for learning: The development of mathematical dispositions*. Paper presented at the American Educational Research Association Annual Conference, New York, NY.

Gresalfi, M.S. & Lehrer, R. (2008). Y*ou want to try to prove it and show what you did and all that: An analysis of disciplinary and interpersonal positioning in a 5th grade mathematics classroom*. Paper presented at the American Educational Research Association Annual Conference, New York, NY.

Gresalfi, M.S. & Ingram-Goble, A. (2008). *Using Statistics to Support Arguments: The Development of Mathematical Dispositions*. Paper presented at the American Educational Research Association Annual Conference, New York, NY.

Gresalfi, M.S. (2007). *Moving across Discourses: A case study of student positioning in practice*. Paper presented at the American Educational Research Association Annual Conference, Chicago, IL.

Gresalfi, M.S. (2007). *Positioning in practice: Constructing trajectories of participation in algebra classrooms*. Paper presented at the American Educational Research Association Annual Conference, Chicago, IL.

Visnovska, J., Zhao, Q., & Gresalfi, M.S. (2007). *Situating teaching in histories of participation: Two contrasting visions of teaching*. Paper presented at the American Educational Research Association Annual Conference, Chicago, IL.

Gresalfi, M.S. (2006). *Negotiating and refining a vision of teaching in the context of professional development*. Paper presented at the American Educational Research Association Annual Conference, San Francisco, CA.

Gresalfi, M.S. (2006). *Opportunities for whom? Classroom practices and the participatory identities of differentially successful students*. Paper presented at the American Educational Research Association Annual Conference, San Francisco, CA.

Gresalfi, M.S., & Cobb, P. (2006*). Teacher Quality as the Cultivation of Productive Mathematical Dispositions*. Paper presented at the American Educational Research Association Annual Conference, San Francisco, CA.

Boaler, J., & Gresalfi, M.S. (2006*). Depicting and Understanding Students' Orientations Towards Mathematical Knowledge*. Paper presented at the American Educational Research Association Annual Conference, San Francisco, CA.

Gresalfi, M.S. (2005). *Advocating for your right to understand: An analysis of mathematical identity in less successful Algebra students*. Poster presented at the American Educational Research Association Annual Conference, Montreal, Canada.

Gresalfi, M.S., Boaler, J., & Cobb, P. (2004). *Exploring an elusive link between knowledge and practice: Students' disciplinary orientations*. In D.E. McDougall & J.A. Ross (Eds.), Proceedings of the Twenty-Sixth Annual Meeting North American Chapter of the International group for the Psychology of Mathematics (pp. 757-763). Toronto: OISE/UT.

Gresalfi, M.S., & Greeno, J. (April, 2003). *Reconstructing opportunities to learn: What's an opportunity, and how do we know?* Poster presented at the American Educational Research Association Annual Conference, Chicago, IL.

Gresalfi, M.S. (April, 2003). *The construction of mathematical competence: Procedural fluency and symbolic representation*. Interactive poster presented at the American Educational Research Association Annual Conference, Chicago, IL.

Gresalfi, M.S., & Shahan, E. (April, 2003). *Exploring classroom interactions: Understanding the distribution of authority*. Paper presented in Symposium at the American Educational Research Association Annual Conference, Chicago, IL.

Martin, T., & Sommerfeld, M.C. (October, 2002). *Organizing access: Engaging with the representational practices of mathematics*. Poster presented at the International Conference of the Learning Sciences, Seattle, WA.

Sommerfeld, M. C., Martin, T., & Schindel, J.E. (April, 2002). *Understanding practice: A conceptual and interactional analysis of student problem solving*. Paper presented at the American Educational Research Association Annual Conference, New Orleans, LA.

Boaler, J., Hand, V., Sommerfeld, M.C. & Staples, M. (April, 2001). *Agency and authority in reform visions of mathematics teaching*. Paper presented in Symposium at the American Educational Research Association Annual Conference, Seattle, WA.

**INVITED TALKS**

Gresalfi, M.S. (2022). (Re)designing for identities: The potential of hybrid spaces. Keynote Presentation, EARLI SIG 10, 21 & 25 Conference, Belgrade Serbia.

Gresalfi, M.S. (2022). Hybrid Spaces as an Inroads to Identity. University of Delaware Mathematics Education Colloquium Series. Newark. DE.

Gresalfi, M.S. (2020). Designing for Identities: Affordances, Frames, and Narratives. Bogazici University Learning Sciences Colloquium Series. Online.

Gresalfi, M.S. (2019). Foregrounding Agency vs. Structure: Models for Designing Integrated Mathematics and Computational Thinking Curriculum. NSF STEM+C PI meeting, Alexandria, VA.

Gresalfi, M.S. (2019). Distinguishing the Foreground from the Background: Intersections between Math, Play, Design, and Computer Science. University of Georgia Mathematics Education Colloquium Series, Athens, GA.

Gresalfi, M.S. (2019). *Theories of Mathematics Identity as a Framework for Computational Thinking*. Invited Session, National Council for Teachers of Mathematics Research Pre-Session, San Diego, CA.

Gresalfi, M.S. (2019). *Creating Spaces to Love and Do Mathematics*. University of Maryland Mathematics Education Colloquium Series, College Park, MD.

Danielson, C., & Gresalfi, M.S. (2018). *Play: The Ninth Mathematical Practice*. Keynote Presentation, National Council for Teachers of Mathematics Regional Conference, Seattle, WA.

Gresalfi, M.S. (2018). *Play in the Mathematics Classroom*. University of Delaware Mathematics Colloquium Series, Newark, DE.

Gresalfi, M.S. (2018). *The Power of Play: Motivation, Identity, and Learning*. Washington College Speaker Series, Chestertown, MD.

Gresalfi, M.S. (2016). *Math in the making: A case for engagement*. Math in the Making Workshop, New York, NY.

Gresalfi, M.S. (2016). *Playing to Learn Mathematics*. University of Georgia Mathematics Education Colloquium Series, Athens, GA

Gresalfi, M.S. (2015). *Designing for Identity*. Opening Conference Plenary for *Furthering Girls' Math Identity,* Washington, DC.

Gresalfi, M.S. (2015). *Playing to Learn Mathematics*. University of Colorado Boulder Math and Science Colloquium, Boulder, CO.

Gresalfi, M.S. (2014). *Job talks and the job search*. Fellowship Retreat Session, National Academy of Education, Washington, DC.

Gresalfi, M.S. (2013). *Technology in mathematics education: A discussion of Affordances*. Invited Keynote presentation, Psychology of Mathematics Education, North-America, Chicago, IL.

Gresalfi, M.S. (2011). *Using Videogames and Narrative to Enhance Mathematical Engagement*. Michigan State University Mathematics Education Colloquium Series, Lansing, MI.

Gresalfi, M.S. (2011). *Research on Technology in Mathematics Education: Current Efforts and Future Directions*. Invited presentation, National Council for Teachers of Mathematics Research Presession, Indianapolis, IN.

Gresalfi, M.S. (2011). *Orchestrating Engagement: The Role of Immersive Technologies in Mathematics Learning*. Invited presentation, American Educational Research Association, New Orleans, LA.

Gresalfi, M.S. (2010). Investigating, *Measuring, and Designing: Dispositions towards learning and doing mathematics*. University of Illinois at Chicago Colloquium Series, Chicago, IL.

Gresalfi, M.S. (2009). *Designing for Assessment in Quest Atlantis*. Invited Presentation, Games for Change Conference Pre-session, New York.

Gresalfi, M.S. (2009). *Designing for Dispositions: Using games to support critical engagement*. University of Colorado at Boulder Math and Science Colloquium Series, Boulder, CO.

Gresalfi, M.S. (2009). *Mathematics as tools for gaming and learning*. Invited Presentation, Mathematics Education Training Program for Korean Secondary Level School Teachers, Bloomington, IN.

Gresalfi, M.S. (2008). *Assessment for the 21st Century*. MacArthur Digital Learning and Media series, New York, NY.

Gresalfi, M.S. (2009). *Playing with games: Leveraging virtual experiences to support consequential engagement*. Stanford University Learning and Design Colloquium Series, Stanford CA.

Gresalfi, M.S. (2007). *An Analysis of Disciplinary Positioning*. Invited Presentation, PMENA, Discourse Working Group.

**FUNDED RESEARCH**

2022-2023 Gresalfi, M.S., & Leyva, L. ($48, 562). *Faculty Readiness for Anti-Racist Mathematics Education*. Spencer Foundation.

2021-2025 Gresalfi, M.S., Parks, A.N., & Wager, A. ($2,536,626). *Supporting Playful Learning in Elementary Mathematics Classrooms*. National Science Foundation.

2017-2020 Gresalfi, M.S., Brady, C. E., & Clark, D. (1,249,250). *Foregrounding Agency versus Structure as Models for Designing Integrated Mathematics and Computational Thinking Curriculum*. National Science Foundation.

2016-2019 Horn, I.S., & Gresalfi, M.S. ($198,593). *Playful Mathematics: An Exploration of Design and Learning*. National Science Foundation.

2014-2019 Gresalfi, M.S. ($612,205) *Re-Crafting Mathematics Education: Designing Tangible Manipulatives Rooted in Traditional Female Crafts*. National Science Foundation.

2014-2018 Gresalfi, M.S., & Barab, S.A. ($1,497,781). *Feedback as an Element of Designed Environment: An Exploration of Structure and Context*. National Science Foundation.

2015-2016 Gresalfi, M.S., & Rittle Johnson, B. ($7,880). *A Question of Design: Do Digital Games Support Transfer to Traditional Assessments?* Peabody small research grant.

2011-2013 Salen, K., Spang, E., Gresalfi, M., & Norton, D. ($400,000). *Games and Assessment: Creating Games to Assess Systems Thinking*. MacArthur Foundation.

2010-2013 Gresalfi, M.S., Peppler, K., Salen, K., & Pinkard, N. ($727,112). *Grinding new lenses: a design project to support a systems view of the world*. MacArthur Foundation.

2010-2013 Barab, S.A., & Gresalfi, M.S. ($2,366,734). *Pedagogy for the 21st Century: Scaling Out a Game-Based Curriculum*. Bill and Melinda Gates Foundation.

2009-2011 Gresalfi, M.S. ($55,000). *Designing for Consequential Engagement: The Role of "Push-Back" on Student Thinking*. Postdoctoral Fellowship, Spencer Foundation/National Academy of Education.

2008-2011 Robinson, J., Gresalfi, M.S., Sievery, A., & Zolan, M. ($150,000). *The Indiana University Collegium on Inquiry in Action*. Teagle Foundation. *

2008-2010 Barab, S., & Gresalfi, M.S., ($1,839,000). *Scaling out virtual worlds: Growing a 21st century curriculum*. MacArthur Foundation.

2007-2009 Gresalfi, M.S., Buck, G., Cross, D., & Park-Rogers, M. ($166,290). *Shifting Mindsets: A Study of a First-Year Implementation of "New Technology High School."* Grant DRL-0738247 from the US National Science Foundation's Division of Research on Learning in Formal and Informal Settings (DRL) to Indiana University.

2008-2009 Buck, G., Brown, C., Cross, D., Gresalfi, M.S. ($37,622). *Shifting Mindsets: Understanding the structural supports needed to successfully implement project-based instruction*. Grant from the Office of the Vice Provost for Research, Indiana University.

2005-2009 Hickey, D. T., Mewborn, D. S, Lewison, M. A., & Gresalfi, M.S. ($824,214). *Multi-level assessment for enhancing mathematical discourse, curriculum, and achievement in diverse elementary school classrooms*. Grant REC-0553072 from the US National Science Foundation's Research on Learning Environments (ROLE) program to Indiana University.

2002-2004 Greeno, J.G., & Sommerfeld, M.C. *The construction of mathematical identities in middle school*. Grant #200300029 from the Spencer Foundation.

## CREATIVE PRODUCTIONS

Boone's Meadow: Ratio and Proportion Problem Solving Game. http://resourcecenters2015.videohall.com/posters/482

Ander City: Statistics unit in Quest Atlantis. http://inkido.indiana.edu/workedexamples/stats/

Tile Design: Fractions unit in Quest Atlantis.

Cryptojungle: Coordinate graphing in Quest Atlantis

Birds and Other Flying Machines: Complex trip planning and ratio in Quest Atlantis

River Rumpus: Complex trip planning and ratio understanding in Quest Atlantis

## COURSES TAUGHT

### Vanderbilt University

Advanced Qualitative Methods: Design-Based Research, PhD course

Playing to Learn, Undergraduate Honors course

Writing Seminar, PhD course

Learning and Design in contexts, online course for EdD in Leadership, Policy, and Organization

Playing to Learn, MEd and PhD course

Learning and Instruction, PhD course

Learning and Instruction, MEd course

Designing for Opportunities to Learn in Mathematics and Science, MEd and PhD
Mathematical Concepts for Elementary Teachers, MEd course
Mathematics for Elementary Majors, undergraduate course
Elementary Methods for Teaching in the Middle School, undergraduate course

**Indiana University**
Issues and Applications in Qualitative Coding, PhD course
Introduction to the Learning Sciences, MEd and PhD course
Seminar in Instruction at the Post-Secondary Level, PhD course
Psychology for Elementary Majors, undergraduate course
Learning and Identity in Classroom Activity Systems, PhD course

**Santa Clara University**
Introductory Psychology, undergraduate course
Psychology of Education, undergraduate course

**Stanford University**
Introduction to Learning, M.Ed course

**K-12 Teaching**
Instructor, SAVY summer camp, *Gaming the System,* 2014
Teacher, summer school, Bayside Middle School, San Mateo, CA, 2001.

**STUDENTS SUPERVISED/ADVISED**

**Doctoral Students Advised (primary)**
Jamie Vescio, Vanderbilt University
Candice Love, Vanderbilt University
Madison Knowe, Vanderbilt University
Amanda Bell, Vanderbilt University
Katherine Chapman, Vanderbilt University
Panchompoo Wisittanawat, Vanderbilt University
Jacqueline Barnes, Indiana University
Tyler Christensen, Indiana University
Patrick Pettyjohn, Indiana University

**Doctoral Students Advised (member of committee)**

Amy Holmes, Vanderbilt University

Lara Jasien, Vanderbilt University

Nicholas Kochmanski, Vanderbilt University

Adrian Labri-Sherif, Vanderbilt University

Mario Martinez, Vanderbilt University

Taylor McNeill, Vanderbilt University

Charlotte Munoz, Vanderbilt University

Diane Glosson, Indiana University

Adam Ingram-Goble, Indiana University

**Masters students Advised (Vanderbilt University)**

Selena Steinberg

Rachelle Vang

Monica Bhutiani

Stephanie Canepa

Carol Eid

Audrey Elledge

Chris Griffith

Sarah Kelley

Ben Lieschwe

Katherine Miller

Caroline Neuffer

Annalise Price

Emily Semmes

Tyneshia Tolbert

Zeng Zhen

**SERVICE**

**Conference Leadership and Reviewing**

Conference Co-Chair, International Conference of the Learning Sciences, 2020

Faculty Mentor, Division K, AERA, 2016

Co-Chair, Jan Hawkins Award Committee, Division C, AERA (2014-2016)

Senior Reviewer, International Conference of the Learning Sciences, 2013-2014; 2021-present.

Chair, American Educational Research Association (AERA), Division C Section 3a (Learning Environments), 2012-2014

Chair, American Education Research Association (AERA), Learning Sciences SIG, 2009-2011

Reviewer for AERA, ICLS, CSCL, PMENA, NCTM Conferences, 2004-ongoing.

**Journal Editing and Reviewing**

Associate Editor, Journal of the Learning Sciences, 2021-present

Editorial Board, Review of Educational Research, 2020-present

Guest co-editor of Computer Science Education, Special Issue on Creating Inclusive Learning Environments, 2019-2020

Associate Editor, American Educational Research Journal, 2015-2019

Editorial Board, Journal of the Learning Sciences, 2014-present

Manuscript Reviewer:

*American Educational Research Journal*

*Canadian Journal of Math and Science*

*Computers and Education*

*Cognition and Instruction*

*Educational Psychologist*

*Educational Studies in Mathematics*

*Instructional Science*

*Journal of the Learning Sciences*

*Journal of Mathematics Teacher Education*

*Journal for Research in Mathematics Education*

*Mathematical Thinking and Learning*

*Review of Educational Research*

*Teaching and Teacher Education*

*ZDM Mathematics Education*

**Other National/International Service:**

Advisory Board Member, Center for P-16 Research & Collaboration, Indiana University, 2018-present

Planning Committee, Furthering Girls' Math Identity Project, 2015-2017

Advisor, Carnegie Foundation for the Advancement of Teaching, 2016

Member, Technical Working Group (TWG) for the development of the U.S. Department of Education's 2015 National Educational Technology Plan (NETP).

Post-doctoral Fellowship Mentor, National Academy of Education, 2015

**Grant & Fellowship Reviewer (ongoing):**

*National Science Foundation, Division of Research on Learning in Formal and Informal Settings (DRL), REESE, DR K-12, Cyberlearning, S-STEM, STEM+C*

*Connected Mathematics Learning Grant Competition*

*National Academy of Education/Spencer Foundation*

**University Service**

**Vanderbilt University Curricular Leadership**

2013-2017 Director of Graduate Studies, Department of Teaching and Learning

2015-2016 Program Director, Masters in Learning and Design, 2015-2016

**Vanderbilt University Committees**

2022-2023 Member, Search Committee for Chair of Mathematics (Arts & Science)

2020-2021 Member, University Committee on Teaching

2013-present Member, Elementary Education Committee

2018-2019 Member, Search Committee for Social Foundations

2017-2018 Member, Search Committee for Associate Director of the Curb Center

2017-2018 Member, Leadership Institute Planning Group

2017-2018 Member, Graduate Education Faculty Council

2017-2018 Chair, Search Committee for Learning Sciences

2016-2017 Member, Assessment Committee, Design as an Immersive Vanderbilt Experience

2015-2016 Member, Search Committee for Learning Sciences

2014-2015 Member, Search Committee for Literacy and Digital Learning

2013-2015 Member, Search Committee for Secondary Mathematics Education

2014-2015 Member, Faculty Advisory Board for OAK

**Indiana University**

2008-2011 Member, The Indiana University Collegium on Inquiry in Action (project to

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| | support graduate student instruction) |
| 2009-2011 | Member, Committee on Preparing Future Faculty |
| 2010-2011 | Member, Committee on Elementary Education |
| 2008-2009 | Member, Elementary Education Scholarship Committee, 2008-2009 |
| 2007-2010 | Member, Diversity Committee |
| 2008-2009 | Member, Undergraduate Writing Committee |
| 2008-2011 | Chair, Associate Instructor Selection Committee for Counseling and Educational Psychology |
| 2009-2010 | Chair, Counseling and Educational Psychology Scholarship Committee |
| 2007-2009 | Member, Learning Sciences Program Recruitment Committee |
| 2009-2011 | Chair, Learning Sciences Student Annual Review Committee |
| 2006-2007 | Member, Learning Sciences Search Committee |