David Williamson Shaffer

Curriculum Vitae

Contact information

Address	Department of Educational Psychology University of Wisconsin–Madison Educational Sciences Building, Room 499 1025 W. Johnson St. Madison, WI 53706-1796
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Education

1998	Ph.D. Media Arts and Sciences Massachusetts Institute of Technology
1996	M.S. Media Arts and Sciences Massachusetts Institute of Technology
1987	A.B. (Magna cum laude) History and East Asian Studies Harvard University

Employment

Academic positions

2016–present	**Vilas Distinguished Achievement Professor of Learning Science** University of Wisconsin–Madison
2019–present	**Department of Educational Psychology Masters in Learning Analytics Chair** University of Wisconsin–Madison
2014–present	**Department of Educational Psychology Learning Sciences Area Chair** University of Wisconsin–Madison
2005–present	**Faculty Affiliate** Gaylord Nelson Institute for Environmental Studies, University of Wisconsin–Madison
2001–present	**Research Associate** Center for Communication and Democracy University of Wisconsin–Madison
2001–present	**Principal Investigator** Wisconsin Center for Education Research
2016–2019	**Obel Foundation Professor of Learning Analytics** Aalborg University at Copenhagen

2012–2019 **Professor of Biomechanical Engineering (Affiliate)**
University of Wisconsin–Madison

2008–2016 **Professor of Learning Science**
University of Wisconsin–Madison

2008–2009 **Marie Curie Fellow and Visiting Professor**
Utrecht University, The Netherlands

2008–2009 **Visiting Professor of Psychology**
The Open University of the Netherlands

2008–2009 **Visiting Professor**
Danish Pedagogical University

2006–2008 **Associate Professor of Educational Psychology**
University of Wisconsin–Madison

2006-2008 **Associate Professor of Curriculum and Instruction (Affiliate)**
University of Wisconsin–Madison

2004–2007 **Game Scientist**
University of Wisconsin–Madison Academic Advanced Distributed Learning Co-Laboratory

2001–2006 **Assistant Professor of Educational Psychology**
University of Wisconsin–Madison

2001-2006 **Assistant Professor of Curriculum and Instruction (Affiliate)**
University of Wisconsin–Madison

1999–2001 **Technology in Education Program Lecturer on Education**
Harvard University Graduate School of Education

1998–1999 **Visiting Scholar**
Performance Assessment Collaboratives for Education, Harvard University

Other positions

2017–present Principal
EFAnalytics

2008–2017 Principal
EFGames, LLC

1994–1998 Research Assistant
MIT Media Laboratory, Massachusetts Institute of Technology

1992–1994 Technology Resource Teacher
Departments of Mathematics and History, Castilleja School, Palo Alto, CA

1992 Curriculum Developer

Education Development Center, Waltham, MA

1989–1991 Mathematics Staff Developer
Science Education Development Center, United States Peace Corps/Nepal

1987–1988 Department Chair
Department of History, The Mountain School, Vershire, VT

1982 Systems Programmer
Sloan School of Management, Massachusetts Institute of Technology

1979–1982 Data Processing Consultant
The Data Organizer, New York City, NY

Research funding

TOTALS: $15,820,000 (PI)
$4,515,000 (co-PI)

2017–2022 ECR: Assessing Complex Collaborative STEM Learning at Scale with Epistemic Network Analysis (PI)
National Science Foundation: $2,500,000

2018–2022 PurpleState 2.0: Investigating the Impact of a Virtual Internship on Argumentative Reading and Writing in Civic Education (Co-PI; PI Jeremy Stoddard, University of Wisconsin-Madison)
National Science Foundation: $1,400,000

2017–2021 AISL: Local Environmental Modeling: A Toolkit for Incorporating Place-Based Learning into Virtual Internships - A Scalable, Informal STEM Learning Environment (PI)
National Science Foundation: $2,000,000

2017–2018 Collaborative Research & Development Effort on Generalized Intelligent Framework for Tutoring (Co-PI; PI Xiangen Hu, University of Memphis)
US Army Research Laboratories: $175,000

2016–2018 The Use of Epistemic Network Analysis to Evaluate Non-technical Skills Performance in Trauma Simulation Education (Co-PI; PI Hee Soo Jung, University of Wisconsin–Madison)
Stemmler Medical Education Research Fund: $150,000

2015–2017 Exploring the Potential of Virtual Internships for Civic and Media Education (Co-PI; PI Jeremy Stoddard, College of William and Mary)
Spencer Foundation: $50,000

2014–2018 DRK–12: Developing and Testing the Internship-inator, a Virtual Internship in STEM Authorware System (PI)
National Science Foundation: $3,000,000

2014–2015 Use of Epistemic Network Analysis to Assess How Surgeons Integrate and Utilize Knowledge during Operative Procedures (Co-PI; PI Anne-Lise D'Angelo, University of Wisconsin–Madison)

Surgery-Education Collaborative Grant, University of Wisconsin–Madison: $15,000

2013–2014 Virtual Engineering Internships for High School Students in Long Beach Unified School District (PI)
The James Irvine Foundation: $150,000

2013–2015 RIGEE: Development of Innovation Capacity in Engineering Students through Virtual Internships (Co-PI; PI Cheryl Bodnar, University of Pittsburgh)
National Science Foundation: $125,000

2012–2017 REESE: Measuring Complex STEM Thinking Using Epistemic Network Analysis (PI)
National Science Foundation: $2,500,000

2012–2015 REE: Using a Virtual Engineering Internship to Model the Complexity of Engineering Design Problems (PI)
National Science Foundation: $550,000

2012–2014 TUES-Type 2: First Year Virtual Internships to Increase Persistence of Underrepresented Groups in Engineering: RescuShell and its parent company RescuTek (Co-PI; PI Naomi Chesler, University of Wisconsin–Madison)
National Science Foundation: $600,000

2009–2014 DRK-12: AutoMentor: Virtual Mentoring and Assessment in Computer Games for STEM Learning (PI)
National Science Foundation: $3,500,000

2009–2011 EAGER: Proposal for Research in Measurement and Modeling: Dynamic STEM Assessment through Epistemic Network Analysis (PI)
National Science Foundation: $300,000

2009–2011 CCLI: Professional Practice Simulations for Engaging, Educating and Assessing Undergraduate Engineers (PI)
National Science Foundation: $500,000

2009–2011 NUE: A Nanotechnology Certificate Program for Engineering Undergraduates (Co-PI; PI Wendy Crone, University of Wisconsin–Madison)
National Science Foundation: $200,000

2004–2010 CAREER: Alternative Routes to Technology and Science (ARTS) (PI)
National Science Foundation: $585,000

2008–2009 Mentoring in Online Games (PI)
Disney Corporation: $30,000

2006–2009 A Productive Approach to Learning and Media Literacy through Video Games and Simulations (Co-PI; PI James Paul Gee, University of Wisconsin–Madison)
MacArthur Foundation: $1,800,000

2004–2007 Games and Professional Practice Simulations (GAPPS) Collaborative (PI)
Academic Advanced Distributed Learning Co-Laboratory: $105,000

2003–2005 How Journalists Find the Beat: A Cognitive Ethnography of Journalistic Pedagogy (PI)
National Academy of Education/Spencer Foundation: $50,000

2003–2004 ByLine: Developing Adolescent's Civic Engagement through Online Community Journalism (PI)
Wisconsin Alumni Research Foundation: $20,423

2001–2002 Technology and Informed Youth Decision-Making (PI)
Foundation for Ethics and Technology: $30,000

Publications

Total	258
Citations	10008
Mean citations per publication	39
i10 index	98
h-index	42

Peer-reviewed journal articles

1. Shaffer, D. W. (1997). Escher's World: Learning symmetry through mathematics and art. *Symmetry: Culture and Science*, *8*(3–4), 369–393.
2. Shaffer, D. W. (1997). Learning mathematics through design: The anatomy of Escher's World. *Journal of Mathematical Behavior*, *16*(2), 95–112.
3. Cossentino, J., & Shaffer, D. W. (1999). The math studio: Harnessing the power of the arts to teach across disciplines. *Journal of Aesthetic Education*, *33*(2), 99–109.
4. Shaffer, D. W., & Kaput, J. J. (1999). Mathematics and virtual culture: An evolutionary perspective on technology and mathematics. *Educational Studies in Mathematics*, *37*, 97–119.
5. Shaffer, D. W., & Resnick, M. (1999). Thick authenticity: New media and authentic learning. *Journal of Interactive Learning Research*, *10*(2), 195–215.
6. Dawson, S. L., Cotin, S., Meglan, D., Shaffer, D. W., & Ferrell, M. (2000). Designing a computer-based simulator for interventional cardiology training. *Catheterization and Cardiovascular Interventions*, *51*, 522–527.
7. Shaffer, D. W., Dawson, S. L., Meglan, D., Cotin, S., Ferrell, M., Norbash, A., Muller, J. (2000). Design principles for the use of simulation as an aid in interventional cardiology training. *Minimally Invasive Therapy and Allied Technologies*, *10*(2), 75–82.
8. Gordon, J. A., Wilkerson, W., Shaffer, D. W., & Armstrong, E. G. (2001). Practicing medicine without risk: Students' and educators' responses to high-fidelity patient simulation. *Academic Medicine*, *76*(5), 469–472.
9. Gordon, J. A., Tancredi, D. N., Binder, W. D., Wilkerson, W., & Shaffer, D. W. (2003). Assessment of a clinical performance evaluation tool for use in a simulator-based testing environment: A pilot study. *Academic Medicine*, *78*(10), S45–47.
10. Shaffer, D. W. (2004). Pedagogical praxis: The professions as models for post-industrial education. *Teachers College Record*, *106*(7), 1401–1421.
11. Shaffer, D. W. (2004). When computer-supported collaboration means computer-supported competition: Professional mediation as a model for collaborative learning. *Journal of Interactive Learning Research*, *15*(2), 101–115.
12. Shaffer, D. W., Gordon, J. A., & Bennett, N. L. (2004). Learning, testing, and the evaluation of learning environments in medicine: Global performance assessment in medical education. *Interactive Learning Environments*, *12*(3), 167–179.

13. Shaffer, D. W., & Serlin, R. 2004. What good are statistics that don't generalize? *Educational Researcher*, *33*(9), 14–25.
14. Shaffer, David D. W. (2005). Juegos epistemicos. *Journal of Online Education*, *1*(6).
15. Beckett, K. L., & Shaffer, D. W. (2005). Augmented by reality: The pedagogical praxis of urban planning as a pathway to ecological thinking. *Journal of Educational Computing Research*, *33*(1), 31–52.
16. Shaffer, D. W. (2005). Epistemic Games. *Innovate*, *1*(6). (Reprinted in *Computers and Education 46*, 223–234.)
17. Shaffer, D. W., Squire, K. D., Halverson, R., & Gee, J. P. (2005). Video games and the future of learning. *Phi Delta Kappan*, *87*(2), 104–111.
18. Gordon, J. A., Shaffer, D. W., Raemer, D. B., Pawlowski, J., Hurford, W. E., & Cooper, J. B. (2006). A randomized controlled trial of simulation-based teaching versus traditional instruction in medicine: A pilot study among clinical medical students. *Advances in Health Science Education*, *11*, 33–39.
19. Moreno, M. A., & Shaffer, D. W. (2006). Intakes conference: Understanding the impact of resident autonomy on a morning report conference. *Teaching and Learning in Medicine*, *18*(4), 297–303.
20. Shaffer, D. W. (2006). Epistemic frames for epistemic games. *Computers and Education* 46, 223–234.
21. Shaffer, D. W., & Clinton, K. A. (2006). Tool for thoughts: Reexamining thinking in the digital age. *Mind, Culture, and Activity*, *13*(4), 283–300.
22. Shaffer, D. W. 2006. Epistemic frames for epistemic games. *Computers and Education. 46*(3), 223–234.
23. Svarovsky, G. N., & Shaffer, D. W. (2007). SodaConstructing knowledge through exploratoids. *Journal of Research in Science Teaching*, *44*(1), 133–153.
24. Shaffer, D. W., & National Center for Technology Innovation. (2007). Epistemic games as career preparatory experiences for students with disabilities. *Journal of Special Education Technology*, *22*(3), 57–69.
25. Shaffer, D. W. (2008). Education in the digital age. *Digital Kompetanse*, *1*(3), 37–50.
26. Shaffer, D. W. (2008). Education in the digital age. *Nordic Journal of Digital Literacy*, *54*(2), 39–52.
27. Bagley, E. S., & Shaffer, D. W. (2009). When people get in the way: Promoting civic thinking through epistemic game play. *International Journal of Gaming and Computer-Mediated Simulations*, *1*(1), 36–52.
28. Shaffer, D. W., Hatfield, D., Svarovsky, G. N., Nash, P., Nulty, A., Bagley, E., Frank, K., Rupp, A. A., & Mislevy, R. (2009). Epistemic network analysis: A prototype for 21st Century assessment of learning. *The International Journal of Learning and Media*, *1*(1), 33–53.
29. Rupp, A., Gushta, M., Mislevy, R., & Shaffer, D. W. (2010). Evidence-centered design of epistemic games: Measurement principles for complex learning environments. *Journal of Technology, Learning, and Assessment*, *8*(4).
30. Gee, J. P., & Shaffer, D. W. (2010). Looking where the light is bad: Video games and the future of assessment. *Phi Delta Kappa International EDge*, *6*(1).
31. Nash, P. and Shaffer, D. W. (2011). Mentor modeling: the internalization of modeled professional thinking in an epistemic game. *Journal of Computer Assisted Learning*, *27*, 173–189.
32. Chesler, N., Arastoopour, G., D'Angelo, C., Bagley, E., & Shaffer, D. W. (2013). Design of a professional practice simulator for educating and motivating first-year engineering students. *Advances in Engineering Education*, *3*(3), 1–29.
33. Nash, P., & Shaffer, D. W. (2013). Epistemic trajectories: Mentoring in a game design practicum. *Instructional Science*, *41*(4), 745–771.
34. Chesler, N. C., Arastoopour, G., D'Angleo, C. M., Bagley, E. A., & Shaffer, D. W. (2013). ADVANCES FROM AEE: Boost Their Game. *ASEE Prism*, *23*(2), 53–53.
35. Arastoopour, G., Chesler, N. C., & Shaffer, D. W. (2014). Epistemic persistence: A simulation-based approach to increasing participation of women in engineering. *Journal of Women and Minorities in Science and Engineering*, *20*(3), 211–234.

36. Bagely, E., & Shaffer, D. W. (2015). Stop talking and type: Comparing virtual and face-to-face mentoring in an epistemic game. *Journal of Computer Assisted Learning 31*(6), 606–622.
37. Chesler, N. C., Ruis, A. R., Collier, W., Swiecki, Z., Arastoopour, G. & Shaffer, D. W. (2015). A novel paradigm for engineering education: Virtual internships with individualized mentoring and assessment of engineering thinking. *Journal of Biomechanical Engineering*, *137*(2), 024701.
38. Andrist, S., Collier, W., Gleicher, M., Mutlu, B., & Shaffer, D. W. (2015). Look together: Analyzing gaze coordination with epistemic network analysis. *Frontiers in Psychology*, *6*(1016).
39. Bagley, E., & Shaffer, D. W. (2015). Learning in an urban and regional practicum: The view from educational ethnography. *Journal of Interactive Learning Research*, *24*(4), 369–393.
40. Shaffer, D. W., Nash, P., & Ruis, A. R. (2015). Technology and the new professionalization of teaching. *Teachers College Record 117*(12), 1–30.
41. Wise, A. F., Shaffer, D. W. (2015). Why theory matters more than ever in the age of big data. *Journal of Learning Analytics*, *2*(2), 5–13.
42. Arastoopour, G., Shaffer, D. W., Swiecki, Z., Ruis, A. R., & Chesler, N. C. (2016). Teaching and assessing engineering design thinking with virtual internships and epistemic network analysis. *International Journal of Engineering Education*, *32*(3B), 1492–1501.
43. Shaffer, D. W., Collier, W., & Ruis, A. R. (2016). A tutorial on epistemic network analysis: Analyzing the structure of connections in cognitive, social, and interaction data. *Journal of Learning Analytics*, *3*(3), 9–45.
44. Ruis, A. R., Shaffer, D. W., Shirley, D. K., & Safdar, N. (2016). Teaching health care workers to adopt a systems perspective for improved control and prevention of healthcare-associated infections. *American Journal of Infection Control*, *44*(11), 1360–1364.
45. Ruis, A.R., & Shaffer, D.W. (2017). Annals and Analytics: The Practice of History in the Age of Big Data. *Medical History*, 61(2), 336–339.
46. Siebert-Evenstone, A. L., Irgens, G. A., Collier, W., Swiecki, Z., Ruis, A. R., & Shaffer, D. W. (2017). In search of conversational grain size: Modeling semantic structure using moving stanza windows. *Journal of Learning Analytics*, *4*(3), 123–139.
47. Saucerman, J., Ruis, A. R., & Shaffer, D. W. (2017). Automating the Detection of Reflection-on-Action. *Journal of Learning Analytics*, *4*(2), 212–239.
48. Ruis, A. R., Rosser, A. A., Quandt-Walle, C., Nathwani, J. N., Shaffer, D. W., & Pugh, C. M. (2017). The hands and head of a surgeon: Modeling operative competency with multimodal epistemic network analysis. *The American Journal of Surgery*, *216(5),* 835-840.
49. Markovetz, M. R., Clark, R. M., Swiecki, Z., Irgens, G. A., Chesler, N. C., Shaffer, D. W., & Bodnar, C. A. (2017). Influence of End Customer Exposure on Product Design within an Epistemic Game Environment. *Advances in Engineering Education*, *6*(2).
50. Lund, K., Quignard, M., & Shaffer, D. W. (2017). Gaining Insight by Transforming Between Temporal Representations of Human Interaction. *Journal of Learning Analytics*, *4*(3), 102–122.
51. Graesser, A. C., Cai, Z., Hu, X., Foltz, P. W., Greiff, S., Kuo, B.-C., & Shaffer, D. (2017). Assessment of Collaborative Problem Solving. *Design Recommendations for Intelligent Tutoring Systems*, *275*.
52. Arastoopour Irgens, G., Chesler, N. C., Linderoth, J. T., & Williamson Shaffer, D. (2017). Data-enabled cognitive modeling: Validating student engineers' fuzzy design-based decision-making in a virtual design problem. *Computer Applications in Engineering Education*, *25*(6), 1001–1017.
53. Jung HS, Warner-Hillard C, Thompson R, Haines K, Moungey, LeGare A, Shaffer DW, Pugh C, Agarwal S, Sullivan S (2018). Why saying what you mean matters: An analysis of trauma team communication. *The American Journal of Surgery* 215(2), 250-254.
54. Markovetz, M. R., Clark, R. M., Swiecki, Z., Arastoopour, G., Chesler, N. C., Shaffer D. W., & Bodnar, C. A. (2017). Influence of end customer exposure on product design within an epistemic game environment. *Advances in Engineering Education*, *6(2),* 1–22.

55. Sullivan, S., Warner-Hillard, C., Eagan, B., Thompson, R. J., Ruis, A., Haines, K., Pugh, C., Shaffer, D.W., Jung, H. S. (2018). Using epistemic network analysis to identify targets for educational interventions in trauma team communication. *Surgery, 163(4),* 938-943.
56. Wooldridge, A. R., Carayon, P., Shaffer, D. W., & Eagan, B. (2018). Quantifying the qualitative with epistemic network analysis: a human factors case study of task-allocation communication in a primary care team. *IISE Transactions on Healthcare Systems Engineering, 8(1),* 72-82.
57. Ruis, A. R., Rosser, A. A., Quandt-Walle, C., Nathwani, J. N., Shaffer, D. W., & Pugh, C. M. (2018). The hands and head of a surgeon: modeling operative competency with multimodal epistemic network analysis. *American Journal of Surgery, 216(5),* 835-840.
58. Andrist, S., Ruis, A. R., & Shaffer, D. W. (2018). A network analytic approach to gaze coordination during a collaborative task. *Computers in Human Behavior, 89,* 339-348.
59. Wooldridge, A.R, Carayon, P., Shaffer, D. W., & Eagan, B. (2018). Quantifying the qualitative with epistemic network analysis: A human factors case study of task-allocation communication in a primary care team. *IISE Transactions on Healthcare Systems Engineering, 8(1)* (pp. 72–82).
60. Csanadi, A., Eagan, B., Shaffer, D. W., Kollar, I., & Fischer, F. (2018). When coding-and-counting is not enough: Using epistemic network analysis (ENA) to analyze verbal data in CSCL research. *International Journal of Computer-Supported Collaborative Learning, 13(4)*, 419-438.
61. Gašević, D., Joksimović, S., Eagan, B., & Shaffer, D. W. (2019). SENS: Network analytics to combine social and cognitive perspectives of collaborative learning. *Computers in Human Behavior, 92*, 562-577.
62. Swiecki, Z., Ruis, A. R., Gautam, D., Rus, V. & Shaffer, D. W. (2019). Understanding when students are active-in-thinking through modeling-in-context. *British Journal of Educational Technology, 50(5)*, 2346-2364.
63. Fogut, S. S., Misfeldt, M. & Shaffer, D. W. (2019). Realistic authenticity. *Journal of Interactive Learning Research, 30(4),* 477-504.
64. Swiecki, Z., Ruis, A. R., Farrell, C., & Shaffer, D. W. (2020). Assessing individual contributions to collaborative problem solving: A network analysis approach. *Computers in Human Behavior*. *104.*

Books

1. Shaffer, D. W. (1995). *Exploring trigonometry with the Geometer's Sketchpad*. Berkeley: Key Curriculum Press.
2. Shaffer, D. W. (2006). *How computer games help children learn*. New York: Palgrave.
3. Shaffer, D. W. (2017). *Quantitative Ethnography*. Madison, WI: Cathcart Press.

Software

1. Hatfield, D., & Shaffer, D. W. (2005). ByLine: An online platform for student journalism (Version 1.0).
2. Bagley, E. A., Hatfield, D., Beckett, K., Svarovsky, G. N., & Shaffer, D. W. (2007). Urban Science: A Virtual Internship in urban planning and environmental science (Version 1.0).
3. Bagley, E. A., Hatfield, D., & Shaffer, D. W. (2009). Urban Science: A Virtual Internship in urban planning and environmental science (Version 2.0).
4. Hatfield, D., Bagley, E. A., Arastoopour Irgens, G., & Shaffer, D. W. (2010). WorkPro: A platform for hosting virtual internships (Version 1.0).
5. Bagley, E. A., Hatfield, D., & Shaffer, D. W. (2010). Land Science: A Virtual Internship in urban planning and environmental science (Version 1.0).
6. Bagley, E. A., Chesler, N., Hatfield, D., West, D., Brekenfeld, E., Arastoopour Irgens, G., & Shaffer, D. W. (2010). Nephrotex: An engineering Virtual Internship (Version 1.0).

7. Arastoopour Irgens, G., Tetrick, D. E., Kinley, H., & Shaffer, D. W. (2011). Rescushell: An engineering Virtual Internship (Version 1.0).
8. Marquart, C., Dumas, V., Hatfield, D., Swiecki, Z., West, D., Arastoopour Irgens, G., & Shaffer, D. W. (2013). WorkPro: A platform for hosting virtual internships (Version 2.0).
9. Borden, F., Collier, W., Marquart, C., Arastoopour, G., Srinivasan, A., & Shaffer, D. W. (2014). Epistemic Network Analysis Webkit (Version 1.0).
10. Swiecki, Z., Marquart, C., West, D., Dumas, V., Tessman, M., Arastoopour Irgens, G., & Shaffer, D. W. (2015). VIA: Virtual Internship Authoring tool (Version 1.0).
11. Rogers, B., Marquart, C., Eagan, B., Pozen, R., & Shaffer, D. W. (2017). rhoR: R statistical package for controlling for Type I error in measures of interrater reliability (Version 1.0).
12. Marquart, C., Swiecki, Z., Collier, W., Eagan, B., Woodward, R., & Shaffer, D. W. (2018). rENA: R statistical package for Epistemic Network Analysis (Version 0.1.3).
13. Marquart, C., Swiecki, Z., Hinojosa, C., Collier, W., & Shaffer, D. W. (2018). Epistemic Network Analysis Webkit (Version 2.0).
14. Marquart, C. Eagan, B., & Shaffer, D.W. (2018) ncodeR: Techniques for Automated Classifiers (Version 0.1.0).
15. Marquart, C., Eagan, B. Hinojosa, C., & Shaffer, D. W. (2018). nCoder Shiny Webkit (Version 1.0).
16. Marquart, C., Eagan, B. Hinojosa, C., & Shaffer, D. W. (2019). nCoder Webkit (Version 2.0).
17. Marquart, C., Swiecki, Z., Collier, W., Eagan, B., Woodward, R., & Shaffer, D. W. (2019). rENA: R statistical package for Epistemic Network Analysis (Version 2.0.1).
18. Marquart, C., Dumas, V., Siebert-Evenstone, A., Hinojosa, C., Leeper, T., Linderoth, J., Barford, C. & Shaffer, D. W. (2020). iPlan: A tool for GIS-based STEM learning (Version 1.0).

Peer-reviewed conference proceedings

1. Shaffer, D. W. (1995). *Symmetric intuitions: Dynamic geometry/dynamic art*. Symmetry: Culture and Science, *6*(3), 476–479.
2. Shaffer, D. W. (1997). *Design, collaboration, and computation: The design studio as a model for computer-supported collaboration in mathematics*. Paper presented at the Computer Support for Collaborative Learning '97, Toronto, Ontario.
3. Shaffer, D. W. (1998). *The pedagogy of the digital studio: Learning through collaboration, expression and construction*. In A. Bruckman, M. Guzdial, J. L. Kolodner & A. Ram (Eds.), Proceedings of the International Conference on the Learning Sciences (ICLS) 263–269. Charlottesville, VA: Association for the Advancement of Computing in Education.
4. Shaffer, D. W., Meglan, D., Ferrell, M., & Dawson, S. (1999). *Virtual rounds: Simulation-based education in procedural medicine*. In H. Pien (Ed.), Proceedings of SPIE Vol. 3712: Battlefield Biomedical Technologies.
5. Cotin, S., Shaffer, D. W., Meglan, D., Ottensmeyer, M., Berry, P., & Dawson, S. L. (2000). *CAML: A general framework for the development of medical simulations*. In H. Pien (Ed.), Proceedings of SPIE Vol. 4037: Battlefield Biomedical Technologies II.
6. Svarovsky, G., and Shaffer, D. W. (2003). *Berta's Tower: An expert-novice study investigating ideas in the domain of physics and the practice of engineering*. Paper presented at the American Educational Research Association Annual Meeting, April 2003, Chicago, IL.
7. Beckett, K. L., & Shaffer, D. W. (2004). *We built this city: Developing students' understanding of ecology through the professional practice of urban planning*. Paper presented at the International Conference of the Learning Sciences (ICLS), Santa Monica, CA.
8. Shaffer, D. W. (2004). *Epistemic frames and islands of expertise: Learning from infusion experiences*. Paper presented at the International Conference of the Learning Sciences (ICLS), Santa Monica, CA.

9. Svarovsky, G. N., & Shaffer, D. W. (2004). *Berta's Tower: Understanding physics through virtual engineering*. Paper presented at the International Conference of the Learning Sciences (ICLS), Santa Monica, CA.
10. Shaffer, D. W., & Clinton, K. A. (2005). *Why all CSL is CL: Distributed mind and the future of computer supported collaborative learning*. Paper presented at the Computer Supported Collaborative Learning, Taipei, Taiwan.
11. Hatfield, D., & Shaffer, D. W. (2006). *Press play: Designing an epistemic game engine for journalism*. Paper presented at the International Conference of the Learning Sciences (ICLS), Bloomington, IN.
12. Shaffer, D. W., & Squire, K. D. (2006). *The pasteurization of education*. Paper presented at the International Conference of the Learning Sciences (ICLS), Bloomington, IN.
13. Svarovsky, G. N., & Shaffer, D. W. (2006). *Berta's Tower: Developing conceptual physics understanding one exploratoid at a time*. Paper presented at the International Conference of the Learning Sciences (ICLS), Bloomington, IN.
14. Svarovsky, G. N., & Shaffer, D. W. (2006). *Design meetings and design notebooks as tools for reflection in the engineering design course*. Paper presented at the 36th ASEE/IEEE Frontiers in Education Conference, San Diego, CA.
15. Svarovsky, G. N., & Shaffer, D. W. (2006). *Engineering girls gone wild: Developing an engineering identity in Digital Zoo*. Poster presented at the International Conference of the Learning Sciences (ICLS), Bloomington, IN.
16. Svarovsky, G. N., & Shaffer, D. W. (2006). *SodaConstructing an understanding of physics: Technology-based engineering activities for middle school students*. Paper presented at the 36th ASEE/IEEE Frontiers in Education Conference, San Diego, CA.
17. Hatfield, D., & Shaffer, D. W. (2008). *Reflection in professional play*. Paper presented at the International Conference of the Learning Sciences (ICLS), Utrecht, Netherlands.
18. Bagley, E. S., & Shaffer, D. W. (2008). *"They listen to stakeholders": Promoting civic thinking through epistemic game play*. Paper presented at the International Conference of the Learning Sciences (ICLS), Utrecht, Netherlands.
19. Nash, P., & Shaffer, D. W. (2008). *Player-mentor interactions in an epistemic game: A preliminary analysis*. Paper presented at the International Conference of the Learning Sciences (ICLS), Utrecht, Netherlands.
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12. Shaffer, D. W. (2010). The bicycle helmets of "Amsterdam": Computer games and the problem of transfer. (Epistemic Games Group Working Paper No. 2010-01). University of Wisconsin–Madison.
13. Knight, S., Arastoopour, G., Shaffer, D. W., Shum, S. B., & Littleton, K. (2013). Epistemic networks for epistemic commitments. *Technical Report KMI-13-03*. Knowledge Media Institute, the Open University of the Netherlands.
14. Knight, S., Wise, A. F., Arastoopour, G., Williamson Shaffer, D., Buckingham Shum, S., & Kirschner, P. A. (2014). *Analytics for learning and becoming in practice*.
15. Shaffer, D. W., & Arastoopour, G. (2014). *Guide to RSdata. csv sample ENA data set*.
16. Shaffer, D. W. (2014). *User Guide for Epistemic Network Analysis Web Version 4.0*.

Other publications

1. Shaffer, D. W. (1996). *Escher's World: Learning mathematics through design in a digital studio*. (Unpublished Master's thesis). Massachusetts Institute of Technology, Cambridge, MA.
2. Shaffer, D. W. (1998). *Expressive mathematics: Learning by design*. (Unpublished doctoral dissertation). Massachusetts Institute of Technology, Cambridge, MA.
3. Shaffer, D. W. (2001). Thinking Forward by Thinking Back. *Communication Arts*, *42*(8), 134–136.
4. Gordon, J. A., Shaffer, D. W., Cooper, J. B., Raemer, D. B., Graydon-Baker, E., Pawlowski, J., et al. (2003). Randomized Controlled Trial of Simulation-Based Teaching versus Traditional Instruction in Critical Care and Emergency Medicine [abstract]. *Analgesia and Analgesia*, 97(2S), S13.
5. Rohde, M., & Shaffer, D. W. (2004). Us, ourselves, and we: Thoughts about social (self-) categorization. *Association for Computing Machinery (ACM) SigGROUP Bulletin*, *24*(3), 19–24.
6. Shaffer, D. W. (2006, September). Beyond "He Said, She Said": Games for learning move beyond the traditional dichotomy of weak v strong instructional guidance. *ADL Newsletter for Educators and Educational Researchers* (Vol. September).
7. Shaffer, D. W. (2007, January 14). Creative play, creative thought: Computer games can help kids learn. *Wisconsin State Journal*.
8. Shaffer, D. W. (2007). The educational value of computer games. *Principal Magazine*, *86*(4), 66–67.
9. Shaffer, D. W. (2007). Juegos epistemicos para mejorar las habilidades y valores profesionales. *Revista Enlaces*, 4.

10. Shaffer, D. W. (2007). *Epistemic games to improve professional skills and values*. Paris: Organization for Economic Cooperation and Development (OECD).
11. Shaffer, D.W. (2008). *University of play*. Paris: Organization for Economic Cooperation and Development (OECD).
12. Shaffer, D. W. (2008). Learning in the digital age. *Wisconsin People and Ideas*, *54*(2), 51–55.
13. Shaffer, D. W. (2014). *Epistemic games to improve professional skills and values*. Paris: Organization for Economic Cooperation and Development (OECD).
14. Shaffer, D. W. (2018). Transforming big date into meaningful insights: Introducing quantitative ethnography. *Scientia.*

Professional service

Editorial boards

2018-present	Revista Innovación Educativa
2016–present	International Journal of Gaming and Computer-Mediated Simulations
2015–present	International Journal of STEM Education
2013–present	Journal of Computers in Education
2010–present	Contemporary Educational Technology
2009–present	Journal of Computer Assisted Learning
2011-2014	Technology, Knowledge and Learning
2010–2016	Journal of Global Studies in Education
2008–2011	Review of Education Research
2004–2009	Innovate
2005–2008	Journal of the Learning Sciences

Award and funding committees

2015	MacArthur Foundation
2011	Review Committee Chair, Next Generation Learning Challenges, Gates Foundation
2005–2007	E.F. Lindquist Award Committee, American Education Research Association
2003–2004	Sylvia Scribner Award Committee, American Education Research Association

Advisory boards

2007–present	James J. Kaput Center for Research and Innovation in Mathematics Education
2013–2018	Q Center
2012–2018	Designs for Learning Journal
2009–2018	Educational Technology & Society Journal
2008–2018	International Journal of Gaming and Computer-Mediated Simulations
2008–2009	Interdisciplinary Models and Tools for Serious Games: Emerging Concepts and Future Directions, Richard Van Eck (Ed). Hershey, PA: IGI Global
2004–2006	Chair, International Society of the Learning Sciences Publications Committee

Program committees

2019-2020	Program Committee, International Conference on Quantitative Ethnography
2010	Program Committee, IEEE DIGITEL Conference
2007–2008	Program Co-Chair, AERA Annual Meeting Division C Section 7 (Technology Research)
2006–2007	Program Co-Chair, IEEE Digital Game and Intelligent Toy Enhanced Learning (DIGITEL)
2004–2005	Program Committee, Computer Supported Collaborative Learning Conference

Committee service

University of Wisconsin–Madison

2019-present	School of Computer, Data, and Information Sciences, Advisory Board
2018-present	PIE Scholars Committee, Dept. of Educational Psychology
2014-present	Curriculum Committee, Dept. of Educational Psychology
2014-present	Learning Sciences Program Chair, Dept. of Educational Psychology
2019-2020	Chair, Assistant Professor of Learning Analytics Search, Dept. of Educational Psychology
2019-2020	Global Education Committee, School of Education
2019-2020	Wisconsin Center for Education Research Director Search Committee
2013–2018	Governance Committee, Gaylord Nelson Institute for Environmental Studies
2014–2017	Academic Planning Council, Gaylord Nelson Institute for Environmental Studies
2014–2015	Faculty/Staff Honors Committee, Dept. of Educational Psychology
2014	Communications Director Search Committee, Wisconsin Center for Educational Research
2013–2015	Human Subjects Protection Program Advisory Committee
2013–2014	Education Graduate Research Scholars Advisory Board, School of Education
2012–2014	Programs Committee, School of Education
2012	Learning Science Search Committee, Dept. of Educational Psychology
2012–2013	Recruiting, Admissions, and Fellowships, Dept. of Educational Psychology
2011–2012	Faculty Affairs, Dept. of Educational Psychology
2011–2012	Social Studies Divisional Committee
2011	Editorial Search Committee, Wisconsin Center for Educational Research
2010–2014	Access and Accommodation Resource Coordinator, Dept. of Educational Psychology
2010–2011	Education Research Institutional Review Board
2010–2011	Recruiting, Admissions, and Fellowships, Dept. of Educational Psychology
2010–2011	Technical Director Search Committee, Wisconsin Center for Educational Research
2009–2010	Recruiting, Admissions, and Fellowships (Chair), Dept. of Educational Psychology
2009–2010	Precollege Initiatives Strategic Planning Design Team
2007–2008	Business Services, Administrative Process Redesign
2006–2007	Faculty Affairs (Chair), Dept. of Educational Psychology
2005–2006	Faculty Affairs, Dept. of Educational Psychology
2004–2007	Graduate Student Affairs, School of Education
2004–2007	Student Affairs (Chair), Dept. of Educational Psychology
2002–2003	Learning Sciences Search Committee, Dept. of Educational Psychology
2001–2004	Information Technology Advisory Committee, School of Education
2001–2004	Recruiting, Admissions, and Fellowships, Dept. of Educational Psychology

Harvard Graduate School of Education

2000–2001	Admissions, Technology in Education Program
1999–2001	Technology and Education Committee
2000	Website Development, Education Technology in Education Program

Ad-hoc reviewer

American Education Research Association Annual Meeting
American Education Research Journal
Behavior and Information Technology
Cognition and Instruction

Computer Supported Collaborative Learning
Contemporary Educational Technology
Convergence
Educational Researcher
Hong Kong Ministry of Education
IEEE DIGITEL Conference
International Conference on Advanced Learning Technologies
International Conference on the Learning Sciences
International Journal of Computers in Mathematics Learning
Journal of Computer Assisted Learning
Journal of Global Studies in Education
Journal of Learning Sciences
Journal of Research in Science Teaching
Lawrence Erlbaum Associates
MIT Press
National Science Foundation
Prentice Hall Publishers
Singapore National Institute of Education
Swiss National Science Foundation
Review of Education Research
Serious Games for Educational and Child Psychology
Teaching and Learning in Medicine
Technology, Knowledge and Learning

Other professional service

2019	Spencer Foundation Working Group on Assessment
2005–2006	Spencer Foundation Working Group on Games in Education

Teaching

University of Wisconsin–Madison

Qualitative Research Methods in Learning Environments
Quantitative Ethnography
Psychology of Educational Communications
Introduction to the Learning Sciences
Tools for Thought
Cognition and Classroom Learning

Harvard Graduate School of Education

Tools for Thought
Technology in Education Proseminar

Castilleja School

Precalculus
Algebra II
American History

Sri Mahendra M.V.

Class 6 Mathematics
Class 4 English

Mountain School Program of Milton Academy

History of Science
Advanced Placement American History

Student supervision

Current Ph.D. advisees

Ph.D. advisor (Major Professor)

Brendan Eagan
Zachari Swiecki
Amanda Evenstone
Golnaz Arastoopour
Padraig Nash
Elizabeth Bagley
David Hatfield
Gina Svarovsky

Ph.D. committee member

Sean Andrist
Katherine Clinton
Andras Csanadi
Thomas Duus Henriksen
Thorkild Hanghoj
Kyle Hartung
Rikke Magnussen
Nichol Martin
Jay O'Toole
Maarten Overdijk
Melodie Rosenfeld
Constance Steinkuehler Squire
Jeremy Stoddard
Joost Westra
Abigail Woodridge
Lisa Marshall
Magdalene Moy
Hamideh Talafian
Amanda Baraney

Current Master's advisees

Yeyu Wang
Jaeyoon Choi

Yuanru Tan

Master's supervisor

Kelly Beckett
Alecia Magnifico
Megan Moreno
Aran Nulty
Jennifer Saucerman
Anne-Lise Maag
Daniel Tetrick
Jennifer Saucerman
Wesley Collier

Postdoctoral fellowship supervisor

Cynthia D'Angelo
Michael Tscholl

Hosted visiting scholar

Pinghua Duan
Jie Zhang
Fenghua Xu
Bian Wu

Delta Teaching and Learning Certificate Committee Member

Todd Gruber

Honors

2015	Vilas Faculty Mid-Career Investigator Award, University of Wisconsin–Madison
2008	European Union Marie Curie Fellow
2003	National Academy of Education/Spencer Foundation Postdoctoral Fellow
1987	Phi Beta Kappa
1986	John Harvard Scholar
1984, 1985	Harvard College Scholar

Collaborators

Carol Barford, University of Wisconsin-Madison
Cynthia Bater, Long Beach Unified School District
Antoine van den Beemt, Technical University Eindhoven
Cheryl Bodnar, Rowan University
Rick Borovoy, Google
Simon-Buckingham-Shum, University of Technology Sydney
Naomi Chesler, University of California at Irvine
Al Cohen, University of Georgia
Wendy Crone, University of Wisconsin-Madison
Valerie Farnsworth, Leeds University

Frank Fischer, Ludwig Maximilian University of Munich
Aroutis Foster, Drexel University
Simon Fougt, Metropolitan University Copenhagen
Ken Frank, Michigan State University
Karin Frey, University of Washington
Lewis Friedland, University of Wisconsin-Madison
Dragan Gasevic, Monash University
Holly Gibbs, University of Wisconsin-Madison
Gideon Dishon, Tel Aviv University
James Paul Gee, Arizona State University
Michael Gleicher, University of Wisconsin-Madison
Asli Gocman, University of Wisconsin-Madison
Art Graesser, University of Memphis
Eric Hamilton, Pepperdine University
Xiangen Hu, University of Memphis
Srecko Joksimovic, University of South Australia
Simon Knight, University of Sydney
Ingo Kollar, Ludwig Maximilian University of Munich
Paul Kirschner, Open Universiteit Nederland
Tyler Lark, University of Wisconsin-Madison
Adam Lefstein, Ben Gurion University of the Negev, Israel
Peter Levine, Tufts University
Jeff Linderoth, University of Wisconsin-Madison
Allison Littlejohn, Open University, UK
Kristine Lund, École Normale Supérieure de Lyon
Eleni Metaxa, Institute of Applied and Mathematical Sciences Technological Educational Institute of Crete
Morten Misfeldt, Aalborg University
Robert Mislevy, Educational Testing Services
Toshio Mochizuki, Senshu University
Bilge Mutlu, University of Wisconsin-Madison
Larry Nucci, University of California at Berkeley
Diler Öner, Boğaziçi University
Chandra Orill, University of Massachusetts-Dartmouth
Jun Oshima, Shizuoka University
Carla Pugh, Stanford Univeristy
Parameswaran (Parmesh) Ramanathan, University of Wisconsin-Madison
Robert Romberg, Stockholm University
Yigal Rosen, Harvard University
Andrew Ruis, University of Wisconsin-Madison
Vasile Rus, University of Memphis
Nasia Safdar, University of Wisconsin-Madison
Kristen Scopinich, Massachusetts Audubon Society
Staffan Selander, Stockholm University
Mamta Shah, Drexel University
Daniel K. Shirley, University of Wisconsin-Madison
Jeremy Stoddard, University of Wisconsin-Madison
Kate Thompson, Griffith University
Mitch Tyler, University of Wisconsin-Madison
Freydis Vogel, Technical University of Munich
Ulrich Wagner, Applied Sciences, Munich
Alyssa F. Wise, Simon Fraser University

Mike Zinn, University of Wisconsin-Madison

Presentations

Conference presentations

1. "A brief sketch of the sketchpad: An introduction to technology in the geometry classroom." California Technology Project Conference, 1992.
2. "Euclidean trigonometry: Teaching trigonometry from a geometric perspective with the Geometer's Sketchpad." California Association of Independent Schools Conference, 1993.
3. "Symmetric intuitions: dynamic geometry/dynamic art." International Society for the Interdisciplinary Study of Symmetry Conference, 1995.
4. "The math studio: Harnessing the power of the arts to teach across disciplines." With Jackie Cossentino. American Educational Research Association Annual Conference, 1997.
5. "Expressiveness in mathematical activity: Perspectives on making math meaningful." With James Kaput, Walter Stroup, Uri Wilensky, Sarah Inkpen, James Middleton, Dennie Wolf. National Council of Teachers of Mathematics Annual Meeting Research Precession, 1997.
6. "Design, collaboration, and computation: The design studio as a model for computer-supported collaboration in mathematics." Computer Supported Collaborative Learning Conference (CSCL), 1997.
7. "The pedagogy of the digital studio: Learning through collaboration, expression and construction." International Conference on the Learning Sciences (ICLS), 1998.
8. "Expressive mathematics: The development of mathematical thinking through design activity." American Educational Research Association Annual Conference, 1999.
9. "Virtual rounds: Simulation-based education in procedural medicine." Society of Photo Optical and Industrial Engineers (SPIE), 1999.
10. "Why the monkey can't do it: Simulation systems and the development of clinical wisdom." Society for Minimally Invasive Therapy Annual Conference, 1999.
11. "Learning architecture for medical applications." Medicine Meets Virtual Reality, 2000.
12. "Digital medicine and knowledge management." Managing the Complex, Institute for the Study of Coherence and Emergence, 2000.
13. "Digital medicine." Future of Health Technology Institute, 2000.
14. "New technologies and the future of medical education." Future of Health Technology Institute, 2000.
15. "When Dewey met Schon: Pedagogical praxis as a model for learning in the age of the smart machine." American Education Research Association Annual Conference, 2003.
16. "When Dewey met Schon: Computer-supported learning through professional practices." World Conference on Educational Media, Hypermedia, and Telecommunications (Ed-Media), 2003.
17. "Epistemic frames: Implications for design research." American Education Research Association Annual Conference, 2004.
18. "'In this paper I claim that…' A model for developing students' skills in writing academic papers." University of Wisconsin Teaching & Learning Symposium, 2004.
19. "Epistemic frames and islands of expertise: Learning from infusion experiences." International Conference on the Learning Sciences (ICLS), 2004.
20. "Islands of expertise and ARTS: Developing alternative routes to scientific understanding through informal and out-of-school learning experiences." National Association for Research in Science Teaching, 2005.
21. "Epistemic Frames and Innovative Science Learning Environments." National Association for Research in Science Teaching, 2005.
22. "Epistemic Games in Theory and Practice." CAL05: Virtual Learning, 2005.
23. "Why all CSL is CL" (Plenary Talk) Computer Supported Collaborative Learning, 2005.

24. "Games for thought: The future of education & how we can get there." Games+Learning+Society, 2005.
25. "Games and media literacy." Games+Learning+Society, 2006.
26. "Epistemic games." Games+Learning+Society, 2006.
27. "Afterschool programs as contexts for education reform." Games+Learning+Society, 2006.
28. "Theorizing games in/and education." International Conference of the Learning Sciences, 2006.
29. "The pasteurization of education." With Kurt Squire. International Conference of the Learning Sciences (ICLS), 2006.
30. "Press play: Designing an epistemic game engine for journalism." With David Hatfield. International Conference of the Learning Sciences (ICLS), 2006.
31. "Berta's Tower: Developing conceptual physics understanding one exploration at a time." With Gina Navoa Svarovsky. International Conference of the Learning Sciences (ICLS), 2006.
32. "Epistemic Games." With David Hatfield, Alecia Marie Magnifico, and Elizabeth Sowatzke. IEEE Digital Game and Intelligent Toy Enhanced Learning Workshop, Taipei, 2007.
33. "Games for thought: The future of education and how we can get there." AERA Annual Meeting, 2007.
34. "Using epistemic games to teach for innovation." AERA Annual Meeting, 2007.
35. "Digital games, digital learning." Technology & the Learning Brain Conference, 2011.
36. "Games that develop innovation and creativity in school and the workforce." TTI/Vanguard Serious Fun Conference, 2011.
37. "'Gamification' and its impact on education". Game Based Learning Conference, 2011.
38. "Measuring innovation with epistemic games." American Society for Engineering Education (ASEE) Conference, 2011.
39. "Advances in analysis of process data from game based assessments." American Educational Research Association (AERA), 2013.
40. "Contrasting design models for problem solving processes." American Educational Research Association (AERA), 2013.
41. "Epistemic network analysis." Learning Analytics and Knowledge Conference, 2014.
42. "Epistemic network analysis." Educational Data Mining Conference, 2014.
43. "ENA as theory-based learning analytics." International Conference on Computer Supported Collaborative Learning Conference, 2015.
44. "Masterclass on game oriented learning and teacher work." With Morten Misfeldt. Workshop organized at Designs for Learning, 2016.
45. "Virtual internships: Cyberlearning and cyberassessment of 21st century engineering. With Naomi Chesler. Frontiers of Engineering Education, 2016.
46. "Assessing and monitoring responsive engagement through student discourse." With Peter Levine, Larry Nucci, and Brendan Eagan. Presentation at the 2017 American Philosophical Association Central Division meeting on Responsiveness, 2017.
47. "Measuring collaborative learning using epistemic network analysis." Iowa State University Army Research Laboratory Research meeting, 2017.
48. "Dialogic Analysis: Using Epistemic Network Analysis to Model Dialogic Interactions." American Educational Research Association. With Gideon Dishon, Brendan Eagan, Sara Tabatabai, Zachary Swecki, and Peter Levine.
49. "Cross-cultural Analysis of Learning using Quantitative Ethnography." NSF Synthesis and Design Workshop on Distributed Cognition in Project-based STEM Learning. Pepperdine, 2019.
50. "Epistemic Network Analysis of Individual and Team Performance." Generalized Intelligent Framework for Tutoring Annual Conference. University of Central Florida, 2019.

Keynotes and other invited presentations

1. “New machines, new methods: Precalculus in the computer age.” Castilleja School, 1993.
2. “Exploring trigonometry: Investigations beyond geometry with the Geometer’s Sketchpad.” Geometer’s Sketchpad Institute, 1993.
3. “Dynamic drawings and dynamic graphs: Exploring trigonometry through dynamic geometry.” Geometer’s Sketchpad Institute, 1994.
4. “Design for learning: The pedagogy of the design studio.” MIT Media Laboratory Symposium on Complexity, 1998.
5. “New means for old themes: How new media can change education.” Standards-based Teaching and Assessment Institute, Harvard University, 1998.
6. “Virtual medicine.” Center for Minimally Invasive Therapy Forum, 1999.
7. “Beyond Mavis Beacon: Technology, standards, and assessment.” Harvard Programs in Professional Development, 1999.
8. “Learning through simulation.” Society for Technology in Anesthesia, 2000.
9. “Why part-task trainers are only part of the answer.” Department of Defense Integrated Research Team on Medical Modeling and Simulation, 2000.
10. “Collaborative design of training architecture for medicine.” HT Medical Systems, 2000.
11. “Principles for design of medical training systems.” CIMIT Forum, Center for Innovative Minimally Invasive Therapy, 2000.
12. “Reflective practice and medical education.” Stanford University Department of Surgery, 2000.
13. “What is digital medicine?” Stanford University Department of Surgery Grand Rounds, 2000.
14. “Modes of education in medical simulation.” Society for Technology in Anesthesia, 2001.
15. “Paradigms for medical education: Simulation and medical training.” With James Gordon. Harvard Macy Institute Program for Medical Educators, 2001.
16. “Reflective practice and medical simulation.” With James Gordon. Harvard Macy Institute Program for Medical Educators, 2002.
17. “Education in the era of smart machines: How our tools shape the way we think.” Wisconsin Department of Public Instruction, 2003.
18. “From the Spanish Inquisition to Amazon.com: How our tools shape the way we think.” Wisconsin Spencer Doctoral Program Public Lecture Series, 2003.
19. “Learning in the digital age.” Wisconsin Cooperative Educational Service Agencies Annual Meeting, 2004.
20. “Doctor, lawyer, merchant chief: Pedagogical praxis, epistemic frames, and education in the age of the smart machine.” National Academy of Education Spring Retreat, 2004.
21. “The story behind a story: An epistemography of journalism 401.” National Academy of Education Annual Meeting, 2004.
22. “Why the monkey can’t do it: Reflective practice in medicine.” Games for Health Conference, 2004.
23. “Epistemic Games.” Serious Games Conference, 2004.
24. “Tools and thinking.” University of Indiana Calumet Speaker Series, 2005.
25. “Video games and learning.” BCEd Online: Building Global Learning Communities, 2005.
26. “Invited panel on informal education.” Education Arcade, 2005.
27. “Games for thought: The future of education & how we can get there.” Video Games, Kids, and the Future of Education Forum, 2005.
28. “Epistemic games as the real alternative school.” Oregon Association for Alternatives in Education, 2005.
29. “Ogre, onion, parfait: Design research in the learning sciences.” University of Indiana, 2005.
30. “Games for thought: Innovation in education through epistemic games.” National Center for Technology Innovation Annual Technology Innovators Conference, 2005.
31. “Epistemic Games.” Innovate Online Webcast, 2005.
32. “Epistemic games and the future of learning.” University of Indiana, 2006.
33. “Games for thought.” University of California at San Diego, 2006.

34. “Games for thought: The future of education.” University of Copenhagen Conference on Learning Environments, 2006.
35. “How computer games help children learn.” British Journal of Educational Psychology Current Trends Conference, 2006.
36. “How computer games help children learn.” Games for Change Conference, 2006.
37. “Epistemic games for civic skills.” Games for Change Conference, 2006.
38. “Epistemic games and digital literacy.” 25th Annual Wisconsin Reading Research Symposium, 2006.
39. “Games as assistive technologies for learning.” Arizona Technology Access Program Conference on Assistive Technology, 2006.
40. “Capacity building as an (epistemic) frame of mind: Thinking like a professional by playing as a professional.” World Bank Institute Finance and Private Sector Development Unit, 2006.
41. “Epistemic games for innovative thinking.” Cisco Systems, 2006.
42. “Do video games help kids learn?” Panel discussion with Sasha Barab, Nichole Pinkard, Jonathan Fanton, and Constance Yowell. MacArthur Foundation, 2007.
43. “Big game, little Game.” Game Developers Conference Serious Games Summit, 2007.
44. “Testing assumptions: Creative approaches to gathering evidence of serious game impacts.” With Carrie Heeter, Brian Winn, Richard Van Eck, and Caitlin Kelleher. Game Developers Conference Serious Games Summit, 2007.
45. “Stalking the elusive program of research.” Wisconsin Center for Education Research, 2007.
46. “How computer games help children learn.” IEEE Digital Game and Intelligent Toy Enhanced Learning Workshop, Taipei, 2007.
47. “Digital game based learning.” With Jimmy Ho Man Lee, Clark Quinn, and Fong Lok Lee. IEEE Digital Game and Intelligent Toy Enhanced Learning Workshop, Taipei, 2007.
48. “How computer games help children learn.” Scholastic Publishers, 2007.
49. “Epistemic games and learning.” Learning Laboratory Denmark, 2007.
50. “A professional practice simulation system for epistemic games.” National Science Foundation Workshop on Interactive Games and Learning, Singapore, 2007.
51. “How computer games help children learn.” University of Wisconsin–Madison School of Education Alumni Appreciation Day Keynote, 2007.
52. “How computer games help children learn.” Bascom Hill Society, 2007.
53. “Computer games and the future of education.” Madison World Future Society, 2007.
54. “Games and learning.” Delta Roundtable on Teaching and Learning, University of Wisconsin–Madison, 2007.
55. “How computer games help children learn.” Wednesday Nite@The Lab, University of Wisconsin–Madison, 2007.
56. “How computer games help children learn.” OECD International Conference on games and Learning, Santiago, Chile, 2007.
57. “Epistemic games: Learning from cradle to boardroom.” The eLearning Guild, 2007.
58. “Games and learning.” Universidad Virtual – Tecnológico de Monterrey, 2007.
59. “Using computer games for skill development and career preparation.” Careers Conference, 2008.
60. “How computer games help children learn.” Scholastic Books, 2008.
61. “How computer games help children learn.” Digital Learning Conference, Oslo, 2008.
62. “How computer games help children learn.” Chemical Heritage Foundation Leadership Initiative in Science Education, 2008.
63. “Epistemic network analysis.” MacArthur Working Group on Assessment, 2008.
64. “Epistemic network analysis and learning in games.” Digital Learning and Collaboration III Conference, Tubingen, Germany, 2008.
65. “Epistemic games and leadership.” Games and Leadership Conference, Amsterdam, Netherlands, 2008.
66. “Digital learning systems.” International Conference of the Learning Sciences, 2008.

67. “Digital learning.” DREAM conference on Digital Content Creation, Odense, Denmark, 2008.
68. “How computer games help children learn.” PICNIC Symposium, Amsterdam, Netherlands, 2008.
69. “The psychology of game-based learning.” The Open University of the Netherlands, 2008.
70. “Epistemic games and learning.” IVLOS Research Meeting, Utrecht University, 2008.
71. “How computer games help children learn.” ITC In Education Conference, Sandvika, Norway, 2008
72. “Digital learning systems.” Danish Pedagogical University, Copenhagen, Denmark, 2008.
73. “Epistemic Games.” MUSE Research Group, Utrecht University, 2008.
74. “Digital learning systems.” University of Graz, 2008.
75. “Digital learning systems.” The Open University of the Netherlands Psychology Department Annual Meeting, 2008.
76. “How computer games help children learn.” Utrecht University Honors Education Class, 2008.
77. “How computer games help children learn.” Innovation and Information Conference, Lunteren, Netherlands, 2008.
78. “How computer games help children learn. Uitnodiging Studium Generale, Bilthoven, the Netherlands, 2009.
79. “Big game, little game.” Utrecht School for the Arts, Hilversum, Netherlands, 2009.
80. “How computer games help children learn.” ITC in Education Conference, Bergen, Norway, 2009.
81. “Digital learning systems.” Utrecht Education Researchers Conference, Hilversum, Netherlands, 2009.
82. “Epistemic network analysis and digital learning.” Knowledge Media Research Center, Tubingen, Germany, 2009.
83. “Designing big games.” Maastricht University, 2009.
84. “How computer games help children learn.” University of Nottingham, 2009
85. “Digital learning systems.” Learning Sciences Research Institute, University of Nottingham, 2009.
86. “How computer games help children learn.” Kennisnet, Utrecht, Netherlands, 2009.
87. “How computer games help children learn.” Ubisoft, Inc., Paris, France, 2009.
88. “Visualizing complex learning through epistemic network analysis.” Carnegie Institute Data Visualization Convening, Palo Alto, CA, 2009.
89. “Epistemic Games: Professional learning through game play.” Chief Naval Operations Strategic Studies Group, Newport, RI, 2009.
90. “Education for a global market: Computer games and the future of learning.” National Education Institute, Singapore, 2009.
91. “Good games: How to find them, build them and test them.” National Education Institute, Singapore, 2009.
92. “Educational games and assessment in the 21st century.” HP Innovations in Education Worldwide Summit, 2010.
93. “Measuring disciplinary and interdisciplinary thinking using epistemic network analysis.” National Science Foundation Annual PI meeting for Course, Curriculum and Laboratory Improvement Program, 2010.
94. “Assessing complex thinking through epistemic network analysis.” National Science Foundation Annual PI Meeting for Course, Curriculum and Laboratory Improvement Program, 2010.
95. “The epistemologies of virtual mathematics.” Kaput Center, University of Massachusetts-Dartmouth, 2010.
96. “The future of games and learning.” Games: The Next Step meeting, Royal Netherlands Academy of Arts & Sciences, 2010.
97. “Game brain: The future of thinking in the age of computers.” Conference on Serious Gaming, Royal Netherlands Academy of Arts & Sciences, 2010.
98. “The myth of the noble/digital/savage.” ‘In Gesprek met….’, Universiteit Utrecht, 2010.
99. “Education through games.” National Science Foundation Annual PI meeting for Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics, 2011.

100. “Theory two: What learning looks like in the age of computer games.” 4th Innova Cesal Meeting, 2011.
101. “Digital games: Teaching, learning, & assessment.” Drexel University, 2011.
102. “How computer games teach critical 21st century learning skills.” Webinar for edWeb Game-Based Learning Community, 2011.
103. “Games to teach and games to test: Developing and assessing innovation.” Tufts STEM Education Lecture Series, 2011.
104. “Games to teach and games to test: Developing and assessing innovation.” K12, Inc., 2011.
105. “Games to teach and games to test: Developing and assessing innovation.” Wisconsin Association for Middle Level Education (WAMLE) Conference, 2011.
106. “Games to teach and games to test: Developing and assessing innovation.” ETS Invited Lecture, 2011.
107. “Epistemic network assessment.” National Academy of Education Summit, 2011.
108. “Games to teach and games to test: Developing and assessing innovation.” LSI Advances in Learning Lecture Series, Arizona State University, 2012.
109. “PowerPoints that work.” Spencer Foundation Invited Seminar, 2012.
110. “Games to teach and games to test: Developing and assessing innovation.” Columbia University, 2012.
111. “Assessment within serious games.” TEA Symposium, 2012.
112. “Games to teach and games to test: Developing and assessing innovation.” International Association for Educational Assessment Conference, 2012.
113. “Games and assessment.” CRESST Visiting Experts Panel, 2012.
114. “Engineering the future of education.” Rice University, Houston Texas, 2012.
115. “Pragmatic epistemology.” University of Paris IV-Sorbonne, 2013.
116. “Pragmatic epistemology.” University of Lyon, 2013.
117. “Games for learning and assessment.” University of Lyon, 2013.
118. “Epistemic games in the workplace.” University of Grenoble, 2013.
119. “MOOCs and online gaming in engineering education.” Frontiers of Engineering Education Symposium, 2013.
120. “The art and science of visual communication.” Philosophy Institute workshop, The Spencer Foundation, 2014.
121. “How computer games help children learn.” Universidade do Estabo da Bahia, Salvador, Brazil, 2014.
122. “Virtual internships.” University of Wisconsin–Madison, 2014.
123. “Epistemic network analysis.” University of Wisconsin–Madison, 2014.
124. “Pedagogy, data, and theory: The Nicene Creed of Education.” Wisconsin Center for Education Research 50th Anniversary Conference, University of Wisconsin–Madison, 2014.
125. “Virtual internships: Cyberlearning and cyberassessment of 21st century thinking.” Texas A&M University, 2014.
126. “Automated mentoring and virtual internships.” Army Research Lab Meeting on Authoring Tools and Expert Modeling Techniques, 2014.
127. “ENA and quantitative ethnography.” UW Action Research Core Meeting, 2014.
128. “Virtual internships: Cyberlearning and cyberassessment of 21st century thinking.” Harvard Graduate School of Education Dean’s Distinguished Lecture, 2015.
129. “Land Science.” UW/Native Nations Summit on Environment and Health, 2015.
130. “Virtual internships as authentic STEM experiences.” National Research Council Convocation on Discovery-Based Research Experiences for Undergraduates, 2015.
131. “Multimodal ENA.” JENlab Research Meeting, 2015.
132. “Virtual internships and STEM cyberlearning.” University of Exeter, 2015.
133. “Developing and measuring complex STEM thinking.” Aalborg University, 2015.

134. “Measuring complex thinking in Learning Games.” Workshop organized at the European Conference on Games Based Learning, 2015.
135. “Localization: The next frontier in games for learning.” European Conference on Games Based Learning, 2015.
136. “Workshop on epistemic network analysis.” Workshop organized at the University of Munich, 2015.
137. “Measuring complex thinking.” University of Munich, 2015.
138. “Tools of quantitative ethnography: Epistemic Network Analysis and nCoder.” ISLS Network of Academic Programs in the Learning Sciences (NAPLeS) webinar, 2016.
139. “New approaches to teaching and assessing clinical thinking skills.” University of Wisconsin–Madison Department of Medicine Education Day, 2016.
140. “Quantitative ethnography.” Aarhus University, 2016.
141. “Quantitative ethnography.” Aalborg University at Copenhagen, 2016.
142. “Quantitative ethnography.” Stockholm University, 2016.
143. “Quantitative ethnography.” Swedish Defense Research Agency, 2016.
144. “Quantitative ethnography.” University of Edinburgh, 2016.
145. “Technology for teaching professionalism.” Leeds University, 2016.
146. “Epistemic network analysis: An open source tool for analysing large sets of discourse data.” Leeds University, 2016.
147. “Quantitative ethnography: Measuring complex thinking using grounded data mining.” Colorado State University, 2016.
148. “Virtual Internships.” University of Edinburgh, 2017.
149. “Virtual Internships.” Metropolitan University Copenhagen, 2017.
150. “Quantitative ethnography.” Metropolitan University Copenhagen, 2017.
151. “Learning analytics and mixed methods.” Aalborg University at Copenhagen, 2017.
152. “The role of meaning in learning analytics.” Aalborg University at Copenhagen, 2017.
153. “Making meaning in the age of Big Data.” Arizona State University, 2017.
154. “Quantitative ethnography.” University of Washington, 2017.
155. “Making meaning in the age of Big Data.” University of Washington, 2017.
156. “Quantitative ethnography.” Griffith University, 2017.
157. “How to use data for teaching.” Griffith University, 2017.
158. “Making meaning in the age of Big Data.” Teachers College, 2017
159. “Quantitative ethnography.” Teachers College, 2017.
160. “New Perspectives on Quantitative Ethnography.” University of Edinburgh, 2017.
161. “Virtual Internships.” University of Technology Sydney, 2017.
162. “Quantitative ethnography.” University of Technology Sydney, 2017.
163. “Quantitative ethnography.” Australasian Society for Computers in Learning in Tertiary Education webinar, 2017.
164. “Design principles for virtual internships.” University of Sydney, 2017.
165. “Quantitative ethnography.” University of Sydney, 2017.
166. “Quantitative ethnography.” Teachers College, 2017.
167. “Quantitative ethnography.” Shizuoka University, 2017.
168. “Quantitative ethnography.” Tokyo University, 2017.
169. “Quantitative Ethnography.” Senshu University, Tokyo, 2018.
170. “The Importance of Meaning: Going Beyond Mixed Methods to Turn Big Data into Real Understanding.” Learning Analytics and Knowledge Conference, 2018.
171. “Quantitative Ethnography.” Universidad de Guanajuato, 2018.
172. “Quantitative Ethnography.” Instituto Politécnico Nacional de Mexico, 2018.
173. “Quantitative Ethnography.” El Colegio de México, 2018.
174. “Using Quantitative Ethnography to Assess Complex, Collaborative Problem Solving.” Educational Testing Service, 2018.
175. “Quantitative Ethnography.” Michigan State University, 2018

176. “Workshop on Quantitative Ethnography.” Michigan State University, 2018.
177. “Quantitative Ethnography.” New York University, 2018.
178. “Workshop on Quantitative Ethnography.” New York University, 2018.
179. “Workshop on Quantitative Ethnography.” Drexel University, 2018.
180. “Quantitative Ethnography.” Nordic Learning Analytics Summer Institute, 2018.
181. “Quantitative Ethnography.” Stanford, 2018.
182. “Quantitative Ethnography.” Berkeley, 2018.
183. “La Etnographia Cuantitatíva: Nueves posibilidades de investigación.” IV Coloquio Internacional: Derecho al Bienestar Humano, Ética Global y Educación, University of Guanajuato, 2018.
184. “Quantitative Ethnography: Turning Big Data into Real Understanding.” Leibniz-Institut für Bildungsforschung und Bildungsinformation, Frankfurt, 2019.
185. “Quantitative Ethnography: Human Science in the Age of Big Data.” Leibniz-Institut für Bildungsforschung und Bildungsinformation, Frankfurt, 2019.
186. “Interactive Workshop on Quantitative Ethnography: Open source tools for analyzing large sets of discourse data.” University of Bochum, 2019.
187. “Quantitative Ethnography: Turning Big Data into Real Understanding.” University of Bochum, 2019.
188. “Quantitative Ethnography: Turning Big Data into Real Understanding.” University of Duisberg, 2019.
189. “Quantitative Ethnography: Turning Big Data into Real Understanding.” Leibniz-Institut für Wissensmedien, Tubingen, Germany, 2019.
190. “Interactive Workshop on Quantitative Ethnography: Open source tools for analyzing large sets of discourse data.” Ludwig Maximilian University of Munich, 2019.
191. “Interactive Workshop on Quantitative Ethnography: Open source tools for analyzing large sets of discourse data.” University of Cambridge, 2019.
192. “Quantitative Ethnography: Turning Big Data into Real Understanding.” University of Cambridge, 2019.
193. “Reconfiguring Education in the Age of The Smart Machine.” Fremtidens Digitale Skole Conference, University of Copenhagen, 2019.
194. “Simulations for Ecological Thinking.” Nelson Institute Earth Day Conference, 2019.
195. Early Career Workshop Leader, International Conference on Quantitative Ethnography, 2019.