MARCELA BORGE

Learning and Performance Systems
The Pennsylvania State University
301C Keller Building
(814) 865-0625 (office)
mborge@psu.edu, marcelaborgesoto@gmail.com
https://sites.psu.edu/mborge/

ACADEMIC APPOINTMENTS

Professor in Charge (2021-present)
Learning, Design, and Technology program
College of Education
The Pennsylvania State University, University Park

Associate Professor (2021-present)
Learning, Design, and Technology program
College of Education
The Pennsylvania State University, University Park

Assistant Professor (2014-2021)
Learning, Design, and Technology program
College of Education
The Pennsylvania State University, University Park

Senior Research Associate and Graduate Faculty (2012-2014)
College of Information Sciences and Technology
Center for Online Innovations in Learning
The Pennsylvania State University, University Park

Researcher (2009-2012), **Postdoctoral Scholar (**2007-2009)
Computer Supported Collaboration and Learning Lab
College of Information Sciences and Technology
The Pennsylvania State University, University Park

EDUCATION

Ph.D., Education (2007)
University of California, Berkeley
Cognition and Development: Education in Math, Science and Technology
Primary advisor: Barbara Y. White, Ph.D.
Dissertation thesis: Regulating social interactions: Developing a functional theory of collaboration; Committee: Barbara White, Kathleen Metz, & Rodolfo Mendoza-Denton

M.A., Education (2004)

University of California, Berkeley
Master's thesis: Developing collaborative expertise: Using socio cognitive roles to regulate group process.

B.A., Psychology (2001)
University of California, Berkeley
Research Assistant: Berkeley Psychophysiology Lab; Director: Robert Levenson, Ph.D.

AREAS OF EXPERTISE

Computer-supported collaborative learning, cognition and development, sociocultural theory, human-computer interaction, design-based research methods, scenario-based design, interaction analysis, intelligent systems, technology supported self-regulated learning, socio-metacognition.

RESEARCH SUPPORT

External

2016-2019
Borge, M. (Co-PI), Pérez-Edgar, K. (PI), Buss, K. (Co-PI)
National Institute of Health
Mobile eye-tracking as a tool for studying socioemotional development: Threat-related attention in a social context.

2013-2017
Borge, M. (PI), Rosé, C. (PI)
National Science Foundation
Fostering ecologies of online learners through technology augmented human facilitation.

2011-2014
Borge, M. (Co-PI), Rosé, C. (PI), Carroll, J. (Co-PI), Duchon, A. (Co-PI) ,Goggins, S. (Co-PI), Patterson, E. (Co-PI), Stahl, G. (Co-PI)
Office of Naval Research, Cognitive Knowledge Integration program
Towards optimization of macrocognitive processes: automating analysis of the emergence of leadership in ad hoc teams.

Internal

2014-2016
Borge, M. (PI)
Center for Online Innovation in Learning, The Pennsylvania State University
Developing an interactive cognitive support system to guide and improve collective thinking processes for online collaborative teams.

2014-2016
Borge, M. (Co-PI), Pérez-Edgar, K. (PI), Toomey-Zimmerman, H. (Co-PI)
Center for Online Innovation in Learning, The Pennsylvania State University

Design and implementation of a mobile eye-tracking system to assess parent-child interactions in informal learning environments.

2013-2015
Borge, M. (Co-PI), Shields, S. (PI)
Center for Online Innovation in Learning, The Pennsylvania State University
WAGES (Workshop Activity for Gender Equity Simulation): A model for the development of theoretically-grounded online gaming environments.

PUBLICATIONS (48)

(*Student, +Practitioner/Staff)

Peer Reviewed Journal Articles (16)

1. Soto, J. A., Mena, J., **Borge, M.**, Stoyer, M., Witherspoon, D., and Dawson-Andoh, N. (In press). The Building Blocks for Multicultural Competence: Multicultural Psychology Courses Promote Multicultural Knowledge and Ethnic Identity. *Teaching of Psychology.*
2. **Borge, M.**, Soto, J. A., *Aldemir, T., & Mena, J. A. (2020). Building Multicultural Competence by Fostering Collaborative Skills. *Teaching of Psychology*. DOI:10.1177/0098628320977421**(Published first online)**
3. **Borge, M.,** *Ong Shiou, Y., & Goggins, S. (2020). A Sociocultural approach to using social networking sites as learning tools. *Educational Technology Research & Development 68*(3), 1089-1120. DOI:10.1007/s11423-019-09721-z
4. **Borge, M.**, *Toprani, D., & *Yan, S. (2020). Embedded modeling: A method for developing underlying design thinking skills. *Computer Science Education 40*(1), 47-71. DOI:10.1080/08993408.2019.1688592
5. **Borge, M**., & +Shimoda, T. (2019). Designing a computer-supported-collective regulation system: A theoretically informed approach. *Technology, Instruction, Cognition, & Learning 11*(2-3), 193-217. https://www.oldcitypublishing.com/journals/ticl-home/ticl-issue-contents/ticl-volume-11-number-2-3-2019/ticl-11-2-3-p-163-192/
6. *Fu, X., Nelson, E., **Borge, M.**, Buss, K., & Perez-Edgar, K. (2019). Stationary and ambulatory attention patterns are differentially associated with early temperamental risk for socioemotional problems: Preliminary evidence from a multimodal eye-tracking investigation. *Development and Psychopathology 31*(3), 971-988. DOI:10.1017/S0954579419000427
7. **Borge, M.**, & Mercier, E. (2019). Towards a micro-ecological approach to CSCL. *The International Journal of Computer Supported Collaborative Learning 14*, 219-235. DOI:10.1007/s11412-019-09301-6
8. **Borge, M.**, *Shiou Ong, Y., & Rosé, C. (2018). Learning to monitor and regulate collective thinking processes. *International Journal of Computer Supported Collaborative Learning 13*(1), 61-92. DOI:10.1007/s11412-018-9270-5
9. **Borge, M**. (2017). Rethinking how we support online learning in the age of isolation and information abundance: An introduction to the CREATE system. *International Journal on Innovations in Online Education*, 22.

http://onlineinnovationsjournal.com/streams/adaptive-and-personalized-learning-online/4e56bc28287c002d.html.

10. **Borge, M.**, & White, B. Y. (2016). Towards the development of socio-metacognitive expertise: An approach to developing collaborative competence. *Cognition & Instruction 34*(4), 323-360. DOI:10.1080/07370008.2016.1215722
11. +Shimoda, T., & **Borge, M.** (2016). The Web of inquiry: Computer support for playing epistemic games. *The International Journal of Information and Education Technology 6*(8), 8.DOI:10.7763/IJIET.2016.V6.760
12. Carroll, J. M., *Jiang, H., & **Borge, M.** (2015). Distributed collaborative homework activities in a problem-based usability engineering course. *Education and Information Technologies 30*(3), 589 -617. DOI:10.1007/s10639-013-9304-6
13. Carroll, J. M., **Borge, M**., & *Shih, S.-I. (2013). Cognitive artifacts as a window on design. *Journal of Visual Languages and Computing 24*(4), 248-261. DOI:10.1016/j.jvlc.2013.05.001i.
14. *Jiang, H., *Ganoe, C., & **Borge, M.**, et al. (2010). Web-based workspace: Supporting student teams in usability engineering course. *Learning Technology 12*(3), 6–9.
15. *Ganoe, C. H., **Borge, M.**, *Jiang, H., Carroll, J. M., & Rosson, M. B. (2009). Usability case study learning objects for collaborative authentic education. *Learning Technology 11*(4), 27-31.
16. Carroll, J. M., & **Borge, M.** (2007). Articulating case-based learning outcomes and assessment. *International Journal of Teaching and Case Studies 1*(1), 33–49. DOI:10.1504/IJTCS.2007.014208

Edited Book (1)

1. Smith, B. K., **Borge, M.,** Mercier, E., & Lim, K. Y. (Eds.). (2017). *Making a Difference: Prioritizing Equity and Access in CSCL, 12th International Conference on Computer Supported Collaborative Learning (CSCL) 2017*, Volumes 1-2. Philadelphia, PA: International Society of the Learning Sciences.
   https://cscl17.files.wordpress.com/2017/06/finalvol1cscl2017.pdf (Volume 1)
   https://cscl17.files.wordpress.com/2017/06/finalvol2cscl2017.pdf (Volume 2)

Book Chapters (5)

Peer-reviewed

1. *Toprani, D., *AlQahtani, M., & **Borge, M.** (in press). Examining technology use and evaluation in computer-supported collaborative learning: A systematic review. In J. Michael Spector, Barbara B. Lockee, & Marcus D. Childress (Eds.), *Learning, Design, and Technology. An International Compendium of Theory, Research, Practice, and Policy.* New York, NY: Springer Publishers.
2. **Borge, M.**, & Rosé, C. (2021). "Quantitative approaches to language in CSCL". In Ulrike Cress, Jun Oshima, Carolyn Rosé, & Alyssa Wise (Eds.), *The International Handbook of Computer-Supported Collaborative Learning*.

Invited

3. **Borge, M.** (2016). Systems thinking as a design problem: A response to Litzinger and Minstrell et al. In R. Duschl & A. Bismack (Eds.), *Reconceptualizing STEM Education: The Central Role of Practices*. Routledge.

https://www.routledge.com/Reconceptualizing-STEM-Education-The-Central-Role-of-Practices/Duschl-Bismack/p/book/9781138901049.

4. Carroll, J., **Borge, M.,** *Ganoe, C., & Rosson, M. B. (2011). Articulating collaborative contributions to activity awareness. In E. Salas, S. M. Fiore & M. Letsky (Eds.), *Theories of Team Cognition* (pp. 209-242). London, England: Taylor and Francis Group. DOI:10.4324/9780203813140.
5. Carroll, J. M., Rosson, M. B., *Farooq, U., **Borge**, **M.**, *Convertino, G., Burge, J., & *Mentis, H. (2009). Activity awareness in complex teamwork. In Karl E. Carettas (Ed.), *Outsourcing, Team Work and Business Management*. New York: Nova Science.

Peer-Reviewed Published Conference Proceedings *(26: 13 Full, 13 Short)*

1. *Aldemir, T. & **Borge, M.**, Xia, Y. (2021). Exploration of Facilitation Strategies for Intergroup Dialogues in a CSCL Context. *In C. E. Hmelo-Silver, B. De Wever, & J. Oshima, (Eds.). (2021). Proceedings of the 14th International Conference on Computer-Supported Collaborative Learning - CSCL 2021.* Bochum, Germany: International Society of the Learning Sciences. **(Full Paper)**
2. *Aldemir, T. & **Borge, M.** (2020). Unpacking collaborative sense-making: The role of reflective accuracy in collaborative process quality. In M. Gresalfi and I.S. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020*, Volume 3 (pp. 1709-1712). Nashville, TN: International Society of the Learning Sciences. DOI:10.22318/icls2020.1709 **(Short Paper)**
3. *Yan, S., & **Borge, M**. (2020). Learning from design failure, collaboratively. In M. Gresalfi and I.S. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020*, Volume 1 (pp. 302-309). Nashville, TN: International Society of the Learning Sciences. DOI:10.22318/icls2020.302. **Winner of Best Student Paper award**: https://www.isls.org/conferences/icls-2020-online-conference. **(Full Paper)**
4. *Xia, Y., & **Borge, M.** (2020). Collaborative agency that drives collaborative problem-solving and learning. In M. Gresalfi and I.S. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020*, Volume 3 (pp. 1221-1228). Nashville, TN: International Society of the Learning Sciences. DOI:10.22318/icls2020.1221**(Full Paper)**
5. *Xia, Y., & **Borge, M.** (2020). Examining the relationship between calibration and reflection in an online discussion environment. In M. Gresalfi and I.S. Horn (Eds.), *The Interdisciplinarity of the Learning Sciences, 14th International Conference of the Learning Sciences (ICLS) 2020*, Volume 3 (pp. 1293-1300). Nashville, TN: International Society of the Learning Sciences. DOI:10.22318/icls2020.1293 **(Full Paper)**
6. *Aldemir, T., & **Borge, M**. (2019). Unpacking Socio-Metacognitive Sense-Making Patterns to Support Collaborative Discourse. In K. Lund, G.P. Niccolai, E. Lavoué, C.H. Gweon, & M. Baker (Eds.), *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference on Computer Supported Collaborative Learning (CSCL) 2019.* Volume 2, (pp. 945-946). Lyon, France: International Society of the Learning Sciences. DOI:10.22318/cscl2019.320 **(Short Paper)**

7. *Toprani, D., *AlQahtani, M., & **Borge, M**. (2019). Children's Interaction around Digital Technology in Collaborative Learning Environments. In K. Lund, G.P. Niccolai, E. Lavoué, C.H. Gweon, & M. Baker (Eds.), *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference on Computer Supported Collaborative Learning (CSCL) 2019.* (2), (pp. 589-592). DOI: 10.22318/cscl2019.589 **(Short Paper)**
8. *Xia, Y., *Lee, H., & **Borge, M.** (2019). Exploring Students' Self-assessment on Collaborative Process, Calibration, and Metacognition in an Online Discussion. In K. Lund, G.P. Niccolai, E. Lavoué, C.H. Gweon, & M. Baker (Eds.), *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference on Computer Supported Collaborative Learning (CSCL) 2019*, Volume 2 (pp. 620-623). Lyon, France: International Society of the Learning Sciences. DOI: 10.22318/cscl2019.945 **(Short Paper)**
9. *Xia, Y. & **Borge, M.** (2019). A Systematic Review of the Quantification of Qualitative Data in Proceedings of International Conferences on CSCL from 2005 to 2017. In K. Lund, G.P. Niccolai, E. Lavoué, C.H. Gweon, & M. Baker (Eds.), *A Wide Lens: Combining Embodied, Enactive, Extended, and Embedded Learning in Collaborative Settings, 13th International Conference on Computer Supported Collaborative Learning (CSCL) 2019.* Volume 2 (pp. 620-623). Lyon, France: International Society of the Learning Sciences. DOI: 10.22318/cscl2019.620 **(Short Paper)**
10. **Borge, M.,** & Mercier, E. (2018). Towards a cognitive-ecological framework in CSCL. In J. Kay, & R. Luckin (Eds.), *Rethinking Learning in the Digital Age, Making the Learning Sciences Count: The International Conference of the Learning Sciences (ICLS) 2018*, Volume 1 (pp. 336-343). London, UK: International Society of the Learning Sciences. DOI: 10.22318/cscl2018.336 **(Full Paper)**
11. *Jung, Y., *Toprani, D., *Yan, S., & **Borge, M.** (2017). Children's participation in rule-making to mitigate process problems in CSCL. In B. K. Smith, M. Borge, E. Mercier, K. Y. Lim (Eds.), *Making a Difference: Prioritizing Equity and Access in CSCL, 12th International Conference on Computer Supported Collaborative Learning (CSCL) 2017,. Volume 2,* (pp. 4). Philadelphia, PA: International Society of the Learning Sciences. DOI: 10.22318/cscl2017.101 **(Short Paper)**
12. *JooYoung, S., *AlQahtani, M., *Ouyang, X., & **Borge, M.** (2017). Embracing students with visual impairments in CSCL. In B. K. Smith, M. Borge, E. Mercier, K. Y. Lim (Eds.), *Making a Difference: Prioritizing Equity and Access in CSCL, 12th International Conference on Computer Supported Collaborative Learning (CSCL) 2017, Volume 2*, (pp. 4). Philadelphia, PA: International Society of the Learning Sciences. DOI:10.22318/cscl2017.81 **(Short Paper)**
13. *Jung, J., *Yan, S. & **Borge, M.** (2016). Problems with different interests of learners in an informal CSCL setting. In Looi, C. K., Polman, J. L., Cress, U., and Reimann, P. (Eds.), *Transforming Learning, Empowering Learners: The International Conference of the Learning Sciences (ICLS) 2016*, Volume 1 (pp. 878-881). Singapore: International Society of the Learning Sciences. DOI:10.22318/icls2016.126 **(Short Paper)**
14. *Toprani, D., *Yan, S., & **Borge, M.** (2016). A comparative analysis of the collaboration process across different technologies. In *Proceedings of the 6th Annual Conference on*

Creativity and Fabrication in Education (FabLearn '16). ACM, New York, NY, USA, 66-69. DOI:10.1145/3003397.3003407 **(Short Paper)**

15. *Shiou Ong, Y., & **Borge, M.** (2016). Joint idea-building in online collaborative group discussions. In C. K. Looi, J. L. Polman, U. Cress, and P. Reimann (Eds.), Looi, C. K., Polman, J. L., Cress, U., and Reimann, P. (Eds.)*, Transforming Learning, Empowering Learners: The International Conference of the Learning Sciences (ICLS) 2016,* Volume 1 (pp. 878-881). (1), (pp. 8). Singapore: International Society of the Learning Sciences.DOI:10.22318/icls2016.36 **(Short Paper)**
16. **Borge, M.,** *Yan, S., +Shimoda, T., & *Toprani, D. (2016). Moving beyond making: Towards the development of ThinkerSpaces. *In the Workshop Proceedings of (ACM)Sig CHI2016* (San Jose, California, May 7– 12). ACM..https://hci.sbg.ac.at/wp-content/uploads/2015/11/Moving_Beyond_Making.pdf. **(Short Paper)**
17. **Borge, M.,** *Shiou Ong, Y., & Rosé, C. P. (2015). Activity design models to support the development of high-quality collaborative processes in online settings. In O. Lindwall, P. Häkkinen, T. Koschman, P. Tchounikine, S. Ludvigsen, (Eds.), *Exploring the Material Conditions of Learning: The Computer Supported Collaborative Learning (CSCL) Conference 2015*, Volume 1. Gothenburg, Sweden: The International Society of the Learning Sciences. DOI:10.22318/cscl2015.391 **Nominated for Best Paper Award. (Full Paper)**
18. **Borge, M**., & Carroll, J. M. (2014). Verbal equity, cognitive specialization, and performance. *Proceedings of the 18th International Conference on Supporting Group Work.* (pp. 215–225).). ACM, New York, NY, USA. DOI:10.1145/2660398.2660418 **(Full paper)**
19. **Borge, M.,** & Goggins, S. (2014). Towards the facilitation of an online community of learners: Assessing the quality of interactions in Yammer. In J.L. Polman, E.A. Kyza, D. K. O'Neill, I. Tabak, W. R. Penuel, S. Jurow, K. O'Connor, T. Lee, and L. D'Amico (Eds.), *Learning and Becoming in Practice: The International Conference of the Learning Sciences (ICLS) 2014*, Volume 2. Boulder, CO: International Society of the Learning Sciences, pp. 753-760. DOI:10.22318/icls2014.753 **(Full Paper)**
20. +Shimoda, T., White, B. Y., **Borge, M.,** & Frederiksen, J. (2013). Designing for science learning and collaborative discourse. In *Proceedings of the 12th International Conference on Interaction Design and Children* (pp. 247-256). New York, NY, ACM. DOI:10.1145/2485760.2485782. **(Full Paper)**
21. **Borge, M.**, *Ganoe, C. H., *Shih, S.-I., & Carroll, J. M. (2012). Patterns of team processes and breakdowns in information analysis tasks. *Proceedings of the ACM conference on Computer Supported Cooperative Work.* (pp. 10). New York, NY: ACM. DOI: 10.1145/2145204.2145369. **(Full Paper)**
22. **Borge, M**., & White, B. Y. (2012). Supporting STEM learning with gaming technologies: Principles for effective design. *Proceedings of the 8th AAAI Conference on Artificial Intelligence and Interactive Digital Entertainment.* (pp. 7). Palo Alto, California: Association for the Advancement of Artificial Intelligence (AAAI) Press..https://www.aaai.org/ocs/index.php/AIIDE/AIIDE12/paper/viewPaper/5522. **(Full Paper)**
23. Carroll, J. M., **Borge, M.**, *Ganoe, C., & *Jiang, H. (2010). Distributed collaborative homeworks: Learning activity management and technology support. *Proceedings of IEEE*

Education Engineering (EDUCON). (pp. 1585-1594). Madrid: IEEE. DOI:10.1109/EDUCON.2010.5492338. **(Full Paper)**

24. *Jiang, H., Carroll, J. M., **Borge, M.,** & *Ganoe, C. H. (2010). Supporting partially distributed, case-based learning in an advanced undergraduate course in usability engineering. *Proceedings - 10th IEEE International Conference on Advanced Learning Technologies, ICALT 2010* (pp. 594-596). DOI: 10.1109/ICALT.2010.168 **(Short Paper)**
25. **Borge, M.** & Carroll, J. M. (2010). Using collaborative activity as a means to explore student performance and understanding. In Gomez, K., Lyons, L., & Radinsky, J. (Eds.), *Learning in the Disciplines: Proceedings of the 9th International Conference of the Learning Sciences (ICLS 2010)*, Volume 1, Full Papers (pp. 889-896). Chicago IL: International Society of the Learning Sciences.DOI: 10.22318/icls2010.1.889 **(Full Paper)**
26. Carroll, J. M., **Borge, M.**, *Xiao, L., & *Ganoe, C. H. (2008). Realistic learning activity is not enough. *Advanced Learning Technologies, 2008. ICALT'08. Eighth IEEE International Conference on.* (pp. 3–7). DOI: 10.1109/ICALT.2008.310 **(Short Paper)**

Instructional Material, Software (2)

1. **Borge, M.**, Lee, T., & T. S. (2017). CREATE 2.0. create.psu.edu. Teaching and Learning with Technology (TLT) selected me as a faculty fellow to extend my previous system. This new generation of CREATE was implemented in Django (and several modern frameworks, e.g. REST, vue.js, jQuery, bootstrap, etc), implemented by TK Lee txl20@psu.edu. I designed the front-end of the system in collaboration with TLT Studio (manager: Audrey Romano, UX/UI design: Robin Smail, Graphic design: Serena Epstein, HTML/CSS: Heather Harter; System administration: Jason Heffner jdh132@psu.edu). I worked with them to create professional development materials for teaching faculty to help them understand, assess, and support collaborative processes. This resulted in a series of videos and guides for instructors (included in supplemental materials) and a new software platform to support faculty and students. The training program designer was Kathy Jackson and the faculty programs manager was Bart Pursel.

2. **Borge, M.**, & Shimoda, T. (2015). "CREATE: Collective Regulation & Enhanced Analysis Thinking Environment." *Todd Shimoda.* create.psu.edu. (retired). As part of NSF funded research, I developed a prototype of a computer supported collaborative training system to help students improve collaborative sense-making processes by learning how to monitor and regulate collaborative processes. The design was implemented by Todd Shimoda, todd@shimodaworks.com, in PHP. I tested this prototype in eight different Penn State courses and used feedback from students and faculty to improve it over time.

i.

Technical Reports (1)

1. Rosé, C. P., Stahl, G., Goggins, S., Patterson, E., **Borge, M.**, Carroll, J. M., & Duchon, A. (2014). Towards Optimization of Macrocognitive Processes: Automating Analysis of the Emergence of Leadership in Ad Hoc Teams. *Office of Naval Research: Report to Sponsor.*Washington D. C.: The Office of Naval Research. Invited. https://apps.dtic.mil/dtic/tr/fulltext/u2/a606908.pdf.

Manuscripts in Progress

1. **Borge, M.,** & *Xia, Y. (revise and resubmit). Beyond the individual: the regulation and negotiation of socio-emotional practices across a learning ecosystem. *Journal of the Learning Sciences*.
2. **Borge, M.,** *Aldemir, T. & *Xia, Y. (revise and resubmit). How teams learn to regulate collaborative processes with technological support. *Educational Technology Research & Development.*
3. *Aldemir, T., **Borge, M.**, Soto, J., & Mena, J. (submitted). Shared meaning making about emotionally difficult topics. *The International Journal of Computer Supported Collaborative Learning.*
4. *Xia, Y., & **Borge, M.** (submitted). A systematic review of the quantification of qualitative data in studying group interactions. *Journal of Information and Learning Sciences.*
5. *Xia, Y., & **Borge, M.** (manuscript in progress). How learners calibrate and reflect in online discussion environments. To be submitted to *Educational Technology Research & Development.*

PAPERS, PRESENTATIONS, SEMINARS, AND WORKSHOPS (61)

Invited Keynote (1)

1. **Borge, M.** (Nov. 3, 2020). Supporting deep learning and collaboration in informal spaces. Invited Keynote for the *2020 Distance Library Services Conference*. University Park, PA.

Invited Discussant (1)

1. **Borge, M.** (April 8, 2016). Characterizing how students learn collaboratively, American Educational Research Association Annual Meeting, American Educational Research Association, Philadelphia, PA, peer-reviewed/refereed. National.

Peer-Reviewed Workshops and Paper Presentations with Extended Abstracts (12)

1. *Aldemir, T., & **Borge, M.,** (2019). Socio-metacognitive processes in computer-supported collaborative learning. *American Educational Research Association*, Toronto, Canada.
2. *Yan, S., & **Borge, M**., (2019). Group's response to design for productive failure. *American Educational Research Association*, Toronto, Canada.
3. *Toprani, D., *Yan, S., & **Borge, M**. (2018). A broader perspective on learning. *International Workshop on Advanced Learning Sciences*, Pittsburgh, PA.
4. **Borge, M.** (2018). Supporting socio-emotional skills for complex problem solving. *International Workshop on Advanced Learning Sciences*, Pittsburgh, PA.
5. **Borge, M.,** *Toprani, D., & *Yan, S. (2017). Impacts of different forms of technology use on social learning processes. *Society for Research on Child Development Conference*, Austin, TX.
6. D'Angelo, C., Hmelo-Silver, C., **Borge, M.,** Wise, A., & Chen, B. (2017). Establishing a foundation for collaborative process evaluation and adaptive support in CSCL. *International Conference for Computer Supported Collaborative Learning*, Philadelphia, PA.
7. **Borge, M.** (August 2013). Systems thinking as a design problem: A response to Litzinger and Minstrell et al., *Waterbury Education Summit, Penn State, University Park.*

8. **Borge, M.**, *Shih, S., *Ganoe, C., & Carroll, J. (2011). Verbal equity and the intersection of artifacts, team process, and performance. *INGRoup Conference*, Minneapolis, MN.
9. **Borge, M.,** & White, B. (2009). Scaffolding collaborative processes with managerial roles: findings from a fifth-grade classroom. *American Educational Research Association*, San Diego, CA.
10. **Borge, M.**, White, B., & *+Miller, T. (2006). Supporting collaborative groups in the classroom. *American Educational Research Association*, San Francisco, CA.
11. **Borge, M.**, White, B., & *+Frederiksen, T. (2004). Regulating social interactions: Developing a functional theory of collaboration. *Annual Meeting of the American Educational Research Association*, Montreal, Quebec, Canada.
12. White, B., *+Frederiksen, T., & **Borge, M.** (2003). How can cognitive modeling, role-playing, and collaborative inquiry foster young learners' meta-socio-cognitive development. *Annual Meeting of the American Educational Research Association*, San Diego, CA.

Invited Presentations, Workshops, and Guest Lectures (26)

1. **Borge, M.,** (November 20, 2018). A discussion of faculty service loads and gender. *Department of Health & Human Performance: Graduate Seminar*, University of Houston, Houston, TX.
2. **Borge, M.**, (2019). Advanced mixed methods design: A discussion of Borge et al., 2018. *Educational Psychology Special Topics Seminar*, The Pennsylvania State University, University Park, PA.
3. **Borge, M.**, (2018). A discussion of faculty service loads and gender. *Department of Health & Human Performance: Graduate Seminar*, University of Houston, Houston, TX.
4. **Borge, M.** (2017). Introduction to the CREATE system. *Teaching and Learning with Technology*. University Park, PA.
5. **Borge, M.** (2017). Providing access to high quality collaborative learning environments. *Center for Innovative Research on Cyberlearning (CIRCL), Cyberlearning Conference*, Washington D.C.
6. **Borge, M.** & Smith, B. (2017). Human centered-design: Important considerations for the design of future technologies. *Center for Innovative Research on Cyberlearning (CIRCL), Cyberlearning Conference*, Washington D.C.
7. Hmelo-Silver, C., **Borge M.,** Chen, B., Mercier, E., & Wise, A. (2017). Computer supported collaborative learning: Theories, methods, and important considerations. *Center for Innovative Research on Cyberlearning (CIRCL), Cyberlearning Conference*, Washington D.C.
8. **Borge, M**. (2017). Designing for productive collective sense-making: Why it matters. *Symposium for Teaching and Learning with Technology*, University Park, PA.
9. **Borge, M**. (2017). Towards the development of ThinkerSpaces: A conversation with Dr. Marcela Borge. *LDT graduate student committee, College of Education, The Pennsylvania State University*, University Park, PA.
10. **Borge, M**. (2017) Easy to use, intelligent support for collaborative projects. *Faculty Development Brown Bag Seminar, College of IST, The Pennsylvania State University*, University Park, PA.
11. **Borge, M.** (2016). CREATE intelligent collaboration: Designing a system to help students become more competent collaborators – A conversation with Dr. Marcela Borge.

Center for Online Learning Innovation, COIL conversations online webinar series, The Pennsylvania State University, University Park, PA.

12. **Borge, M.** (2015). Assessment and feedback on group processes: Supporting self-directed learning in team based online courses. *DANCE (Discussion Affordances for Natural Collaborative Exchange)*.
13. **Borge, M.,** Greenburg, L., Perez-Edgar, K., Scherf, S., Smith-Simon, K. (2015). Work-life balance in academia. *Department of Psychology, The Pennsylvania State University*, University Park, PA.
14. **Borge, M.** (2014). Design-based Research: Past projects and experiences. *College of Education Design-Based Research Group Speaker Series, The Pennsylvania State University*, University Park, PA.
15. Shields, S., & **Borge, M**. (2014). Stealth instruction through Games: WAGES (Workshop Activity for Gender Equity Simulation) Demonstrates Gender Inequity in the Workplace. *122nd Annual Convention of the American Psychological Association*, Washington D.C.
16. **Borge, M.** (2013) Systems thinking as a design problem: A Response to Liztinger and Minstrell et al. *Waterbury Summit, The Pennsylvania State University*, University Park, PA.
17. **Borge, M.** (2012). Designing for learning in computer supported collaborative environments. *College of Education Learning Sciences Group Speakers Series, The Pennsylvania State University*, University Park, PA.
18. **Borge, M.** (2010). Role-mediated collaborative interactions. *Four sections of IST 110, Introduction to Information, People and Technology, College of Information Sciences and Technology, Pennsylvania State University*, University Park, PA.
19. **Borge, M.**, Carroll, J., *Ganoe, C., & Rosson, M.B. (2010). Using speech acts to analyze team processes. *Communication Analysis Workshop, Cognitive Engineering Research Institute*, Tempe, AZ.
20. **Borge, M.** (2010). Understanding and supporting collaborative activities in undergraduate courses. *College of Business, University of Almeria*, Almeria, Spain.
21. **Borge, M.** (2009). Computer supported collaborative learning: Trade-offs, constraints, and support tools. *College of Information Sciences, The University of Almeria*, Almeria, Spain.
22. **Borge, M.** (2009). Face-to-face collaborative interactions: Objectives, problems, and possible solutions. *College of Information Sciences, The University of Almeria*, Almeria, Spain.
23. **Borge, M.** (2009). What are effective collaborative processes? *College of Information Sciences and Technology IST 110, Introduction to Information, People and Technology, Pennsylvania State University*, University Park, PA.
24. **Borge, M.** (2009). Setting and achieving goals. *Office of Learning Initiative Teacher Internship Program, Pennsylvania State University*, University Park, PA.
25. **Borge, M.** (2009). Working with teams. *Office of Learning Initiatives Teacher Internship Program, Pennsylvania State University*, University Park, PA.
26. **Borge, M.** (2008). Supporting student teams. *College of Information Sciences and Technology course, Introduction to Information, People and Technology, Pennsylvania State University*, University Park, PA.

Posters and Technical Reports (14)

1. *Toprani, D. & **Borge, M**. (2021). Technology's Role in Supporting Collaborative Interactions: An Ecological Approach. *In C. E. Hmelo-Silver, B. De Wever, & J. Oshima, (Eds.). (2021). Proceedings of the 14th International Conference on Computer-Supported Collaborative Learning - CSCL 2021.* Bochum, Germany: International Society of the Learning Sciences.
2. *Jung, Y. J. & **Borge, M.** (2020). Investigating Children's Interactions Across Face-to-face and Virtual Spaces: Case Study of Mobile Eye-tracking Analysis. The International Conference of the Learning Sciences, Nashville, Tennessee, peer-reviewed/refereed. International.
3. *Xia, Y., *Lee, H., & **Borge, M.** (June 17, 2019). Exploring students' self-assessment on collaborative process, calibration, and metacognition in an online discussion environment, The International Conference for Computer Supported Collaborative Learning, The International Society for The Learning Sciences, Lyon, France, peer-reviewed/refereed. International.
4. *Yan, S., & **Borge, M.** (April 2019). Group's Response to Design for Productive Failure, American Educational Research Association, Toronto, Canada, peer-reviewed/refereed. National.
5. *Xia, Y., *Lee, H. & **Borge, M.** (2019). Exploring students' self-assessment on collaborative process, calibration, and metacognition in an online discussion environment, The International Conference for Computer Supported Collaborative Learning, The International Society for The Learning Sciences, Lyon, France, peer-reviewed/refereed. International.
6. *Toprani, D., *Xia, Y., & **Borge. M.** (2018). Supporting SEL learning in progressive design contexts. The International Conference of the Learning Sciences, The International Society for The Learning Sciences, London, UK, peer-reviewed/refereed. International.
7. **Borge, M.**, *Ong Shiou, Y., & Subramanian, P. (2015). Developing an interactive cognitive support system to guide and improve collective thinking processes, Teaching and Learning with Technology Symposium, The Center for Online Innovations in Learning, The Pennsylvania State University. Local.
8. *Salman, F., **Borge, M.**, & Zimmerman, H. A. (2015). Girls' digital storytelling: democratizing learning design through makerspaces, The Annual Meeting of the American Educational Research Association, The American Educational Research Association, Chicago, peer-reviewed/refereed. National.
9. *Ong Shiou, Y., & **Borge, M.** (June 2015). Assessing the quality of students' arguments in yammer, The International Conference of Computer Supported Collaborative Learning (CSCL) 2015, The International Society of The Learning Sciences, Gothenburg, Sweden, peer-reviewed/refereed. International.
10. Penstein Rosé, C., Goggins, S., Stahl, G., Patterson, E., Duchon, A., **Borge, M.,** & Carroll, J. (2013). Towards Optimization of Macrocognitive Processes Automating the Analysis of the Emergence of Leadership inAd Hoc Teams. Presented to the *Office of Naval* Research, Command and Decision-Making Program, Washington D.C.

11. Carroll, J., **Borge, M.**, Ganoe, C., Shih, S., & Rosson, M. (2012). Coordinating Multiple Conceptual Views to Construct and Verify Common Ground. Presented to the *Office of Naval* Research, Command and Decision-Making Program, Washington D.C.
12. **Borge, M.**, Ganoe, C., Shih, S., Carroll, J., & Rosson, M. (2010). Characterizing and supporting activity awareness in information analysis tasks. Presented to the *Office of Naval* Research, CKI Program, Washington D.C.
13. *Convertino, G., **Borge, M.**, & Carroll, J. M. (March 2008). Case-based, collaborative learning in usability engineering, Teaching and Learning with Technology Symposium, Teaching and Learning with Technology, The Pennsylvania State University, peer-reviewed/refereed. Local.
14. *Convertino, G., **Borge, M.,** Carroll, J.M., Ganoe, C.H., Jiang, H., Xiao, L., & Rosson, M. B. (2008). Case-Based, Collaborative Learning in Usability Engineering**.** *Teaching and Learning with Technology Symposium*, University Park, PA, March 29.

Guest Lectures/Invited Seminars (8)

1. **Borge, M.**, (2020). What is sociometacognition and why does it matter? *Learning Sciences Seminar*, The University of Utah, (COVID Remote).
2. **Borge, M.**, (2019). Embedded modeling: Engaging students as active participants in the learning of human-centered design practices. *Human-Computer Interaction Graduate Seminar Series*, The Pennsylvania State University, University Park, PA.
3. **Borge, M.**, (2019). Advanced mixed methods design: A discussion of Borge et al., 2018. *Educational Psychology Special Topics Seminar*, The Pennsylvania State University, University Park, PA.
4. **Borge, M**. (October 9, 2015). Using multiple methods during epistemic games, *Guest lecture,* College of Education, The Pennsylvania State University, University Park, PA.
5. **Borge, M.** (September 16, 2015). What is HCI?, *Guest lecture,* College of Information Sciences and Technology, The Pennsylvania State University, University Park, PA.
6. **Borge, M.** (November 2014). Design-Based Research: Past projects and experiences, *Learning Sciences Seminar,* College of Education, The Pennsylvania State University, University Park, PA.
7. **Borge, M.** (2010). Role-mediated collaborative interactions. *Four sections of IST 110, Introduction to Information, People and Technology*, College of Information Sciences and Technology, The Pennsylvania State University, University Park, PA.
8. **Borge, M.** (2009). What are effective collaborative processes? *Guest lecture*, College of Information Sciences and Technology IST 110, Introduction to Information, People and Technology, The Pennsylvania State University, University Park, PA.

DESIGN & DEVELOPMENT PROJECTS (7)

1. 2016-2018 ***CREATE 2.0 Developing a Multi-user, University-Wide System.*** Selected as a faculty fellow for my work with the CREATE prototype by the Teaching and Learning with Technology (TLT) group that supports educational technology across the Penn State University. Worked with TLT to build a multi-user open source version of CREATE and faculty development tools so as to scale the CREATE system university wide.

2. 2014-2017 ***CoLearnr User Testing and Beta Version.*** Worked with the CEO of Colearnr.com to test and revise a multi-platform, collaborative learning management system, develop requirements for children in K-12, and a beta version for kids. System accessible at colearnr.com
3. 2013-2017 ***CREATE: Collaborative Regulation, Enhanced Analysis, and Thinking Environment prototype.*** Conducted research on the development of collaborative competencies and iteratively developed a computer supported collaborative training system to help students improve collaborative sense-making processes by learning how to monitor and regulate collaborative processes. System accessible at create.psu.edu
4. 2009-2012 ***Coordinated Multiple Views.*** Conducted research on activity awareness and development of a prototype to support group cognition and decision making for information analysts.
5. 2007-2012 ***Collaborative Case-Based Learning with the UCS Case-Based Library.*** Conducted research on group cognition, group interactions, development of self-regulatory tools and assessments for use in classroom settings. System accessible at ucs.ist.psu.edu
6. 2001-2007 ***Inquiry Island/The Web of Inquiry***. Conducted research, developed curriculum, and devised new learning assessments for a modifiable cognitive agent system to support science inquiry as part of the ThinkerTools research group. See http://thinkertools.org/Pages/woi.html
7. 2001-2002 ***M.E.L.L.I.E***. Pilot of a bilingual-math software program, run by the Distributed Learning Workshop. Trained at the Office of Educational Research and Improvement (OERI), Stanford University, Palo Alto. Conducted requirements analysis and usability tests of learning system designed for Math students who were also English Language Learners. Video recorded sessions, transcribed in Spanish and then translated to English. Created databases to organize and store all data.

TEACHING

The Pennsylvania State University

Current Courses

LDT 575: Designing Experimental Research
LDT 577: Computer Supported Collaborative Learning
LDT 594: CSCL Research Apprenticeship
LDT 566: Using Computers as Learning Tools
LDT 100: World Technologies and Learning

Past Courses

IST 110: Introduction to Information, People, and Technology.
IST 602: Supervised experience in college teaching
IST 331: Introduction to Human-Centered Design
IST 413: Usability Engineering

SERVICE

External

Editorial Boards

(2017 - present) Senior Associate Editor, American Journal of Education
(2018 - present) Editorial Advisory Board, Journal of Information and Learning Sciences

Ad Hoc Journal Reviewer

Educational Technology Research and Development
Cognitive Science
Human Computer Interaction
International Journal of Artificial Intelligence in Education
International Journal of Computer Supported Collaborative Learning
Journal of Educational Psychology
Journal of the Learning Sciences
Technology, Instruction, Cognition, & Learning

Conference Reviewer

The ACM conference for SIGCHI
The ACM conference for Computer Supported Cooperative Work
The ACM International Joint Conference on Pervasive and Ubiquitous Computing
The American Educational Research Association
International Conference of the Learning Sciences
International Conference of Computer Supported Collaborative Learning
IFIP TC13 Conference on Human Computer Interaction

Other

National Science Foundation Panel Reviewer

2013 - present Cyberlearning
2015 - 2018 AISL

National Science Foundation Mentor

2015 Cyberlearning Mentor
CIRCL's Workshop Series: Developing Strong Cyberlearning Proposals.
Nominated by the Center for Innovative Research in Cyberlearning's (CIRCL) Advisory Board and/or NSF program officers to serve as a mentor for

National Science Foundation Project Advisory Board Member

2013 - 2016 Cyberlearning: Transforming Education
NSF Cyberlearning EXP: RUI: Exploring Spatial-Temporal Anchored Collaboration in Asynchronous Learning Experiences
Dorn, B. (PI), Ball, K. (co-PI), Schroeder, L. (co-PI)

Conference Program Committees and Other Service to the Profession

2022 ISLS Early Career Workshop Co-Chair

2021 "CSCL in a Time of Crisis Guest Moderator" (5th and 6th installment of the series). https://www.isls.org/cscl-times-of-crisis-webinars/
2021 ISLS Early Career Workshop Co-Chair
2019 - present AERA LS/ALT SIG student best paper awards committee
2019 - present NAPLeS Abstracts Coordinator for ISLS Website.
2014 - present International Society of the Learning Sciences Education Committee & NAPLeS Network
2019 - 2021 International Society of the Learning Sciences CSCL Community member Elected position
2019 International Society of the Learning Sciences Advisory Committee: Computer Supported Collaborative Learning
2017 International Society of the Learning Sciences Program Co-Chair: Computer Supported Collaborative Learning
2017 International Society of the Learning Sciences Program Committee Member: International Conference for the Learning Sciences
2017 CSCL Mid Career Workshop Co-Chair
2017 Cyberlearning Program Committee Member
2016 ICLS Mid Career Workshop Co-Chair
2014 ACM GROUP Program Committee Member
2009 Human Computer Interaction Program Committee Member
2009 Interact Program Committee Member

Internal

The Pennsylvania State University
2021 LDT Undergraduate Program Course Development Committee
2020 - present Equity Team (college)
2020 Faculty of Color Advisory Group (college)
2018 - present Admissions Committee (program)
2016 - 2018 Faculty Council (program/college)
2019 Reviewer for NSF Advancing Informal STEM Learning down select (college)
2017 Advisory Committee Member (college): Advising on the review of the Office of the Associate Dean for Research, Outreach, and Technology
2016 - 2018 Chair of the Technology Committee (college)
2016 - 2017 New Courses Committee Member (program)
2014 - 2015 Faculty Search Committee (program)
2016 - 2017 Teaching and Learning with Technology Faculty Fellow (university)
2010 - present Fast Start Project Mentor (university)
2015 - present Imagineering with Games & Technology: After School Design Club, Program developer, supervisor, and facilitator; Grades 2-6 (Community)
2013 Girlz Digital World, Summer Camp; Grades 6-8; supervisor & instructor (college)

SPECIALIZED KNOWLEDGE

Research Methods and Analytic Techniques

Design-based research, pseudo-experimental studies, case-based studies, and mixed-methods studies; Structured interviews, interaction analysis, content/communication analysis, social network analysis, case studies, and instrument development

Usability/Design
Scenario-Based Design, task analysis, artifact analysis, paper prototyping, usability testing, software design

Field Research Audio/Video Recording, Compressing, and Analysis Techniques
Data collection of complex behaviors in fieldwork settings using audio mixers, cameras, microphone receivers and transmitters, importing and compressing video files in various formats

Spanish Language Proficiency
Native Spanish speaker with professional, conversational, reading, and writing fluency.

MEMBERSHIPS

American Educational Research Association (AERA)
Association for Computing Machinery (ACM)
    Special Interest Group on Computer Human Interaction (ACM SIGCHI)
    Special Interest Group on Computer Science Education (ACM SIGCSE)
International Society for the Learning Sciences (ISLS)
Women in Cognitive Science