Florence R. Sullivan

Curriculum Vitae

College of Education
W244 Furcolo Hall
University of Massachusetts, Amherst
813 N. Pleasant St.
Amherst, MA 01003
Voicemail: 413-577-1950
Email: fsullivan@educ.umass.edu

EDUCATION

Ph.D. **Teachers College, Columbia University**
Cognitive Studies in Education with an emphasis in Intelligent Technologies, 2005

M.Phil. **Teachers College, Columbia University**
Cognitive Studies in Education, 2004

M.A. **San Francisco State University**
Education with an emphasis in Instructional Technology, 1999

B.A. **New College of California**
Interdisciplinary Humanities with an emphasis in Music Composition, 1995

RESEARCH AREAS

- Student learning with computational media including - creativity, collaborative creativity, collaborative problem solving and computational thinking
- Issues of gender in STEM learning environments
- Computational linguistics and microgenetic analysis methods
- Design of constructionist-based learning environments to foster collaborative creativity and collaborative problem solving
- Learning in online virtual environments

TEACHING AND ADVISING

Professor, 2018 - Present
Associate Professor, 2011 – 2018
Assistant Professor, 2005-2011
University of Massachusetts, Amherst
Advise M.Ed. and Ph.D. students
Graduate Courses developed and taught:

- Computer Mediated Communication
- Educational Media Theory

- Educational Video Production
- Foundations and Theories of Learning
- Instructional Design of Educational Technology
- Integrating Technology with the Curriculum
- Issues of Gender in Science and Science Education
- Math Science and Learning Technology Research
- Service Learning and Teaching with Computational Media
- Teaching and Learning with Technology

Guest Lecturer, 2011-2017
Teachers College, Columbia University
Teach a Summer Workshop in the Teacher Residency Program

- Principles of Learning and Motivation

Instructor, 2000 - 2005
Teachers College, Columbia University
Graduate Courses taught:

- Instructional Design of Educational Technology (Online Course)
- Producing Educational Audio and Video for the Web
- Intelligent Computer Assisted Instruction

Instructor, 2003 - 2005
Queens College, City University New York
Graduate Courses taught:

- Modern Learning Technologies
- Children in Cultural Context: Learning and Teaching

Doctoral Student Advisees

Mentor
Dr. Roberto G. Barbosa - University of Londrina, Brazil. Brazilian student received a one-year fellowship from the Coordination of Improvement of Higher Education Personnel Program Graduate School of Science and Mathematics Education (PECEM) State University of Londrina, city of Londrina, Paraná state, Brazil
Scholarship Program Doctoral Sandwich Abroad (PDSE) – 2012-2013

Chair of Doctoral Committee
Danielle Allessio – College of Education (COE), Math, Science and Learning Technology (MSLT) – Graduated, 2020
Erica Farelli – COE, MSLT - Current
Dr. John Heffernan – COE, MSLT – Graduated, 2017
Dr. Vanessa Hill – COE, MSLT – Graduated, 2018
Kevin Keith – COE, MSLT – Current
Emrah Pektas – COE, MSLT - Current
Ali Söken – COE, MSLT - Current

German Vargas – COE MSLT – Current
Dr. Nicholas C. Wilson – COE, MSLT – Graduated, 2014
Ozkan Yildiz – COE, MSLT - Current

Co-Chair of Doctoral Committee
Dr. Kefah Barham – COE, Center for International Education (CIE) – Graduated, 2014
Dr. Tugba Keser – COE, MSLT – Graduated, 2015

Member of Doctoral Committee
Dr. Elzbieta Manos – COE, MSLT – Graduated, 2018
Dr. Huihong Bao – COE, Language Literacy and Culture – Graduated, 2011
Dr. Johanna Fitzgerald – COE, MSLT – Graduated, 2014
Dr. Mark Floryan – College of Natural Sciences, Computer Science Dept. – Graduated, 2013
Dr. Norman Price – COE, MSLT – Graduated, 2013
Lisa Wortman Raring – Department of Communication – Graduated, 2018
Dr. Karen St. Cyr – COE, Teacher Education and School Improvement (TESI) – Graduated in 2009
Dr. Lynn Stephens – COE, MSLT – Graduated, 2012
Dr. Grant Williams – COE, MSLT – Graduated, 2011

Member of Doctoral Comprehensive Exam Committee
Dianne Young – COE, MSLT - Current
Mahbubur Rahman – COE, MSLT - Current
Dr. Heidi Bohler – COE, TESI – Graduated, 2011
Dr. Raymond Young – COE, TESI – Graduated, 2010

ADMINISTRATIVE

Department Chair, 2018 – Present
Department of Teacher Education and Curriculum Studies, UMass, Amherst

Administrative Initiatives:

- Develop professional licensure pathways for secondary teacher education programs in math and elementary special education. Including seeking state approval of the pathways.
- Develop initial licensure and masters degree program for digital learning and computer science secondary teachers. Including seeking state approval of the degree and licensure program.
- Lead department-wide, seven-year, self-study, including writing of 76 page technical report of results of the self-study.
- Lead revision, re-organization of the departmental by-laws, budgeting procedures, and work-load policies across the department.
- Co-develop digital media, design and making certificate program.

Florence R. Sullivan
Curriculum Vitae

SCHOLARSHIP

Books

Sullivan, F.R. (2017). *Creativity, technology and learning: theory for classroom practice.* New York, NY: Routledge Press.

Peer-Reviewed Journal Articles

(*doctoral or master student co-authors)

***Sullivan, F.R.,** Suárez, E., Pektas, E., Duan, L. (2020). Developing pedagogical practices that support disciplinary practices when integrating computer science into elementary school curriculum. Manuscript in Preparation.

Sullivan, F.R., Söken, A., Yildiz, O. (2020). Robotics and science inquiry: the affordances of sensors for learning about data. Manuscript under review.

*****Heffernan, J**.** & **Sullivan, F.R**. (2020). Cross case study of an elementary engineering task. *Journal of Pre-College Engineering Education Research*.

***Sullivan, F.R.,** & Keith, P.K. (2019. Exploring the potential of natural language processing to support microgenetic analysis of collaborative learning discussions. *British Journal of Educational Technology*, *50*(6), 3047-3063. Doi:10.1111/bjet.12875.

***Sullivan, F.R.,** Keith, P.K., & Wilson, N.C. (2016). Learning from the periphery in a collaborative robotics workshop for girls. *Universal Journal of Educational Research, 4*(12), 2814 - 2825. doi: 10.13189/ujer.2016.041215.

***Sullivan, F.R.,** & Heffernan, J. (2016). Robotic construction kits as computational manipulatives for learning in the STEM disciplines. *Journal of Research in Technology Education, 49(*2) 105-128. doi: 10.1080/15391523.2016.1146563

***Sullivan, F.R.,** Kapur, M., Madden, S., & Shipe, S. (2015). Exploring the role of 'gendered' discourse styles in online science discussions. *International Journal of Science Education, 37*(3), 484-504. doi: 10.1080/09500693.2014.994113

***Sullivan F.R.,** & Wilson, N. (2013/2015). Playful talk: Negotiating opportunities to learn in collaborative groups. *Journal of the Learning Sciences, 24*(1), 5-52. doi: 10.1080/10508406.2013.839945

Sullivan, F.R., & Lin, X.D. (2012). The ideal science student survey: Exploring the relationship of students' perceptions to their problem solving activity in a robotics context. *Journal of Interactive Learning Research, 23*(3), 273-308.

***Sullivan, F.R.,** Hamilton, C.E., Allessio, D., Deschamps, A., Sinclair, A., Vargas, G., Wilson, N., Zhu, Y. (2011). Representational guidance and student engagement: Examining designs for collaboration in online synchronous environments. *Educational Technology Research & Development, 59*(5), 619-644.

Sullivan, F.R. (2011). Serious and playful inquiry: Epistemological aspects of collaborative creativity. *Journal of Educational Technology and Society, 14*(1), 55-65.

Sullivan, F.R. (2009). Risk and responsibility: A self-study of teaching in second life. *Journal of Interactive Learning Research, 20*(3), 337-357.

Sullivan, F.R., & Moriarty, M.A. (2009). Robotics and discovery learning: Pedagogical beliefs, teacher practice and technology integration. *Journal of Technology and Teacher Education, 17*(1), 81-114.

Hong, H.Y., & **Sullivan, F.R.** (2009). Towards an idea-centered, principle-based design approach to support learning as knowledge creation. *Educational Technology Research & Development, 57*(5), p. 613-627.

Sullivan, F.R. (2008). Robotics and science literacy: Thinking skills, science process skills, and systems understanding. *Journal of Research in Science Teaching, 45*(3), 373-394.

<u>Peer-Reviewed Book Chapters</u>

***Sullivan, F.R.** & Adrion, R.W., Tulungen, C. & Pektas, E. (accepted). Teacher co-design in a cs for all research practice partnership: Curriculum development and teacher learning. In C. Mouza, A. Yadav & A, Leftwich (Eds.), Preparing teachers to teach computer science: Models, practices and policies.

Sullivan, F.R. (2020). Educational robotics: A multi-dimensional mode for the development of computational thinking in children. In S.C. Kong and H. Abelson (Eds.) Computational thinking education in K-12. Manuscript in Preparation.

***** Keith, P.K., **Sullivan, F.R., &** Pham, D. (2019). Roles, collaboration, and the development of computational thinking in a robotics learning environment. In H. Abelson & S.C. Kong, (Eds.) *Computational thinking education*, (223-246). Singapore: Springer Open.

Oyler, C.J., Morvay, J., & **Sullivan, F.R.** (2017). Developing an activist teacher identity through teacher education. In J. Clandinin & J. Husu (Eds.). *The sage handbook of research on teacher education.* London, UK: Sage Publications.

Sullivan, F.R. (2017). The creative nature of robotics activity: Design and problem-solving. In M.S. Khine (Ed.) *Robotics in STEM education: Redesigning the*

learning experience, (213-230). The Netherlands, Springer.

***Sullivan, F.R.,** Adrion, W.R., Hart, D., Hill, C.N., Turner, K.C.N., Xavier, J., Cha, Y., Lee, S., & Wheeler, B. (2017). Cross-referencing to co-construct knowledge about global heat transfer in an online learning environment: learning with multiple visualizations. In D.F. Treagust, R. Duit, & H.E. Fischer (eds.). *Multiple representations in physics education,* (289-310). Cham, Switzerland: Springer Nature.

***Sullivan, F.R.,** & Barbosa, R.G., (2017). Designing for collaborative creativity in STEM education with computational media. In M. Spector, B.B. Lockee, & M.D. Childress (Eds.) *Learning, design, and technology: An international compendium of theory, research practice and policy.* Cham, Switzerland: Springer Nature. doi: 10.1007/978-3-319-17727-4

McCormick, C. B., Dimmitt, C. & **Sullivan, F.R.** (2012). Metacognition, learning, and instruction. In W. M. Reynolds & G. E. Miller (Eds.), *Handbook of Educational Psychology, 2nd ed.* (pp. 69-98). New York, NY: John Wiley and Sons.

Lin, X.D., Siegler, R.S., & **Sullivan, F.R.** (2010). Students' goals influence their learning. In D.D. Preiss & R.J. Sternberg (Eds.), *Innovations in Educational Psychology,* (pp. 79-105). New York, NY: Springer.

Lin, X.D., & **Sullivan, F.R.** (2008). Computer contexts for supporting metacognitive learning. In J.Voogt & G. Knezek (Eds.), *The International Handbook of Information Technology in Primary and Secondary Education* (281-298). New York, NY: Springer.

Peer Reviewed Conference Proceedings

***Sullivan, F.R.,** Suárez, E., Pektas, E., Duan, L. (2020). Developing pedagogical practices that support disciplinary practices when integrating computer science into elementary school curriculum. *Proceedings of the International Conference on the Learning Sciences bi-annual meeting, Nashville, TN,* June 19-23, 2020.

Allessio, D. Woolf, B.P., Accurso, K., Zuo, X., Caccamo, N., Arroyo, I., & **Sullivan, F.** (2020) Animated pedagogical agent design and augmented collaborative learning. Conference proceedings of the Artifical Intelligence in Education annual meeting, Ifrane, Morocco, July 6-10, 2020.

Vivian, R., Franklin, D., Frye, D., Peterfreund, A., Ravitz, J., **Sullivan, F.R.,** Zeitz, M. & McGill, M. (2020). Evaluation and assessment needs of cs education in primary grades. Conference proceedings the 25th annual conference on Innovation and Technology in Computer Science Education (ITiCSE), Trondheim, Norway, June 15-19, 2020.

***Sullivan, F.R.,** Veeragoudar, S., Tulungen, C., Pektas, E. (2019). Supporting elementary teacher's reflections on equity in cs education. In Proceedings of the International Computer Education Research Annual Conference, Aug 12-14, 2019, Toronto, Canada.

Allessio, D., Woolf, B., Wixon, N., **Sullivan, F.R.,** Tai, M., Arroyo, I. (2018) Ella me ayudo (She helped me): Supporting Hispanic and English Language Learners in an Intelligent Tutoring System. Proceedings of the 19th International Conference on Artificial Intelligence in Education. London, UK 2018.

***Sullivan, F.R.,** Poza, R., Cohen, C. & Söken, A. (2018). Innovations that help people: A secondary school computer science curriculum, in J.H. Kalir (Ed.) *Proceedings of the Connected Learning Summit, (Vol. 1).* Pittsburgh, PA: ETC Press, 275-284.

Meng, Y., Rumshisky, A., **Sullivan, F.R.** & Keith, K. (2018). Automatic labeling of problem-solving dialogues: An example of computational microgenetic analysis. In Proceedings of the Language Resources and Evaluation Conference, May 7-12, 2018, Miyazaki, Japan, 4056-4060.

***Sullivan, F.R.,** Keith, P.K., Söken, A., & Pham, D. (2018). Learning to think computationally: Comparative outcomes of a robotics workshop for girls. *Proceedings of the International Conference on the Learning Sciences bi-annual meeting, London, UK*, June 23-27, 2018, 1503-1504. https://repository.isls.org/handle/1/702

***Sullivan, F.R.,** & Keith, P.K. (2017). Emergent roles, collaboration and computational thinking in the multi-dimensional problem space of robotics. *Proceedings of the 2017 meeting of the International Conference on Computational Thinking Education, Hong Kong, PRC July 13 – 15, 2017.*

***Sullivan, F.R.,** Keith, P.K., & Poza, R. (2017). Girls, robotics learning and internalized stereotypes: is there a relationship? *Paper presentation at the 2017 Bi-Annual Meeting of Computer Supported Collaborative Learning, Philadelphia, Pennsylvania June 16 – 20, 2017.*

***Sullivan, F.R.,** Keith, P.K., & Wilson, N.C. (2015). Examining power relations in an all girl robotics learning environment. *Proceedings of the 2015 Bi-Annual Meeting of Computer Supported Collaborative Learning vol. 2,* (pp. 861-863).

***Sullivan, F.R.,** Champ, C., Pacheco, R. (2012). Interactive environments as pedagogical tools: Learning from worked examples in Scratch and Alice. *Journal of Immersive Education – Proceedings of the Immersive Education Summit,* (pp. 102-104).

Sullivan, F.R., & Lin, X.D. (2006). The Ideal Science Student and Problem Solving. *Proceedings of the 2006 Bi-Annual Meeting of the International Society of the Learning Sciences, vol. 2* (pp. 737-743).

Sullivan, F.R. (2001) Constructing the on-line classroom: Interaction in the synchronous chat room. In C. Montgomerie & J. Viteli (Eds.), *Proceedings of EdMedia: World Conference on Educational Media and Technology 2001* (pp. 1837-1842).

Sullivan, F.R., & Lucas, S.R. (2001). Distance learning and student strategies. *Proceedings: Annual Meeting of the Association for Educational Communication and Technology.* Available through ERIC (ED470169).

Public Advocacy OpEds

Sullivan, F.R. & Denner, J. (2017, June 21). Teaching computer science is great, but it is not enough: How to teach students to question the role of technology. *Education Week.* http://www.edweek.org/ew/articles/2017/06/21/education-should-threaten-techs-status-quo.html

Sullivan, F.R., & Cammack, J.C. (2015, January 31). Testing our schools into the ground. *The Hampshire Gazette*, p. A7.

Practitioner Articles

Sullivan, F.R. (2004) *Robotics in the classroom, part 1: constructionism and robotics in the classroom, part 2: teaching and learning*. For Olympus Education. No longer available online.

Book Reviews

Sullivan, F.R. (2012). Review of the book "Deconstructing digital natives: Young people, technology and the new literacies." *Teachers College Record,* Date Published: August 24, 2012 http://www.tcrecord.org ID Number: 16852,

Sullivan, F.R. (2009). Review of the book "Play frames and social identities." *Encounter: Education for Meaning and Social Justice*, 22(4), 50-52.

Sullivan, F.R. (2003). Review of the book "Adolescents and literacies in a digital world." *Teachers College Record* Volume 106 Number 2, 2004, p. 409-411 http://www.tcrecord.org ID Number: 11203.

Technical Report

Sullivan, F.R., Austin, T.A., Axelrod, Y., Cammack, J.C., & Francisco, J.M. (2019). The academic quality and development report for the department of teacher education and curriculum studies. Presented to the Provost of the University of Massachusetts, Amherst on August 12, 2019, pp. 1-77.

GRANTS AND CONTRACTS

Funded –External (Total Awards as PI or Co-PI = $3,428,670.00 USD)

National Science Foundation – (2018-2022). A Researcher-Practitioner Partnership to Design, Implement, Assess, and Scale Integrated CS Curricula in K-5 Classrooms (CS4All_Springfield). Co-Principal Investigator, with Principal Investigator Rick Adrion, and Co-Principal Investigators Enobong (Anna) Branch, & Rebecca Woodland. The goal of this research project is to develop a four-year project to integrate the computer science and computational thinking concepts, learning progressions, and practices defined in the Massachusetts Digital Literacy and Computer Science (DLCS) Framework (Massachusetts Department of Elementary and Secondary Education, 2015) into units and activities for grades K through 5 in the Springfield Massachusetts Public School District (SPS). Research will focus on teacher collaboration, teacher learning, student learning, and barriers to integration. Total awarded is $1,998,924.00

National Science Foundation – **The National Robotics Initiative - (2018-2021)** – Principal Investigator on Collaborative Research: Girls Involved in Robotics Learning Simulations (GIRLS). This three-year long collaborative proposal with PI Beryl Hoffman and Holyoke partners, Holyoke Codes and the Boys and Girls Club in Holyoke will develop curriculum related to using co-robotics in disaster recovery scenarios, such as hurricanes. The research focus is on how positioning robotics as a helping profession will impact girls and students of color's interest and engagement with robotics and computer science. Total awarded is $570,697.00.

Google – **(2018-2019)** CSforAll in Springfield MA: An Elementary CS/CT Curriculum Integration Pilot. Co-Principal Investigator with Principal Investigator Rick Adrion. This project seeks to investigate the impact of a design based research implementation approach to creating teacher professional learning communities to support the development of lessons that integrate computer science and computational thinking ideas into the K-5 curriculum. Research will focus on the development and validation of a developmental checklist for teachers to use when assessing student learning of CS/CT concepts. Total awarded is $118,543.00

National Science Foundation (2016-2017) –Principal Investigator, with Co-Principal Investigator, Rick Adrion, DRL-1252350, Microgenetic Learning Analytics Supplemental Funding. We received additional funding for the MLA project. The goal of this supplement is to continue analysis of our data as regards the development of computational thinking in students. The amount of the award is $60,101.00 over the course of one year.

National Science Foundation (2013-2015) –Principal Investigator, with Co-Principal Investigator, Rick Adrion, DRL-1252350, Microgenetic Learning Analytics. In this grant project we will develop a new research method that combines human development and

computational methods. PI Sullivan will formally advance her knowledge of computer science through course work as an integral aspect of this project. The project was funded for $300,916.00 over two years.

National Science Foundation (2011-2013)- Co-Principal Investigator, with Principal Investigators Rick Adrion and Chris Hill and Co-PIs Dave Hart and Nat Turner. OCI – 1135548 Collaborative Research: CI-TEAM Demo: Harnessing Cyber infrastructure for K-12 STEM Education - $249,922.00. In this two-year grant project, the research team developed and tested web-based simulations related to middle school earth and space science phenomena. The simulations were embedded in a system that includes on-line text, graphical and video materials, and online assessments. The project included working closely with 8th grade science teachers in public middle schools in Holyoke and Springfield, MA in developing both the interface and instructional design aspects of the simulations.

National Science Foundation (2011-2013) – Evaluator with Principal Investigators Beverly Woolf and Enid Sichel. DUE-0940959 and DUE-1143659: Collaborative Research: Authoring tool for a hands-on, on-line, lab curriculum for engineering technology students - $201,986. In this two-year grant I work closely with the principal investigators to develop assessment measures for examining the effectiveness of the Circuit Analysis Computer Environment for enabling student learning in introductory electrical engineering courses. Once data is collected using these assessment measures, I analyze the data and consult with the PIs on the results of the study. This work was then included in the PIs reports to the NSF on the overall success of the computer system for learning.

National Science Foundation (2008-2012) - Senior personnel - CNS-0837739 BPC-AE: Commonwealth Alliance for Information Technology Education Extension $1,911,928.00. Participant (senior personnel) CNS-0634412 BPC-A: Commonwealth Alliance for Information Technology Education $1,904,199.00. Principal Investigator Rick Adrion. These two grants are aimed at increasing the participation of women and historically under-served populations in information technology (IT) careers. My role under the first (CNS-0634412) is to pilot an implementation of the Artbotics curriculum in the Pioneer Valley. Artbotics is an IT curriculum funded by the NSF through a separate Broadening Participation in Computing Grant awarded to colleagues at UMass, Lowell. As part of the expansion grant (CNS-0837739), Artbotics programs will be extended to all of the Alliance partners and I continue to lead the UMass Amherst/Pioneer Valley effort.

Massachusetts Department of Elementary and Secondary Education (2011-2012) – Sub-Contractor with Principal Investigator: Paula Thayer and Claire O'Brien, Grant # 647-B-4: Massachusetts 21st Century Community Learning Centers - Summer Enhancement Pilot – Robotics in the Community - $123,900. I worked closely with the PIs in conceptualizing the robotics curriculum to be used in this grant project prior to the proposal. Once the award was received, I developed the robotics curriculum, which focuses on the uses of robotics in everyday life, and developed a two-day professional

development robotics workshop for 30 instructors and teaching assistants who ran the summer camp program.

Massachusetts Board of Higher Education Improving Teacher Quality (2007-2008). Principal Investigator with Co-Principal Investigator Bill Gerace. Improving Teacher Quality through an Integrated Technology-based Physics Curriculum. Grant award of $49,973. In this grant project, I developed and implemented a robotics-based physics curriculum in collaboration with Dr. Bill Gerace and four science teachers from the Holyoke and Springfield Public School Districts. I also conducted both qualitative and quantitative research to investigate student collaborative problem solving and creativity in a robotics design context and to examine issues related to teacher's pedagogical beliefs and technology integration.

Commonwealth Information Technology Initiative (2007). Co-Principal Investigator with Southern Berkshire Regional School District. Thinking and Reasoning with Robotics. Grant award of $49,094. The purpose of this qualitative and quantitative study is to investigate the development of cross-curricular applications of robotics technology in the middle school classroom, with a special emphasis on issues related to teacher's pedagogical beliefs and technology integration.

Massachusetts Girls Collaborative and the School of Education at the University of Massachusetts, Amherst (2006). Principal Investigator. Learning by Design: Crickets, Creativity, and Computer Science. Grant award of $2,000. The purpose of this qualitative research study was to investigate student learning of the process of design through engagement in a robotics curriculum.

Commonwealth Information Technology Initiative (2006). Co-Principal Investigator with Sue Mackler. Pioneer Valley Information Technology Across the Curriculum: Robotics, Design, and Collaborative Learning with Information Technology Professional Development Project. Grant award of $28,500. The purpose of this qualitative research study was to understand teacher's experiences with learning how to teach with robotics using the discovery learning method.

New Visions for Public Schools/J.P. Morgan Chase, Champions of Active Learning (2002) - Co-Principal Investigator with Joseph Negron, Collaborative and Active Learning in Science. Grant award of $15,000. The purpose of this qualitative research study was to investigate student collaborative learning in a science context using advanced learning technologies.

Funded – Internal (Total Awards = $72,056.00 USD)

UMass, Amherst College of Education (2017-2018) - Innovations that Help People: A Middle School Computer Science Curriculum – Principal Investigator. The purpose of this study is to develop, implement, and conduct research on the efficacy of a middle school computer science education curriculum aimed at interesting girls in the field of computer science. I seek to educate girls about the use of CS in society to help others and

to teach girls basic CS concepts. This approach is career-centric and appropriate for this age group. The grant seeks $14,426.00 over one year.

UMass, Amherst, Continuing and Professional Education Innovation Fund (2017) - Competitively awarded $5,000.00 to support the design and development of the online course Creativity, Technology, and Learning. This course will serve as a foundational one in the Design and Making with Digital Media Online Certificate for In-Service teachers that is currently being developed in the Learning, Media, and Technology program.

UMass, Amherst, Teaching Excellence and Faculty Development (2017). Awarded $500.00 as a flex grant to support my teaching efforts. I have used these funds to purchase LEGO robotics equipment to assist me in the teaching of my service learning course, "Service Learning and Teaching with Computational Media." This course brings UMass undergrads and Masters students into the Holyoke Community to facilitate after and out of school computational media learning programs.

UMass, Amherst College of Education and College of Natural Sciences Research Fellowship (2015) – Co-principal Investigator with R. Craig Albertson (Principal Investigator, Biology), Norman Johnson (Co-PI, Biology) and Dave Hart (Co-PI, Center for Educational Software Development)– Evo-Devo's Book of Origin Stories, $15,000.00. This funding supports the development and pilot study of an evolutionary developmental biology simulation focused on genetic mutations that result in phenotypic changes over long periods of time.

UMass, Amherst Office of Faculty Development Flex Grant. (2014). Received a $500.00 grant from the Center for Teaching in order to buy supplies to assist in teaching. I directed the funds to purchase the latest LEGO robotics kits for teaching my service learning class.

UMass, Amherst School of Education Research Fellowship (2012-2013) – Principal Investigator– Computational Literacy and Arts in Virtual Environments, $5,374.00 over a one-year period. This funding supports data analysis and the writing of a research report related to the CLAVE project (see below).

UMass, Amherst School of Education Research Fellowship (2011-2012) – Principal Investigator with Co-Principal Investigator Claire Hamilton – Computational Literacy and Arts in Virtual Environments (CLAVE), $10,242.00 over a one-year period. This research project investigates the impact of worked examples made available through an online community on student learning in a computational media environment.

UMass, Amherst School of Education Research Fellowship (2010-2011) – Principal Investigator with Co-Principal Investigators Claire Hamilton and Rich Lapan - Developing Middle School Students' Interest in Information Technology Careers through an Arts-Based, Computer Science Curriculum, $9,714.00 over a one-year period. This research project focuses on developing, implementing and evaluating the effectiveness of

an arts-based digital media curriculum on Latino/a students' interest in careers in the field of Information Communications and Technology.

University of Massachusetts, Amherst (2009). Office of Research Affairs Research Support Fund Grant: $800.00. Grant awarded to help me complete research work on the role of playful talk and a shared youth culture on repairing group relations in small group collaborations in a sixth grade science classroom.

University of Massachusetts, Amherst. (2009) Office of Faculty Development Flex Grant for Teaching/Faculty Development: $500. This grant allows me to extend my knowledge of Final Cut Pro – a professional video editing software package, through hiring a highly knowledgeable graduate student to assist me on a video editing project.

University of Massachusetts, Amherst (2008-2009). Mellon Mutual Mentoring Grants: Funded by The Andrew W. Mellon Foundation, $10,000. This grant was awarded to the Scholarly Writing and Networking (SWAN) group in the Teacher Education and Curriculum Studies Department at UMass, Amherst. I am a member of SWAN. My participation on this grant includes working closely with other junior faculty by reading and providing feedback on their scholarly writing in both a peer and near-peer capacity. I also receive feedback on my work from my colleagues and the writing coach hired on the grant.

CONSULTING & ADVISORY BOARDS

National Science Foundation (2019 – 2021) – Advisory Board Member: Principal Investigator, Stacie Ringleb, Co-Principal Investigator Jennifer Kidd, Oilar Pazos-Lago, Orlando Ayala, & Kristie Gutierrez. Improving Undergraduate STEM Education; A Service-Learning Partnership to Enhance Engineering Education and Elementary Pre-service Teacher Education for Undergraduates. Advise PI and Co-PIs on project activities, including research methods and learning assessment.

National Science Foundation (2016-2018) – Advisory Board Member: Principal Investigator, Ivon Arroyo and Co-Principal Investigators Kathy Fisler & Erin Ottmar, Worcester Polytechnic Institute. EAGER: Developing Computational Thinking by Creating Embodied Games: Programming Wearable Devices as Finite State Machines - $299, 949. Cyberlearning and Future Learning Technology. Advise PI and Co-PI's in developing methods for assessing students' computational thinking as it manifests in game creation activities.

National Science Foundation - Pair Programming: Under What Conditions is it Advantageous for Middle School Students? Advisory Board Member: Principal Investigator: Dr. Jill Denner, Educational Training and Research Associates, Scotts Valley, CA, 2014 -2017. I serve as an advisor to the **NSF** funded educational research project on pair programming.

Curriculum Development – Introduction to the Learning Sciences Syllabus – Sub Contract with Contractor A. Lin Goodwin, Foundation for Quality Education, Warsaw, Poland. Design of the Polish Graduate School of Education: curriculum development, faculty development, technical assistance. June, 2014.

Connections After-School Program, Holyoke Public School District, Holyoke, MA. Professional Development Consultant: Conducted professional development workshop on robotics technology, 2007

Mohawk Trails Regional School District, Shelburne Falls, MA. Professional Development Consultant: Conducted professional development workshops on a robotics curriculum, 2007

Brookings Museum School, Springfield, MA. Professional Development Consultant: Developed and conducted professional development workshops on integrating robotics into the curriculum, 2006

Vision Education, New York, NY. Consultant: Developed and taught after school robotics projects both in New York City public schools and at the Washington College, Chestertown, MD campus of Johns Hopkins University's Center for Talented Youth summer camp, 2004 - 2005

Universidad Metropolitana, Cararcas, Venezuela. Instructional Design Consultant: Consultant to the Coordinator of the Aprendizaje Colaborativo en Ambientes Distribuidos (AcAd). Revised instructional design workshop and advised on issues related to the integration of technology and the campus-wide adoption of the Modelo Educativo de AcAd, 2002

Open Society Institute, Budapest, Hungary. Instructional Design Consultant: Developed and delivered a short course in E-learning as part of the Teachers College course Qualitative Research in International Education: Program Evaluation. The short course was given in the Republic of Moldova to 16 Eastern European and Central Asian employees of The Open Society Institute, 2002.

FELLOWSHIPS AND AWARDS

Inspire CS AI Fellowship – MIT, Teaching Systems Lab – 2019-2020
The Inspire CS AI Fellowship is awarded through a grant made to the MIT-based, Teaching Systems Lab. Twelve teacher educators involved in computer science education for pre-service or in-service teachers from around the United States were selected as fellows to take part in a year-long project aimed at developing equity-based case studies of CS learning moments in classrooms. The goal is to develop expertise and capacity at the teacher education level for creating equity-based pedagogical approaches in K-12 CS learning settings.

Exceptional Merit Award – University of Massachusetts, Amherst – 2015

The exceptional merit award is made by the University of Massachusetts, Amherst Provost in recognition of a "remarkable record of accomplishment." Recipients are selected in a competitive process that involves nominations from the Department Chair which are submitted to the College/School Personnel Committee, assessed by the Dean, and reviewed by the Provost. The final decision is made by the Provost in consultation with the twelve-member Provost's Advisory Council composed of distinguished colleagues from each of the colleges/schools at UMass Amherst.

Civic Engagement and Service Learning Faculty Fellowship – 2014
This fellowship was awarded by the office of Civic Engagement and Service Learning at UMass, Amherst. Faculty fellows engage in the year-long development of civic engagement and service learning courses for students in their respective disciplines. Faculty Fellows are awarded $1,000 for their participation in the program.

International Conference of the Learning Sciences, Early Career Consortium - 2008. Competitively selected to participate in the early career consortium. Award of $1,325. Bi-Annual Meeting of the ICLS, Utrecht, The Netherlands.

American Educational Research Association, Division C - Learning and Instruction - 2007**.** Competitively selected to participate in the new faculty mentoring program. Stipend of $100. Annual Meeting, Chicago, Illinois,

Carnegie Scholar Researcher Assistant, 2003-2005
Teachers College, Columbia University
Assistant to Dr. Xiaodong Lin, Carnegie Scholar research project
Images of Good Students and Good Classrooms: Enhancing Teacher Awareness of Their Own and Student Cultural Beliefs

National Science Foundation Doctoral Fellow, 2001-2004
Competitively selected to participate in the Teachers College and the Fu School of Engineering at Columbia University GK12 Grant Research Project. Stipend and Tuition of $84,000.00 over three years.

Refereed Presentations

(*doctoral or masters student co-authors)

***Sullivan, F.R.,** Suárez, E.A., Pekatas, E., & Duan, L. (2020). Developing pedagogical practices that support disciplinary practices when integrating computer science into elementary school curriculum. Paper presentation at the annual meeting of the International Conference of the Learning Sciences, Nashville, TN, June 19 – 23, 2020.

Sullivan, F.R., Denner, J., Ryoo, J. & Veeragoudar, S. (2020). Problems of practice: Keeping the focus on equity in your RPP. Conveners of a pre-conference workshop at the annual meeting for Research on Equity and Sustained

Participation in Engineering, Computing, and Technology (RESPECT), Portland, OR, March 11-12, 2020.

Sullivan, F.R., & Veeragoudar, S. (2020). "E"quity and "e"quity in the campaign for cs for all: transforming curriculum, professional development and people. Presentation at the annual meeting for Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT), Portland, OR, March 11-12, 2020.

Fein, E., Hoffman, B., Pasquale, A., **Sullivan, F.** (2020) Co-robotics curriculum: robotst, drones, + humans. Poster presentation at the annual meeting of the Computer Science Teachers Association, Arlington, VA, July 11 – 15.

Fein, E., Hoffman, B., Pasquale, A., **Sullivan, F.** (2020) Co-robotics curriculum: robotst, drones, + humans. Poster presentation at the annual meeting of the International Society for Technology in Education, Anaheim, CA, June 28 – July 1, 2020.

Allessio, D. Woolf, B.P., Accurso, K., Zuo, X., Caccamo, N., Arroyo, I., & **Sullivan, F.** (2020) Animated pedagogical agent design and augmented collaborative learning. Paper presentation at the Artifical Intelligence in Education annual meeting, Ifrane, Morocco, July 6-10, 2020.

Vivian, R., Franklin, D., Frye, D., Peterfreund, A., Ravitz, J., & **Sullivan, F.** (2020). Evaluation and assessment needs of computing education in primary grades. Paper presentation at the annual meeting of the Innovation and Technology in Computer Science Education conference, Trondheim, Norway, June 15 -19, 2020.

***Sullivan, F.R.,** Tulungen, C., Pektas, E., & Adrion, W.R. (2020). Teacher co-design of scforall curriculum at the elementary level: two case studies. Submitted to the American Educational Research Association 2020 Annual Meeting.

Sullivan, F.R., Bevan, K., Zeitz, M. (2020). Problems of scale: Reflections on the first year of a large-scale CSforAll RPP. In symposium Impacting School and Districtwide Policies for Computer Science Education: Collaborations to Create Actionable Data, Chair Jean Ryoo. Submitted to the American Educational Research Association 2020 Annual Meeting.

***Sullivan, F.R.,** Söken, A., Yildiz, O. (2020). Coordination in small group collaborations in an all-girl robotics workshop: The role of technology. Submitted to the American Educational Research Association 2020 Annual Meeting.

***Sullivan, F.R.,** Veeragoudar, S., Tulungen, C., Pektas, E. (2019). Supporting elementary teacher's reflections on equity in cs education. Presentation at the International Computer Education Research Annual Conference, Aug 12-14, 2019, Toronto, Canada.

*__Sullivan, F.R.,__ Söken, A., Yildiz, O. (2019). Robotics and science inquiry: the affordances of sensors for learning about data. *Paper Presentation at the Annual Conference of the American Educational Research Association.* April 5-9, 2019, Toronto, Ontario, CA

__Sullivan, F.R.,__ Poza, R., Cohen, C. & Söken, A. (2018). Innovations that help people: A secondary school computer science curriculum. *Connected Learning Summit, MIT Media Lab, Cambridge, MA* Aug 1-3, 2018.

__Sullivan, F.R.,__ Keith, P.K., Söken, A., & Pham, D. (2018). Learning to think computationally: Comparative outcomes of a robotics workshop for girls. *International Conference on the Learning Sciences bi-annual meeting, London, UK,* June 23-27, 2018.

*Keith, P.K., & **Sullivan, F.R.** (2018). Exploring the relationship of emergent roles, collaboration and computational thinking in educational robotics. *Paper Presentation at the Annual meeting of the American Educational Research Association.* April 13-17, 2018, New York, New York.

__Sullivan, F.R.__ & P. Kevin Keith (2018). Computational thinking and doing with robotics in an all-girl workshop setting. *Paper Presentation at the Annual meeting of the American Educational Research Association.* April 13-17, 2018, New York, New York.

__Sullivan, F.R.__ & Keith, P.K. (2017). Emergent roles, collaboration and computational thinking in the multi-dimensional problem space of robotics. *Paper session presented at the 2017 meeting of the International Conference on Computational Thinking Education, Hong Kong, PRC July 13 – 15, 2017.*

__Sullivan, F.R.__ Poza, R., & Keith, P.K. (2017, June). *Girls, robotics learning and internalized stereotypes: is there a relationship?* Poster session presented at the 2017 Bi-Annual Meeting of Computer Supported Collaborative Learning, Philadelphia, Pennsylvania..

__Sullivan, F.R.__ & Keith, P.K. (2017, June). Using sequential analysis to characterize the relationship between role, collaboration, and computational thinking. In S. Campe, (Chair), *The social side of computer programming among children: Interactions that promote or undermine learning and collaboration across gender & culture.* Symposium conducted at the annual meeting of the Jean Piaget Society, San Francisco, CA.

__Sullivan, F.R.,__ Keith, P.K., & Poza, R. (2016). Internalized stereotypes: do they play a role in girls' robotics learning? *Poster presentation to the annual meeting of the American Educational Research Association, Washington, DC, April 8-12, 2016.*

__Sullivan, F.R.,__ Keith, P.K., & Wilson, N.C. (2016). Learning from the periphery in a

collaborative robotics workshop for girls. *Paper presentation to the annual meeting of the American Educational Research Association, Washington, DC, April 8-12, 2016.*

***Sullivan, F.R.,** Fall, R., Sullivan, K., & Keith, K. (2016). Girl's connect: Investigating girl's collaborative learning in a robotics setting. *Presentation at the Collaborative for Educational Services Annual Technology in Education Conference. Holyoke, MA, January 14, 2016.*

***Sullivan, F.R.,** Keith, P.K., & Wilson, N.C. (2015). Examining power relations in an all girl robotics learning environment. *Interactive Data Analysis Special Session facilitated at the 2015 Bi-Annual Meeting of Computer Supported Collaborative Learning, Gothenburg, Sweden, June 7 – 11, 2015.*

***Sullivan, F.R.,** Adrion, W.R. & Keith, P.K. (2015). Microgenetic learning analytics: A computational approach to research on student learning. *Paper presentation at the annual meeting of the American Educational Research Association, Chicago, IL, April 16-20, 2015.*

***Sullivan, F.R.,** & Barbosa, R.G. (2014). Collaborative creativity: learning and teaching towards generative justice. *Paper presentation at the Generative Justice Conference, Rensselaer Polytechnic Institute, Troy, NY – June 27-28, 2014.*

Sullivan, F.R., Turner, K.C.N. Adrion, R.A., Hill, C.N., Hart, D. & (2014). Cross-referencing to co-construct knowledge about global heat transfer in an online learning environment. *Paper presentation at the annual meeting of the American Educational Research Association, Philadelphia, PA, April 3- 7, 2014.*

Sullivan, F.R., (2014). Microgenetic learning analytics. *Poster presentation at the annual meeting of the American Educational Research Association, Philadelphia, PA, April 3- 7, 2014.*

Sullivan, F.R., Turner, K.C.N. Adrion, R.A., Hill, C.N., & Hart, D. (2013). Multiple representations, collaboration and student reasoning: Designing online environments for learning about global heat transfer. *Poster presentation at the 2013 annual meeting of the National Association of Research in Science Education, Rio Grande, Puerto Rico, April 6-9, 2013.*

***Sullivan, F.R.,** Hamilton, C.E. & Foley, A. (2012). Scratch: an entrée into computational literacy and learning in young adolescents. *Roundtable presentation at the annual meeting of the American Educational Research Association, Vancouver, Canada.*

***Sullivan, F.R.** & Shipe, S. (2012). Gender, socialization and online discourse patterns in a high school physics class. *Roundtable presentation at the annual meeting of the American Educational Research Association, Vancouver, Canada.*

***Sullivan, F.R.,** Hamilton, C.E. & Foley, A. (2012). Shared genre interests: How students learn together with Scratch. *Paper presentation at the 33rd Annual Ethnography in Education Research Forum, University of Pennsylvania, Philadelphia, PA.*

Sullivan, F.R. & Turner, K.C.N. (2011). Designing for multimodal literacy in virtual worlds. *Paper presentation at the 2011 annual conference of the American Educational Research Association, New Orleans, LA.*

Sullivan, F.R. & Turner, K.C.N. (2010). Multimodal literacy in multi-user virtual environments. *Paper presentation at the 5th International Conference on Multimodality, Sydney, Australia*

***Sullivan, F.R.,** Hamilton, C.E. & Wilson, N. (2010). Playful talk and creative social interactions in online learning environments. *Paper presentation at the Northeast Educational Research Association Annual Conference, Rocky Hill, CT.*

***Sullivan F.R.,** & Wilson, N. (2010). Repairing collaborative group relations through playful talk and a shared youth culture. *Paper presentation at the annual conference of the American Educational Research Association, Denver, CO.*

Sullivan, F.R. (2009). Dialogic creativity: Tracing the development of creative ideas in small group collaborations. *Poster presented at the annual conference of the American Educational Research Association, San Diego, CA.*

***Sullivan, F.R.,** Hamilton, C.E., Allessio, D., Deschamps, A., Sinclair, A., Vargas, G., Wilson, N., Zhu, Y. (2009). *"*Let's build an obstacle course!"- Examining the evolution of chat as a learning environment. *Paper presented at the annual conference of the American Educational Research Association, San Diego, CA.*

***Sullivan, F.R.,** Hamilton, C.E., Allessio, D., Deschamps, A., Sinclair, A., Vargas, G., Wilson, N., Zhu, Y. (2009). Collaborative problem solving in synchronous computer mediated com*munication environments: Exploring the evolution of chat as a speech genre. Paper presented at the annual conference of the New England Educational Research Organization, Portsmouth, NH.*

Sullivan, F.R., (2008). Teaching and learning in second life: A self-study of using emerging technologies in university teaching. *Paper presented at the annual conference of the American Educational Research Association, New York, NY.*

Sullivan, F.R., & Lin, X.D. (2008). Social mental models and problem solving. *Poster presented at the annual conference of the American Educational Research Association, New York, NY.*

Hong, H.Y., & **Sullivan, F.R.** (2008). Towards an innovation-oriented instructional design to support learning as knowledge creation. *Paper presented at the 2008 Bi-Annual Meeting of the International Society for the Learning Sciences, Utrecht, The Netherlands.*

Sullivan, F.R., Moriarty, M.A., and Griffin, T.Z. (2007). Discovery learning and robotics instruction: Teacher reflections on the process. *Paper presented at the annual conference of the American Educational Research Association, Chicago, IL.*

*O'Brien, P., Roberts, T., & **Sullivan, F.R.** (2007). Effective teaching methods for student directed learning in an informal environment. *Paper presented at the annual conference of the New England Educational Research Organization. Portsmouth, NH.*

Sullivan, F.R. (2006). Robotics and science literacy: Exploring the potential of the robotics curriculum. *Poster presented at the annual conference of the American Educational Research Association, San Francisco, CA.*

Sullivan, F.R. and Lin, X.D. (2006). The ideal science student and problem solving. *The Seventh Bi-Annual meeting of the International Conference of the Learning Sciences, Bloomington, IN.*

Sullivan F.R. (2004). Science student traits, nature of science beliefs, and problem solving in a robotics environment: An exploratory study. *Paper presented at Gigabytes, Ghouls, and Grad Students: The first CCTE doctoral conference on education and technology. Teachers College, Columbia University.*

Sullivan, F.R. (2003). Student agency and software functionality: Shaping discourse in the synchronous chatroom. *Paper presentation, American Association for Applied Linguistics Annual Conference, Washington, DC.*

Sullivan, F.R. (2002). E-Learning and international education: Fulfilling the promise of the virtual classroom. *Poster presentation, Association for the Advancement of Computing in Education Annual E-Learning Conference, Montreal, Canada.*

Sullivan, F.R. (2002). Classroom culture and online learning: The effects of historicity. *Paper presentation, Virtual University Conference, Teachers College, New York, NY.*

Sullivan, F.R. (2001). Student strategies in the online classroom. *Paper presented at the Association for Education Communication and Technology Annual Conference, Atlanta, GA.*

Sullivan, F.R. (2001). Constructing the online classroom: Conversational analysis of a synchronous chat. *Paper presented at the Association for the Advancement of Computing in Education Annual International EdMedia Conference, Tampere, Finland.*

Sullivan, F.R. (2001). Policy implications of computer usage and computer training: Program effectiveness for women of color. *Poster presentation, Institute for Women's Policy Research's Annual Conference Washington, DC.*

Invited Presentations

Sullivan, F.R. (2018). Examining the Special Affordances of Robotics for Enabling Computational Thinking in Collaborative Learning Settings. Interactive lecture delivered to the Faculty and Students in the College of Education at the University of Hong Kong, October 29, 2018.

Sullivan, F.R. (2018). Examining the Multi-dimensional Learning Affordances of Robotics for Computational Thinking. Keynote address delivered at the Seminar on Computational Thinking in Education held at the Education University of Hong Kong, October 26, 2018.

Sullivan, F.R. (2018). How the Multi-dimensional Problem Space of Robotics Supports the Development of Computational Thinking in Adolescents. The Learning Sciences Speaker Series, Boston University, October 16, 2018.

Sullivan, F.R. (2018). Computational thinking and doing with robotics. *Video presentation at the 2018 STEM for all video showcase: Transforming the educational landscape.* Online at http://videohall.com/p/1139.

Sullivan, F.R. (2017). Microgenetic learning analytics: Exploring computational means to support research on collaborative learning. *Invited Lecture presented at the Computational Social Science Institute Weekly Seminar Series ,UMass, Amherst, Amherst, MA, October 6, 2017.*

Sullivan, F.R. (2017). Microgenetic learning analytics: Towards computational means for supporting research on student learning with robotics. *Presentation to the UMass Cognitive Science Workshop hosted by the UMass Cognitive Science Institute, Amherst, MA, February 3, 2017.*

Sullivan, F.R. (2016). Microgenetic learning analytics. *Roundtable presentation at The Center for Innovative Research in Cyberlearning's annual meeting, Cyberlearning, 2016. Arlington, VA, June 5-6, 2016.*

Sullivan, F.R. (2016). Microgenetic learning analytics. *Gallery Walk presentation at The Center for Innovative Research in Cyberlearning's annual meeting, Cyberlearning, 2016. Arlington, VA, June 5-6, 2016.*

Sullivan, F.R. (2016). Learning in an all-girl robotics workshops: Roles and relations. *NSF 2016 Teaching and Learning Video Showcase, Online at: http://stemforall2016.videohall.com/presentations/665*

Sullivan, F.R. & Wilson, N.C. (2016). Playful talk: Negotiating opportunities to learning in collaborative groups. *A video presentation published by Taylor and Francis, Online at:* https://vimeo.com/167275136

Sullivan, F.R. (2015). Online learning and teaching. *Lecture presentation made to visiting administrators taking part in the Community College Administrator Program for Pakistan.* The program was hosted by the Institute for Training and Development in Collaboration with Holyoke Community College and the University of Massachusetts, Amherst. October 19, 2015, Amherst, MA.

Sullivan, F.R. (2015). Microgenetic learning analytics. *NSF 2015 Teaching and Learning Video Showcase, Online at http://resourcecenters2015.videohall.com/presentations/469 May 11-15, 2015.*

Sullivan, F.R., Hart, D., Adrion, R., Turner, K.C.N., & Hill, C. (2013). Cross Referencing to Co-Construct Knowledge about Global Heat Transfer in an Online Learning Environment: Learning with Multiple Visualizations. *Research presentation given at the STEM Education Institute, University of Massachusetts, Amherst.*

Sullivan, F.R. (2010). Serious and playful inquiry: Epistemological aspects of collaborative creativity. *Research presentation given to a delegation of School of Education Deans from East China Normal University visiting at Teachers College, Columbia University.*

Sullivan, F.R. (2010). Collaborative dialogic inquiry: Tracing the development of a creative idea in small group interaction. *Research presentation given at the STEM Education Institute, University of Massachusetts, Amherst*.

Sullivan, F.R. (2009). Why use technology in the classroom? An epistemological rationale. *Keynote speech given at the New Hampshire Department of Education annual technology conference, Meredith Bay, New Hampshire.*

Sullivan, F.R. (2009). Representational guidance and student engagement: Examining the relationship of representational design to student collaborative problem solving in three chat environments. *Paper presented to the Center for International Education, University of Massachusetts, Amherst.*

Sullivan, F.R. (2007). Learning through building and programming: Thinking and reasoning with robotics. *Paper presented at the STEM Education Institute, University of Massachusetts, Amherst.*

Sullivan, F.R. (2006). Educational Technology: A workshop for K-12 teachers interested in bringing a more global perspective to their classrooms. *Sponsored by the*

Massachusetts Global Education Consortium at Framingham State College and Global Horizons at the Center for International Education at the University of Massachusetts, Amherst.

Sullivan, F.R. (2006). Women in Information Technology Panelist. *Sponsored by the Information Technology minor at UMass, Amherst. Presented a brief talk to a group of 75 undergraduate women at the University of Massachusetts, Amherst regarding the opportunities for women in the field of information technology.*

PROFESSIONAL SERVICE AND OUTREACH

Editorial Activities

Guest Editor
Computer Science Education Special Issue - Creating Inclusive Learning Environments: Participation in Computer Science (2019-2020).

Associate Editor
ACM Transactions on Computing Education – (2016 – present)

Editorial Board Member
Research and Practice in Technology Enhanced Learning (RPTEL) – (2019 – 2021)
International Journal of Smart Technology and Learning – (2014 – 2015)
Journal of Research in Science Teaching – (2011-2014);

Manuscript reviewer for leading journals
ACM Transactions on Computing Education (2012-2016)
British Journal of Educational Technology (2017-present)
Cogent Education (2016-present)
Equity and Excellence in Education (2008)
International Journal of Science Education (2012 - present)
Journal of the Learning Sciences (2007-2015)
Journal of Research in Childhood Education (2020)
Journal of Research in Science Teaching (2006-2012)
Journal of Science Education and Technology (2016)
Journal of STEM Education (2011)
Psychology of Learning and Teaching (2011)
Science Education (2008-2016)
Technology, Knowledge and Learning (2015-2016)
The Asia-Pacific Education Journal (2019)
Thinking Skills and Creativity (2014-2016)
The Elementary School Journal (2012-2014)
Teachers College Record Online (2003-2005)

Proposal reviewer for national and international educational research meetings

Conference Co-Chair– International Conference on Computational Thinking in Education (2019-2020)
Programme Committee – International Conference on Computational Thinking in Education (2018-2019)
International Conference on the Learning Sciences (2018 and 2020) – Program Committee and Reviewer
Computer Supported Collaborative Learning Bi-Annual Conference (2015 – present)
Computer Human Interaction Conference (2015 – present)
American Educational Research Association (2005-2017)
International Conference of the Learning Sciences (2005-2009)

Reviewer Book Manuscripts
Routledge Press (2016)
Springer Press (2016)

International Grant Reviewer
Social Sciences and Humanities Research Council of Canada (2012)

Federal Grant Reviewer
National Science Foundation (2007-present)

National and International Professional Organization Service Positions
Co-Chair International Programme Committee - Conference on Computational Thinking in Education (2020)
Vice Chair - Asia Pacific Society for Computers in Education – SIG Committee (2020)
Member - World Educational Research Association, International Research Network, Computational Thinking in Education (2019 – 2022).
Past Chair, Technology as an Agent of Change in Teaching and Learning (TACTL) SIG – American Educational Research Association (AERA) (2019-2020)
Chair, Technology as an Agent of Change in Teaching and Learning (TACTL) SIG – American Educational Research Association (AERA) – (2018-2019)
Chair-Elect, Technology as an Agent of Change in Teaching and Learning (TACTL) SIG – American Educational Research Association (AERA) (2017-2018)
Program Committee, International Conference of the Learning Sciences (ICLS) – 2018
Program Committee, Computational Thinking in Education (CTE) – (2018-2019)
Program Chair, Technology as an Agent of Change in Teaching and Learning (TACTL) SIG – American Educational Research Association (AERA) (2016-2017)
Committee Member – AERA TACTL SIG – Early Career Award Committee (2015).
Treasurer-Secretary - Qualitative Research Special Interest Group – AERA (2009-2011)
Mentor – Graduate Seminar, Division C (Learning and Instruction), AERA, New Orleans, LA (April, 2011).

Regional Organizations
Advisory Board Member - Pioneer Valley Science, Technology, Engineering and Math Network (AY 2008/2009)
Advisory Board Member - Youth Action Coalition, Amherst, MA (AY 2010/2012)

University of Massachusetts

Member, Computational Social Sciences Institute (2016 – present)
Member, Steering Committee, Cognitive Science Institute (2016-present)
Member, Provost's Committee on Civic Engagement and Service Learning (2015-2017)
Member, Organizing Committee, Science for the People Conference (2013-2014)
Member, Committee on Technology (2012-2014)
Member, The Information Technology Task Force (2005-2007)
Member, The MERIT Committee Task Force (2005-2006)
Member, Search Committee Chemical Hierarchical Manufacturing Director of Diversity (2006-2007)

College of Education – University of Massachusetts

Member, Teacher Education and Curriculum Studies (TECS) Department (2005-present)
Member, Math, Science, and Learning Technology Doctoral Concentration (2006-present)
Member, Learning, Media and Technology Masters Concentration (2005-present)
Concentration Coordinator, Math, Science and Learning Technology Doctoral Program (2011, 2014, 2015-2017)
Concentration Coordinator, Learning Media and Technology Masters Concentration (2006 - present). Responsible for developing the program through creation and delivery of courses, creation of program mission, student admissions and advising.
Chair, TECS Department Personnel Committee (2016-2107)
Chair, TECS Learning Technology Faculty Search Committee (2013-2014)
Chair, TECS Governance Committee (2012-2013)
Chair, TECS Ad-hoc Personnel Committee on Technology (2009-2010)
Chair, TECS Ad-hoc Personnel Committee on Merit (2008-2009)
Member, Diversity and Social Justice Curriculum Committee (2015-2016)
Member, College of Education Academic Matters Committee (2013-2016)
Member, TECS Recruitment Committee (2009)
Member, Faculty Search Committee, Science Education Position (2010-2011)
Co-chair, Faculty Search Committee, Math Education Position (2007-2008)
Member, Department Personnel Committee (2006-2007 and 2012-2014)
Member, Scholarship Committee (2007)
Member, Faculty Search Committee, Educational Technology Position (2005-2006)

PROFESSIONAL EXPERIENCE

Multi-Media and Course Developer: The Distance Learning Project, Teachers College, Columbia University (2000-2002)

Educational Technologist and Summer Training Coordinator: Columbia Center for New Media Teaching and Learning (1999-2000)

Lead Trainer and Curriculum Development: Signature Learning Project, California State

University Monterey Bay (1998-1999)

Instructor and Curriculum Developer: Center for Employment Training, San Francisco, CA (1997-1999)

PROFESSIONAL AFFILIATIONS

American Educational Research Association (AERA) (Division C, Division G, Division K, Learning Sciences SIG, Advanced Technologies Learning SIG, Qualitative Research SIG, Applied Research in Virtual Environments for Learning SIG)	2001-present
Association of Education Communications and Technology (AECT)	2005-present
International Society of the Learning Sciences (ISLS)	2005-present
American Association of University Women (AAUW)	2011-present

WEB AND MULTIMEDIA DEVELOPMENT

Media Development
Web Development
Developed distance learning courses for the **Distance Learning Project**, Teachers College, Columbia University (2000-2002).
Developed web sites for the **Composition department in the School of General Studies** at Columbia University (1999-2000).

Video and Audio Production
(1) "Playful Talk: Negotiating Opportunities to Learn in Collaborative Groups" (2016). http://www.tandfonline.com/doi/full/10.1080/10508406.2013.839945.
(2) "Robotics and Girls' Internalized Stereotypes" (2016). Produced for the NSF 2016 STEM for All video showcase. http://stemforall2016.videohall.com/presentations/665.
(3) "Microgenetic Learning Analytics" (2015). Produced for the NSF 2015 STEM for All video showcase. http://resourcecenters2015.videohall.com/presentations/469.

Produced streaming audio and video lecture segments for courses at the **Distance Learning Project**, Teachers College, Columbia University (2000-2002).
Produced an e-lecture environment for the **Center for Outcomes and Opportunities for People with Disabilities** at Teachers College, Columbia University (2002).
Produced an informational web-based multi-media presentation for the department of **International and Transcultural Studies** at Teachers College, Columbia University (2002).

Produced an instructional computer installation video used by California teachers statewide as a part of **Smart Valley, Inc.'s** "PC Day 2" Program. Produced an orientation video for prospective participants of the **Women's Initiative for Self Employment**, a non-profit organization in SF.

Produced and co-engineered an Audio CD of my original music including all phases of production.

Sound Design for the educational CD-ROM project, **"The Muse.**