

PROFESSIONAL EXPERIENCE ASSISTANT DIRECTOR, CENTER FOR SCIENCE AND THE IMAGINATION

Arizona State University
July 2014 – Present

ASSISTANT RESEARCH PROFESSOR, MARY LOU FULTON TEACHERS COLLEGE

Arizona State University
July 2014 – Present

ENGLISH TEACHER, JAPANESE EXCHANGE AND TEACHING PROGRAM

Shima High School | Isobe, Japan
August 2003 – August 2005

EDUCATION POSTDOCTORAL FELLOW, 2011-2014

Arizona State University
Chi Learning and Cognition Lab
Advisor: Michelene T.H. Chi

PH.D., HUMAN-COMPUTER INTERACTION, AUGUST 2011

Carnegie Mellon University
Human-Computer Interaction Institute, School of Computer Science
Institute of Educational Sciences Fellow
Committee: Kenneth Koedinger (co-chair), Teruko Mitamura (co-chair), Sharon Carver, Albert Corbett, Carolyn Rose
Thesis: Examining the Generality of Self-Explanation

M.S., HUMAN-COMPUTER INTERACTION, DECEMBER 2007

Carnegie Mellon University
Human-Computer Interaction Institute, School of Computer Science

B.A. (HIGHEST HONORS), COGNITIVE SCIENCE, SPRING 2003

University of California, Berkeley
Cognitive Psychology Concentration
Minors: Computer Science, Education

RESEARCH FUNDING INCREASING LEARNING AND EFFICACY ABOUT EMERGING TECHNOLOGIES THROUGH TRANSMEDIA ENGAGEMENT BY THE PUBLIC IN SCIENCE-IN-SOCIETY

National Science Foundation
July 2015 – June 2020
Total Award: \$2,953,905 (Co-PI)

THE WEIGHT OF LIGHT: REASONING AND IMAGINING WITH PRESENT AND POSSIBLE ENERGY SYSTEMS

MLFTC and HIDA Seed Grant
January 2020 – December 2020
Total Award: \$10,000 (Co-PI)

EXP: IMPROVING STUDENT HELP-GIVING WITH UBIQUITOUS COLLABORATION SUPPORT TECHNOLOGY

National Science Foundation
August 2018 – August 2020
Total Award: \$147,570 (Sub-award PI)

THE LIVING FRANKENSTEIN

Sloan Foundation
June 2017-November 2020
Total Award: \$248,648 (Co-PI)

NARRATIVE PROJECTIONS FOR COMMERCIAL SPACE FUTURES

National Aeronautics and Space Administration
July 2015 – June 2016
Total Award: \$265,327 (Co-PI)

EAGER: TOWARDS KNOWLEDGE CREATION AND COMMUNITY BUILDING WITHIN A POSTDIGITAL TEXTBOOK

National Science Foundation
August 2014 – July 2016
Total Award: \$315,034 (Co-PI)

INTERDISCIPLINARY WORKSHOPS

As part of my research and outreach work, I facilitate interactive workshops that guide interdisciplinary teams through an imaginative process. Often these result in white papers, research publications, and books.

FUTURE OF CHILDHOOD SALON

Joan Ganz Cooney Center at Sesame Workshop
November 2018
<http://joanganzcooneycenter.org/publication/immersive-media-and-child-development/>

SOLAR FUTURES WORKSHOP

NSF Engineering Research Center for Quantum Engineering and Sustainable Solar Technologies
May 2018
<https://csi.asu.edu/books/weight/>

STRATOSPHERE NARRATIVE HACKATHON

World View Enterprises
May 2017
<https://csi.asu.edu/books/overview/>

INVENTING THE FUTURE: FUTURE OF EDUCATION

Arizona State University
November 2016
<https://asunow.asu.edu/20161115-creativity-minority-report-futurists-regroup-asu-2-days-events>

VANCOUVER BOOK SPRINT

Society for Scholarly Publishing
June 2016
<https://csi.asu.edu/category/projects/sprint-beyond-the-book/>

EVOKE NARRATIVE HACKATHON

World Bank

October 2014

<https://csi.asu.edu/books/evoke-human-trafficking/>

SERVICE EMERGE, CO-DIRECTOR. 2015, 2017, 2018, 2019, 2020

Emerge is an art and science festival that invites artists, designers, scientists, engineers and audiences to imagine optimistic, thoughtful futures.

USING SCIENCE FICTION TO TEACH STEM, JUNE 2019

Session presented at the Mary Lou Fulton Teachers College STEM Summer Camp showcasing innovative ways for Arizona educators to bridge science and engineering with the humanities.

TEC IS FOR GIRLS, MAY 2019

Presented and facilitated an interactive activity to middle school students with the goal of increasing the number of women from underrepresented groups in science, technology, engineering, and mathematics.

FUTURES BY CHANCE, FUTURES BY CHOICE, SPRING 2019

Developed and facilitated an interactive timeline activity where teams create technically grounded visions of the near future. The activity encourages thoughtful reflection on how the decisions we make today determine our possible futures.

Presented to ASU's Global Institute of Sustainability (GIOS) Board Meeting February 2019 and Wells Fargo Sustainability Board Meeting April 2019.

HERMANAS CONFERENCE, FEBRUARY 2019

Developed and facilitated an interactive activity to high school students with the goal of increasing the number of women from underrepresented groups in science, technology, engineering, and mathematics.

ADVANCED LEADERSHIP INITIATIVE, SPRING 2018

Developed a series of workshops titled *Adaptive Algorithms, Artificial Intelligence, and Real Imagination* to encourage the Advanced Leadership Initiative cohort to reflect on impacts of artificial intelligence in higher education.

STRENGTHENING INSTITUTIONAL LINKAGES, JANUARY 2017

Created a 35-hour curriculum on innovation in instructional design and the learning sciences as part of the MasterCard foundation program for visiting professors from Ghana. Topics covered include technology in the classroom, facilitating cultural change, and classroom strategies for diverse learners.

OFFICE OF STUDENT SERVICES, MARY LOU FULTON TEACHERS COLLEGE, MAY 2015

Developed an interactive imagination session for the MLFTC Office of Student Services annual retreat. Participants reflected on qualities of leadership and collaboration through a design fiction exercise.

REVIEWER

Journals. Educational Psychologist, Transactions on Learning Technologies, AI Magazine Special Issue on Intelligent Learning Technologies, International Journal of Artificial Intelligence in Education, International Journal of Learning and Technology, and Memory and Cognition

Conferences. ACM CHI Conference on Human Factors in Computing Systems, American Education Research Association, Annual Meeting of the Cognitive Science Society, Florida Artificial Intelligence Research Society, International Conference on Artificial Intelligence in Education, International Conference on Intelligent Tutoring Systems, and the International Conference of the Learning Sciences.

Grants. National Science Foundation, 2014.

RESEARCH * Indicates first author is a student. † Indicates first author is a postdoctoral scholar.
PUBLICATIONS

PEER-REVIEWED JOURNAL PAPERS

[J.6] Talbot, R. M., **Wylie, R.**, Dutilly, E., and Nielsen, R. (2018). The Relationship between Format and Cognitive Depth of Science Teacher-Generated Questions. *Research in the Schools*, 25(1), 35-46.

[J.5] Nagy, P. †, **Wylie, R.**, Eschrich, J., and Finn, E. (2018). The enduring influence of a dangerous narrative: How scientists can mitigate the Frankenstein myth. *Journal of Bioethical Inquiry*, 15(2), 279-292.

[J.4] Chi, M.T.H., Adams, J.A., Bogusch, E.B., Bruchok, C., Kang, S., Lancaster, M., Levy R., Li, N., McEldoon, K., Stump, G.S., **Wylie, R.**, Xu, D., and Yaghmourian, D.L. (2018). Translating the ICAP Theory of Cognitive Engagement into Practice. *Cognitive Science*, 42, 1777-1832.

[J.3] Nagy, P. †, **Wylie, R.**, Eschrich, J., and Finn, E. (2017). Why Frankenstein is a stigma among scientists. *Science and Engineering Ethics*, 1-17.

[J.2] Roll, I., and **Wylie, R.** (2016). Evolution and revolution in artificial intelligence in education. *International Journal of Artificial Intelligence in Education*, 26(2), 582-599.

[J.1] Chi, M.T.H. and **Wylie, R.** (2014). The ICAP framework: Linking cognitive engagement to active learning outcomes. *Educational Psychologist*, 49(4), 219-243.

BOOK CHAPTERS

[B.3] **Wylie, R.**, and Finn, E. (2019). Foreword. In Sobel, K., Immersive Media and Child Development: Synthesis of a Cross-Sectoral Meeting on Virtual, Augmented, and Mixed Reality and Young Children (p. 4). New York: Joan Ganz Cooney Center at Sesame Workshop.

[B.2] Walker, E., **Wylie, R.**, Danielescu, A., Rodriguez, J., and Finn, E. (2017). Balancing Student Needs and Learning Theory in a Social Interactive Postdigital Textbook. *End-User Considerations in Educational Technology Design*, 141-159.

[B.1] **Wylie, R.** and Chi, M.T.H. (2014). Self-explanation in multimedia learning. In R. Mayer (Ed.) *The Cambridge Handbook of Multimedia Learning, 2nd Edition*. Cambridge University Press, pp. 413-432.

REFEREED CONFERENCE PAPERS

- [C.12] Ahmed, I.*, Masasi, A., Wang, S., **Wylie, R.**, Bergner, Y., Whitehurst, A., and Walker, E. (2019). Investigating Help-Giving Behavior in a Cross-Platform Learning Environment. In *International Conference on Artificial Intelligence in Education*. Chicago, USA. June 25-29, 2019.
- [C.11] Ahmed, I. *, Girotto, V., Mawasi, A., Whitehurst, A., **Wylie, R.**, and Walker, E. (2019). Co-Design for Learner Help-Giving Across Physical and Digital Contexts. In *International Conference on Computer Supported Collaborative Learning*. Lyon, France. June 17-21, 2019.
- [C.10] Wang, S. *, Walker, E., and **Wylie, R.** (2017). What Matters in Concept Mapping? Maps Learners Create or How They Create Them. In *International Conference on Artificial Intelligence in Education*. Wuhan, China. June 28-July 1, 2017. **Nominated for Best Paper.**
- [C.9] Dalal, M. *, **Wylie, R.**, and Walker, E. (2016). Using a Systematic Review for Cross-Theory Comparisons. In *International Conference of the Learning Sciences*. Singapore. June 20-24, 2016.
- [C.8] Walker, E., Chakravarthi, R., Rodriguez, J., and **Wylie, R.** (2015). Promoting interaction by integrating a question and answer forum with a digital textbook. In *International Conference on Computer Supported Collaborative Learning*. Gothenburg, Sweden, June 7-11, 2015.
- [C.7] Wang, S. *, Walker, E., Chaudhry, R., and **Wylie, R.** (2015). Personalized expert skeleton scaffolding in concept map construction. *Artificial Intelligence in Education*. Madrid, Spain. June 22-26, 2015.
- [C.6] Paiva, F. *, Glenn, J., Mazidi, K., Talbot, R., **Wylie, R.**, Chi, M.T.H., Dutilly, E., Holding, B., Lin, M., Trickett, S., and Nielsen, R.D. (2014). Comprehension SEEDING: Comprehension through self-explanation, enhanced discussion, and inquiry generation. Twelfth International Conference on Intelligent Tutoring Systems. Honolulu, USA. June 4-9, 2014.
- [C.5] Roscoe, R.D., Gutierrez, P.J., **Wylie, R.**, and Chi, M.T.H. (2014). Evaluating lesson design and implementation within the ICAP framework. *International Conference of the Learning Sciences*. Boulder, USA. June 23-27, 2014.
- [C.4] **Wylie, R.**, Koedinger, K., and Mitamura, T. (2010). Extending the self-explanation effect to second language grammar learning. *International Conference of the Learning Sciences*. Chicago, USA. June 29-July 2, 2010.
- [C.3] **Wylie, R.**, Koedinger, K., and Mitamura, T. (2010). Analogies, explanation, and practice: Examining how task types affect second language grammar learning. Tenth International Conference on Intelligent Tutoring Systems. Pittsburgh, USA. June 14-18, 2010.
- [C.2] **Wylie, R.**, Koedinger, K., and Mitamura, T. (2009). Is self-explanation always better? The effects of adding self-explanation prompts to an English grammar tutor. *Cognitive Science*. Amsterdam, The Netherlands. July 29-August 1, 2009.
- [C.1] **Wylie, R.**, and Shih, B. (2009). Active vs passive training for educational software. *Cognitive Science*. Amsterdam, The Netherlands. July 29-August 1, 2009.

WORKSHOP PAPERS, POSTERS, AND CONFERENCE PRESENTATIONS

- [W.17] **Wylie, R.** and Finn, E. (2018). Frankenstein Laboratory for Innovation and Fantastical Exploration. Interactive demonstration at the International Conference on Artificial Intelligence in Education. London, England.

[W.16] Ostman, R. and **Wylie, R.** (2018). Frankenstein 200: Transmedia Learning in Creativity and Responsible Innovation. Interactive demonstration at the Museums and the Web 2018 conference. Vancouver, Canada.

[W. 15] Wylie, R. and Gershenfeld, A. (2017). Designing the Future. Presented at Ed Foo, an unconference organized by Google, Macmillan Learning, O'Reilly Media, Scientific American, and Sesame Workshop. Menlo Park, USA.

[W.14] Nagy, P[†], **Wylie, R.**, Eschrich, J., and Finn, E. (2017) What can scientists learn from Victor Frankenstein? Presented at the *Annual Meeting of the Society for Social Studies of Science*. Boston, USA.

[W.13] Finn E., **Wylie, R.**, and Nagy, P. (2016). Frankenstein and transmedia storytelling: Building engagement and efficacy in science, technology, and society. *Fourth Annual Conference on Governance of Emerging Technologies: Law, Policy, and Ethics*. Tempe, USA.

[W.12] Wang, S. *, Walker, E., and **Wylie, R.** (2016). Analyzing Frequent Sequential Patterns of Learning Behavior in Concept Mapping. *Presented at the EDM 2016 Workshop on Educational Data Analysis Using LearnSphere*. Raleigh, USA.

[W.11] **Wylie, R.** and Hawkins, R. (2015). An artist, author, and expert walk into a bar: Using Multidisciplinary Teams to develop narrative-based games. Workshop on Digital Games for Education at the *mEducation Alliance Symposium*. Washington DC, USA.

[W.10] **Wylie, R.**, Xu, D., Kang, S. and Chi, M.T.H. (2013). ICAP in action: Translating a theory of cognitive engagement to increased classroom learning. *European Association for Learning and Instruction*. Munich, Germany.

[W.9] **Wylie, R.**, Chi, M.T.H., Talbot, R., and Nielsen, R. (2013) Comprehension SEEDING: Using technology to enhance self-explanation, classroom discussion, and question generation. In R. Wylie & E. Walker (chairs), *Beyond problem solving: Applying lessons from intelligent tutoring to new contexts, domains, and platforms*. Symposium conducted at the annual meeting of the *American Education Research Association*. San Francisco, USA.

[W.8] Hallinen, N., Walker, E., **Wylie, R.**, Ogan, A., and Jones, C. (2009). I was playing when I learned: A narrative game for French aspectual distinctions. *Workshop Proceedings on Intelligent Educational Games at the 14th International Conference on Artificial Intelligence in Education*. Brighton, England.

[W.7] **Wylie, R.**, Koedinger, K., and Mitamura, T. (2009) Self-explaining language: Effects of adding self-explanation prompts to an ESL grammar tutor. *European Association for Research on Learning and Instruction (EARLI)*. Amsterdam, The Netherlands.

[W.6] **Wylie, R.** (2008) The Assistance Dilemma and the English Article System: Developing Intelligent Tutoring Systems for English as a Second Language. *Google Scholars Retreat*. Mountain View, USA.

[W.5] **Wylie, R.**, Koedinger, K., and Mitamura, T. (2008) Putting a/the stake in the ground: Making a priori predictions of student learning. Young Researchers track paper at the *International Conference on Intelligent Tutoring Systems*. Montreal, Canada.

[W.4] **Wylie, R.** (2007) Are we asking the right questions? Understanding which tasks lead to the robust learning of English grammar. Accepted as a Young Researchers Track paper at the *13th International Conference on Artificial Intelligence in Education*. Marina del Rey, USA.

[W.3] Walker, E., Ogan, A., and **Wylie, R.** (2006). A Tense Situation: Applying Cognitive Tutor Methodology to Ill-Defined Domains. Presentation at *EUROCALL 2006*. Granada, Spain.

[W.2] Ogan, A., **Wylie, R.**, and Walker, E (2006). Defining the ill-defined: Modeling student behavior in making aspectual distinctions. Accepted as a Student Track Paper at the 8th International Conference on *Intelligent Tutoring Systems*. Jhongli, Taiwan.

[W.1] Ogan, A., **Wylie, R.**, and Walker, E. (2006). The challenges in adapting traditional techniques for modeling student behaviors in ill-defined domains. Workshop paper at the *8th International Conference on Intelligent Tutoring Systems*. Jhongli, Taiwan.

THESES

[T.2] **Wylie R.** (2011) Examining the generality of self-explanation. PhD Thesis, Carnegie Mellon University. Committee: Ken Koedinger (co-chair), Teruko Mitamura (co-chair), Sharon Carver, Albert Corbett, Carolyn Rosé.

[T.1] **Wylie, R.** (2003) The effects of computers on cognitive assessment. Undergraduate Honors Thesis, University of California, Berkeley. Advisors: Mark D'Esposito, Jennifer Mankoff (Awarded Highest Honors).

PROJECT **THE WEIGHT OF LIGHT: A COLLECTION OF SOLAR FUTURES**
ANTHOLOGIES Editors: Joey Eschrich and Clark A. Miller
Project Directors: Ruth Wylie and Ed Finn

OVERVIEW: STORIES IN THE STRATOSPHERE
Editors: Michael G. Bennett, Ed Finn, and Joey Eschrich
Project Directors: Ed Finn and Ruth Wylie

VISIONS, VENTURES, ESCAPE VELOCITIES: A COLLECTION OF SPACE FUTURES
Editors: Ed Finn and Joey Eschrich
Project Directors: Ed Finn, Ruth Wylie, Jim Bell, and Clark A. Miller

INVITED TALKS **D.SCHOOL INVITED SPEAKER**
Applied Imagination
Stanford University | December 2019

INTERGENERATIONAL FUTURES WORKSHOP, INVITED SPEAKER
Creating Better Futures through Better Dreams
Kyoto, Japan | November 2019

SOCIAL FICTION CONFERENCE, KEYNOTE SPEAKER
How storytelling can change the world ... or at least improve education
University of California, Santa Cruz | February 2018

EMERITUS COLLEGE TWELTH ANNUAL SYMPOSIUM, KEYNOTE SPEAKER
Using Science Fiction to Improve Education
Arizona State University | November 2017

PROGRAM FOR INTERDISCIPLINARY EDUCATION RESEARCH, INVITED SPEAKER

How to Create the Future
Carnegie Mellon University | October 2017

CUBAN NEROSCIENCE CENTER, INVITED SPEAKER

Using Imagination as a Tool in the Development of Scientific Innovation
Havana, Cuba | March 2016

FORESIGHT AND TRENDS, INVITED SPEAKER

Using the Power of Collaboration to Inspire Innovation
Los Angeles, CA | October 2015

ASU + GSV, PANELIST

The Science and Science Fiction of Learning
Phoenix, AZ | March 2015

MENTORING

POSTDOCTORAL FELLOWS

Peter Nagy. Spring 2016-present.
Hannah Rogers. Fall 2015-Spring 2016.
Megan Halpern. Fall 2014-Spring 2015.

TEACHERS-IN-RESIDENCE

Deena Gould, Fall 2019-present.
Tyler Eglen, Fall 2019-present.

PHD COMMITTEE CHAIR | LEARNING, LITERACIES, AND TECHNOLOGY, ASU

Areej Mawasi. Fall 2017-present.

EdD COMMITTEE CHAIR | LEADERSHIP AND INNOVATION, ASU

Shawn Clark. 2018-present.
Margaret Dery-Chaffin. 2018-present.
Alex Davis. 2018-present.
Jeremy Moore. 2018-present.
KC Pospisil. 2018-present.
Samaneh Sadri. 2018-present.
Jennifer Treptow. 2018-present.

DOCTORAL COMMITTEE MEMBER

Gong Byong-gyu. Mary Lou Fulton Teachers College, Education Policy and Evaluation. Expected Graduation 2020.
Kaethe Selkirk. School for the Future of Innovation in Society. Graduated Summer 2019.

OTHER STUDENTS SUPPORTED THROUGH GRANT FUNDING

Adam Clark. Mary Lou Fulton Teachers College. Fall 2019-present.
Andrew Hudson. School for the Future of Innovation in Society. Summer 2019.
Shang Wang. School of Computing, Informatics, and Decision Systems Engineering. Fall 2018-Spring 2019.
Victor Giroto. School of Computing, Informatics, and Decision Systems Engineering. Fall 2018.
Mateo Pimentel. School for the Future of Innovation in Society. Fall 2017-Spring 2018.
Josh Gigantino. Arts, Media + Engineering. Spring 2016.

Jim Cunningham. Mary Lou Fulton Teachers College. Fall 2016.
Medha Dalal. Mary Lou Fulton Teachers College. January 2015-July 2016.

MASTERS COMMITTEE MEMBER

Ted Lagreid. Interdisciplinary Studies.

UNDERGRADUATE RESEARCH ADVISOR

Nshwah Ahmad. Honors Thesis. Fall 2015-Spring 2016.

Grace Kim. Honors Thesis. Fall 2015-Spring 2016.

Anette Marino. Independent Study. Fall 2014.

HIGH SCHOOL STUDENT INTERNS

Preeya Achari. Spring 2016.

Valarie Varanese. Spring 2016.

TEACHING **EDP 540/LSE 540: THEORETICAL VIEWS OF LEARNING**
Instructor. Spring 2015, Fall 2015, Fall 2016, Fall 2017. Arizona State University.

AME 494/584: SCIENCE FICTION STUDIO
Co-Instructor. Spring 2016. Arizona State University.

INTRODUCTION TO HUMAN-COMPUTER INTERACTION METHODS
Teaching Assistant. Fall 2008. Carnegie Mellon University.

INTELLIGENT TUTORING SYSTEMS
Teaching Assistant. Fall 2007. Carnegie Mellon University.