



goodlad
institute
for educational renewal

Annual Report
Oct. 1, 2017–Sept. 30, 2020



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BOTHELL



Institute Mission

The Goodlad Institute for Educational Renewal exists to promote justice-centered purposes of education by co-designing and studying processes for continuous renewal with schools, universities, and communities.

A message from the director

Now in our twelfth year at the University of Washington, the Goodlad Institute for Educational Renewal continues the collaborative work of promoting innovation in communities and schools and the preparation of educators and future leaders. I am honored to serve as the new director of the Institute and recognize the huge shoes I am filling with the retirement of the inaugural director, Dr. Tom Bellamy. As we look toward the future, I am focused on continuing the Institute's focus on educational renewal from within communities as the best hope for ethical and just futures for all young people, their families, and communities. While we recognize schools as one place where this renewal happens, we also recognize that many young people find their most profound educational experiences in their communities. Therefore, at the Goodlad Institute, we are committed to anti-racist practices and partnerships as we learn together with community partners. This report covers the period of October 2017 through September 2020.

Carrie Tzou
Professor, Science Education
University of Washington Bothell
School of Educational Studies
Director, Goodlad Institute for Educational Renewal

Who we are

Launched in 2008, the Goodlad Institute for Educational Renewal was chartered as a University-wide program and administered by UW Bothell within the Office of the Vice Chancellor for Academic Affairs. Beginning in 2018, the Institute discontinued the tri-campus partnership and is now solely dedicated to work at UW Bothell. The Institute is located on the UW Bothell campus in Husky Hall and provides work and meeting space for the Institute's principal investigators, project personnel, and graduate students. Dr. Tom Bellamy served as the founding director of the Goodlad Institute through December 2018 and transferred the directorship to Dr. Carrie Tzou effective January 2019. Kellie Holden serves as the Institute Administrator.

The Goodlad Institute for Educational Renewal honors the remarkable seventy-year career of John Goodlad and structures a collaborative framework within which his work can continue. Perhaps best known for celebrating the central importance of education in a social and political democracy, Dr. Goodlad was equally concerned with practical implementation, showing how actual school practices fall short of democratic ideals and then recommending how those gaps might be bridged.

The Goodlad Institute has grown out of over two decades of work by Dr. John Goodlad's Institute for Educational Inquiry (IEI). The IEI articulated an enduring vision of the mission of public education in a democracy and successfully pursued that agenda through an integrated strategy of coordinated local demonstrations, critical inquiry, leadership development, and professional communications.



Dr. Carrie Tzou, Director

Carrie Tzou is a professor in science education in the School of Educational Studies and a PI in the Goodlad Institute. She holds a PhD in Learning Sciences from Northwestern University and an M.S. in Teaching and Learning with a concentration in science education from Vanderbilt University. Her research has three major components, all connected with an interest in addressing issues of culture, identity, and equity in science and environmental science learning: 1) ethnographic work to understand how youth and their communities are positioned and position themselves through place-based education, 2) design-based research to design curricula to bring youths' out of school science and cultural practices into science and environmental science teaching and learning, and 3) research and design of elementary and secondary preservice teacher education that explores how to orient preservice teachers to the sophisticated learning and identities that their students construct both in and out of school in order to make science more accessible to all of their students.

Dr. Tom Bellamy, Former Director

Tom Bellamy is professor emeritus of Education at the University of Washington Bothell and the founding and former director of the Goodlad Institute. His 50 years of experience in education include work as a special education teacher, university faculty member, research center director, federal program executive, and university administrator. Tom has developed educational leadership programs for principal preparation and preparation of local special education administrators and is currently leading two leadership programs at UW Bothell, ECSEL and AIMS (see page 9). His recent scholarly work focuses on school leadership and change and has resulted in two books and several articles on the principalship.



Dr. Allison Hintz

Allison is an associate professor in the School of Educational Studies at UW Bothell. Her research and teaching focus on mathematics education. She studies teaching and learning alongside partners in formal and informal educational settings and focuses on beliefs and practices that support all children and families in lively mathematics learning. She is co-author of *Intentional Talk: How to Structure and Lead Productive Mathematical Discussions*.



Kellie Holden

Kellie is the administrator for program operations in the Goodlad Institute. She serves many functions within the organization including overseeing all aspects of the Institute's fiscal affairs, managing all grant pre- and post-award activities, and coordinating faculty effort distributions. She applies wide-ranging knowledge of funding agency requirements and university regulations to ensure compliance and effective management of the Institute's projects.



Dr. Veronica Cassone McGowan

Veronica is a research scientist and instructor at UW Bothell. She received her doctorate in Learning Sciences and Human Development from the UW Seattle where she worked as a graduate researcher for the Institute for Math and Science Education and the LIFE Center. Her research focuses on broadening participation in STEM fields, particularly K-12 engineering and computational modeling, with a focus on connecting learning across settings in ways that incorporate learners' everyday interests, identities and community knowledges as foundations for sociotechnical learning.



Nat Mengist

Nat is a research study lab coordinator in the OpenSTEM Research Group. He completed a Master's in Education Policy at the UW Seattle College of Education after receiving a Bachelors of Arts in Comparative History of Ideas, also at UW. He is also currently the Outreach Coordinator for the Comparative History of Ideas Department at UW and the Board President of The Common Acre, a 501(c)(3) organization that creates space for science and stories across cultures. Nat's research interests include facilitation design, posthuman learning, and plant consciousness.



Amy Pitt

Amy is the administrative assistant in the Goodlad Institute and provides support to all grant projects. She is responsible for routine fiscal activities including budget reconciliation, expense reports, reimbursements, and coordinating orders for project materials. Amy's role requires knowledge of University systems and adherence to the UW records retention policies.



Dr. Priya Pugh

Priya is a postdoctoral research scientist at UW Bothell and postdoctoral fellow at the University of Alaska Fairbanks. Priya received a certificate in Education for Environment and Community from IslandWood in 2011, and has directed, designed, and been a field instructor for environmental education and STEAM-focused learning programs in Seattle. Priya's research focuses on how youth, adults, and families understand and actively make sense of complex ecological phenomena, and the social and cultural influences on this sense making.

William Rasplica

William (Bill) has extensive experience in district-wide (PK-12) and school-based implementation of integrated MTSS, including the areas of universal screening, multi-level prevention systems, progress monitoring, and data-based decision making. Bill provides overall program coordination for both of the Institute's leadership programs: the ECSEL Program and the newly awarded AIMS Project. Bill retired after 18 years serving as the Executive Director of Learning Support Services for the Franklin Pierce Schools in Tacoma, WA.



Dr. Antony T. Smith

Antony, an associate professor in the School of Educational Studies at UW Bothell, has a research focus on the intersection of reading and mathematics and how exploring children's literature can help deepen comprehension, develop vocabulary knowledge, and increase motivation and engagement for students to become lifelong readers.



Elizabeth Starks

Elizabeth (Zuni/Navajo) is a research scientist in the OpenSTEM Research Group at UW Bothell. Her work as a cultural technologist and artist focuses on creating and using tools for empowerment of Indigenous communities through collaborative design processes. She co-designs with stakeholders to understand and communicate complex ideas through creative visual methods. She holds a Master's degree in Software-Driven Systems Design, a Graduate Certificate in Museum Studies, and a Bachelor's degree in Studio Art.



Perrin Teal Sullivan

Perrin is an artist, designer and educator, and a research scientist at UW Bothell and the University of Alaska Fairbanks. Her work in STEAM education focuses on integrating art and science practices to help learners develop new perspectives and enhanced capacity for understanding, and creating, the world around them.



Dr. Blakely Tsurusaki

Blakely is a faculty member in the School of Educational Studies at UW Bothell with expertise in curriculum development, professional development, culturally relevant teaching and environmental education and has experience teaching both formal and informal K-12 STEM education. She holds a Ph.D. in Teaching, Curriculum, and Educational Policy from Michigan State University, an M.Ed. in Science Education from the University of Georgia, and a B.S. in Biology from the University of Puget Sound. Her research interests include how to better make connections between students' everyday lives and school science, identity, engagement and equity issues in education, and environmental literacy.



Theresa Horstman, Wendy Iwaszuk, Brad Portin, Nancy Price, Gavin Tierney, Alice Tsoodle

Project alumni

Priority Areas & Program Development

Supporting Teacher Leadership for Curriculum Renewal

Curriculum and instruction are at the forefront of many current concerns – how to broaden the school curriculum beyond the narrow focus of state tests, how to increase achievement in mathematics and science, how to make learning more equitable, and so on. While such renewal involves simultaneous change in many different organizations and cultures that affect schooling, actual implementation depends most centrally on teachers changing their daily practices.

Preparing and Supporting School Leaders

Working at the nexus of community demographics, local expectations for schools, professional priorities, and public policy requirements, principals have experienced perhaps the most rapid changes among education professionals. An increasing number of children with limited English proficiency live in poverty or experience disabilities; they create learning challenges at the same time that public policies and district practices hold administrators accountable for immediate results. Each new proposal for reform simply underscores anew the critical role that principals play in any effort to improve school quality.

Renewing Professional Learning for Educators

This priority area focuses on preparation and support of educators who are skilled contributors to equity, inquiry and practice—both in and out of school. Partnerships are so central to the preparation and professional development of educators that they must span PK-12, community, and university boundaries, stimulating changes in each institution with the knowledge and challenges of the other. Renewal in PK-12, informal education, and higher education is supported when educators can work effectively across the cultures of schools, communities, and universities, modeling and fostering an inquiry stance that supports continuous improvement.

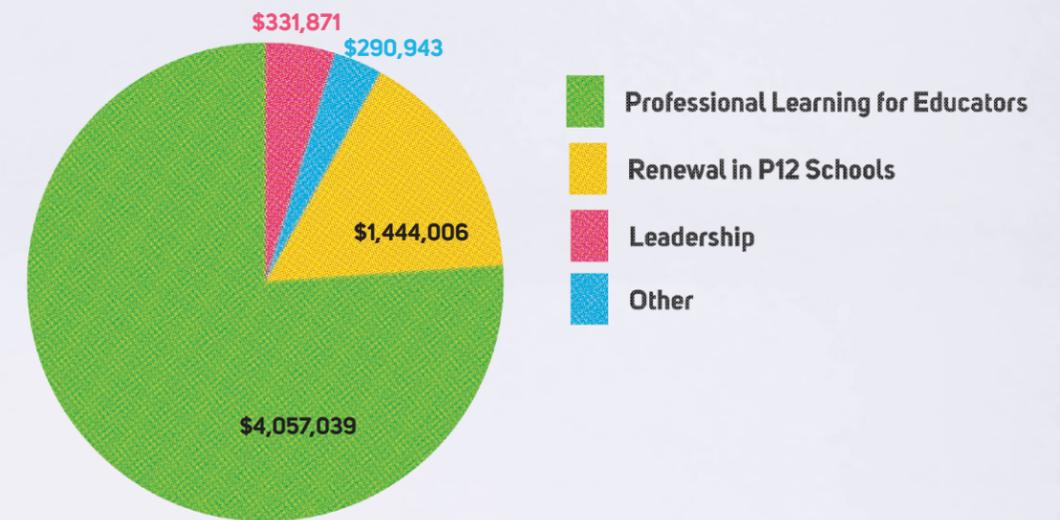
Supporting Renewal in PK-12 Schools and Informal Learning Environments

Public policies that emphasize achievement in core academic subjects for all children are juxtaposed with high levels of childhood poverty, limited English proficiency, and disabilities, which creates a challenging context for school renewal. And the process of continuing renewal becomes even more difficult when educators and their publics are committed to the broader purposes of education in a democracy.

Promoting Civic-Professional Collaboration for School Renewal

In broad terms, the need for local civic-professional collaboration for school renewal arises from the limitations of external efforts to impel educational reform through policies and funding. While external governance has its place, public schooling is also a very local endeavor that must constantly adjust to the aspirations and priorities of students and their families and communities. When reform efforts ignore or try to overpower local priorities and differences, implementation is, at best, tenuous, and often lasts only until the next issue or group takes the spotlight. But with so many competing local needs, it is often difficult to focus collective attention on young people’s learning, much less to reach agreement on what is needed and to take action toward improvement.

Awards Supporting Goodlad Institute Priority Areas During Reporting Period



Professional Learning Partnerships

Pathways to Teaching

Principal Investigator Dr. Brad Portin, Professor in the School of Educational Studies, managed a project funded by the ECMC Foundation, "Pathways to Teaching," which aimed to identify and demonstrate what is necessary to scale renewed teacher preparation for diverse populations that are grounded in deeper learning content and strategies applied K-20. Through partnerships with Everett School District, Marysville School District, and Everett Community College, Dr. Portin and his team engaged in the work of creating pathways for diverse candidates to teaching. Dr. Portin continued this work with a total budget of \$149,922 through September 2019.

Story Time STEM: Integrating Literacy, Math, and Science through Children's Literature

Drs. Allison Hintz and Antony Smith are engaged in two integrated research and development projects with community partners.

Story Time STEM

The first project, Story Time STEM, included the development and implementation of a set of toolkits to support mathematical learning among young children through read-alouds and meaningful discussion of mathematical concepts in the context of children's literature. Kits span three content areas including Counting and Cardinality, Operations and Algebraic Thinking, and Geometry. These resources were generated in close partnership with the King County Library System and Everett Public Schools and accompanied by professional learning opportunities for educators. This project was supported at \$29,454 by Washington STEM through through March 31, 2019, and at \$14,129 for a second funding period of January 1–December 31, 2020.

Partnerships for Early Learning

The second project, Partnerships for Early Learning, is a project of INSPIRE, the UW Seattle College of Education's effort to advance student learning by designing and implementing systems, resources, and professional development opportunities for and with educators and school leaders. Now in year two, PEL continues to support collaborative work between the University of Washington Bothell, INSPIRE, King County Library System, and YMCA Powerful Schools. The purpose of PEL is to: develop a set of resources for shared reading experiences exploring math and science concepts that can be utilized across informal and formal learning settings for young children (pre-K-3rd grade); design and implement professional development for educators to support these learning experiences; gauge the impact of these resources on young children's learning in literacy, mathematics, and science. This project was supported by the Boeing Foundation between 2015–2018.



Leadership Projects

Enhancing Capacity for Special Education Leadership

A statewide program to lead innovation in administrator preparation, the "Enhancing Capacity for Special Education Leadership" (ECSEL) project was funded through the WA State Office of the Superintendent of Public Instruction (OSPI) as a one-year pilot program. Initial funding of \$171,000 launched the program with a cohort of 10 candidates. With this initial support from OSPI, a collaboration among five campuses of the University of Washington and Washington State University and the state's Education Service Districts, ECSEL was awarded funding to continue and expand Washington's first preparation program specifically designed to prepare local administrators of special education. This five-year grant from the U. S. Department of Education provided \$1.25 million and concluded December 31, 2018. OSPI approved continued funding for the ECSEL program for the past seven years, providing enhanced supports for aspiring and new administrators of local special education programs. The OSPI ECSEL project, led by PI Tom Bellamy and Program Coordinator Bill Rasplica, is now funded at \$150,000 each year.

Administrators Improving Multi-tiered Systems of Support

A proposal for a statewide program to support certificated school administrators as they develop competencies for and actively engage in leading local implementation of MTSS structures and components, the "Administrators Improving Multi-tiered Systems of Support" (AIMS) project was funded through the WA State Office of the Superintendent of Public Instruction (OSPI) with flow-through funding from the US Department of Education. PI Tom Bellamy will lead this five-year program beginning October 1, 2020 with funding of \$996,615.



Learning in Places Rhizome

OpenSTEM Research

Several projects in the Institute form the OpenSTEM Research group. With an emphasis on learning beyond the school setting, these projects affirm fundamental goals of the Institute while creating a visible focus for work that broadens the access to STEM learning. Led by Dr. Carrie Tzou, OpenSTEM Research is committed to expanding opportunities for all students to engage with STEM learning environments across the settings and time points of their lives, including schools, libraries, other community settings, and from K-12 through workforce development.

The group conducts research on supporting STEM-linked identities in young people by studying the design of learning environments that connect everyday activities and cultural and linguistic community resources with technology-enhanced STEM learning. In collaboration with partner organizations, the group also designs curriculum resources and conducts professional development for STEM teachers and informal practitioners.

Tech Tales

This partnership between the University of Washington Bothell's OpenSTEM Research, UW Seattle Institute for Science + Math Education, Pacific Science Center, Highline Public Schools Native Education Program, and the Seattle Public Libraries has received a grant from the National Science Foundation for a three-year project called Backpacks for Science Learning. The project fosters opportunities for families to explore science and engineering together as they engage with robotics, computer science, coding, and e-textiles (fabrics and clothing that integrate technology). Tech Tales invites parents to take on new roles as learners with their children while they learn about programming, engineering design processes, and related science concepts. Unlike many programs that use competitions as a context for engaging with robotics, we use storytelling to engage families in robotics in order to tie into cultural practices around storytelling, connect to families' personal and cultural histories, and leverage the unique professional expertise of librarians in connecting people with stories. The four-year \$2.6 million project ran September 2015–2019 and completed the one-year no-cost extension on August 31, 2020.



Learning in Places

A National Science Foundation project, "Learning in Places: Gardens and Field Based Science Education," aims to develop innovative field based science learning environments to help to prepare learners to meet, adapt to, and lead change in relation to the socio-ecological challenges of the 21st century. In partnership with Seattle Public Schools, Tilth Alliance, and Northwestern University, PIs Carrie Tzou and Megan Bang lead the effort to develop exemplar models of equitable science learning comprised of highly effective teaching practices, materials, and tools in outdoor learning environments including learning gardens and other green spaces in close proximity to schools. The four-year project began at UW Seattle in July 2017 and was transferred to UW Bothell in September 2018 with a total budget of \$2.99 million.



Badges for College Credit

A National Science Foundation project, "Badges for College Credit: Motivating learning in informal science programs through a digital badge system," seeks to bridge informal and formal learning opportunities in partnership with the Future of Flight Foundation, the Pacific Science Center's Mercer Slough Environmental Education Center, and the Seattle Aquarium. PI Carrie Tzou led the effort to develop college credit pathways for high school students who engage substantially in the work of these informal science institutions. The project began in October 2013 with a total budget of \$1.47 million and completed the one-year no-cost extension on September 30, 2018.



Fostering STEAM

PI Dr. Blakely Tsurusaki received funding from the National Science Foundation's AISL program for her broad implementation project titled "Fostering STEAM through ISL professional development." Fostering STEAM partners with the University of Alaska Fairbanks to build on the outcomes of the successful AISL project "Project STEAM" led by Dr. Carrie Tzou which ended August 31, 2017.

Through this past work, the collaborative team articulated a set of STEAM design principles that incorporate effective practices for broadening participation in science which informal educators can adopt and incorporate into their STEAM learning activities. This grant provides \$1.25 million over five years beginning September 1, 2017.

Multidisciplinary units on COVID-19 and social-emotional learning for K5

PI Carrie Tzou will lead the subcontract to Northwestern University for this project to design and study K5 curriculum that addresses social-emotional learning in the time of the COVID-19 crisis. The project will work with curriculum designers, researchers, and K5 teachers to develop, test, and re-design comprehensive units that focus on social-emotional learning, science learning, equity, and COVID-19. Dr. Tzou will lead the effort to develop college credit pathways for high school students who engage substantially in the work of these informal science institutions. The 12.5 month project began in June 2020 with a budget of \$141,000.

Doris Duke Conservation Scholars

The Doris Duke Conservation Scholars Program at the University of Washington (DDCSP@UW) is a double-cohorted summer immersion program for undergraduates from backgrounds minoritized in conservation. Established with funding from the Doris Duke Charitable Foundation in 2013, DDCSP@UW seeks to recruit and retain a diverse population of conservation scholars to make their life's work in conservation, while supporting the expansion of conservation itself through integration of their perspectives and empowered engagement. Each scholar experiences an immersive, experiential field course in their first year, followed by monthly, online professional development calls during the academic year in preparation for their return in the second year to take part in a conservation internship with a governmental, tribal or non-profit conservation organization. The ultimate goal is to help change the conservation workforce to better reflect present-day demographics in the United States by fully incorporating the voices and values resulting from this broader participation. To date, 150 diverse undergraduates from throughout the country have participated in DDCSP@UW. Tzou has been one of two program evaluators for the program since 2013.



Past & Pending Proposals



Backpacks for Science Learning

Dr. Carrie Tzou continues the work on her NSF funded project, "Backpacks for Science Learning: Leveraging family expertise to transform homework as boundary objects across learning contexts." The project aims to create a model for connecting family learning and classroom science instruction around the Next Generation Science Standards at scale. Dr. Tzou aspires to contribute knowledge, curriculum materials, and a model of connecting home and school science instruction to ongoing efforts in the field of science education, family learning, and support of the NGSS. This grant provides \$2.47 million and continued with a supplement and extension through August 2020. A proposal to further this research practice was submitted to NSF in November 2018 but was not funded.

CIYDER

Dr. Blakely Tsurusaki submitted a proposal, "Community-Inspired Youth-Driven Environmental Research," to the National Science Foundation's in collaboration with the University of New Hampshire, Los Angeles Public Library, the Pacific Science Center, Wiggins Memorial Library, and the Seacoast Science Center. The project team seeks to engage youth in environmental-science related research and communication. Participating youth will learn about environmental issues of interest and/or concern from community partners and then use GLOBE protocols to conduct research related to those issues. This five-year project was set to begin July 2019 with \$1.6 million but was not funded.

Critical Climate Change

In this Climate and Environmental Justice (CEJ) project, we propose a social design experiment using participatory design-based research with university faculty, community-based conservation organizations, and nondominant undergraduate students to design and research a framework for implementing critical environmental education at the undergraduate level at the University of Washington Bothell (UWB). We propose to conduct the participatory design research (PDR) at three levels: (1) at a pedagogical level, with groups of faculty learning from and shifting their practice towards justice-oriented pedagogy, (2) at a course design level, with groups of faculty studying their own syllabi and re-designing existing courses, and (3) at a program level, with the design of a Climate Justice Education minor. All three levels of change will be driven by a PDR model, driven by equity-focused ends as in "social design experiments" (Gutiérrez & Jurow, 2016).

Digital Badges for STEM Learning

PI Theresa Horstman, assistant research professor in the School of Educational Studies and Co-PI on the Badges for College Credit grant, submitted a broad implementation proposal to the National Science Foundation titled, "Designing digital badge ecologies for STEM learning: Supporting nondominant youths' curation of achievements, identities, and interests into professional and academic pathways." This work was to build upon the outcomes of the successful AISL project, "Badges for College Credit," led by PI Carrie Tzou and the Digital Badges for STEM Education Project, a CAREER grant from Katie Davis at UW Seattle's iSchool. In partnership with faculty from UW Seattle and UW Tacoma, the Pacific Science Center's Mercer Slough Environmental Education Center, the Seattle Aquarium, and a local school district, PI Horstman would lead the effort to disseminate a model of design and implementation of digital badges that address deep learning in informal spaces, validity of badges internally across program goals and users, and external validity of badges outside of the program. This project, which was to begin October 2018 with \$3 million budget of five years, did not receive funding.

GLOBE

PI Blakely Tsurusaki submitted a collaborative research proposal, "Global Learning and Observations to Benefit the Environment" (GLOBE), in partnership with the University of Michigan – Ann Arbor and the University of New Hampshire, to the National Science Foundation. This project proposed the design, implementation, and study of GLOBE science shops in an effort to cultivate student-community partnerships. The project seeks to work with a diverse set of community partners, middle and high school students, and science teachers in the Northwest, Midwest, and Northeast to support students investigations in their school science classrooms of environmental science-related questions that communities identify as relevant to them. This four-year project was set to begin July 2017 with \$1,358,780 but was not funded.

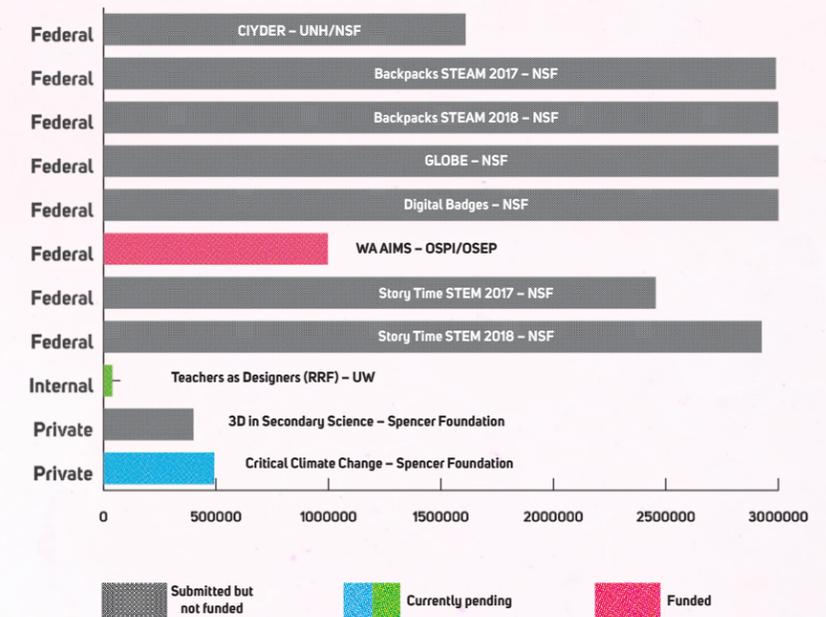
Increasing Capacity for Equity-Focused 3D Science Assessments

PI Dr. Carrie Tzou submitted a proposal to the Spencer Foundation titled "Increasing capacity for equity-focused 3D formative assessment in secondary level science". This Research Practice Partnership would build capacity within the Seattle Public School District (SPS) for collaborations of teachers within a common discipline to design and research "3D" science assessments that reflect the sophisticated science learning in the Next Generation Science Standards. This two-year project requested \$400,000 but was not funded.

Story Time STEM

Dr. Allison Hintz and Dr. Antony Smith, both associate professors in the School of Educational Studies, submitted a proposal "Story Time STEM" to NSF's DRK-12 grant competition in November 2018. This proposed work aimed to aim to engage young children and their families in science, engineering, and mathematical practices through the design of classroom toolkits and family backpacks that utilize shared reading experiences as an anchor from which to engage cross-disciplinary practices. This proposal was not funded.

Proposals submitted during reporting period



Our Team

Staff, principal investigators and affiliates

Administration

Institute Director Carrie Tzou
 Institute Administrator Kellie Holden
 Administrative Assistant Amy Pitt

ECSEL Program

Program Director Tom Bellamy
 Program Coordinator Bill Rasplca
 Internship Supervisor Tricia Zurybida
 Instructional Faculty Franklin Day, Laura Matson

OpenSTEM Research

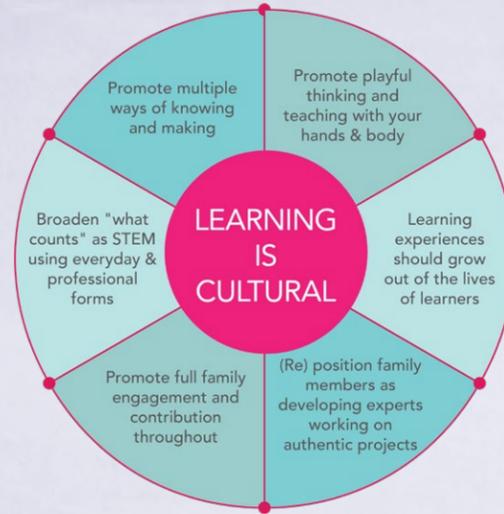
Principal Investigator Carrie Tzou
 Principal Investigator Blakely Tsurusaki
 Research Scientist Veronica McGowan
 Research Scientist Priya Pugh
 Research Scientist Elizabeth Starks
 Research Scientist Perrin Teal-Sullivan
 Research Coordinator Nat Mengist

PROJECT FUNDERS

- Doris Duke Charitable Foundation
- ECOM Foundation
- Institute for Educational Inquiry
- National Endowment for the Arts
- National Science Foundation
- OpenSciEd
- Spencer Foundation
- University of Florida
- U. S. Department of Education
- Washington Office of the State Superintendent of Public Instruction
- Washington STEM

PROJECT PARTNERS

- Everett Community College
- Everett Public Schools
- Federal Way School District Native Education Program
- Highline School District Native Education Program
- Institute for Science and Math Education
- King County Libraries
- Marysville School District
- Montclair State University
- Na'ah Illahee Fund
- Northshore School District
- Northwestern University
- Pacific Science Center
- Red Eagle Soaring Native Youth Theater
- Seattle Aquarium
- Seattle Public Libraries
- Seattle Public Schools
- Tilth Alliance
- University of Alaska Fairbanks
- University of Arizona
- University of Florida
- University of Washington Seattle
- University of Washington Tacoma
- Washington Higher Education Coordinating Board
- Washington STEM



Tech Tales design principles

Story Time STEM

Principal Investigator Tony Smith (Story Time STEM)
 Principal Investigator Allison Hintz (Plus-Mathematics)

Selected Institute Products

Hintz, A., Smith, A. T., Gray, K., Gannon, E., & Wishart, A. Story Time STEM: Nurturing children's joy and wonder through shared reading experiences (2020). *Young Children*, 75(2), 30–35.

Horstman, T., Tierney, G. and Tzou, C. (2020), "Design principles for creating digital badges to support learning", *Information and Learning Sciences*, Vol. 121 No. 11/12, pp. 889-907.
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Educator Frameworks

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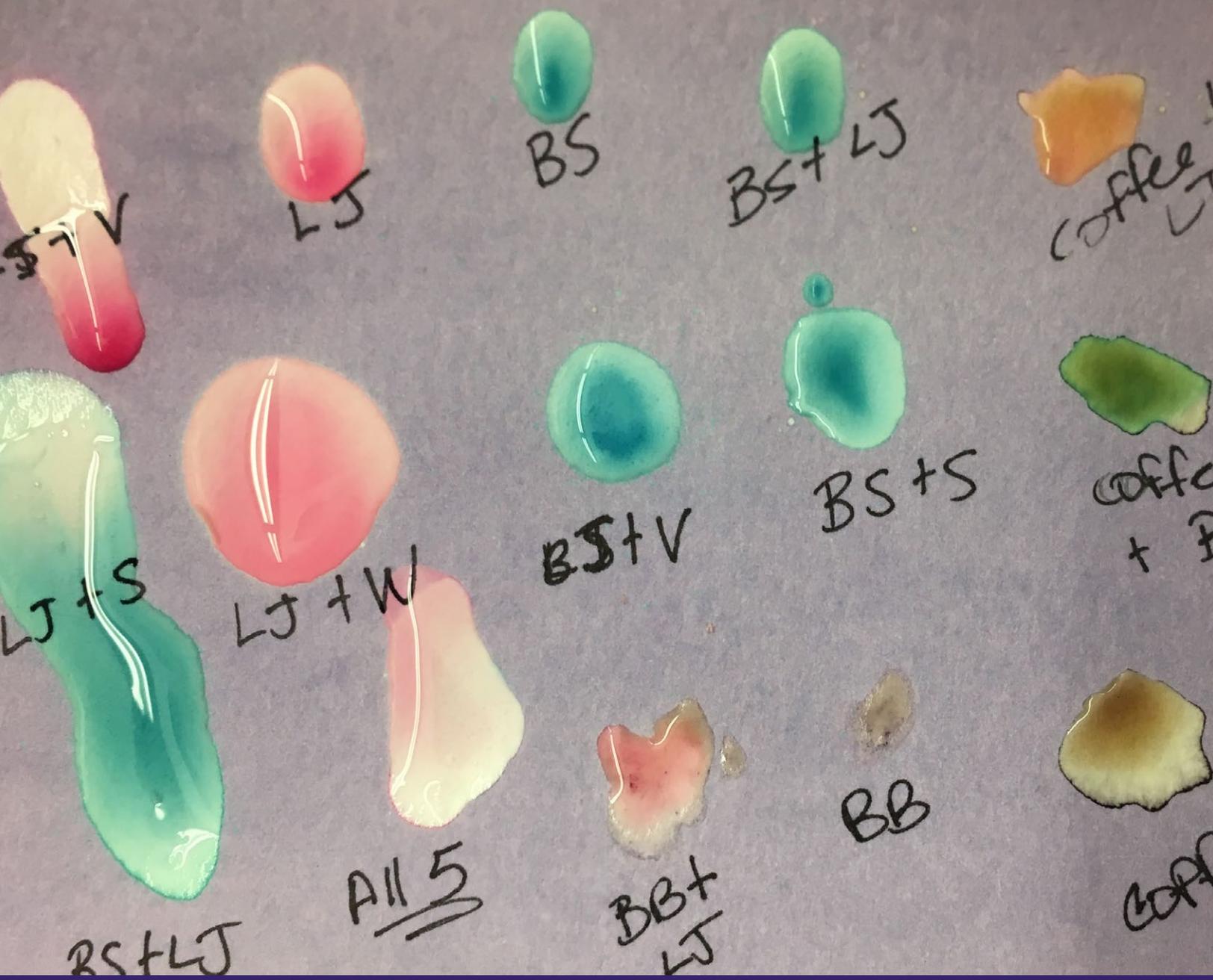
Learning in Places Collaborative. (2020). *Framework: Culture, Learning, and Identity*. Bothell, Seattle, WA & Evanston, IL: Learning in Places.

Project websites

Learning in Places
<http://learninginplaces.org>

Tech Tales and TechStyle Tales
<http://techtalesonline>

Free COVID-19 & Health Equity Units for K-5 and High School Educators
<https://www.openscienced.org/covid-19-health-equity/>



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