A Resource Round-Up for 2020

The Year in Informal STEM Education

A Year of Challenge and Perseverance

caise | center for advancement of informal science education

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Highlighting Diversity, Equity, Access, and Inclusion
This icon is used throughout this document to highlight resources that focus on addressing diversity, equity, access, and inclusion.

About CAISE

The Center for Advancement of Informal Science Education (CAISE) is the resource center for the National Science Foundation's Advancing Informal STEM Learning (AISL) program. Based at the Association of Science and Technology Centers and working with co-principal investigators from around the country, CAISE seeks to build knowledge and advance the field by characterizing, connecting, and communicating findings and wisdom from evidence-based work in informal STEM learning and science communication for educators, researchers, evaluators, and other interested stakeholders.

CAISE's **InformalScience.org** website provides access to a growing repository of more than **9,000 resources,** including project abstracts, research literature, and evaluation reports. In 2020, CAISE added hundreds of new resources to the collection, and expanded access to peer-reviewed research through EBSCO Information Services. CAISE also hosts NSF AISL Principal Investigator meetings and convenes task forces and workshops that identify and address needs, trends, and opportunities in the professional community. Other NSF-funded resource centers that support those working in formal or informal STEM education, science communication, and broader impacts are listed below.

STEM Learning and Research Center (STELAR, stelar.edc.org): Supports NSF's Innovative Technology Experiences for Students and Teachers (ITEST) program.

CS for All Teachers (csforallteachers.org): Supports all teachers of computer science to pre-K through high school students.

Center for Integrative Research in Computing and Learning Sciences (CIRCLS, circls.org): Supports NSF's Research on Emerging Technologies for Teaching and Learning (RETTL) program.

EvaluATE (www.evalu-ate.org): Supports evaluation capacity for NSF's Advanced Technological Education (ATE) program.

Community for Advancing Discovery Research in Education (CADRE, cadrek12.org): Supports NSF's Discovery Research preK-12 (DRK-12) program.

NSF INCLUDES National Network (www.includesnetwork.org/home): The hub for an NSF-wide initiative that serves projects funded by the NSF INCLUDES program.

[The Center for] Advancing Research in Society (ARIS, https://www.researchinsociety.org/) is co-funded by the NSF Biological Sciences; Computer and Information Science and Engineering; Engineering; Geosciences; Mathematical and Physical Sciences; Social, Behavioral and Economic Sciences; and Education and Human Resources directorates and supports broader impacts efforts of scientists and engagement professionals funded by all NSF programs.

Introduction

The *Year in Informal STEM Education* is a field-sourced resource that is curated and compiled by CAISE and produced annually to provide a snapshot of the evolving ecosystem of informal STEM learning, communication, and engagement. It is not intended to be comprehensive, and to manage scope and length CAISE filters and organizes the recommendations that we receive to focus on articles, reports, compendia, and conference proceedings that we hope will have **general relevance** for design, research, and practice across learning and communication experiences, settings, and platforms.

The onset of the COVID-19 pandemic, the murder of George Floyd and related events, and the systemic inequities and racism that these crises revealed made 2020 an unprecedented year of disruption and challenge. However, the field of informal STEM education persevered and pivoted to respond to the needs of colleagues, audiences, and communities. And while our call for recommendations yielded a smaller collection of publications, data, and event documentation than in previous years, CAISE worked to further amplify and complement these focused efforts by posting blogs and regularly updating website pages and social media posts such as Informal STEM Education Resources for COVID-19 and Online Learning and Anti-Racism Resource Roundup. We also launched a new interview series with Black, Indigenous, and other People of Color (BIPOC) who are working in a variety of STEM learning, engagement, and communication settings, called BIPOC Voices.

We are grateful to the representatives from organizations, institutions, and networks who, while grappling and coping with multiple challenges, generously reached out to recommend what they found useful and important as they navigated work and life in 2020. We hope that you will find something here that will catalyze reflection, inform new thinking, and support the development of projects, programs, partnerships, or proposals as we collectively rebuild more inclusively and equitably in 2021 and beyond.

Please send your feedback on The Year in Informal STEM for 2020 to caise@informalscience.org

Types of Resources Included

Trends and Data
Surveys, statistics, and scans

Publications
Research papers, syntheses, consensus reports, and compendia

Conference and Event Proceedings and New Resources

Accessing Peer-Reviewed Literature on EBSCO

Some of the resources included in *The Year in ISE* for 2020 are behind paywalls. Members of InformalScience.org can access the resources included in this document, along with the full text of more than 3,000 peer-reviewed journals, through EBSCO's *Education Source* and *Communication and Mass Media* databases. These journals include *Science Communication*, *Curator: The Museum Journal*, *Science Education*, *Cultural Studies of Science Education*, and *Visitor Studies*. To access, visit this page, log in to your account, and begin exploring. The training video Tips for Navigating EBSCO provides a quick "how to" guide using the *Education Source* database to refine literature searches and save search history.

Citizen Science and Public Participation in Scientific Research

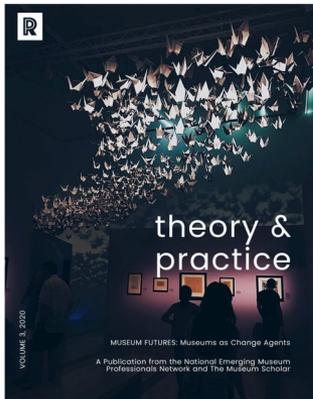**(citizen science, community science, and PPSR work with learning, communication, and/or engagement as a goal)**

Peer Reviewed
Environmental Science & Policy published the article Community Science: A Typology and Its Implications for Governance of Social-Ecological Systems in April. It addresses overlap with and distinctions from citizen science and draws on three examples of communities as central actors in the process of knowledge co-production to present a typology of community science and to deduce a set of key principles/conditions for success.

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The journal *Proceedings of the Association for Computing Machinery on Human-Computer Interaction* published Shifting Forms of Engagement: Volunteer Learning in Online Citizen Science in May. It draws on Sørensen's framework of forms of presence to distinguish three types of engagement with learning resources: authoritative, agent-centered, and communal.

Peer Reviewed
Theory and Practice: The Emerging Museum Professionals Journal published the article Crowdsourcing Knowledge for Representation: Interactive Learning and Engagement with Collections Using Zooniverse's Mapping Historic Skies in June. The article describes the process of creating a project that aimed to crowdsource the identification of constellations from the Adler Planetarium's collection of over 4,000 historical star maps, globes, and other materials.

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CONFERENCES/EVENTS/NEW RESOURCES

The **National Aeronautics and Space Administration (NASA)** held their second annual Citizen Science Community Workshop, intended to promote an exchange of scientific and engagement practices that make citizen science projects effective. The event featured a series of webinars about citizen science that were held from May to September.

The **Citizen Science Association** posted 23 webinar videos in 2020. Topics included citizen science in online environments, how citizen science informs global policy, citizen science in higher education, tools for volunteer recruitment, and building trustworthy data practices.
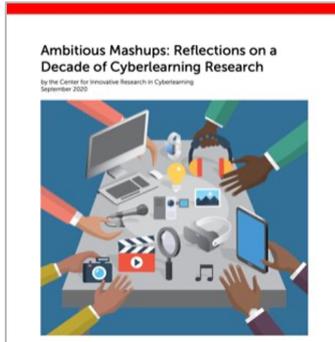
SciStarter launched SciStarter Affiliates, a collection of citizen science projects that partner with SciStarter to credit participants' contributions in their SciStarter Dashboard, and a Citizen Science Tutorial for new and potential participants.

Technology-Enhanced Learning

Ambitious Mashups: Reflections on a Decade of Cyberlearning Research
by the Center for Innovative Research in Cyberlearning
September 2020

The **Center for Innovative Research in Cyberlearning (CIRCL)** published the Ambitious Mashups: Reflections on a Decade of Cyberlearning Research report in early 2020. The report covers the use of emerging technology to design more equitable learning experiences, focusing on the learning theories and technologies that are likely to become important within 5 to 10 years. CIRCL transitioned to **CIRCLS** (the Center for Integrative Research in Computing and Learning Sciences) in October as the resource for the Research on Emerging Technologies for Teaching and Learning (RETTL) program.

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The **Connected Learning Summit** canceled its 2020 event, but published proceedings in July that included 23 peer-reviewed research papers accepted for presentation at the summit.

CONNECTED LEARNING SUMMIT
Create. Play. Mobilize.
Proceedings of the 2020
Connected Learning Summit
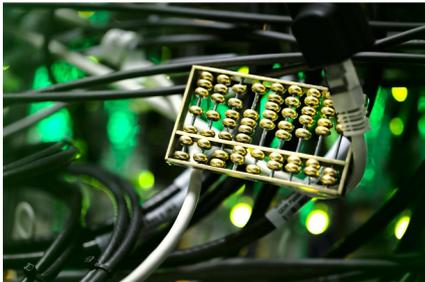Edited by Jeremiah H. Kalir and Danielle Filipiak

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PUBLICATIONS

The **Connected Learning Research Network** published <u>Reflections on a Decade of Engaged Scholarship</u> in February, a report by an interdisciplinary group of scholars, designers, and educational practitioners. The group collaborated from 2011 to 2019 to study and develop new modes of learning with digital media.

The **National Academies of Sciences, Engineering, and Medicine** Press published the consensus report <u>Cultivating Interest and Competencies in Computing</u>, with a chapter dedicated to <u>Learning Spaces Outside of School Time</u>. A webinar that describes the release is <u>here</u>.

The **Computer Science for California Coalition** published a <u>CS Equity Guide</u> in October for education leaders to help them design, scale, and sustain equitable computer science education.

Living Collections

(Zoos, Aquaria, Nature Settings)

Zoo Biology published the article Individual-Level Variability Among Trust Criteria Relevant to Zoos and Aquariums in August. A summary of findings is here and a STEM for All Multiplex video about this third wave of the Why Zoos and Aquariums Matter study is here.

The **Association of Zoos and Aquariums** published a Social Science Research Agenda in September intended to inform social science research by and about zoos and aquariums. It reflects the most relevant priorities, trends, and emerging issues identified by social scientists and practitioners in the zoos and aquariums community.

Making and Tinkering

The **Lawrence Hall of Science** at the University of California-Berkeley published the research brief Supporting Making-Centered Experiences in Distance-Learning Contexts. It includes key components of "making" experiences and design considerations for access and distance-learning approaches, with examples.
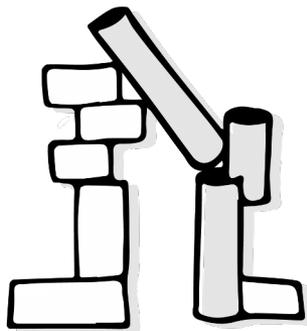

The **Lego Foundation**, in collaboration with the UK's University of Sheffield, The University of Cape Town in South Africa, and Dubit, published a report on Children, Technology and Play in June. The report explores the ways in which children's play is shaped by technology and the role of adults in mediating digital play.

CONFERENCES/EVENTS/NEW RESOURCES

Digital Promise launched a series of events in September to support educators providing maker learning opportunities that meet the needs of learners through distance learning and beyond. These professional learning opportunities covered the design of maker learning experiences at home for educators representing schools, out-of-school-time programs, libraries, museums, and other organizations serving youth.

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The **Exploratorium Tinkering Studio** launched STEAM Literacy Connections, a collection of tinkering activities paired with books that invite playful, inclusive engagement with STEAM concepts and processes while reinforcing language development, collaboration, communication, and literacy skills.

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Making and Tinkering

Media
(Film, Television, Podcasts, Journalism)

Documentary Television posted a blog in January that tracked the ratings of legendary naturalist David Attenborough's wildlife programs from 2011 to 2020, and one in December about **PBS NOVA**, now in its fifth decade of production. The blog features statistics on NOVA's pipeline, ratings, funding sources, new digital platforms, and more.

POLAR EXTREMES

Collections > **NOVA: Polar Extremes**

In This Collection: *Video (12), Document (1), Lesson Plan (1), Media Gallery (5), Interactive (1) for Grades 6-13+*

Media Impact Funders posted the blog Media Impact and Polarization: Science-Focused Film Series Offers Lessons on Breaking Through the Noise in October. The blog shares key insights for funders from Nielsen ratings and the approach behind Let Science Speak, a multi-media campaign designed to counter anti-science propaganda.

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Knology posted a series of articles called <u>Numbers in the News</u>, beginning in May, based on their <u>Meaningful Math</u> project with PBS Newshour. The series investigates the connection between learning statistics and viewing a news report as credible.
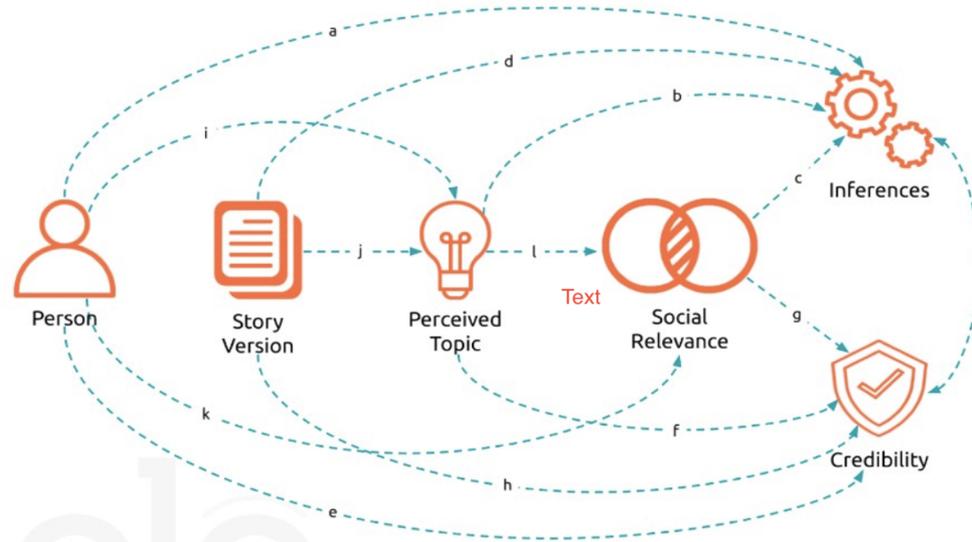
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Figure 1. Hypothetical model of how audiences respond to news stories. Shapes represent summaries of measurements and factors. Arrows represent hypothetical relationships between variables.

The 2020 **Jackson Wild Summit** was held virtually in September. Recorded sessions from the summit address tangible actions to make the science media industry more diverse, inclusive, green, and impactful.

The 2020 **World Congress of Science and Factual Producers** was held virtually in December. A podcast overview of the meeting by Documentary Television and video of the Trust Me. I'm a Scientist session are available.

See also: Science Communication

The **Museum of the Moving Image** took its Science on Screen programming online in May (with a program about the film *Spaceship Earth*) and June (with a program about the famous scientific illustration of the COVID-19 virus). It also partnered with the **New York Hall of Science** and Rooftop Films on a Queens Drive-In program in Flushing Meadows Corona Park from August to November, to provide safe, communal moviegoing during the pandemic.

The **2020 Media Impact Forum**, held in June, focused on philanthropic support for environmental media and the need to center our decisions on protecting the planet and its natural resources. Six recorded sessions with a range of experts are available, along with links to information and articles mentioned during the sessions.

CONFERENCES/EVENTS/NEW RESOURCES

In Those Genes, an independently funded podcast that uses genetics to decode the lost histories and futures of people of African descent, won third place at the **Third Coast International Audio Festival** for the podcast episode Dat Rona. The episode was produced in three days in March to disseminate COVID-19 knowledge and dispel inaccurate stories that Black people were immune to the virus.

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PBS' show **SciGirls**, which encourages girls in science, updated SciGirls Strategies, a framework for how to engage girls in STEM. The show also debuted a new season on coding and launched a new series on Women in Tech that introduces nine women who took unique paths to find technology jobs that they love.

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The **National Academies of Sciences, Engineering, and Medicine** held a roundtable on the communication and use of social and behavioral sciences, in which researchers and journalists shared their advice on communicating news in clear, compelling, and accurate ways. An interactive overview with videos is here.

Public Libraries

SciStarter published The Library & Community Guide to Citizen Science to help interested users navigate the rapidly changing landscape, access resources, learn about projects and programs, and explore opportunities to support bringing citizen science to libraries or community-based organizations.

The **Connected Learning Alliance** published Evaluating Library Programming in August, the culmination of a three-year research + practice partnership. It is a practical guide to collecting and analyzing data to improve connected learning programs for youth in libraries.

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PUBLICATIONS

The *Informal Learning Review* published the article Lessons Learned from a Decade of STEM Exhibitions in Libraries in January. The article examines the evolution of STEM programs in the public library sector through the lens of the Space Science Institute's STAR Library Network from 2010 to 2019.

The **Association for Library Service to Children** published the article STEAM Learning in Public Libraries: A "Guide on the Side" Approach for Inclusive Learning in the fall. The article explores how learning occurs when participants experience a scenario, context, or investigation that asks them to interact and process concepts in a meaningful way.

The **STAR Library Network** launched the NASA STEM Facilitation Kit <u>Sun-Earth-Moon Connections</u>, which includes activities to help library patrons understand their place in space and how the sun and moon affect our planet. It also launched <u>STEAM Ahead @ Home</u> activities that people can do while staying home during the pandemic.

Public Science Events

PUBLICATIONS

Peer Reviewed

Visitor Studies published the article <u>Looking Back to Think Ahead: Reflections on Science Festival Evaluation and Research</u> in July. This methodological review considers science festival evaluation and research studies that have been published since 2011.

The *International Journal of Science Education, Part B* published the article <u>Context Matters: Using Art-Based Science Experiences to Broaden Participation Beyond the Choir</u> in February. It describes research on broadening participation using a STEAM approach at music festivals and also addresses methodological issues.

The **LiveSci Collective** launched as a community of collaborators on virtual scientific outreach, in response to the COVID-19 pandemic. Its members include BioBus, RockEDU Science Outreach, Science Friday, Scientists Inc., Skype A Scientist, and The Story Collider.

The **Science Festival Alliance** launched a Conversations in Color series of community listening sessions in summer 2020, addressing the impacts of the COVID-19 pandemic on the live science events sector.

Black Botanists Week and Black Birders Week launched to promote, encourage, create a safe space for, and celebrate Black people (and BIPOC) who love plants and birds.

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#BlackBotanistsWeek

Monday, July 6
#BlackBotanicalLegacy #BlackRoots #Botany101
Welcome to the inauguration of Black Botanical Legacy.
Tell us what you do, and teach us something new!

Tuesday, July 7
#PlantInteractions
Post a photo or video & share facts about the
interactions between plants & other forms of life!

Wednesday, July 8
#BlackPlantLove
Share your love for plants through storytelling or a
poem. Consider submitting it to @Plantlovestory.

Thursday, July 9
#BotanizingWhileBlack
Go live on Instagram to share your stories on why
we need diverse communities in botany.

Friday, July 10
#PlantAppreciation #HowManyPlants
How many plants did you use today? Share photos of how
you use plants in your day-to-day life.

Saturday, July 11
#BIPOCinNature #DiverseCommunitiesAreStrongCommunities
Post a photo or video of you exploring
the natural world while paying tribute
to those whose land we walk upon.

https://blackbotanistsweek.weebly.com/
Designed by: @haalimifolia

#BlackBirdersWeek

May 31
#BlackInNature
Celebrating Black nature
enthusiasts everywhere

June 1
#PostABird Challenge
Post any bird you find or a
bird fact with the hashtag

June 2
#AskABlackBirder
2-hr Q&A with Black Birders
on Twitter 7pm-9pm EST

June 4
#BirdingWhileBlack
Livestream Discussion
tinyurl.com/BlackBirders
7pm-830pm EST
moderated by @itsafronomics

June 5
#BlackWomenWhoBird
Follow all the amazing
#BlackWomenWhoBird

Design by: @beaniejean_ and @bellzisbirding

Living Collections

Science Centers and Museums

TrendsWatch
The Future of Financial Sustainability

Center for the Future of Museums.

The **American Alliance of Museums Center for the Future of Museums** published their TrendsWatch 2020 report, which describes a framework for examining any museum's financial performance and thinking about long-term strategies for financial success.

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The **Knight Foundation** commissioned a study that was published in October, titled Digital Readiness and Innovation in Museums. It describes the status of digital innovation in the field prior to the COVID-19 crisis, as well as challenges and opportunities for building capacity and resiliency as the cultural landscape changes.

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PUBLICATIONS

The **European Network of Science Centers and Museums (Ecsite)** published the article <u>Responding to the Pandemic: A Social Justice Perspective</u> in its magazine *Spokes* in May 2020, which reframes the business survival vs. social responsibility debate and explores how science engagement organizations can best serve society during and beyond the current pandemic.

The **European Network of Science Centres and Museums** published [interviews](#) in September with seven field leaders from cultural institutions and academic programs. They reflected on their activities during the lockdown, how they pivoted, lessons learned, and their thoughts about the future.

CCLI National Landscape Study:
The State of DEAI Practices in Museums
Cecilia Garibay and Jeanne Marie Olson

CCLI Cultural Competence Learning Institute

The **Cultural Competence Learning Institute** released its <u>National Landscape Study: The State of DEAI Practices in Museums</u> in September. The report includes data from museums and other informal learning spaces and describes progress on and gaps in equity and inclusion.

PUBLICATIONS

Peer Reviewed

Curator: The Museum Journal published the special issue A Time of Reckoning in October. The issue addresses the impacts of the COVID-19 pandemic and concurrent economic, social, justice, and systemic racism crises on the museum field (editorial intro available via EBSCO to logged-in users of InformalScience.org).

Peer Reviewed

Curator: The Museum Journal also published the article It's Not Just for the Children: On Engaging Culturally Diverse Families at Museums in September. The article reviews the journal's archives and research articles that are related to identity, to investigate how the museum field has historically prioritized Anglo families in research, exhibit design, and programming.

The **Association of Children's Museums** published a report on Museums in a Pandemic: Workforce Impacts in July, based on a survey of 115 museums. It describes effects of the pandemic on full-time staff, part-time staff, and volunteers, and implications for the children's museums workforce.

Culture Track published its report <u>Culture & Community in a Time of Crisis</u>, a collaboration between **LaPlaca Cohen** and **Slover Linett Audience Research**, in July. The report offers findings from the first wave of a national study on how arts and culture organizations can address the hopes, fears, and needs of Americans during and following the COVID-19 pandemic.

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CULTURE + COMMUNITY
IN A TIME OF CRISIS

A SPECIAL EDITION OF
CULTURE TRACK.

LaPlaca Cohen

slover**linett**

Key Findings from Wave 1   July 7, 2020

The UK **One by One: Building Digitally Confident Museums** initiative launched the six-part <u>People. Change. Museums.</u> podcast series in March, which explores the relationship between museums, technology, and this time of intersecting crises.

DE AI

The **IF/THEN** Initiative launched the <u>Gender Representation Toolkit</u>, which is designed to help museums collect data on the visual representation of gender in museum content like exhibits, websites, virtual programming, and more. Data that museums submit to the <u>Association of Science and Technology Centers (ASTC)</u> can be used to help drive change toward more equitable gender representation and will contribute to a state-of-the-field report.

DE AI

In May, the **Association of Science and Technology Centers** launched Re-think, Re-frame, Re-open, a series of online discussions to address the challenges facing museums and science centers as they pivot to online offerings and consider reopening.

The **National Informal STEM Education (NISE) Network** launched a set of Sustainability Professional Development Resources, which include planning and development tools and a collection of Sustainable Futures public programs for museums and other cultural organizations. The programs include hands-on, engaging activities and games that people can do at home or at a museum.

Science Communication
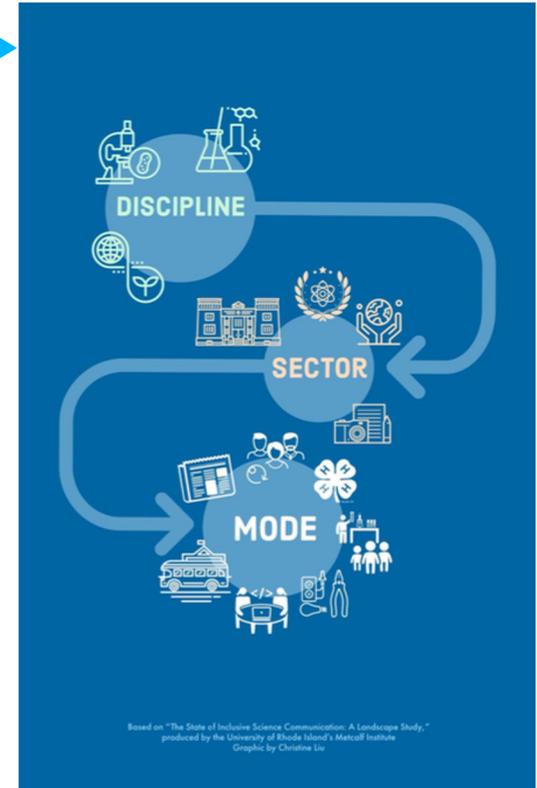
The **Metcalf Institute** at the University of Rhode Island released The State of Inclusive Science Communication: A Landscape Study. It describes key traits of inclusive science communication and identifies challenges for the growing movement.

The **American Academy of Arts and Sciences** published the third and final report of its multi-year Public Face of Science initiative in August, which includes recommendations for improving connections between the public and science, an inventory of foundational skills for science communication, and resources on science engagement. The **Association of Science and Technology Centers** posted a blog that summarized takeaways from the report.

DISCIPLINE

SECTOR

MODE

Based on "The State of Inclusive Science Communication: A Landscape Study,"
produced by the University of Rhode Island's Metcalf Institute
Graphic by Christine Liu

PUBLICATIONS

Australian National University Press released [Communicating Science: A Global Perspective](#) in September, an edited volume that describes the pathways of science communication from authors representing 39 countries.

The **European Network of Science Centres and Museums (Ecsite)** published [interviews](#) in August with young professionals about facing and overcoming the challenges of building their careers in science communication.

Peer Reviewed
Science Communication published its article Assessment by Audiences Shows Little Effect of Science Communication Training in December. The study finds that the development of rigorous approaches to assess training has not kept pace with the proliferation of communication approaches in the science community, and that there is little agreement on what constitutes "good" communication.

Peer Reviewed
Frontiers in Communication published a special issue on <u>Inclusive Science Communication in Theory and Practice</u> in January, featuring articles about strategies that can help increase inclusion, equity, and diversity. The issue also examines the impacts of implementing those strategies and solutions to address the barriers to inclusion and diversity in science communication fields.

The UK journal *Nature Human Behavior* published the perspective article <u>Using Social and Behavioural Science to Support COVID-19 Pandemic Response</u> in April. It discusses research relevant to pandemics, including work on navigating threats, social and cultural influences on behavior, science communication, moral decision-making, leadership, and stress and coping.

CONFERENCES/EVENTS/NEW RESOURCES

The **American Geophysical Union** launched a Virtual Learning Hub in May to support their "How to: Skills for the Complete Scientists" webinar series. They also posted a Science Communication in a Virtual World webinar in May.

The Science and Technology Innovation Program at the **Wilson Center** launched THING Tank in May. The goal of this initiative is to understand the current contributions of low-cost tools to accelerating science, broadening public participation and access, and acknowledging and understanding different communities, networks, and stakeholders.

The Science Writing News Roundup launched in August, offering weekly news, opportunities, resources, videos, and events related to science writing and science journalism.

CONFERENCES/EVENTS/NEW RESOURCES

The Network for Science Communication Trainers relocated to the **Institute for Learning Innovation** in January and revised their charter. Their aims are to amplify science communication by cultivating a community, professionalizing the field, and broadening participation.

The Public Engagement with Science (PEWS) conference on Defining and Measuring Success was held online in September. The sessions explored how the public can engage with science and what constitutes successful science engagement.

The Day One Project, whose goal is to find the best ideas to inform the federal science and technology policy agenda, called in December for a federal strategy for science engagement. Their vision is a strategy that would enable all Americans to learn from, use, and participate in the process and outputs of science.

The **American Association for the Advancement of Science** held their 2020 Communicating Science Seminar in person in Seattle in February. The seminar offered ideas on framing science and improving inclusivity. Videos and a summary of the event are available.

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The **Science and Entertainment Exchange** of the **National Academies of Sciences, Engineering, and Medicine** produced The 2020 Mixtape, a review of eight months of their online programming on forensics, astrobiology, neuroscience, and bioethics, with commentary from panelists.

The [**Center for**] <u>**Advancing Research Impact in Society (ARIS**</u>) convened their annual summit in April and posted videos of sessions <u>here</u>.

The SciCommer, a weekly global science communication newsletter that was launched in September, includes news and opportunities for practitioners and researchers.

Youth and Afterschool

The **Overdeck Family Foundation** and **Education Northwest** completed a landscape scan in May that describes the experiences of successful out-of-school time STEM programs. A webinar overview offers insights and recommendations for program leaders and funders who seek to expand learning opportunities in their communities.
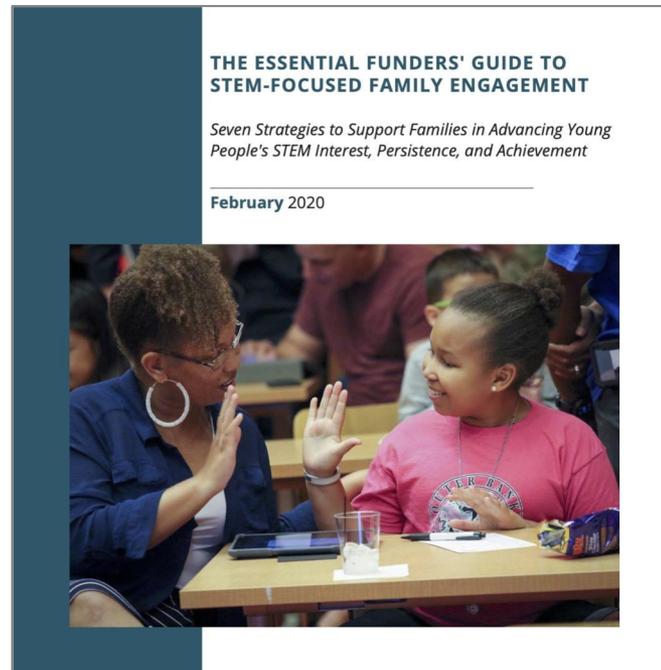
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America After 3PM
Demand Grows, Opportunity Shrinks

The **Afterschool Alliance** published the fourth edition of its America After 3PM study in late 2020. The report covers how children and young people spend their time after school and what children and families need today, especially since the onset of the COVID-19 pandemic.

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The **STEM Next Opportunity Fund** published a series of research-informed blogs on supporting family engagement with STEM during COVID. In addition, in February they published The Essential Funders' Guide to STEM-Focused Family Engagement to raise awareness and build knowledge among grant-makers to support practice, research, and policy solutions that address the race, gender, and income gaps in STEM.
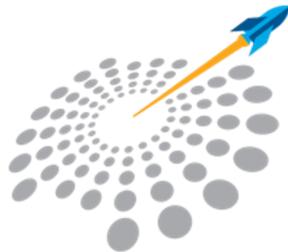
DE AI

THE ESSENTIAL FUNDERS' GUIDE TO STEM-FOCUSED FAMILY ENGAGEMENT

Seven Strategies to Support Families in Advancing Young People's STEM Interest, Persistence, and Achievement

February 2020

CONFERENCES/EVENTS/NEW RESOURCES

The Equity Compass:
A tool for supporting socially just practice

YESTEM Insight #1

The **Youth Equity + STEM (YESTEM)** project launched a website and a series of tools including an Equity Compass and explainer video, designed to help users adopt a social justice mindset as they develop and reflect on their policy and/or practice.

DE AI

MILLION GIRLS MOONSHOT

The **STEM Next Opportunity Fund** launched the Million Girls Moonshot Toolkit, a collection of transformative practice resources and tools that use a culturally responsive and equity lens to foster inclusive STEM learning spaces for all youth, particularly girls.

DE AI

Resources for Multiple Settings

Executive Summary: Gender Representation

AAAS has some functions in which the ratio of males to females is balanced or favors females, but overall, males outnumber females 2:1.

Science Family Authors and Reviewers' ratio of males to females is 2:1 in favor of males.

Note: These ratios exclude missing data.

AAAS   Copyright © American Association for the Advancement of Science   10/22/2020   27

The **American Association for the Advancement of Science (AAAS)** launched a baseline assessment of demographic representation in AAAS/*Science* functions in October to take concrete actions to address systemic racism.

DE AI

Science Counts published a study in December titled Americans' Expectations for COVID-19 Vaccine Safety and Effectiveness. The data show that racial identity and personal ideology affect people's beliefs about the vaccine.

DE AI

Peer Reviewed

The *International Journal of Science Education, Part B*, published the article <u>Public Perceptions of the STEM Learning Ecology–Perspectives from a National Sample in the U.S.</u> in February The article includes results from a nationwide survey showing that adults associate STEM not only with typical learning environments, but also with other settings that can provide opportunities for STEM learning.

DE AI

Peer Reviewed

Science Communication published the article <u>The Trouble with STEAM and Why We Use it Anyway</u> in March. It disentangles some of the key tensions and contradictions of the STEAM concept as it is currently operationalized in educational research, policy, and practice.

DE AI

PUBLICATIONS

The U.S. National Science Foundation's **National Science Board** published its Vision 2030 report in May. The report emphasizes the need for greater participation of women and other underrepresented groups in U.S. science and engineering and the need to ensure that research benefits reach all Americans.

DE AI

The **British Science Association's All-Party Parliamentary Group on Diversity and Inclusion in STEM** published an Inquiry on Equity in STEM Education report in June. It examines whether young people in the UK have equitable STEM learning opportunities, regardless of their background, and provides recommendations to resolve inequities.

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Peer Reviewed
The **Cognitive Development Society** published a Compilation of Research Related to Social Justice: An Annotated Bibliography in November. The research contributes to our understanding of how racial prejudices develop and includes theories, reviews, and empirical work on race and bases of categorization of social groups, perceptual learning of race and racial differences, attitudes about race and outgroups, socialization, and interventions and factors that promote resilience.

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The **Societal Experts Action Network**, a collaboration between the National Academies of Sciences, Engineering, and Medicine and Langer Research Associates, is a network of leading individuals and institutions that can provide rapid responses to actionable questions from decision makers. Their archive lists searchable, open-access survey instruments and weekly summaries that provide responses to urgent policy questions about COVID-19.

The **Center for Scientific Collaboration and Community Engagement** published a guidebook in August that describes five modes of member engagement. The resource is intended to support the development of a community member engagement strategy.

CONFERENCES/EVENTS/NEW RESOURCES

The FrameWorks Institute launched a series of communications in March focused on framing social issues during the coronavirus pandemic, which draw on research and practice to help advocates and experts be heard and understood during a time of crisis, and amplify the values of justice, inclusion, and interdependence.

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The **Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS)** held their conference virtually in October and posted videos of the plenary sessions.

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The **Indigenous Education Institute** held a series of webinars on A Sense of Place: Indigenous Perspectives on Earth and Sky, from May through October. Recordings are here.

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Thank you for reading!