

INCLUSIVE SCICOMM 2019 KNOWLEDGE-BUILDING REPORT

SEPTEMBER 2021



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The second Inclusive SciComm Symposium took place September 27-29, 2019 at the University of Rhode Island (URI). The conference, organized by URI's Metcalf Institute, was a national convening that brought together individuals interested in or working in science communication from among a variety of sectors. **The goal of the event was to share perspectives, techniques, and lessons learned while engaging in discussions on how to prioritize inclusion, equity, and intersectionality across the many disciplines, sectors, and modes (approaches) of science communication.** The 2019 Symposium focused on three primary themes:

1. Difficult conversations across difference (critical dialogue)
2. Changing structures and systems through inclusive science communication
3. Social responsibility and ethics of inclusive science communication



All photos in this report by Gretchen Ertl

SYMPOSIUM OVERVIEW

Originally launched in 2018, the three-day symposium expanded in its second year to include more concurrent sessions, two keynote speakers, a poster session, guided self-care breaks, a live Story Collider mini-show, and time set aside for networking. The event, promoted via social media, targeted emails to networks and individuals, and word of mouth, brought together 187 attendees from 27 states and three countries.

The symposium combined panel discussions, workshops, posters, and networking sessions to build knowledge and confidence that would facilitate participants' application of inclusive approaches to science communication and public engagement in a wide variety of settings and inspire their local leadership to move the needle on a national scale. The 2019 symposium advanced the national conversation about inclusive science communication (ISC)¹ in several important ways, namely: holding an open call for symposium session abstracts in order to harness multiple ways of approaching and studying ISC; bringing students and professionals from a wide variety of disciplines together to break down the silos that hamper our efforts; and engaging both researchers (spanning informal science learning, education, science communication, and other fields) and practitioners (from museums, libraries, community organizations, media, and other settings) in the discussion.

The symposium grew since its first occurrence, with a 27% increase in attendees over 2018 and an expanded three-day agenda (from 1.5 days in 2018) to accommodate more workshops and to provide more unstructured networking time for participants. Participants reported that the unstructured networking time is a critical aspect of the symposium, as there are few opportunities for science communication professionals to meet across sectors and disciplines.

The 2019 symposium began with a presentation on the state of inclusive science communication, which indicated that leaders in the field felt a personal and moral obligation to make STEMM fields more inclusive. These efforts, though, exist in silos all over the country. The Inclusive SciComm Symposium offered a way for practitioners who oftentimes only work within their own, limited professional networks to come together and share their unique experiences, from moments of joy and satisfaction in their local communities to expressing frustration with ongoing systemic challenges.

¹ Inclusive science communication is defined here as any information exchange that engages audiences in learning, conversations, or activities related to STEMM – science, technology, engineering, math, or medicine.

INCLUSIVE SCIENCE COMMUNICATION AS AN EMERGING MOVEMENT

Science communication is a fundamental aspect of science education and learning, across formal and informal settings, and throughout one's lifetime. Science communication efforts can provide space for dialogue among researchers, educators, and learners with mutual respect and a shared, inclusive discourse². Yet, inequities relative to race, class, gender, ability, and other aspects of marginalization have remained glaring in many post-secondary STEMM (science, technology, engineering, mathematics, or medicine) settings. Science communication has been critiqued as contributing to or perpetuating inequities because of a lack of attention to intentional, reciprocal, and reflexive interactions^{3,4}.

Often, science communication is undertaken through two types of deficit-driven lenses. One of these lenses, the knowledge deficit model, argues that people simply need more factual information to make sense of STEMM-related topics^{5,6}. Another, the cultural deficit model, views culture as irrelevant or universal, typically assuming white, Western, English-speaking culture as the default by which all STEMM learning happens^{7,8}. These deficit lenses perpetuate marginalization and oppression and ignore the "collective meaning making" that can result from embracing diverse cultural approaches to science communication (Davies et al., 2019, p. 3).

² Stocklmayer, S.M., Gore, M.M. & Bryan, C. (Eds.) (2001). *Science communication in theory and practice*. Dordrecht, Netherlands: Kluwer Academic Publishers.

³ Canfield, K. & Menezes, S. (2020) *The State of Inclusive Science Communication: A Landscape Study*. Metcalf Institute, University of Rhode Island. Kingston, RI. 77 pp.

⁴ Canfield, K. N., Menezes, S., Matsuda, S. B., Moore, A., Mosley Austin, A. N., Dewsbury, B. M., Feliú-Mújer, M. I., McDuffie, K. W. B., Moore, K., Reich, C. A., Smith, H. M., & Taylor, C. (2020). Science communication demands a critical approach that centers inclusion, equity, and intersectionality. *Frontiers in Communication*, 5: 2. <https://doi.org/10.3389/fcomm.2020.00002>

⁵ Wynne, B. (1992) Misunderstood misunderstanding: social identities and public uptake of science. *Public Understanding of Science*, 1(3): 281-304.

⁶ Simis, M.J., Madden, H., Cacciatore, M.A., & Yeo, S.. (2016) The lure of rationality: Why does the deficit model persist in science communication? *Public Understanding of Science*, 25(4): 400-414.

⁷ Landis, B.Y., Bajak, A., de la Hoz, J.F., González, J.G., Gose, R., Tibbs, C.P., & Oskin, B. (2020) *CómoSciWri: Resources to Help Science Writers Engage Bicultural and Bilingual Audiences in the United States*. *Frontiers in Communication*, 5: 10.

⁸ Yosso, T. (2005) Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race Ethnicity and Education*, 8(1): 69-91.

Because both social and educational contexts in the United States are heavily influenced by a racialized past and present, ISC is also emerging as an umbrella movement to integrate a wide range of relevant research and practice in response to traditional models of science communication. ISC aims to acknowledge historical oppressions, inequities, and biases to foster a sense of belonging for marginalized communities in STEMM and to amplify diverse perspectives. Its proponents assert that historically marginalized perspectives must be centered within science communication—and STEMM more generally—as a necessary challenge to persistent systems of oppression. With communication, and using critical dialogue, in particular, as a core approach, ISC places equity, inclusion, and intersectionality at the center of research and practice.^{3,4}

SYMPOSIUM EVALUATION AND RESEARCH

The NSF-funded project, “Inclusive Science Communication Symposium 2019: Building Knowledge and Capacity Among Practitioners and Researchers to Foster Inclusive Public Engagement with STEM,” supported the knowledge-building component of the 2019 symposium.

Following approved IRB protocols, project researchers invited all registered participants to fill out pre- and post-event surveys with the goals of understanding participants’ motivations for attending the symposium, what they hoped to gain from attending, and their previous experiences with critical dialogue⁹, which was defined as the practice of fostering potentially difficult conversations across difference. We also asked participants to share what they saw as key opportunities for advancing ISC research and practice. During registration, participants were asked if they would like to participate in focus groups on two topics: 1) experiences with critical dialogue, and 2) barriers and opportunities for future research in inclusive science communication. Survey participation was approximately 50%, with 94 attendees completing the pre-event survey and 93 attendees completing the post-event survey. In addition, 33 individuals participated in small focus groups during the Symposium.

Less than five months after the conference took place, the COVID-19 pandemic drastically altered the formats and offerings of formal and informal learning in the United States. Across the globe, governments ordered citizens to shelter in place and, as a result, individuals and organizations adapted to new routines that depended heavily on remote learning and work while managing significant economic challenges.

⁹ Laman, T. T., Jewett, P., Jennings, L. B., Wilson, J. L., & Souto-Manning, M. (2012). Supporting critical dialogue across educational contexts. *Equity Excellence in Education*. 45: 197–216.

At the same time, national outrage spiked in response to the murders of Breonna Taylor, George Floyd, and many other Black, Latinx, and Indigenous people in the United States by law enforcement personnel. Across the U.S. and the world, discussions about historical and systemic racism and inequities gained urgency in mainstream discourse. These conversations overlapped with a highly contested and nationally divisive presidential election in the U.S.

Given the confluence of COVID-19, national discussions of systemic racism and inequity, and the 2020 presidential election, project researchers conducted a third follow-up survey with primarily open-ended questions to ask participants about their experiences in 2020 and if those experiences had impacted their perspectives on inclusive science communication.

2019 SYMPOSIUM EVALUATION RESULTS

As a first step in learning about the priorities and work of 2019 symposium attendees, a pre-survey was designed to collect demographic information, motivations for attending the event, and desired outcomes. Demographic information is described in Appendix 1.

DESIRED OUTCOMES

Practical Skills

When asked to select what outcomes from the symposium were most important, attendees ranked practical skills highest, with 89% of respondents indicating that gaining practical skills was very or extremely important. Examples might include conversation and listening skills, roleplay exercises, and the use of storytelling or improvisation. In addition, 82% said it was very or extremely important to gain a greater understanding of how to prioritize inclusion in their work.

Resources

Eighty percent of respondents rated learning about and gaining access to resources as very or extremely important. A crowdsourced “Inclusive SciComm Resources” document was created to facilitate this resource sharing. In addition, 65% of participants ranked evaluation tools and resources as being very or extremely important. The least important outcomes, according to participants, were story ideas, research ideas, and curriculum ideas.

Connection

Networking and gaining new collaborations were rated as very or extremely important by 87% and 71% of respondents, respectively. As noted in the Canfield & Menezes (2020) Inclusive SciComm landscape report³, professional silos represent a significant impediment to broader integration of inclusive practices. This was observed during the final “town hall” style discussion at the 2019 Symposium, when attendees had a lengthy discussion about the many disciplines and professions that could inform the movement. In other words, science communication is conducted in countless settings, across disciplines that may be entirely unaware of each other. To advance the field, attendees agreed, we must pursue transdisciplinary approaches that bridge disciplines, sectors, and methods, and collaborate with a range of partners.

As one survey respondent noted, inclusive science communication should ask, “What's our shared vision and what are we building, together, that's going to address the issues we care about?”

EFFECTIVENESS OF THE SYMPOSIUM

The 2019 Symposium participants expressed a high degree of satisfaction with the event in the post-event survey. Respondents reported that the Symposium met or exceeded expectations in regard to resources (95%), networking (94%), a better understanding of how to prioritize inclusion in their work (88%), new collaborations (84%), practical skills (80%), curriculum ideas (69%), story ideas (67%), research ideas (65%), and evaluation tools (55%).

- 77% of respondents found the Symposium’s networking opportunities to be very or extremely useful, as evidenced by the 84% of respondents who reported making at least one connection they expect to lead to a new collaboration.



- 73% of post-event survey respondents reported they were more likely to pursue partnerships related to ISC compared to before the Symposium.
- 65% of respondents were “extremely likely” to attend a similar event in the future.

RESEARCH RESULTS

Pre-symposium survey responses provided important insights into how participants felt about critical dialogue, the primary objective of this NSF-funded project. When paired with qualitative data from open-ended survey questions and focus groups, clear themes emerged on areas that participants felt needed more attention.

PARTICIPANT RESPONSES ABOUT CRITICAL DIALOGUE

Frequency of Engagement in Critical Dialogue

One of the primary aims of this study was to identify how symposium attendees engage in critical dialogue. It is important to note, then, that the Symposium attracted attendees who were already deeply engaged with science communication in some way.

The pre-event survey found that 89% of survey respondents felt at least moderately familiar with science communication practices and/or research. Furthermore, most respondents (81%) reported previous engagement in critical dialogue as a part of their regular science communication work. These unexpectedly high numbers likely indicate a self-selecting participant pool; attendees likely attended the Symposium because they already were interested in and valued inclusive science communication and, at least to some degree, critical dialogue. This is further supported by respondents’ overwhelmingly positive responses in the pre-event survey that critical dialogue is both extremely useful (87%) and extremely important (90%).

Peer Engagement in Critical Dialogue

While attendees reported frequent engagement in and high valuation of critical dialogue, they did not believe their peers did so to the same extent. On average, respondents believed their peers to be slightly (30%) or moderately (35%) likely to engage in critical dialogue when necessary, with only 9% believing their peers were extremely likely to pursue these difficult conversations. Nonetheless, 86% of respondents at least somewhat agreed that those important to them in their professional lives supported their engagement in critical dialogue.



Confidence in Engagement in Critical Dialogue

The pre-survey asked respondents to indicate their level of confidence regarding critical dialogue. The majority of respondents (88%) felt confident in their ability to engage in this practice. A smaller percentage, however (61%), expressed confidence about their knowledge of the best language to use when engaging in critical dialogue. For some respondents, at least, this specific confidence gap is an example of broader confusion about how to launch or participate in conversations across differences. As one respondent said in response to an open-ended question, “As a white person of privilege I still feel uncomfortable partaking in critical dialogue in fear that I am inappropriately speaking for others or stepping over a line. I want to make my practice of Western science more inclusive and respectful, but am still unsure what respectful is.”

FUTURE DIRECTIONS FOR INCLUSIVE SCIENCE COMMUNICATION

Three dominant themes appeared across qualitative survey data and focus group data: (1) Systemic and institutional barriers to inclusive science communication research and practice; (2) The need for more connection and resource-sharing across contexts; and (3) The need for more inclusive and innovative evaluative approaches for assessing science communication impact.

DISMANTLING SYSTEMIC AND INSTITUTIONAL BARRIERS TO INCLUSIVE SCIENCE COMMUNICATION RESEARCH AND PRACTICE

Attendees noted frustrations with various systemic and institutional practices that inhibit inclusive approaches. The systemic issues included funding, timelines, power structures, and exclusive practices.

- Attendees expressed a **desire for the institutions involved in their work (universities, science centers, funding bodies, etc.) to provide greater support (financial and otherwise) for inclusive efforts or research.** Respondents held the individuals in power responsible for these institutional issues.
- Attendees attributed institutional “inertia” and failures to “White supremacy culture remaining the dominant culture at institutions that support scientific research, education and communication.” Respondents pointed out the **dominance of white people in leadership roles in academia generally and in ISC initiatives, specifically, citing the importance of elevating the perspectives and leadership of people of color.**
- Attendees remarked on how the **predominance of Western approaches to science and science communication over other ways of knowing has further perpetuated systemic exclusion.** As one person noted, “Lack of awareness about what ‘STEM’ is (beyond the western view), and who does ‘STEM’...leads



“Some people are in power and just don't prioritize inclusive practices, or outright ban them or put communicators at risk if a particular inclusive practice feels 'risky' to them.”

to limited perspective, conversations, and actions because of the homogeneity of decision-makers.”

- Attendees noted the **challenges of getting funded for ISC, especially within the longer timeframes that are needed for building equitable relationships**. For example, one focus group participant described how they shifted where they submit grants from traditional science agencies to local funders, such as the city council, for science communication efforts. One focus group participant described the consequences of short-term projects: “All these projects happen that are wonderful and fantastic, and in two years it's done... there's no connection and no relationships and...communities get abandoned again.” One respondent suggested “funding pre-work such as engaging communities to see what THEY want rather than not figuring that out until after we've written and gotten the grant.”

THE NEED FOR MORE CONNECTION AND RESOURCE-SHARING ACROSS CONTEXTS

Beyond institutional practices, participants expressed a desire and need for more connection, community-building, and resource sharing among ISC practitioners, researchers, and community members.

- Symposium attendees expressed a **desire for a broader community of ISC practitioners and researchers to overcome silos and elitist hierarchies, particularly between researchers and practitioners**. One survey respondent noted: “There is still room to include more *practitioners* of sci comm and engagement in our conversations, and to broaden our definition of who engages in sci comm/engagement”. Echoing these concerns, a focus group participant highlighted the exclusion of K-12 teachers in the dialogue: “We're really interested in understanding more about how teachers have become a marginalized group within the science communication industry.”
- Attendees’ **suggested solutions** to these disconnects included 1) tools to connect, via networking portals or online hubs of shared resources; 2) a theory-based shift to bridge these gaps through community-based approaches and integrating multiple ways of knowing; 3) learner-driven approaches to dialogue across research and practice, and 4) a greater emphasis on listening and finding commonalities in order to develop and sustain more meaningful partnerships.
- Attendees desired **shared resources on critical dialogue and inclusive practices** within STEMM fields. Despite their motivation, many felt unsure how to best implement inclusive practices. For example, one respondent noted the need for “more practical resources for doing this work (i.e., how to start conversations, who to engage, common language for doing this, key themes and definitions).”



“People need to work together in a collaborative environment around a common goal to move from conversation to connection, and from ‘making for’ to ‘making with.’”

- Beyond their practical utility, attendees also viewed **shared resources as another opportunity to connect, build community, and expand the evidence base for the value of inclusive approaches.** “The goal is to create a database of people doing science outreach, collecting those stories, collecting those case studies, and then figuring out what can be done with that information.”
- **Language poses a challenge for this work, too.** Specifically, some do not feel represented by the term “inclusive science communication.” There is a common tension between a focus on *inclusive science communication* and *inclusive science*. In some cases, the people working in these overlapping spaces may view themselves as working toward the same goals; in other cases, there may be important differences. Regardless, it is important to track the outcomes to ensure that terms are offering opportunities for transdisciplinarity, rather than perpetuating silos.

“The things that I feel are most inclusive are community partnership building work and full on engagement. Whereas scientific communication I tend to think of more as one directional, not necessarily bi-directional relationship, there's a hole I'm not going to get in. But knowing that's the case, it does make me think whether or not you can actually truly have fully inclusive scicomm versus inclusive engagement with science, or inclusive science. Scicomm is not necessarily the best structure for inclusion.”

THE NEED FOR MORE INCLUSIVE AND INNOVATIVE EVALUATIVE APPROACHES FOR ASSESSING SCIENCE COMMUNICATION IMPACT

One aspect of the call for shared resources was a frustration with the lack of evaluation tools available for use within the science communication community, especially regarding critical dialogue. This topic came up repeatedly in both survey and focus group data sets: between the survey responses and focus group transcripts, the words “evaluate” and “evaluation,” or related terms (e.g., “analyze”, “measure”, “assess”) were found 75 times.

- **Attendees are eager for evidence of effectiveness that could help to systematize inclusive, equitable approaches.** Many noted the difficulty in scaling up projects or implementing successful strategies in new environments. One focus group participant explained: “The methodologies for different types of environments...what works in one environment is not necessarily going to work in another environment; informal versus formal science communication, digital versus in-person environment, all those methods of evaluation still need to be worked out.”

Respondents presented improved evaluation as a way to garner greater institutional support. “Figuring out how to get leadership at the major public engagement organizations (specifically, science centers) to take this stuff seriously. Finding the metrics that will get their attention.”

- Attendees also are looking for **novel evaluation approaches that counter the challenges of more traditional evaluation techniques: their punitive outcomes, rigidity, and failure to assess nuanced and/or long-term outcomes.** Suggestions included a more intentional reflection on goals and what constitutes “success” at various stages of a project in the context of dialogues with communities and practitioners. As one focus group attendee explained: “With the evaluation, it depends on what we want to see. So for me it's like how many people come to an event, and I don't care. It's like the experience of the one person who is now sparked to do something in their community or to change their career path, because I work with undergrads. So...I guess it depends on, on what we're evaluating, and what is the goal. And I know my goal is very against the grain for most people, when it comes to that. A lot of people are very linear when they're thinking about evaluation.”
- Attendees **suggested two terms to encompass new forms of evaluation – “co-evaluation creation” and “inclusive evaluation.”** Participant descriptions of these ideas parallel some of the core tenets of ISC, generally, centering equity, inclusion, and intersectionality by developing learner-driven and community-focused assessments. As one survey respondent put it: “It makes no sense to me that we change one part of the system without changing all parts. I really am keen to understand how we might better perform evaluation from a fresh point of view - how do traditional expectations of outcomes stifle and warp our work.”
- Attendees also lamented the **difficulty and inaccessibility of evaluation:** “Evaluation is expensive. It's time consuming. Getting the wording right to, to get it so it's not leading. And if you're a practitioner with zero, little to zero, support, that makes it near impossible”. Proposed solutions to this gap included partnerships between researchers and practitioners and “evaluation kits” that could be implemented in a variety of contexts. Researchers are also interested in identifying more accessible forms of evaluation that model reflection, “so maybe not a multiyear study involving millions of dollars of funding, right? ...We need micro ways of micro assessing...”
- In addition to this new empirical data, a **review of the relevant literature also indicates the need for evaluation of critical dialogue within inclusive science communication.** Future work to synthesize evaluation strategies used to assess critical dialogue across fields could lead to a common evaluative framework for ISC practitioners.

2020: AN UNPRECEDENTED YEAR

2020 presented countless challenges to our personal and professional lives. As a result, symposium planners invited 2019 symposium attendees to participate in a short follow-up survey in December 2020 with primarily open-ended questions about experiences in the previous year that may have affected perspectives on inclusive science communication. The survey also asked respondents about virtual conferences and planning for the 2021 event. Thirty people responded to the follow-up survey, a response rate of 16%. See Appendix 1 for respondents' demographic data.

When asked how the events of 2020 impacted participants in relation to their engagement with critical dialogue, several responses reaffirmed results from the 2019 survey, but several new themes also emerged. Survey respondents noted new insights around key themes: **1) accessibility and the digital divide; 2) the emotional impact of 2020 and the need for urgent action; and 3) how the events of 2020 provided openings for more critical dialogue.**

ACCESSIBILITY AND THE DIGITAL DIVIDE

Respondents observed that the shift to primarily remote work and learning brought issues of technological privilege to the forefront. Respondents noted how a lack of resources affected populations who might not have access to reliable internet or technology. In particular, participants raised concerns about the lack of available resources that had closed captioning or were available in multiple languages.

“How many people don't know about changes to CDC recommendations because they lack access to unlimited data, don't speak English fluently, or lack the emerging media literacy to find good information? And very few misinformation correction campaigns are in non-English languages despite the flourishing of alt-right conspiracies (including stuff about COVID-19) in Spanish.”

“At first, I wanted to conduct a technology needs assessment to see how I could help students, but it proved a difficult task. Many of the students were difficult to reach, especially when their schools went to remote education services. This got me thinking that the pandemic exacerbated challenges in reaching already difficult-to-reach populations even more than I could have imagined. It became almost an impossible task to reach these students during this time period.”

THE EMOTIONAL IMPACT OF 2020 AND THE NEED FOR URGENT ACTION

Respondents highlighted the impacts of 2020 on their mental health and their emotional responses to the tumultuous year. Participants reported feeling humbled, discouraged, sad, and worried, among other sentiments. Participants also expressed the need for intentional dialogue and the need for urgent and real—not performative—action.

“Dialogue must be intentional and purposeful. 2020 should have taught us all that we shouldn't waste paper [on] performative statements that lack teeth. I'm not interested in departmental statements of support. I'm interested in clear initiatives to broaden the makeup of the department to create a space that mirrors the rich tapestry of society. If that is not what's going down, I don't have time for it.”

“I've felt more humility in my own process - recognizing that even as a Latina and first-generation student, I do not even remotely have a lock on 'diverse perspectives.'”

“In many ways the events of 2020 have underscored the tension between urgency and the slow pace of change. It takes time to build partnerships, develop programming and provide opportunities for students and the community.”

“I feel discouraged about critical dialogue across differences. The experiences of 2020 with the oppression of free speech / protest, governmental corruption and abuse of power, assault on policies protecting the environment, attack on science, widespread disinformation, and stay-at-home orders associated with the pandemic have increased my awareness about the need for critical dialogue across differences, but decreased my feelings of hope and motivation. My intentions remain strong.”

“It's made me a lot more cynical, though, and impatient for change instead of more dialogue from people with power.”

“Inclusive science communication was always a value, but 2020 helped it become more of an urgent priority for me and our entire team.”

OPENINGS FOR CRITICAL DIALOGUE

Some participants found that the events of 2020 presented an opening for engaging in critical dialogue within a broader context. Participants noted how 2020 brought conversations about systemic racism into the workplace with more urgency and attention from institutional leaders.

“The events of hate against people of color have triggered conversations, this has been an opportunity to connect and work closely with my colleagues and clients to suggest a "reboot", meaning I have taken advantage of the current events to raise the sense of urgency and have the hard conversations that were lingering before.”

“The events of the summer shifted the priorities (at least temporarily) of leadership in our University and made it easier to talk about the DEI goals embedded in our practice. This year, with all of its constraints and interruptions allowed us to build out our infrastructure (develop scicomm coursework, provide leadership opportunities for students within our internship program, build our remote teaching capacity, network). We are trying to take advantage of the tailwind these public conversations on equity and diversity provide.”

PLANNING FOR 2021: ESSENTIAL TOPICS

The 2020 survey was also used to inform 2021 symposium planning. When asked what topics or themes respondents saw as essential for the 2021 symposium, participants expressed a desire to discuss antiracism, how to combat mis- and dis-information, inclusivity in research and publishing, how to build trust and collaboration, appropriation and compensation, and conflict resolution. Specifically, participants requested time to discuss:

- Multi-lingual science communication,
- Decolonizing science communication,
- Creative strategies/incentives/compensation to engage community members in critical collaborative processes on issues of local concern,
- Engaging with faith communities,



- Seeking critical dialogue with underserved populations who experienced trauma in 2020,
- Disability and ableism in science communication, and
- How to advance inclusive science communication within government settings.

PLANNING FOR 2021: VIRTUAL SPACES

To ensure public safety, Inclusive SciComm Symposium organizers decided to hold the symposium virtually in 2021. When asked about lessons learned from participant experiences at virtual conferences in 2020, respondents to the third survey highlighted the need for shorter sessions and multiple breaks, structured and encouraged participation, with less traditional panels and speakers. Suggestions included:

- Clear goals for each session.
- A mix of synchronous and asynchronous content.
- Limiting session duration to emphasize interaction rather than presentations.
- Small-group breakouts to help facilitate engagement and participation.
- Breakout rooms or spaces for people presenting to hang out and answer questions after their presentations.
- Casual, facilitated, one-on-one speed networking opportunities that last only a few minutes let participants get a sense of who other people are but provide an out if there isn't much overlap in interest. Rapid coordination where people get 30 seconds to say what they need, followed by people raising hands if they want the asker to follow up with them after the meeting about that need (items to add to a list, candidates for an opportunity, collaborators, etc.), then on to the next person with a question.
- Tools to increase engagement, such as Google Jamboards, Google Docs, Mural, Padlet.
- Plenty of time for networking using platforms or structures that don't allow one or two people to dominate the conversation.
- Clear guidance for attendees that virtual conferences should not be approached like face-to-face conferences. Speakers need to think differently when building their talks. Interactive content throughout - polls, asking chat-based questions, etc. - keeps the audience more engaged. Recorded content should be made available afterward for those who were not able to attend synchronously.

CONCLUDING REMARKS

This project supported the knowledge-building component of the 2019 Inclusive SciComm Symposium, to investigate: 1) 2019 symposium attendees' attitudes, behaviors, subjective norms, and self-efficacy in regard to engaging in critical dialogue in their professional roles; 2) how attendees' experiences inform their approaches to inclusivity and difficult science communication conversations in particular; and 3) priority research areas related to inclusivity and critical dialogue that could advance inclusive science communication practice and beneficial outcomes.

There is significant momentum to shift science communication research and practice, writ large, toward approaches that center inclusion and equity. Still, this shift is currently happening at a relatively small scale and is largely driven by committed individuals, not institutions. The findings of this study underscore the need for systemic changes to advance these goals at scale. Indeed, the 2019 Inclusive SciComm Symposium attendees were anxious to facilitate systemic change—as well as shifting their individual practices—but they seek guidance on how to support and sustain systemic or institutional change.

Critical dialogue is an essential technique for inclusive science communication, and our findings indicate that the majority of survey respondents at the 2019 Symposium understand this. However, there are critical gaps in how critical dialogue is achieved. Based on this research, a systemic shift toward science communication that centers inclusion, equity, and intersectionality will require much more work to break down disciplinary and sectoral silos to facilitate learning and avoid duplicating efforts. It also requires the development of new curricula to build and practice skills in relational engagement. The symposium is one aspect of the effort to eliminate, or at least lower, silo walls and help to identify gaps in research and practice. As the symposium continues on a biennial schedule, it offers the opportunity to track the goals, practices, and outcomes of this growing community of practice, while also informing the literature on adult learning in conference settings.

Additional Resources

[Inclusive SciComm Starter Kit](#)

[Inclusive SciComm Starter Kit teaser video](#)

[Inclusive SciComm Crowdsourced Resources List](#)

[Inclusive Science Communication in Theory and Practice](#)

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APPENDIX 1: DEMOGRAPHIC DATA

2019 PRE-SYMPOSIUM SURVEY

The majority of survey respondents were white (65%), women (75%), and held advanced degrees (75%). Representation of marginalized racial and ethnic groups at the Symposium was not proportional to national populations. Survey respondents were 1% American Indian/Alaska Native, 4% Asian, 10% Black/African American, 11% Hispanic/Latinx, 1% Middle Eastern, 1% another race or ethnicity, and 7% mix of multiple races and ethnicities.

Survey respondents represented a range of professional sectors, led by higher education (51%), non-profits (22%), and government (11%). The remaining attendees included those in the private sector, philanthropy, K-12 education, and “other” sectors. When asked to clarify their professional role as it relates to science communication, approximately 52% identified as practitioners, 22% as researchers, 7% as trainers, 2% as funders, and 16% as “other.”

When asked to identify “other” occupations, several attendees indicated they were some combination of practitioner, trainer, and researcher. Attendees also self-identified as administrators, fundraisers, public engagement coordinators, content developers, facilitators, communicators, educators, and higher education students. It may be noted that the aforementioned occupations most likely incorporate science communication practice and training, yet attendees did not identify as science communication practitioners or trainers.

2019 SYMPOSIUM FOCUS GROUPS

Demographic data were not collected for the focus groups.

2019 POST-SYMPOSIUM SURVEY

Demographic data were not collected for this survey.

DECEMBER 2020 FOLLOW-UP SURVEY

The majority of survey respondents were white (57%), identified as women (67%), and held advanced degrees (87%). In response to the open-ended request for respondents’ gender identities, 13% identified as men and 20% did not respond. Twenty percent of survey respondents identified as Hispanic/Latinx, 17% Black or African American, 3% American Indian/Alaska Native, 7% Asian, and 2% other race/ethnicity.

Survey respondents represented a range of professional sectors, led by higher education (53%), non-profits (20%), and government (7%). The remaining attendees included those in the private sector, philanthropy, K-12 education, and “other”.