

Public engagement and institutional change

Because science is prevalent in all facets of our lives, the science-society relationship is complex, and there are many ways to approach it. Interactions between interested stakeholders are critical to finding common ground on scientific issues affecting society. Public engagement can provide a constructive platform for such dialogue, focusing on intentional, meaningful interactions that provide opportunities for mutual learning between scientists and members of the public. Goals for public engagement include civic engagement skills and empowerment, increased awareness of the cultural relevance of science, and recognition of the importance of multiple perspectives and domains of knowledge to scientific endeavors.

The American Association for the Advancement of Science's Center for Public Engagement with Science and Technology provides scientists and scientific institutions with opportunities and resources to engage with various publics. The Center's programs increase awareness and understanding of public engagement and its benefits, demonstrate excellence in public engagement, train scientists to engage with public audiences, and build capacity for conducting public engagement with science.

One of the premier programs of the Center is the Alan I. Leshner Leadership Institute for Public Engagement with Science, which empowers scientists and engineers to develop and implement public engagement activities, mentor other scientists in their communities and promote public engagement within their institutions. Each year the AAAS Leshner Leadership Institute brings together up to 15 mid-career researchers working on a topic at the nexus of science and society for a week of intensive training, public engagement practice, and planning.

As a part of their planning, each AAAS Leshner Fellow identifies goals related to institutional change: building understanding about, capacity for and support of public engagement within the various institutions with which they are affiliated, including universities, government agencies, professional societies and private industry. Institutional change takes place across all levels of the institution, from individuals to departments and the institution as a whole, and in multi-institution collaborations.

During the following year at their home institutions, AAAS Leshner Fellows implement their plans, interact via regular virtual meetings and receive additional support from staff and experts in the field of public engagement as they lead and champion public engagement at their home institutions. AAAS Leshner Fellows also have access to additional capacity-building opportunities, including bringing a AAAS Communicating Science Workshop to their institution or requesting seed funding to support individual and institutional public engagement efforts.

The AAAS Leshner Fellowship has so far consisted of three cohorts:



Climate Change 2016 - 2017



Infectious Disease 2017 - 2018



Food and Water Security 2018 - 2019

Topics for future AAAS Leshner Fellow cohorts include:

Human Augmentation 2019 - 2020

Artificial Intelligence 2020 - 2021

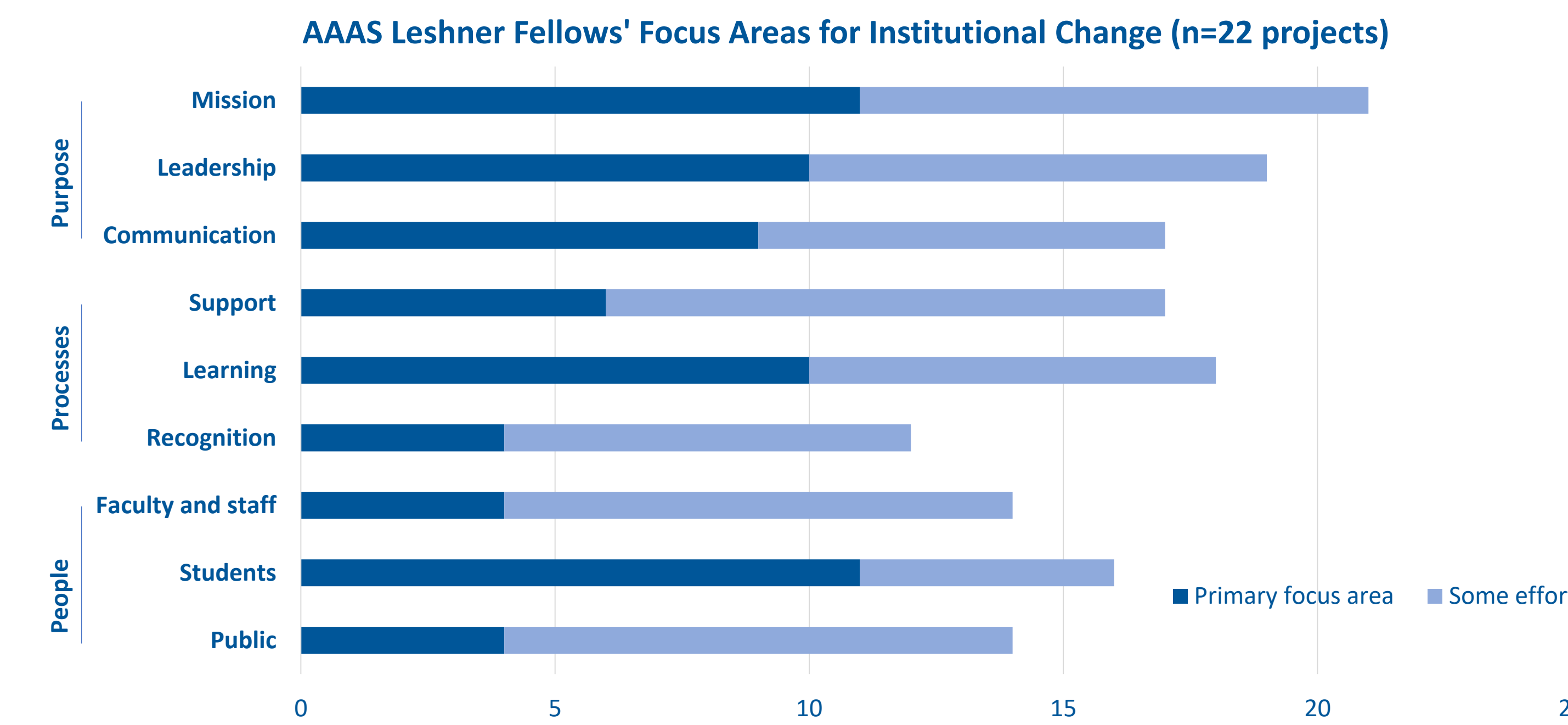
Building institutional capacity for public engagement

In 2017, AAAS Leshner Fellow Sheena Cruickshank introduced the UK National Co-ordinating Centre for Public Engagement's EDGE Tool as a framework that AAAS Leshner Fellows might use to assess institutional support for public engagement. The tool identifies nine areas where institutional support for public engagement is critical; AAAS Leshner Fellows identify goals and actions for institutional change in one or more of these areas.



Adapted from UK National Co-ordinating Centre for Public Engagement EDGE Tool (<https://www.publicengagement.ac.uk/support-engagement/strategy-and-planning/edge-tool>).

During their fellowship year, AAAS Leshner Fellows report progress on their public engagement and institutional change goals in online journals and in conversations with AAAS staff. Because the EDGE Tool was not introduced until the second cohort and its use in framing goals and activities was not fully integrated into AAAS Leshner Fellows' planning efforts until the third cohort, all current and past participants were asked to identify their target areas and progress on institutional change in a recent survey. Of the 45 AAAS Leshner Fellows, 18 responded, providing information about 22 institutional change projects involving 26 AAAS Leshner Fellows at 20 institutions (10 academic institutions, 4 departments or units within an academic institution, 4 professional societies, 1 scientific journal, and 1 multi-institution collaboration).

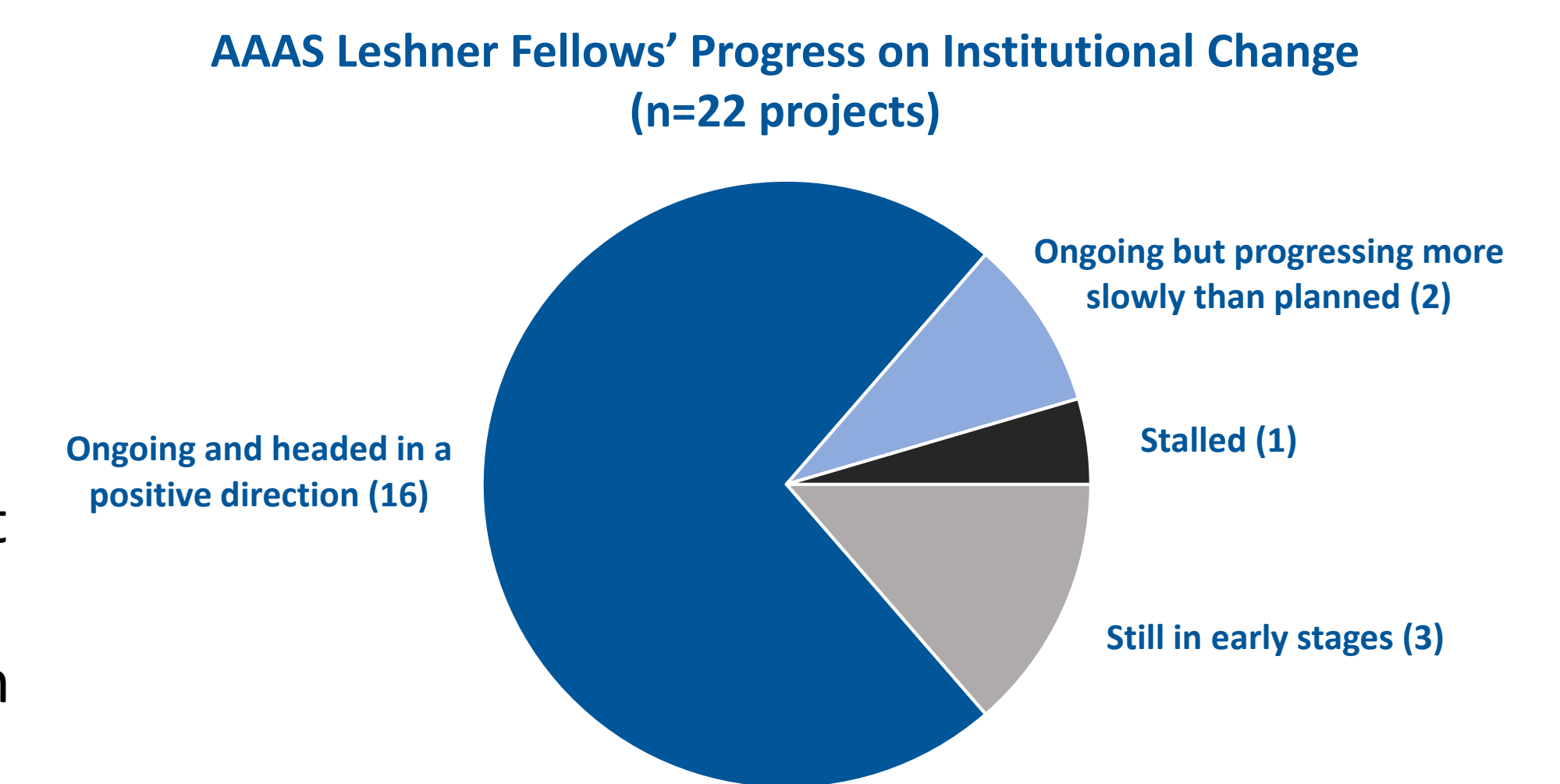


Institutional change activities often address more than one of the focus areas. Overall, AAAS Leshner Fellows indicated their efforts targeted all nine focus areas. Most respondents selected 2-3 primary focus areas and 3-4 additional areas where they were putting some effort into institutional change. Given the small number of institutions within each of the institution type groups, it was not possible to analyze whether there were significant differences between the focus areas at different institution types. However, the most common areas of focus at each were:

- Academic institutions:** Mission, Leadership, Communication, and Public
- Department or other unit within an academic institution:** Mission, Learning, and Students
- Professional societies:** Mission, Leadership, and Communication
- Scientific journal:** Leadership, Learning, and Students
- Multi-institution collaboration:** Mission and Learning

Progress on institutional change

All of the AAAS Leshner Fellows who responded – both those in the current cohort and those in previous cohorts – are actively working on institutional change. Most of the projects they reported on are headed in a positive direction.



Key partners within institutions

AAAS Leshner Fellows reported that they almost always collaborated with individuals and programs within their institutions on institutional change activities.

- Administrators
- AAAS Leshner Fellows (at the same institution)
- Faculty / researchers
- Institution's press, communications, or outreach office
- Program staff
- Graduate students

Key partners outside of institutions

AAAS Leshner Fellows reported that collaborated to a lesser extent with individuals and programs outside of their institutions on institutional change activities (8 / 22 projects).

- AAAS Staff
- AAAS Leshner Fellows (at a different institution)
- Corporate leaders
- Government agencies
- Community organizations
- Media organizations

Challenges to institutional change

AAAS Leshner Fellows reported a number of challenges and obstacles that slowed progress on institutional change. In some cases, they were able to overcome these hurdles, while in others they have had to adjust their expectations and goals.

Challenge	Ways to move forward
Recruiting or identifying other faculty and researchers to take an active role in public engagement activities	Identifying value of public engagement to research; Sharing information about public engagement at similar institutions; Providing credit via promotion / tenure metrics
Identifying champions for public engagement who can commit to / enable programs, especially when organizations are in transition	Persistence; Mapping and working with administrative timelines
Lack of funding or other program resources	Finding and working with high-level champions
Program design, including finding or developing guidance for what is "okay"	Collaborating with or using templates from colleagues who have done work in the past
Recruiting program participants	Providing incentives to participate
Coordinating programs across the institution	Informal meetings to get buy-in before launching projects
Time	Identifying priority tasks and reducing or revising goals



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Landscape Assessment and Planning

Surveys and interviews are essential tools for understanding the current state of public engagement. Sheena Cruickshank (2017-8) used the EDGE tool as the basis for surveys and interviews of faculty and staff at the University of Manchester. Kristy Hopfensperger (2018-9) and Merritt Turetsky (2018-9) are both planning surveys of professional societies (Society of Freshwater Scientists and Royal Society of Canada, respectively). Such assessments provide a foundation for identifying areas where institutional capacity exists and planning for ways to add to or develop new capacities.

Discussion forums provide another opportunity to collect input on an institution's public engagement capacity. Melissa Kenney (2016-7) worked with several committees and sections within the Ecological Society of America to convene a workshop during the 2018 Annual Meeting that asked participants to reflect on the ways they envisioned the society might support public engagement.

National-level recognition for institutions that support public engagement, such as the National Co-ordinating Centre for Public Engagement's Engage Watermark (United Kingdom) and the Carnegie Foundation's Classification for Community Engagement (United States), is one potential end goal for AAAS Leshner Fellows who lead or participate in institutional change efforts. Sheena Cruickshank (2017-8) was a leader on the team at the University of Manchester that was recently awarded a Gold Engage Watermark, while a number of AAAS Leshner Fellows are working with others at their universities to prepare for the 2020 round of Carnegie Classifications.



Sheena Cruickshank (2017-8, second from left) was part of the team that led the University of Manchester's application for a Gold Engage Watermark. Photo courtesy UK National Co-ordinating Centre for Public Engagement.

Purpose

Mission

Create a shared understanding of the purpose, value, meaning and role of public engagement and embed this in the strategy and mission of your institution.

At the University of Iowa, Craig Just (2018-9) is part of a cross-institution team of faculty reviewing the outreach and engagement mission of the institution and discussing strategies to ensure it is incorporated in strategic planning.

Leadership

Identify and support champions of public engagement across the institution.

At the University of Maryland, Melissa Kenney and Karen Lips (2016-7) are building a coalition through numerous meetings with faculty leaders, administrators, and deans and proposing programs that support student and faculty professional development in public engagement.

Communication

Communicate consistent, clear messages to validate, support and celebrate public engagement and ensure open and two-way communication with internal and external stakeholders.



The editorial by AAAS Leshner Fellows can be found at <http://tinyurl.com/EngageESA>.

Organized sessions at professional society meetings provide opportunities for researchers who are doing public engagement to share their work with colleagues from across the society and inspire others to engage. Melissa Kenney (2016-7) and Kirsten Schwarz (2018-9) have proposed and run multiple sessions at Ecological Society of America annual meetings. Kristy Hopfensperger (2018-9) doing so at the upcoming Society for Freshwater Science meeting.

Publications are another way to celebrate and encourage public engagement. Several members of the 2016-7 cohort (Jeff Dukes, Jessica Hellmann, Melissa Kenney, and Karen Lips) wrote an editorial in *Frontiers in Ecology and the Environment* sharing a vision for public engagement and encouraging other ecologists to share their engagement activities on social media using #EngageESA.

Process

Support

Coordinate the delivery of public engagement to maximize efficiency, target support, improve quality, foster innovation, join up thinking and monitor effectiveness.

Formal networks provide space for faculty and students who are interested in or already doing public engagement to share their successes and challenges and ask questions. At the University of Minnesota's Institute on the Environment, Jessica Hellmann (2016-7) has led the development of networks focused on graduate student training, early career faculty development, and interdisciplinary scholarship.

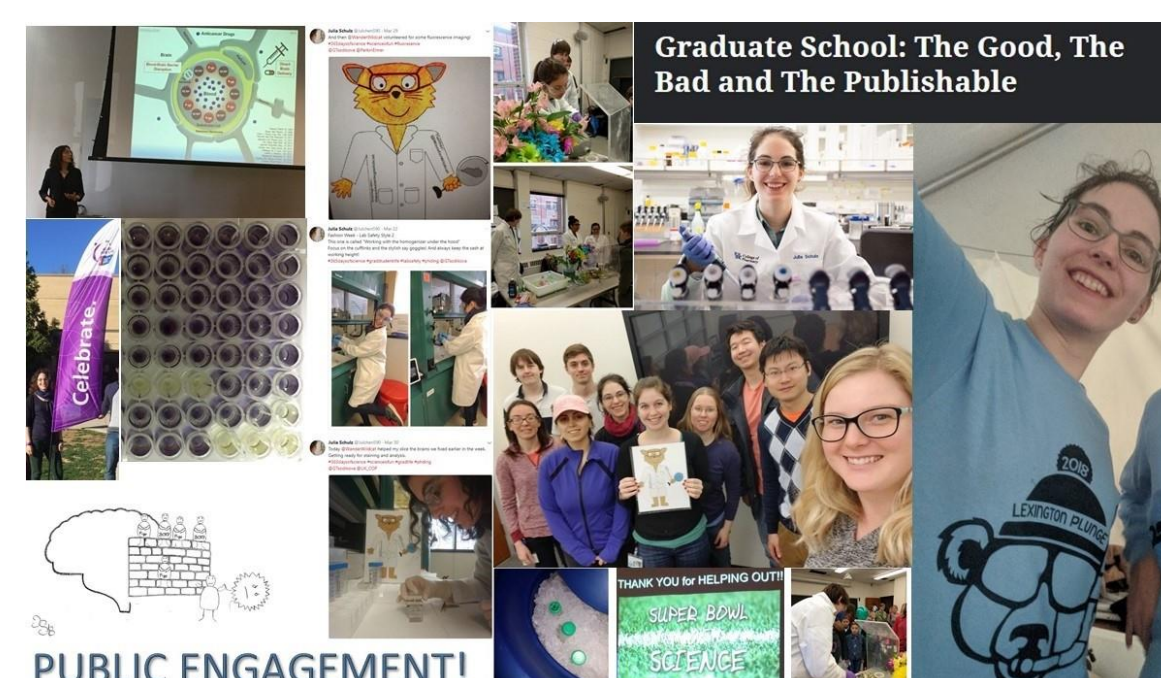
Building on shared training experiences, Kirstin Dow (2016-7) and the Carolinas Integrated Sciences and Assessments team have improved their communications materials. Likewise, Mikey Kantar (2018-9) and the Plant Breeding Coordinating Committee have developed demonstration materials that others can use as a basis for their own communication products.

Maria Elena Bottazzi (2017-8) and colleagues from the Center for Vaccine Development at the Baylor College of Medicine National School for Tropical Medicine established a science communication unit that created centralized capacity to disseminate and advocate for research with various stakeholders.

Learning

Provide opportunities for learning and reflection and provide support for faculty, staff, and student professional development and training in public engagement.

Workshops and seminars are one of the most common ways to build capacity, as they require only a few hours or days of participants' time and provide an introduction to science communication and public engagement. Many AAAS Leshner Fellows have taken advantage of the opportunity to host a AAAS Communicating Science Workshop for faculty, staff, and students, or have worked with their institutional communication and government relations offices to provide similar training.



Graduate School: The Good, The Bad and The Publishable
PUBLIC ENGAGEMENT!
Several students from Sylvie Garneau-Tsodikova's (2017-8) graduate-level course on public engagement have written blog posts about their public engagement activities for the AAAS Public Engagement Reflections blog (<https://www.aaas.org/programs/center-public-engagement-science-and-technology/reflections>). Photo courtesy of Julia Schultz, University of Kentucky.

Other fellows have developed and taught week-long to semester-long courses on science communication and public engagement, either on their own or in collaboration with other faculty. Some of these courses target graduate students (e.g., Sarah Feakins, 2018-9, University of Southern California; Sylvie Garneau-Tsodikova, 2017-8, University of Kentucky; Tessa Hill, 2016-7, University of California – Davis), and at least two train high school students (Mikey Kantar, 2018-9, Gene-ius Day at University of Hawaii; Meg Duffy, 2017-8, Wolverine Pathways at University of Michigan). Longer courses allow trainees to dive more deeply into material, get hands-on practice, and reflect on their work with colleagues.

Recognition

Recognize and reward faculty, staff, and student involvement in public engagement within recruitment, promotion, workload plans and performance reviews, and celebrate success with awards or prizes.

Promotion, tenure, and annual review metrics are one of the most concrete mechanisms to build expectations and rewards related to public engagement. Sheena Cruickshank (2017-8) gathered information about how institutions similar to her own included public engagement and used that in discussions about how workloads and expectations might be adjusted for faculty at University of Manchester.

Mikey Kantar (2018-9) is working with the Plant Breeding Coordinating Committee to create an award that recognizes researchers who are excelling in science communication.



Very honored to receive this award alongside a molecular biologist, a mechanical engineer, and a cancer researcher. I took the opportunity in my 5 min speech to #scicom about the benefits of #EdibleInsects and the need to #decolonize #anthropology. #CantStopWontStop



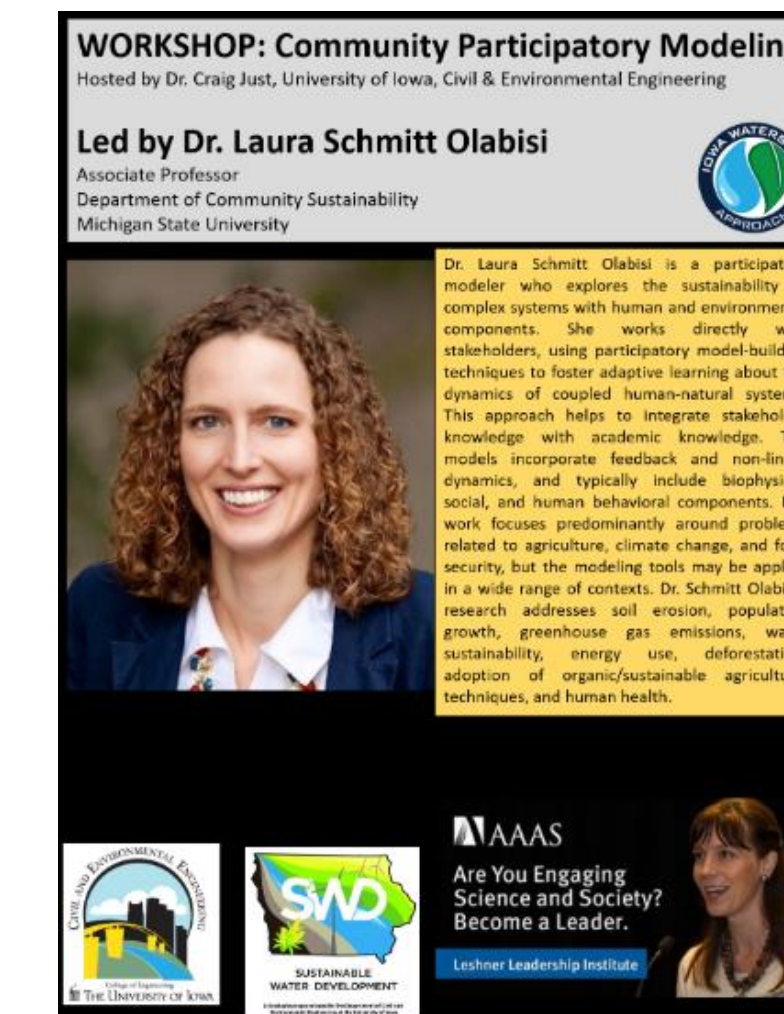
We are so proud of our own Dr. Julie Lesnik, who was one of four faculty at Wayne State to receive the Prestigious Junior Faculty Research Award from the WSU Academy of Scholars tonight! Way to go!

Julie Lesnik (2018-9) is working to incorporate public engagement into promotion and tenure metrics for the anthropology department at Wayne State University. She also uses whatever opportunities she can find to demonstrate effective science communication.

People

Faculty and staff

Ensure that all academic and support staff have opportunities to get involved in public engagement in informal and formal ways.



At the invitation of Craig Just (2018-9), Laura Schmitt Olabisi (2018-9) presented a workshop on community-based participatory modeling at the University of Iowa in October.

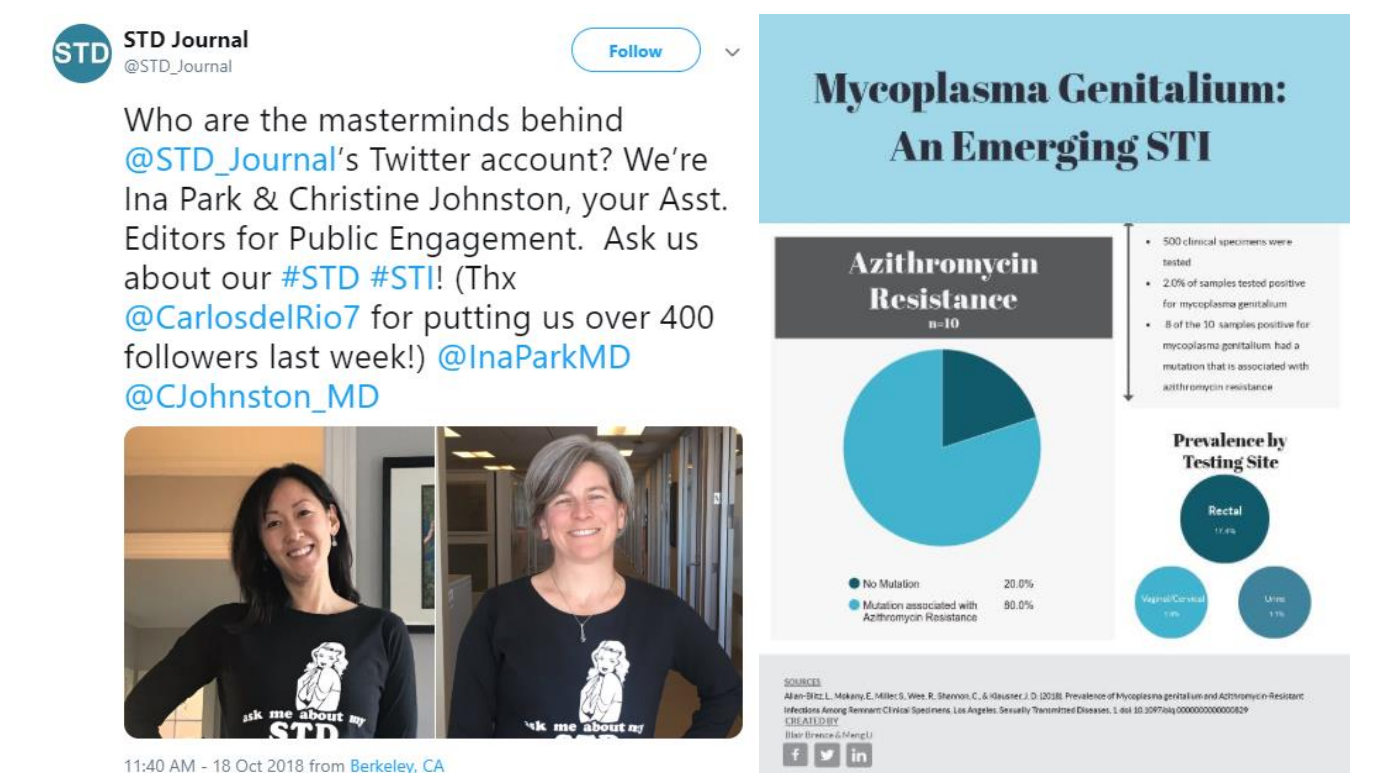
Fellowship programs create cohorts of researchers who receive training in public engagement and other areas and who can support each other as they create and implement public engagement. Existing programs that AAAS Leshner Fellows have created, led, or helped strengthen include the University of Minnesota Institute on the Environment Associates (Jessica Hellmann, 2016-7) and the University of Arizona Udall Center Fellows (Chris Scott, 2018-9). At the University of Maryland, Melissa Kenney and Karen Lips (2016-7) are in the process of developing programming for faculty.

Field schools provide a combination of training and hands-on practice with techniques that can support both research and public engagement. Laura Schmitt Olabisi (2018-9) is developing field schools for community-based participatory modeling that will bring together researchers who want to do community-engaged work with community members interested in working with scientists to understand and address various societal issues.

Students

Provide opportunities for students and trainees to get involved and contribute their expertise and energy to public engagement.

Fellowship and internship programs provide graduate students with training in public engagement, mentorship from senior scholars, and funding to pursue public engagement opportunities. At *STD Journal*, Christine Johnston and Ina Park (2017-8) led an effort to train graduate students in science communication and engage them in creating visual abstracts for papers, which are then used on the journal's Twitter account. Chris Scott (2018-9) works with the University of Arizona's Carson Scholars program, which trains and supports graduate students to do public engagement related to environment and society.



Christine Johnston and Ina Park (2017-8) serve as assistant editors for public engagement at *STD Journal*, where they have led an effort to engage graduate students in developing visual abstracts for recent papers.

Several AAAS Leshner Fellows have incorporated public engagement into coursework and other academic activities. Craig Just (2018-9) is identifying meaningful engagement opportunities for students in an upcoming course on community-centered design at the University of Iowa, while Noelle Selin (2016-7) is working on hands-on policy activities for courses at the Massachusetts Institute of Technology. At Harvard T.H. Chan School of Public Health, Marcia Castro (2017-8) is leading an effort to provide science communication training for master's-level students; the students then present a five minute summary of their thesis.

Public

Invest in processes and infrastructure to support and nurture the involvement of individuals and organizations outside of the institution in defining the needs for and interests in public engagement

At Northern Kentucky University, Kirsten Schwarz (2018-9) recently launched the "Soil Money" project, which provides small stipends to 6 individuals (3 members of the public, 3 researchers at NKU) in exchange for attending five informal events over the course of the academic year. These gatherings will provide an opportunity for building relationships with the northern Kentucky community in the hope of identifying pressing regional issues where science can inform and contribute to solutions.

Note: The categories for institutional change activities and definitions for each category used on this poster are adapted from UK National Co-ordinating Centre for Public Engagement EDGE Tool (<https://www.publicengagement.ac.uk/support-engagement/strategy-and-planning/edge-tool>).

For more information about the AAAS Leshner Fellowship, contact Emily Therese Cloyd, ecloyd@aaas.org.