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AFRICA SCIENCE LEADERSHIP PROGRAMME

Conference success is greatest when attendees and speakers spend time talking with one another.

CONFERENCES

The secrets of a standout seminar

Break with the routine and discover how to engineer a scientific meeting that everyone will remember.

BY AMBER DANCE

A scientist with unlimited travel funds and time could easily spend every week of the year on the conference circuit. *Nature's* Events Directory, for example, lists an average of 250 meetings a month. But that same scientist could expect to hear the same cast of speakers, giving the same talks, at multiple meetings in their field.

Organizing even a standard conference can be a monumental task (see 'Meeting magic'), but conference organizers can shake things up by assigning workgroups a specific scientific problem, hosting a workshop in a location that

encourages thought and collaboration, and ensuring a diverse crowd in terms of gender, ethnicity, seniority, geography and expertise. "Just sitting in a lecture hall all day long is not inspirational," says Helena Ledmyr, head of development and communications at the International Neuroinformatics Coordinating Facility in Stockholm.

The size and goal of a meeting help to define it. Symposia tend to be smaller-scale versions of academic conferences; seminars and workshops typically involve more discussion and participation by attendees. But before deciding on the size and aim of any meeting, an aspiring organizer must first consider whether there is

a need or desire for one, says Eileen Furlong, a developmental biologist at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany. One way to draw interest is to carve out a niche. This can be done by constructing a meeting around an emerging field of study, for example, and so attracting a community of researchers with aligned interests. And it is key, say veteran organizers, to encourage interactions between those attending, and between attendees and speakers.

MEET ME IN ST LOUIS

The topic idea for a meeting can come from the organizer's own interests. At Washington University in St Louis, Missouri, evolutionary biologists Joan Strassmann and David Queller (who are married to each other) are interested in the definition of an 'organism'. It's not a straightforward question, notes Strassmann. For example, is a lichen one organism, or two or three? Strassmann and Queller have proposed that an organism forms when individual units, whether cells or multicellular structures, reach peak cooperation with minimal conflict between them (J. E. Strassmann and D. C. Queller *Evolution* **64**, 605–616; 2010). To encourage discussion around their idea, they invited a diverse mix of biologists and a few philosophers to join them in St Louis for a workshop in 2015.

In the mornings, all attendees offered a 20-minute talk about their work. In the afternoons, they split into groups. Their assignment was to define and discuss a problem relating to 'organismality' — the extent to which something can be said to be an organism. Strassmann and Queller told participants that they weren't promoting their own theory of organismality, just presenting the problem. "If they came up with some other solution, that would be fine," says Strassmann. Each group would sum up its discussions in a 10-minute presentation on the last day.

Strassmann spent weeks in the build-up organizing the attendees into groups. Her goal was to link people who would probably share interests. "We tried to have a core of two to three people on the same page, and others that would stir them up," she says. At the conference, Strassmann and Queller floated between groups, providing a nudge when necessary.

Two years later, Judith Bronstein, who attended as an evolutionary ecologist at the University of Arizona in Tucson, retains vivid memories of the organismality workshop. "I thought it was amazingly interesting, ▶

► and it really, really worked — for the most part,” says Bronstein, noting that it was a risky approach. “Throw people in a pot and turn up the temperature,” she says, “and see what happens.” And, indeed, some groups gelled better than others, Bronstein recalls; she says that she was lucky to be in one with excellent interpersonal chemistry.

Strassmann aimed to get a paper from at least one group; in fact, the discussions inspired two, including one prepared by Bronstein’s team (S. L. Díaz-Muñoz *et al.* *Evolution* **70**, 2669–2677; 2016; and E. Libby *et al.* Preprint at <https://arxiv.org/abs/1612.00036>; 2016).

The workshop was built on principles that Strassmann had learned when co-organizing a conference on animal behaviour with Knowinnovation, which helps to set up and run workshops worldwide. The company, with teams in the United Kingdom, the United States, France and Spain, specializes in applying theories of creativity to scientific discussions, says chief executive Andy Burnett, who is based in Buffalo, New York. For example, it has run meetings in which scientists brainstorm new ways to achieve sustainable development, find original approaches to understanding the origin of life on Earth and develop better undergraduate curricula.

Coming up with these plans and theories requires an innovative approach. “The whole idea of giving presentations at conferences is, I think, of very limited value,” says Burnett. In fact, Knowinnovation often asks speakers to post a lecture on YouTube so that attendees

can watch it beforehand, instead of filling the conference with presentations. The company also sometimes connects two or more researchers for conversations before the meeting. When everyone assembles at the conference, they’re already prepared to delve into big problems. They work in small groups towards a goal, such as a report or research proposal.

SPARK THOSE CONVERSATIONS

Even at larger, lecture-heavy meetings, faculty hosts can find creative ways to get attendees talking outside the sessions. At the EMBL, for example, conference organizers are experimenting with ‘speed-networking sessions’. Scientists are organized into pairs, on the basis of mutual interests, and chat for five to eight minutes before moving to their next partner. The conversations often continue throughout the meeting, and new collaborations have begun this way, says Jürgen Deka, head of external scientific training at the laboratory.

EMBL symposia also often include ‘meet the speaker’ sessions, in which speakers sit at a labelled table during the coffee break after their talks, so that others can join them and discuss their work. Certain poster presenters are asked to give ‘flash talks’ of two to three minutes. “It gives a very brief overview over many posters or scientists at the meeting, and is compressed into half an hour or so,” says Deka.

Panel discussions are not optimal, says Furlong. “They’re a bit too staged,” she says. “I often find they don’t really have flow.”

It’s also important to remember that scientific conversations can — and should — spill over into evenings and free time. Brittany Barreto, co-founder of the science-based dating-app company Pheramor in Houston, Texas, says that she made an error when co-planning a

“If you select the topic carefully, then people will come to the meeting even if it’s at the North Pole.”

MEETING MAGIC

Tips for conference planners

Organizing and producing a meeting, no matter the size or duration, is a service that faculty members can provide for colleagues in their discipline. Here are some things that you can do to ensure you have the right ingredients for a successful conference.

- Focus on a topic that isn’t already getting heavy attention on the meeting circuit.
- Choose an eye-catching title to help stimulate interest and registrations.
- Share the workload. Junior faculty members may want to recruit well-known co-organizers. Senior faculty members within or outside your institution can suggest speakers, and their connections and cachet may come in handy in getting those speakers to accept your invitation.
- Include speakers from many backgrounds, and from locations near and

far; and invite researchers from a variety of fields and at different career stages.

- Keep a couple of local scientists on a backup list in case a speaker drops out at the last minute: emergencies happen.
- Consider working with an established conference host, which can often provide funds, a venue and logistical support.
- Apply for grants to offset some of the meeting’s production expenses.
- Give yourself at least a year and a half to put the conference together.
- Schedule your meeting at least six months before or after any similar one.
- Choose a relatively isolated location. This will stop attendees (and speakers) wandering off for lunch or in search of nightlife, and will encourage them to spend time talking to one another. **A.D.**



Networking is a component of fruitful meetings.

June seminar on molecular mechanisms of evolution in Easton, Massachusetts. She and her colleagues did not schedule a party, and after watching small groups head into town to get to know each other after seminar sessions, she realised how important socializing is in building up professional networks. She adds that the socializing needn’t be too structured; it could take the form of discount drink coupons for a local pub, a shuttle bus to town or a board-game night with drinks.

IT’S THE PEOPLE THAT MATTER

The speaker and attendee list is also a crucial element of a memorable conference, and experts say that it’s important to think beyond the well-known superstars in a field. “Your meeting can only be as good as the people you invite,” says Strassmann.

If it is hard to find the right mix of speakers, a conference host might be able to help. For example, Keystone Symposia in Silverthorne, Colorado, encourages faculty organizers to put together a programme in which women and underrepresented minorities account for at least one-third of the speaker list. Keystone maintains databases of speakers from these categories, says chief executive Jane Peterson.

Diversity is about more than gender, ethnicity and geography, adds Mark Kozak, executive director at the Telluride Science Research Center in Colorado. He likes meeting organizers to bring in both senior and junior scientists and researchers from different disciplines. For example, Telluride recently hosted a meeting on photovoltaics that included theoretical, synthetic and experimental chemists; experimental and theoretical physicists; computational scientists; device physicists; and materials and process engineers.

“Each discipline brings to the table their knowledge of the question at hand, allowing the community to build a complete picture,” says Chad Risko, a chemist at the University of

Kentucky in Lexington, who co-organized the gathering. “The meeting was fantastic, as we had very active participation from everyone involved.”

For the organismality workshop, Strassmann invited biologists with expertise in a variety of fields ranging from fungi, plants and invertebrates to cancer. That meant inviting people she hadn't previously known, and identifying them takes a lot of time, she says. She starts with a Google Scholar search, and reads all the papers by people she doesn't know. She also asks other scientists to suggest names.

Given the intimate, collaborative nature of the organismality workshop, Strassmann knew it was important to invite scientists who work well with others. She tries to determine whether researchers have this quality by perusing their web pages for studies that they've co-authored with other groups, or asking mutual acquaintances for information on good collaborators.

LOCATION, LOCATION, LOCATION

The site of a conference can affect its success. Furlong recommends an isolated location to encourage speakers and attendees to interact at long breaks and meals. For example, she says, Cold Spring Harbor Laboratory in New York is a bit too far from Manhattan (almost 27 miles by road) for people to head there for sightseeing. Although it is important for a conference site to be relatively close to an airport or transport centre, the main attraction, says Furlong, should be the sessions, speakers and attendees — not museums or shops beyond the site. “If you select the topic carefully, then people will come to the meeting even if it's at the North Pole,” she says.

Burnett agrees. “Ease of transport is a factor, so being close to an airport is useful, but that doesn't mean it has to be a major city,” he says. “We always prefer a slightly more secluded venue, where people will be less likely to be interrupted.”

Yet it may be helpful to leave the venue behind, at least for a short time. Amy Shen, a chemical engineer at the Okinawa Institute of Science and Technology Graduate University in Japan, likes to organize an excursion and lab tours between presentations. For a recent microfluidics conference, she had planned an outing to a beach and a local castle. Rainy weather prompted her to change her plans and take the group instead to a museum that celebrates traditional Okinawan lifestyles through tours and performances. “It's a good opportunity for people to mingle, get to know each other and discuss research in a more relaxed setting,” says Shen. ■

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CONTINUING EDUCATION

Societies reconsider conference plans

Organizers are starting to drop meetings, thanks to falling attendance and budget squeezes.

BY CHRIS WOOLSTON

Citing flagging attendance and falling revenue, two scientific organizations are scaling back their conference rosters.

The American Society for Microbiology (ASM) in Washington DC has cut most of its small specialized conferences, and the European Molecular Biology Organization (EMBO) in Heidelberg, Germany, has dropped its large annual meeting in favour of speciality events.

Every year since 2014, the ASM has sponsored seven to ten specialized conferences that each drew several hundred attendees. But attendance has dropped by 5–10% since then, says David Hooper, head of the Infection Control Unit at Massachusetts General Hospital in Boston and chair of the ASM's meetings board, probably because of tightened purse strings and a growing need for cross-discipline collaborations, which are more easily fostered at larger meetings.

The society will now host just one or two small conferences each year, including one on next-generation sequencing and one on cell communication in bacteria. It has also committed to keeping a meeting on biofilms that it has scheduled for next October in Washington DC.

Hooper says that the society will not trim its medium-sized or larger conferences, which continue to draw thousands of attendees. Those include the popular Biothreats conference, slated for February in Baltimore, Maryland. ASM Microbe, the society's largest conference, draws more than 10,000 attendees for posters and presentations, and is scheduled for next June in Atlanta, Georgia.

DIFFERENT TACK

EMBO, by contrast, decided to drop the annual EMBO Meeting after a sharp decline in attendance in 2015 and 2016, says programme manager Gerlind Wallon. In 2009 and 2010, the first years of its existence, the meeting drew close to 1,500 participants. But by 2016, attendance had halved. “Scientists, particularly the younger ones, are economizing to go to more specialist conferences,” she says.

Small meetings seem to be more successful for EMBO, which has hosted more than 60 meetings this year and has not seen a comparable decline in the number of attendees



or presenters. Although some had lower attendance than expected, others had higher, Wallon says. Since 2009, she adds, EMBO has seen a 50% increase in the number of scientists applying for grants to organize meetings.

Attendance at some of the world's largest science conferences has stayed relatively steady in recent years. The Society for Neuroscience in Washington DC reported that more than 24,300 scientists attended its annual meeting last year in San Diego, California, just slightly below the average for the previous five years. And the European Society of Cardiology Congress brought more than 32,800 delegates to Rome in 2016, matching its 10-year high.

Hooper notes that the ASM may change its line-up and the content of smaller conferences according to input from its advisory panel. He also says that it is unclear why attendance has fallen at smaller ASM conferences, but notes that researchers have had to make hard choices. “One can't go to multiple conferences every year,” he says. ■

CORRECTION

The Careers feature ‘Hidden in the past’ (*Nature* **549**, 419–421; 2017) gave the wrong details for reference 7. It should have read Pagnotta, A., Schaefer, B. E., Xiao, L., Collazzi, A. C. & Kroll, P. *Astron. J.* **138**, 1230–1234 (2009).

The Careers feature ‘Data domination’ (*Nature* **548**, 613–614; 2017) erroneously described Amelia Taylor as a former tenure-track mathematician. In fact, she was a tenured associate professor.