SCIENCE LIVE

Surveying the landscape of live public science events

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About Science Live

The field of informal science learning and communication is comprised of many sectors—after school programs, science center exhibitions and programs, television and film, print and new media, to name just a few. Each of these is understood to make unique contributions, present unique opportunities, and require unique support. Science Live began with the observation that it time to similarly acknowledge the practice of live public science events.

Public science events are live, in-person programs designed to engage publics with science in a social context that is at least as meaningful as the content and messages delivered. The overall objective of Science Live is to support the development of a distinct professional sector based on live public science events so that the practitioners, researchers, and external supporters of this sector are able to maximize the beneficial impacts of events and widen participation in this activity.

The following survey of the live public science events landscape is the product of a one-year, Phase I grant from the Science Learning+ funding program. This funding program has enabled Science Live to take a transatlantic approach, with an initial focus on fostering connections between the US and UK, and between practitioners and researchers.

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The following landscape survey is based on informal conversations, phone interviews following a research protocol, and two project convenings, one each in the US and UK. A total of 111 practitioners and researchers attended project convenings, and scores more were consulted by phone. The many quotes appearing in the following pages are taken directly from these conversations. This landscape survey seeks to summarize a year of dialogue, but is not explicitly endorsed by the many practitioners and researchers that participated.

The world of live public science events is wide, varied, and rapidly changing. There is no way to represent the many initiatives that populate this remarkable landscape in a way that properly does each justice. Please see www.livescienceevents.org for links to participating programs, research, and sites for further exploration.

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1.1 A large fraction of the population regularly attends live events.

What we know:

Half of Americans paid to attend a live event in 2014,[1] with an average attendance of more than 5 events. Sporting events and concerts are the most commonly attended ticketed events, though live theater/arts events, and live family shows are not far behind. Many more attended free live events. Analogous annual figures for the UK are: 67 Million attending a sporting event,[2] 21 Million buying music festival and concert tickets,[3] and 34 Million theatre visits.[4]

In recent years live events with an explicit science focus have rapidly proliferated. (For example, roughly 3% of the UK population attended a science festival in 2014.)[5] These events tend to be rooted in the fields of informal science learning and science communication, and are rarely correlated to larger cultural movements.

What we would like to know:

What if the organizers of public science events were well connected with event professionals in other industries? Could this help to accelerate mainstream interest in science without threatening the special character and values of public science events?

"We know [the events we produce] are working because people come out in droves, and keep coming out."

"I couldn't believe how emotionally moving it was for me to see so many people, and so many different people, show up."

"I haven't seen us use business models from other events, so they seem to run more akin to science education models, as opposed to how food and music festivals run. It won't be a one-to-one thing, but are there concrete things we can import from the for-profit world?"

1 US Live Event Attendance Study, Live Analytics, June, 2014: http://www.slideshare.net/LiveAnalytics/us-live-event-attendance-study
2 Press Release, Deloitte Sports Business Group, December, 2014: http://www2.deloitte.com/uk/en/pages/press-releases/articles/67m-tickets-sold-for-uk-sports-events.html
3 Music Industry in the UK, Statista Dossier, May, 2014: http://www.statista.com/statistics/278038/attendance-at-festivals-and-concerts-in-the-uk/
4 Theatre Matters, UK Theatre Report, 2016: http://www.uktheatre.org/downloads/Theatre_Matters_lowres.pdf
5 Public Attitudes to Science, Ipsos MORI, March, 2014: https://www.ipsos-mori.com/Assets/Docs/Polls/pas-2014-main-report.pdf

1. Live events are as relevant as ever.

1.2 Industry investment in live events is increasing.

What we know:

Corporate consumer brands are increasing their investment in live marketing events for reasons including "deeper customer involvement," and "identifying and developing influential brand ambassadors."[6] Public science events have analogous potential, though mission-driven event organizers tend to express this in terms of relationship building with communities.

What we would like to know:

Live events fill a unique strategic niche for companies and charities. However, just investing in events does not guarantee that offerings will resonate with audiences in the right way. What is the most effective way to guide organizations toward the production of public science events that reliably fulfill specific objectives?

"It has been a long road, but we are finally realizing that the more that [our organization] puts into the events, the more our community opens up to us, and that just keeps leading to things that move us forward."

"Living people are the most compelling advocates for anything…people relate to other living people most."

6 EventTrack 2015 Executive Summary, 2014, page 4: http://www.eventmarketer.com/wp-content/uploads/2015/05/2015EventTrackExecSummary.pdf

1. Live events are as relevant as ever.

1.3 Even in a digital world, live events play a special role in people's lives.

What we know:

Live events are powerful in large part because they are social experiences, and this remains true even in a world suffused with social media. According to a 2014 Harris Poll of millennials, "82% of respondents went to a live event in the past year, and 69% said they believe attending live experiences helps them connect better with their friends, their community, and people around the world."[7]

What we would like to know:

The social power of events has the potential to cut both ways. What empowers shared identity formation for some may alienate others, and it can be difficult for the organizers most involved in an event to recognize this dynamic. What is the best way to provide guidance that helps public science event organizers reflect critically on the unintended messages conveyed by their own production decisions?

"The feeling of community we generate is one of my favorite aspects. I've had people celebrate really personal moments within the context of the events I've organized."

"It took a cultural shift within [my institution] for us to realize that it is relationship first, content second."

"It is important to offer an experience that money can't buy. That gives audiences an experience with bragging rights that they're doing something or seeing something you can't normally."

"Within the [science communication] ecosystem, what we bring to it is the human element. This is the key fact that makes us different."

7 "78% of Millennials Would Rather Spend Money on Experiences Than Things," Digital Music News, September, 2014: http://www.digitalmusicnews.com/2014/09/18/millenials-would-rather-spend-money-on-experiences-than-things/

"There is something about an event that has an immediacy, it is can't miss, and there is urgency. There is something about that that is particularly rich and unique."

2. Every year in the US and UK millions of people enjoy science experiences at a huge range of live events.

2.1 The public has a broad array of science events to choose from.

What we know:

At least 10,000 live events with an explicit science focus are produced for the public in the US and UK every year. There is tremendous variation in the types of experiences on offer.

Public science events range in scale from intimate group conversations, to massive street fairs that draw tens of thousands in a single day. They range in scope from one-time appearances, to ongoing series of performances, to long-term campaigns designed for—and often with—specific audiences. Many are completely volunteer driven, and many are produced by staff working for institutions with many functions. Some are the result of independent organizations dedicated solely to event production, the largest of which are supported by seven-figure budgets.

There is a tendency to focus on format when categorizing this diverse activity. The Science Live project found the following format categories useful:

- Science festivals: Multi-faceted collaborative celebrations, often with schedules packed with different events
- Dialogue events: Inclusive group conversations related to science topics
- Stage shows: Scripted or unscripted performances and presentations
- Facility-based events: Events in purpose built facilities, such as museums or universities
- Pop-up events: Appearances integrated into settings where people are already gathering

These categories overlap and are in no way comprehensive. Explore the many things that people do at public science events using the Science Event Sampler at www.livescienceevents.org.

What we would like to know:

What is the "ecology" of public science events in the US and in the UK? How are these ecologies changing over time?

"I feel like we don't even know who is in our ecosystem or what expertise is in our ecosystem."

2. Every year in the US and UK millions of people enjoy science experiences at a huge range of live events.

2.2 The full reach of public science events is very difficult to know with certainty.

What we know:

There is no tracking mechanism for collecting even basic information about public science event activity across different formats, and much—if not most—activity goes unreported.

Some public science events are networked enough that annually reported collective impact is reported fairly reliably. For example, science festivals in the US and UK served a minimum of 3.5 Million people in 2014, while Nerd Nites reached roughly 65,000. Other networks are loosely organized (if at all), and must rely on estimates. For example, there are over 250 active science café series in the US and UK, but it is only a guess that if these series reach an average of 40 people six times a year they collectively account for over 60,000 visits. Even the organizers of ticketed stage performances rarely know cumulative numbers with precision, though many claim to serve several thousand attendees over the course of a couple dozen performances in a year. Almost none of these numbers account for the potential for repeat attendees.

What we would like to know:

All of the attendance numbers mentioned above are self-reported, and there are many different methods for counting the attendance at large free events. This is an issue with all public gatherings, and the solutions have become increasingly involved.[8] Are there straightforward procedures for counting crowds that public science event organizers could agree on as a community and adopt as a general standard?

Many public science events are not part of larger networks, some do not include the word "science" in their materials, and many are not aware that their activity is similar to others. Would just the presence of a high-profile annual report for all public science events provide enough incentive for organizers to start keeping track and reporting activity?

"These counts are variable…just getting a standard methodology is going to be difficult. We'd have to be much more rigorous!"

"I care a lot about knowing exactly how many people come, but it hadn't occurred to me to compile cumulative numbers until you asked just now."

"Sometimes [event topics] may not look like science, but align with audience interests."

"Many people do this under the radar, not even realizing that it is something bigger they are linked to."

8 The Curious Science of Counting a Crowd, Popular Mechanics, September, 2011: http://www.popularmechanics.com/science/a7121/the-curious-science-of-counting-a-crowd/

2. Every year in the US and UK millions of people enjoy science experiences at a huge range of live events.

2.3 Event attendance does not sufficiently capture impact.

What we know:

Attendance numbers for live events cannot compete with the total "impressions" garnered by media. Public science event organizers feel this comparison of raw numbers unfairly neglects the depth, quality, and special one-time-only character of a live experience. There is some evidence from industry that they have a point. For example, in a 2015 survey of consumers that attended for-profit brand marketing events, 87% of respondents said that events are more effective than TV commercials for helping them understand products.[9]

What we would like to know:

Looking inward, we do not know how best to represent attendance numbers for comparison across different event formats and audience experiences. For example, some events involve a brief audience interaction, while others represent a full day commitment, but an attendee at each is currently counted the same. Nielsen recently released a "Comparable Metrics Report" to provide "apples-to-apples metrics" across different media platforms.[10] Would an analogous approach help event organizers better represent their impact?

"There is something about the impact of a live event that is greater than mass media. There is something about the way an event says, "welcome everyone," that all this other stuff doesn't."

"There has been resistance to [doing more informal events], the impact it has and the reach it has. I know it is a more meaningful experience for a smaller relative number. But we need to legitimize that."

9 EventTrack 2015 Executive Summary, Event Marketing Institute, 2015, page 11: http://www.eventmarketer.com/wp-content/uploads/2015/05/2015EventTrackExecSummary.pdf

10 The Comparable Metrics Report, Nielsen, December, 2015: http://www.nielsen.com/us/en/insights/reports/2015/the-comparable-metrics-report-q2-2015.html

"There's a loose boundary that you can throw around all these things but it's porous, and should be porous, because what this, the live events sector, is all about is innovation and change."

3. Public science events constitute a distinct category of activity.

3.1 Live events play distinct roles in many industries, and public science events should likewise be recognized as distinct.

What we know:

Live, in-person public events are indispensible in many industries, whether they are central to the business model (such as sports or performing arts), or serve as a component of a larger initiative (such as brand marketing or political campaigns). In these industries, live events are more than just an excuse for a party: they receive significant investment and strategic consideration, and are recognized as a distinct category of professional practice.

Public science events have a rich history,[11] but there are new pressures driving the need to recognize events as a distinct sector now. One is the recent rise in the number of independent organizations and large-scale initiatives dedicated primarily to the production of public science events. Another is the assertive, and often experimental, use of "third space" settings: we have freed science from the traditional lecture hall, and decisively shown that you do not need to be anywhere near a science institution to present a wildly successful science experience.

What we would like to know:

It is unusual for staff to be exclusively assigned to the production of public science events. This can make events difficult to disambiguate from other staff functions, like educational programming. What language resonates most with colleagues that have not previously thought of events as distinct? How do we stand up for the unique value of the sector and encourage organizations and funders to incorporate events into existing strategies without being divisive? How do we best present the "addition" of a sector in ways that go beyond zero-sum-game thinking?

"We want to validate public science events as a thing."

"When we started [our event] we worried about [taking attention and resources away from existing initiatives]. Instead we saw funding increases and new people coming out. Now we feel we bring in new resources to the field."

11 The first one-way street was a response to traffic jams caused by public science events! (Albemarle Street, Wikipedia: https://en.wikipedia.org/wiki/Albemarle_Street)

3. Public science events constitute a distinct category of activity.

3.2 The hallmark of public science events is a social experience.

What we know:

The defining characteristic of live events is an emphasis on carefully crafted social experiences. Public science event organizers must value this over all else. Quality science content is important, but live events simply do not work if they are not successful as social experiences.

Far from being a constraint, this emphasis gives event organizers the license to get serious about intentionally assembling the various components that make for a memorable shared experience. This includes an attention to the many details that make a difference in the seemingly intangible qualities of mood and atmosphere. Some take pride in presenting tightly controlled, spectacular events with high production value. Others may relish the unscripted jewels that only emerge when a crowd—including a presenting scientist or two—is feeling relaxed and friendly.

What we would like to know:

We don't yet understand the full implications of this distinction from an audience-centric perspective. Do audiences identify their public science event experience as distinct from other science experiences? As distinct from other live events? How does the character and shape of learning differ when set entirely within the context of a social experience?

"We all think it's a social experience as well, so it's not just about you being live in the room, it's about multiple people being there together. And I think something different happens when you're in a room with social connections. That's what makes it essentially more engaging and memorable."

"I wonder if we should think about starting from a more audience centered perspective than an intervention perspective. Understanding their motivations: why are they coming, and curating opportunities for them more than pushing our vision of what kind of learning they should do next. And we may find that not all of the learning opportunities are specifically science learning!"

3. Public science events constitute a distinct category of activity.

3.3 The extraordinary flexibility of public science events presents enormous opportunity.

What we know:

Live events can take place in any location, in any venue, and at any time. They can feature special performers and guests, and easily accommodate one-time collaborations. Marketing and branding can be tailored for each individual event. Established event series are often tweaked from iteration to iteration, and new events can be designed and tested very rapidly. Events can adopt a huge range of different formats, and even employ multiple formats in a single event.

These qualities begin to define the opportunities that live events present for informal science learning and communication. A whole-hearted embrace of this flexibility echoes through conversations with event organizers, some of whom are downright giddy about the freedom of working in this medium. On the other hand, this flexibility is directly connected to the greatest challenge that event organizers must master: the relinquishing of control in the face of too many variables.

What we would like to know:

The ability to shape all of these variables means that an event can lift science out of its more traditional settings, with all of their conventional connotations, and place it into contexts that are loaded with other meaning. It can be a long way from the academy lecture hall to the downstairs pub just around the corner. Is the same basic content received with different implications when it is moved in such a way, and do those implications overwhelm the message?

"The nature of the venue totally dictates the nature of the interaction."

"When you put science into everyday lives and reach beyond the choir you stop seeing boundaries and it becomes very holistic...it is not isolated from your life and day."

"I've seen events picked up by people in other regions, and what is remarkable is how things iterate and improve, these iterations can happen really quickly with events."

"Sometimes it is just about putting science in an interesting space."

"The format is often a crucial part of the message, and sometimes the messages get lost in the format...with a pub crawl it is the crawl that is the message."

"I am now convinced that there is a body of key facts supporting public science events as a sector. But what is the larger science communication ecosystem? To my mind we can become as important as journalism...but we're also watching the meltdown of this traditional ecosystem. Today I would much rather work on a [live event] than write a news release...I see that as the future frankly."

4. Events are ideally suited for generating new relationships with audiences.

4.1 Events are inherently audience-centric.

What we know:

The extraordinary flexibility of live events means that most event organizers are accustomed to adapting events so that they are accessible and meaningful to specific target audiences, whether those audiences are "new" to science or not. Designing an event sensitively is about more than just staging it in the right neighborhood. It is about demonstrating a deeper understanding of the audience to the point that the customization of the event is part of an overall message of inclusiveness.

What we would like to know:

The current discourse emphasizes the value of reaching new audiences. However, not all public science events cater to new audiences: many thrive on remarkably energetic responses from science enthusiasts. What mechanisms make these events so effective at shaping a shared sense of identity? Given that social interaction is primary in live events, what are the most effective ways to make this enthusiasm contagious and not alienating?

"For me it is more about the audience we want to reach. We'll do what we have to to connect with the audience."

"My favorite moments are the ones where it becomes so clear that events have helped us build a connection with the community."

"if you have a good dialogue event series that persists, the event organizer will be in touch with the audience to the extent that they will have a great deal of information on their communities."

"Sometimes we have to forgive ourselves for serving an audience that wants to know more. It is OK: they deserve that brain candy! Let's give it to them!"

4. Events are ideally suited for generating new relationships with audiences.

4.2 Live events may be the only way for some organizations to connect with new audiences.

What we know:

Evaluations show that events designed to reach new audiences successfully involve people that do not regularly participate in other forms of informal science learning.[12] A common first instinct for science learning professionals is to connect these "new" audiences to the learning opportunities that already exist in the community. However, the expectation that audiences will change their behavior this simply may be misplaced.

Events can effectively leap over socio-cultural obstacles because they are flexible enough to easily embrace new ways of doing things. If the root causes of lack of participation in preexisting opportunities are not similarly addressed, successful events may not change the way that audiences take part in other offerings. Without taking on more extensive change, events may be the only strategy an organization has to work with new audiences.

What we would like to know:

Many public science event organizers describe how events co-created with new audiences put in motion processes that eventually led to larger scale, community-centric changes at the institutions they work for. This change has so far only developed organically and case by case. Is it possible to set such institutional evolution as an explicit goal, and to systematically incentivize such change by using public science events as an initial lever?

"With some events, going to an audience is the full extent of our interaction with them, and we need to therefore keep doing it. You have to take the long view of building an audience."

"I'm interested in encouraging people to pursue follow on opportunities, this is sort of a way to get past the "one off' nature of events...but we have to be realistic and not expect that people are going to suddenly shift their level of commitment."

"There are a lot of problems we run across whose solutions are not located in the event that we are producing."

12 Key Findings of Indpendent Evaluation, Science Festival Alliance, 2012: http://sciencefestivals.org/resource/three-years-of-evaluation-in-twelve-pages/

4. Events are ideally suited for generating new relationships with audiences.

4.3 Public science events can build long-term relationships of trust.

What we know:

Contrary to the common "one-and-done" perception of events, most public science event organizers know that live events are particularly powerful tools for building long-term relationships with communities. Showing up in person when and where it works best for an audience can go a long way for building trust. Co-creating events with community collaborators goes even further to forge enduring ties. Such relationships are a two-way street, as they require event organizers to relinquish a degree of control over the final products.

What we would like to know:

The conception of audiences as residing on a spectrum from science friendly to science inattentive to science phobic may have deep flaws. First among these is that it may not correlate well with reality: people very rarely define themselves in this way, and the thinking grossly over generalizes both self-identity and the idea of "science." Most individuals have complex relationships with myriad science subjects that are framed through political, social, and cultural lenses. Yet it is a way of thinking that practitioners and funders alike seem to habitually return to in ways that shape the work being done. How do we best assist practitioners as they start to critically engage with this flawed construct while making the most of the useful initiatives it generates?

"If you have an amazing facility why go offsite? A big reason is to build trust with the community."

"For me the elephant in the room is that we talk about what the audience wants, but how do we not choose the audience, but have the audience choose what is best for them? In museums we tell the audience what we want instead of having the audience help us generate the next wave of programming. With events you might be able to have more audience input and play with that dynamic."

"We've done this engagement where we just come in and do it, but we weren't working with the community, we were working in the community. This is now an opportunity for us in that we come in with some general direction and then we give them the keys and they run with it. It took years to get to this point, in part because it takes connections and relationships first."

"Are we stereotyping our audiences?...Is this a danger?"

"By leaving your facility you have to let go of some of your identity as a science-based institution and recognize that your audience may not share your values and that it may be actually completely foreign to them. That completely determines how you deliver your programming, and that is hard: it requires thoughtful partnership, value adjustments, self-reflection, seeing your audience as an equal partner. People doing off-site events really get this. Maybe some of the resistance to leaving a facility is that it is hard to do, requires humility, and requires recognizing that the way we do things in our facilities may not be the best way to do it for audiences outside of the building."

5. Public science events are reshaping institutional involvement in science communication.

5.1 Public science events allow institutions to experiment.

What we know:

Live events allow established science institutions to experiment with programs by producing them off site and with minimal branding. Some organizations simply use events to test how topics, content, and specific presenters are received. Others use events as an outlet for creative risk taking that allows for the development of programs that are outside of the institution's usual comfort zone.

What we would like to know:

How sensitive are audiences to institutional backing and positive or negative brand recognition? All things being similar, will an event produced by the staff of an established institution yield different outcomes than one produced by an unaffiliated enthusiast?

"[Running events outside of our facility] means we can experiment. Being offsite frees us up considerably because we're a step removed in a good way."

"What are the benefits in connection to audience of not being part of an institution. What if they thought you were just a guy off the street?"

"The bigger question here is who are you with and who do you represent? In the context of reaching out to specific populations, does it matter who you say you are with?"

5. Public science events are reshaping institutional involvement in science communication.

5.2 Public science events activate new ambassadors and gatekeepers.

What we know:

Public science events are often built around collaboration with a community member, and as a result of this visible involvement those collaborators can become ambassadors that take ownership of a science learning or science communication mission. These community members—whether they are a bartender or schoolteacher, an artist or a business owner, a well-connected individual or a company with local brand loyalty—may also serve as valuable community gatekeepers, providing access to and credibility with target audiences.

What we would like to know:

There is enormous power in activating others to take on your mission, but are we ready to be comfortable letting others craft, produce, and deliver science experiences? Once a community has momentum, how are they best guided from afar to ensure appropriately thoughtful science engagement?

"When I think of gatekeepers, I think of someone that makes us more credible, street cred is really what we are talking about."

"In our events we have our programming, but we also always have community groups represented."

"We do weird things because our partners come up with ideas we would never think of, and these things are bizarre for us: we would never have come up with some of these ideas, but they are often very successful."

5. Public science events are reshaping institutional involvement in science communication.

5.3 Anyone can produce a public science event.

What we know:

It is possible to produce some events on a shoe-string: with budgets approaching zero, with no equipment, no facility, and no staff. For this reason, many individuals with little or no institutional support become involved in science communication via event production. There is a range of motivations for such individuals: while some share a dedication to public science learning objectives, many are motivated by artistic (or intellectual) self-expression or social affiliation. The low bar to entry for organizing a public science event holds significant promise for the diversification of the larger field of informal science learning and communication.

What we would like to know:

Unaffiliated public science event organizers are not accountable to institutional quality controls, and are usually unaware of standard evaluation practices for measuring outcomes. On the other hand, they often must be responsive to market forces with an immediacy not required of large organizations. Would the rise of for-profit, independent production companies more swiftly advance our understanding of audiences? Would it negatively disrupt public science events' business models, which rely heavily on in-kind donations (including free presentations by scientists)?

"I just started a show on my own, and when I found the science festival it was the first time that I realized that there are other folks doing things somewhat like me."

"[Our events are] still 99% run by volunteers, there's no funding, there's no evaluation, there's nothing like that, they are really casual."

"We need to be more savvy about business: we need to stop depending on asking everyone for favors."

"As we've grown we have taken a more commercial approach, which raises some eyebrows, but at least now we don't rely wholly on volunteers."

"Entrepreneurs may come and go…because the market they are working in has had them pivot into something else, and so is that a success or failure?"

"A few decades ago it would have been securely employed professionals [at this meeting], but now there are many others in the room that are entrepreneurs trying to create something from nothing, and the field is more innovative, but much less secure, and subject to suffering the losses of a small start up. Some of these are quite tender shoots! We need to make sure they are fed and watered."

6. Public science events bring scientists and the public together.

6.1 Public science events provide an invaluable way to directly involve STEM practitioners.

What we know:

Between the US and UK every year more than 10,000 scientists, engineers, and other STEM practitioners get involved in public science events. The do-it-now, one-time-only quality of events makes them ideal for recruiting experts to participate directly in public outreach. For experts looking to practice communicating their work with the public, live events provide instant audience feedback and irreplaceable practice.

Sharing a social setting with a scientist is often what audiences are most enthusiastic about, and it is not uncommon for a public science event to provide someone with their first meaningful interaction with a STEM practitioner. Remarkably, third party evaluation has shown that the chance to have an interaction with a STEM practitioner is the greatest predictor of positive learning outcomes for event attendees.[13]

What we would like to know:

What is special about the authentic expert-audience interaction? Is it the scope for latitude of conversation. connection with the provenance of research findings, or something related to social influence? How can this be measured from both the audience and expert points of view? For example, do experts modulate their discourse, or even their research direction, over time (and does such modulation continue to evolve past their first engagement experiences)? Do audiences similarly develop their confidence in second and third-order interactions with friends and peers?

"There is really nothing like an event to get a human being like a scientist out and into the public."

"A benefit of the third place is that...it can help to have a relaxed setting for scientists, and they may like it enough to do it again."

"We always have researchers delivering activities because that's ultimately what people really value about the live experience."

"When scientists give a talk to the public, they still can't get rid of the knowledge that they risk having something they say get ripped apart by peers, and that is a more important social driver to them than being entertaining. What other hidden social drivers are there?"

13 Key Findings of Indpendent Evaluation, Science Festival Alliance, 2012: http://sciencefestivals.org/resource/three-years-of-evaluation-in-twelve-pages/

6. Public science events bring scientists and the public together.

6.2 Interpersonal exchange is uniquely possible in live events.

What we know:

One of the distinctly special things about live events is the opportunity for in-depth interpersonal exchange between experts and audiences. Importantly, a wide range of social interactions can be employed in the course of a single event: from standard question and answer, to organized group discussion, to carefully moderated opinion gathering; from a stage presence, to interaction at presentation tables or stations, to the casual mixing of a cocktail party or the banter when leaving a venue. These multiple modalities allow for different personalities to find their comfort zone, and they allow for many different types of mutual exchange.

What we would like to know:

What kinds of dialogue actually occur within the context of a live event? Might it be helpful to establish a taxonomy, and examine trajectories through different types of dialogue? This may present an opportunity to compare in-person events to online exchanges. What do differences in the content and character of conversation in these two settings reveal?

"When you are there in person you have committed all of yourself to the interaction. It is audience facing and as inclusive as possible."

"For some learners and particularly new audiences, just to sit and watch on the outside of the action is where they want to be, but an emphasis on engagement implies a level of activity that may not be compatible."

"[Events can be great at bringing together participants with a diversity of viewpoints, and that is valuable in of itself.] Maybe participants don't walk out of an event changed, but now they know these other people in the community and can go back into their own spheres of influence with some exposure to other viewpoints."

6. Public science events bring scientists and the public together.

6.3 Engagement does not always take place where we think it does.

What we know:

Mutual learning between audiences and experts is a dynamic that usually must be carefully cultivated and engineered. In larger group scenarios it requires someone in the role of active, skilled moderator. There is concern that most events rarely live up to their full potential for facilitating mutual learning, even when they claim to be focused on public engagement.

At the same time, we may be missing important exchanges that are commonplace at almost all live events. The most boisterous conversation often takes place once formal programming concludes. During this period of an event everyone involved is at his or her most relaxed. It may appear that the event is over, but for precisely this reason the richest "engagement" may just be getting underway.

What we would like to know:

The language of "public engagement with science" elevates the importance of the exchange between experts and audiences, but what function do audience-to-audience exchanges have in producing outcomes for an event? Stated another way, if events are primarily a social experience, then how do social interactions between audience members yield unique outcomes?

"One mark of great dialogue is that the audience can drive the topic."

"There is a great deal of interest in dialogue events. I think everyone here today would say this is important, but we don't see many of them done well, so there is an opportunity here."

"Events are a chance for scientists to figure out that output really doesn't matter. What you say specifically, even if you say it as carefully as you can, doesn't matter. What matters is input, what your audience is taking in. And there are lots of ways to get to correct input."

7. Public science events produce meaningful outcomes, some of which are unique.

7.1 Public science events can produce outcomes similar to those produced by other informal science learning settings.

What we know:

When public science events undergo third party evaluation to measure informal science learning outcomes, the results often compare favorable to those obtained in other sectors. A three-year evaluation of four science festivals in the US completed in 2012 is among the most involved such efforts to date. This evaluation, which drew on more than 11,000 intercept surveys at 130 distinct events, found that the events measured "produced high-quality informal science education experiences" that increased attendee interest in, comfort with, and connection to science.[14] Two-dozen science festivals are extending this collaborative approach to evaluation further with Evalfest[15], a multi-year project currently underway in the US.

What we would like to know:

A very small fraction of public science events undergo third party evaluation, and not all of those that do share the full results publicly. Published literature, when accessible, is not always explicitly referenced as referring to live public science events. A robust effort to evaluate a broad range of events and compile and share findings is likely to advance the public science events sector, but what degree of additional investment is needed for such an effort to have a transformative effect?

"There is an opportunity for a trans-atlantic guide or repository of research."

"I would love to have someone make me some cheat sheets: what do we know, what do we need to find out, citations under each of those."

14 Key Findings of Indpendent Evaluation, Science Festival Alliance, 2012: http://sciencefestivals.org/resource/three-years-of-evaluation-in-twelve-pages/
15 Evalfest: http://evalfest.org/

7. Public science events produce meaningful outcomes, some of which are unique.

7.2 Public science events are not always designed to produce traditional learning outcomes.

What we know:

Public science events organizers do not always affiliate with the fields of informal science learning and communication. This is partly due to a traditional perception of "learning" as the transmission of knowledge, but it is also due to motives that diverge from science learning. Some motives include celebratory, substantive (events serve as a vehicle for the co-production of ideas or artworks), or instrumental (events serve a mission other than science learning, such as cause-based activism). Many event organizers are more comfortable describing the outcomes of their work in terms of relationship building with communities, or more diffuse cultural change. Some may be motivated simply by social ties.

What we would like to know:

In an ironic twist, could it be that events not motivated primarily by learning outcomes involve a degree of authenticity that is especially conducive to positive learning outcomes? If so, how can this understanding be used to reproduce these benefits without destroying the authenticity that makes them work? How realistic is it to ask audiences expecting purely social entertainment to turn the corner to an educational experience?

"Some people perceive us as doing science communication, but we don't like to think of ourselves that way."

"For a lot of us learning does not matter. We don't care about traditional learning outcomes."

"I don't think of myself as a science booster, it is just that science is so much a part of our world now."

"These [event series] don't start as mission based: there are institutions for that. For me, I started because I like performing, and this [stageshow] seemed like a cool way to perform."

"I don't aim for learning. I want people to experience science as part of what they do in the world, and learning is part of that but not the motivation for the work."

7. Public science events produce meaningful outcomes, some of which are unique.

7.3 A known outcome for one event may not always translate well to other events.

What we know:

It is obvious that different event formats are likely to produce different audience outcomes. However, within any given event format, event organizers are aware of significant differences in the way other event organizers produce what appear, from the outside, to be very similar events. It is therefore likely that lessons learned from one event series may not directly apply to the next. This is not just a question of whether something is done well, so much as a reflection of the importance that an event's overall style can have on the audience outcome, especially when taken in the context of differing cultural geographies.

What we would like to know:

In the face of all of this variability, it is fair to ask to what extent any outcome findings are transferable. One reaction to this could be to systematically lock down variables. Yet what public science events need more than anything is more room to maneuver. How do we reframe the question of success, from one that tends toward a formulaic correlation between input and outcome, to one that makes a case for measurable impact without at the same time constraining the natural variability that breathes life into events?

"We often don't do the same thing twice. So if we did learn something we have to translate that into another event to try to apply what we learned, which means we make all sorts of other mistakes."

"Our knowledge seems implicit and instinctive. It isn't articulated in terms of a framework that can be researched [like usual]."

"What do we have in common? We all work in such different ways. But of all the things we are doing, [what unites us is that we reflect the] culture of science and what science is in broader culture."

"Art enriches peoples lives, presumably science events do in a similar way. What impact do the events we are talking about have in making science part of people's lives?"

"It can be very much an experiential event as opposed to something that is delivering vast quantities of scientific information, or has any specific learning objectives. I'm driven by multiple drivers, one is around scientific literacy, but another is this broader kind of acceptance that science is part of culture."

8. Public science events offer opportunities for novel research.

8.1 Public science events have the potential to provide productive settings for comparative social science research.

What we know:

If there is one basic question that galvanizes the public science events community, it is: "What is it that is so special about in-person, live events?" Every event organizer understands instinctively that live events are uniquely powerful, but we often struggle to articulate an answer to this question. Attempts often resort to analogies to other industries. Live music performances are still popular and special, even though you can easily find concert footage to watch. Fans still prize a ticket for a bad seat at a championship sporting match when they could watch from great camera angles in the comfort of their own home.

What we would like to know:

Our basic question may not be framed as a single research question, but does it lead to a guiding principle that could serve as a nucleus for novel comparative research? A comparative approach could draw out the distinct dynamics of live in-person events by comparing interventions that deliver similar content with and without the context of an event. For example, how is the character of learning different for attendees at a live stage show, versus those that podcast the same event? Or, how do patterns of participation differ when citizen science projects do or do not use live events?

A comparative approach begins with the acknowledgement that public science events are distinct, and builds upon the greatest strengths of live events. Since live events can be relatively cheap, iterative, and responsive, areas of interest to researchers may be compared by making purposeful adjustments to each iteration in an event series. For example, a series of carefully modulated events could be set up to provide insight into how prior audience knowledge of a topic affects equity issues in public engagement.

"How do different target audiences react differently to the same messages is a very interesting question for me."

"You can change your message when you bring events to different communities."

"What does the shape of learning look l ike, for anything? Some of these events provide an opportunity for understanding better how people learn."

8. Public science events offer opportunities for novel research.

8.2 There is an opportunity to import knowledge from many other domains.

What we know:

Live events in other industries are the subject of considerable study, from privately funded market research to peer-reviewed academic research. Most of this existing research focuses on domains that are rarely considered by public science event organizers, such as marketing, economic development, and tourism/hospitality. There is interest in translating knowledge from these for-profit domains for use in the more mission-driven world of public science events.

The work done in other industries will be helpful, but there are many opportunities for novel research related specifically to public science events. Teams of social scientists and practitioners will pursue this research, and the specific topics will vary depending on the composition of those teams. Potential topics arise throughout this document, but a short list includes: the unique role of inter-audience interactions, the power of group identity formation within a social experience, the larger impact of building relationships of trust with audiences, and the second- and third-order reactions to public science events from those who did not attend in person.

What we would like to know:

While discussing the role of live events in other industries, some have noted the tradition within the performing arts of naming "professors of the practice." Would an analogous arrangement be an appropriate way to advance public science events?

"Tourism literature has been the most helpful in developing science festival evaluations."

"[Some events] are set in environments where people are already trying on different identities."

"There seems to be an inverse relationship between how interesting and useful something [like a specific audience outcome] would be to know, and how easy it is to know it for sure."

"Our knowledge is drawing from different domains: events, leisure, tourism, arts management, there is a lot pulled in that is outside of the informal science community that I come from, and events are a unique animal in this way."

8. Public science events offer opportunities for novel research.

8.3 The potential for research to inform practice is not abundantly clear to event organizers, but there is interest in greater critical reflection.

What we know:

Event organizers are interested in research that legitimizes their activity. They are also curious about the nuanced dynamics on display in the live events that they and their colleagues create. However, event organizers—with notable exceptions—expect that the usefulness of research is quite limited when it comes to directly informing event production decisions.

What we would like to know:

There are a number of fundamentally different kinds of research that might inform public science event practice. Three are immediately obvious: market research (examining the relationship of audiences to offerings), evaluation research (outcome-oriented and often project specific), and academic social science research (investigations of the underlying social dynamics at play).

In addition to the perspectives these three kinds of research bring, there is an interest in greater critical reflection within the public science events community. Like a chef at the height of dinner rush, event organizers are often at their busiest exactly when the products of their labor are underway. While restaurants are judged by food critics, who might fill a similar role for public science events? Is there a need for two more external perspectives? First, media coverage to date tends to treat public science events only as feel-good educational offerings, not as cultural works. If public science events aspire to bring science into mainstream culture, a sign of success would be the vocal public appraisal of these events by art critics. Second, is it possible that by combining an external perspective with systematic observations and critique, researchers might help the public science events community gain needed space for critical reflection?

"The academic literature is often useless."

"Reading academic stuff about how to get people to come to science events was exactly the wrong thing for me to do. What I had to do was talk to [experienced event organizers]."

"We're still not getting the broader look at what these events are doing. The surveys tells us a lot...but they don't really show impact."

"The way we get information is just by going to stuff ourselves."

"Mutual constructive criticism is something this community doesn't have enough of."

"We need a filter, there is no one to say don't do that, this does not work. That would be useful."

"I often assume that there is more research than there actually is. I assume that there are answers out there that I just don't know how to find. Sometimes that's true, and sometimes it's not. I'm not sure how to close that gap between what we should all know about best practices, and how we design a research agenda that feeds into that. I'm not sure where to jump in sometimes. As a community we haven't had the research mindset in the past."

9. Public science events represent an incredible set of opportunities as a sector, but require special kinds of support.

9.1 Public science events are often dismissively misunderstood.

What we know:

Organizers must labor to overcome misunderstandings about the basic role of public science events. Events are commonly dismissed as one-time interventions with no enduring impact, though public science events often represent the essential moments that push forward long-term strategies. Similarly, events are often dismissed as "just a party." Event organizers are repeatedly forced to make the argument that the social experience must be primary, and that relaxed interaction is uniquely productive.

What we would like to know:

Have professional groups representing live events in other industries already identified key facts that help make a case for the unique role of public science events?

"We often hear from funders that they don't want to fund a one-time event, we need to be able to explain why it is OK."

"The things we do, when administrators see them, it just looks like we are having fun, but a lot of work went into doing that…if it is all working properly it is fun and looks effortless, but it is far from that!"

"We want to create the relaxed atmosphere of a party… the best ideas are the ones you have [at a party], because you're relaxed, you're more open to new ideas, you're more open to stimulation…to hearing things, to being challenged and debating things and moving conversations forward."

9. Public science events represent an incredible set of opportunities as a sector, but require special kinds of support.

9.2 Public science events face particular stresses.

What we know:

Each major event can involve an emotional roller coaster ride for organizers. Events are at the mercy of variables—sometimes as basic as the weather—beyond organizers' control. The quick response time of events is a distinct advantage, but rapid change and demanding production cycles can be wearisome.

While they will never feel as permanent as bricks and mortar, public science events tend to be subject to unnecessarily tenuous business models. The impermanent nature of events is such that one staff change or one cash flow hiccup can bring an otherwise successful series to its end. It is extremely rare—though not unheard of—for public science events to be provided with the resources to make long term plans with confidence. Taken together, these features can make for unstable ground on which to build a long-term career.

What we would like to know:

Would it be effective to offer business-planning guidelines to assist budding public science event organizers? Or is the difficulty that such emerging leaders are hard to identify until they have achieved a certain scale?

Baseline tracking could begin now to observe how long-term financial security affects event production for the fortunate few that enjoy it.

"I feel like I am doing everything on my own, and just fell into this."

"This career path is so nebulous, there is no track, it's exhausting."

"Year one is definitely the hardest, but in year two there is enormous pressure to reproduce."

"In our world, to be going on for five years is venerable."

9. Public science events represent an incredible set of opportunities as a sector, but require special kinds of support.

9.3 There is often a disconnect between the opportunities presented by events, and the outcomes sought by supporters.

What we know:

Most corporate sponsors are accustomed to using live events as marketing vehicles, and create a pressure for inflated attendance numbers while showing little patience for deeper evaluation of outcomes. Institutional funders (including government foundations) have a tendency to lavish attention on novelty, trapping event organizers in cycles of reinvention. Administrators and colleagues within organizations expect events to look like the products of either a marketing department or an education department, when public science events are best treated as a category in their own right.

What we would like to know:

How can arguments be better presented to supporters (from commercial sponsors to administration managers) so that the unintended consequences of an institutional framework does not threaten the resilience and stability of otherwise credible activity? Can some of those arguments be made effectively at a sector-wide level?

"To think about the broader picture in a way that goes beyond a limited survey requires a long-term commitment from a funder, and that would open our lens wider, which is usually constrained by year-to-year funding."

"[The media and funders] just want to know what's new every year, and this means you have to come up with a new stunt every year. Does any of this really change the audience? I don't know if we know the answer to that."

"In the US museum world if you have "events" in your job title it means you do space rentals."

"I would like [evaluation] to be more about has it changed perceptions and influenced people....but convincing the funders that this is valuable is not very easy, because they're more interested in how many people came to your event and that's seen as the measure of success, which it's not."

"I see myself as an event planner and an educator. If we want to own the event we have to take on every aspect, tables and linens and everything."

"The kind of roles that we have around this table didn't exist when we stumbled across whatever it is we do. That is why it is difficult to carve out a career path. [We all want greater support] and fundamentally what we are seeing is a symptom of the fact that the roles that we have didn't exist 15 years ago."

10. There is an emerging community dedicated to public science events.

10.1 When looking outward we seek legitimacy.

What we know:

The most visible features of today's public science events landscape are events grouped by format (for example, science cafes). There may be tremendous variation within these groupings, but the mere existence of a known category of activity raises the perception of legitimacy. The emerging public science events community is interested in the ways in which a stronger collective professional identity might extend such legitimacy beyond any particular event format.

What we would like to know:

Although the community is unified in perceiving a need for legitimacy, it is much less comfortable with setting any standards of quality. It is generally believed that anything approaching standards would fly in the face of the flexibility, innovation, and responsiveness to local audiences that make live events great. In the absence of agreed standards, how do we begin to apply a credible but flexible protocol for measuring, authenticating, and explaining individual efforts within a collective sector? Could a move in this direction allow for real, reflective assessments that advance both inward and outward looking conversations for this community?

"Defining the sector as a sector, and having a legitimacy that is more than ourselves, that is extremely important."

"Right now a science event isn't even on funders' radar, but if we have the word out, you don't have to spend time educating funders."

"Can there be some first principles that you have to agree to in order to be a live science event, and that is our charter, and we can say we are public science events?"

"Is it just a community of support or a community of challenge? Is there ever a point when we say you are not up to scratch?"

"There are so many efforts that don't have the resources and know how to brand correctly, and it runs the risk of doing damage."

10. There is an emerging community dedicated to public science events.

10.2 When looking inward we hope to share.

What we know:

Some public science event organizers benefit from existing peer networks. However there are not many of these networks, and they are exclusive to format. There is a universal eagerness for a broader events community that fosters knowledge sharing and collegial support, and there is widespread appreciation for the added value of transatlantic connections.

What we would like to know:

Sharing and general advocacy are easy principles to agree on, but some are ready to look past these commonalities and ask what else a community might do together. Is there a small set of research questions that would galvanize the community if answered definitively? Is it the role of the community to work together to incubate or tour productions, ensure certain audiences are served, or pursue directed networking around specific formats? Is there actionable policy guidance that the community can agree to advocate for?

"I didn't realize that so many other event organizers existed before, I hope this grows into a network."

"There is no strong support for practitioners in this category [of event format], but I've longed for a way to network for so many reasons."

"Our activity is so ad hoc right now, we aren't talking as a community about how to better do this or scale up."

"I can't wait to go to a meeting for events when things other than festivals are core to the network."

10. There is an emerging community dedicated to public science events.

10.3 There are expectations for a functioning community dedicated to public science events.

What we know:

We are wary of setting any boundaries that might constrain rapid adaptation and innovation. The strongest community will be emergent to some extent, but it will also require resources and management to be built at all. Professional in-person meetings and the opportunity to experience other public science events in the field are repeatedly cited as the most important elements for community building, and these activities should receive greater investment.

What we would like to know:

Especially given the desire for transatlantic connections, what is a reasonable scope for an enduring, equitable community? Is there a business model for a functioning network that is sustainable but does not elevate some groups over others just because they provide sources of earned income?

"It would be good to just have a hub place...a central place to bring all these things together."

"Most useful for me has been going across the country and seeing how people are doing this."

"This whole in-person creating connections piece is so much more important than having a forum or online resources."

"There needs to be a middleman [for a network to work], there needs to be an agency."

"The biggest pitfall is the budget... this community could be huge, and what meaningful activity can happen for the funding on two continents?"

"What do we have in common? One thing: There is great mutual benefit from being part of a recognizable, definable sector. Then you can say to people outside: this is a group of people you need to pay attention to. Look at the good work they are doing, this is how you recognize the work, this is the landscape, you wouldn't want to forget these people. That seems like one very clear common interest."

Keep exploring the landscape:
www.livescienceevents.org

- Links to live public science events, research products, and other sites of interest.
- Science Live Phase One materials, including this landscape survey.
- Sign up for Science Live updates.

SCIENCE LIVE

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