

Evaluation of STEM Outreach – Tackling the Tough Questions

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Good afternoon! My name is Karen Kinsman and for the last nearly 17 years, I've been the Director of the STEM-H Center at the University of New Mexico managing the development of strategic partnerships & collaborations, various outreach efforts, educator professional development, and our three signature regional STEM competitions for 4th through 12th grade students.

Really what we do is provide opportunities for students to develop a STEM identity, put inquiry & project-based learning into action while also offering STEM educators tools with which they can support their students' STEM identity & skills development. We are growing the next generation of STEM professionals and STEM literate citizens.

My educational background is in Psychology and Management. I have been involved in nonprofit management and leadership for most of the last 30 years and in a university setting for the last 17 of those years.

For most of that time...if not all of it if I'm being honest, I have struggled with how to TRULY know if what we do REALLY has the intended impacts.

I grapple with identifying the **right information** to gather from the **right people** at the **right time** using the **right tools** so that at the end of the day, we'll have something, ANYTHING meaningful that will inform programmatic improvements, offer us insights into the best ways to increase our organizational capacity to maximize impact, and make sure we have data that our funders really want so they feel their investments are being well spent.

Understanding the efficacy of outreach programming is critical for sustainability & scaling, yet this seems like a big, scary black hole. It's hard to capture our true impacts given audience, content, & contextual diversity as well as a lack of available resources to support evaluation efforts.

We're all doing good...perhaps great work, but how do we REALLY know that?

Spoiler alert...I still haven't found that holy grail!

Does this sound at all familiar?

You and your team work tirelessly to offer outreach programs for students.

Attendance is great (...or perhaps sometimes not so great!).

Students seem to be genuinely engaged and their post-event surveys bear that out.

The students (and maybe even their families or teachers if the audience is pre-college age) are overhead talking about how awesome the event was, how much they learned, and perhaps even that it changed how they see their own futures.

Their post-event survey answers seem to indicate that your program really made them think positively about STEM careers...maybe they can see themselves as a scientist or an engineer or a programmer or a physician...

You're fairly certain that a number of your participants are also participating in similar programs offered by other organizations doing outreach in your area...

You always wonder which program is having more impact OR if participating in more than one experience over time is what actually creates lasting impact for those students.

Then there's the question of access...

Are the students who need these experiences the most REALLY the ones being reached?

If not, how in the world do we do a better job of reaching the ones that need it most?

How can we best measure the effectiveness and impact of our programs?

To me, to funders, to our partners, to our stakeholders, that's the million-dollar question...sometimes quite literally, right?!

I am going to disappoint you once again by admitting I don't have THE answer. I'm not entirely convinced there is ONE answer anywhere.

I have discussed this very topic what seems hundreds of times in the past 17 years with a collection of cross-sector partners. We have searched for answers and it seems we mostly just keep adding to our list of questions!

Have you ever sat in yet another meeting with the same cast of characters where the conversation is the same...for years on end??!! And you know everyone is frustrated by the circular nature of the conversation?

Here are just a few of the unanswered questions at least for us...see if any of them ring true for you too...

- **How do we REALLY know that what we're doing has any long-term, lasting impact?**
- **How do we know if the biggest impact comes from participating in one program, one event, or participating in multiple programs over time?**
- **How do we even approach the idea of defining REAL and LASTING impact when we don't have the resources or capacity to track long term?**
- **How might we share data with other programs our participants might also be participating in so we would all know if we're producing synergistic impacts vs. hit or miss successes?**
- **How might the definition of impact change given different contexts, audiences, etc.?**

Let me throw a couple words at you that, at first may seem innocuous...

DATA SHARING...what's YOUR reaction to those two words? Mine...that is **one big, hairy beast!** That big, hairy beast brings with it even more questions... and unfortunately not many solid answers.

- **How do we make it feasible to share data across organizations or other institutions when we serve the same or similar populations?** This would allow us to perhaps track participants who engage in multiple programs to help determine if/how that participation impacts, for instance, their decision to pursue a STEM career, but we seem to make it extraordinarily difficult to actually share information...especially when it comes to sharing between institutions of higher education!
- **If we could share data, what data would be worth sharing?**
- **What data would actually inform our practices and make the most impact?**
- **Are there feasible ways to share participant data across organizations or institutions?**
- **Who would own the data?**
- **Is IRB approval required and if so, whose IRB will be consulted AND will IRB's at other partner institutions accept the decision of another institution's committee?**
- **How and where would the data be secured?**
- **What shared data would actually illuminate trends that would make a difference?**
- **How do we engage with alumni of our programs after they've graduated and gone into higher education or into the workforce in order to measure the long term impacts of their experiences in our programs?**

And the list goes on...and on...and on.

As a community of practitioners in STEM outreach, I think we have yet to be able to truly answer those questions well.

I don't know about you, but when we seem to get close to answering some of the questions, we just come up with more to be answered. I cannot imagine we are alone.

Though a number of programs specifically in the Central NM region likely serve many of the same students/teachers over time, we have no way of knowing that for sure because there are no viable shared data solutions in place in spite of our best efforts over the years to figure out how to do it.

We often share anecdotes and realize we're probably talking about the same student(s) OR someone mentions a student and I realize he/she is an alum of our program.

- **How do we get beyond our questions?**
- **Can we develop solutions that are useful across a variety of outreach programs?**
- **Can we find our way past obstacles, real and perceived, that keep us from truly being able to take advantage of the amazing opportunities that could exist to create collective impact that could really move the needle for our participants?**
- **Can we EVER find viable, mutually agreed upon, robust data sharing platforms through which community partner organizations doing similar work could TRULY measure not only their own impacts internally, but make real strides toward a shared understanding of how participation across multiple programs quite likely multiplies our singular impact potential as discreet organizations?**

Let's not end this without acknowledging that there is good work going on around outreach programs evaluation, outcomes based evaluation, program sustainability planning, and organizational capacity building.

I've compiled the start of a list of really great references that is available to anyone who'd like a copy. I'm sure there are many others I've not come across yet, so please feel free to share your resources with me as well!

I think we're all here to try to start coming up with idea seeds that will eventually grow into viable solutions to at least a few of our shared unanswered questions. It's not easy. It's not fast. It's not without cost. But, I believe it IS possible.

I am so excited to see what we can come up with together!

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