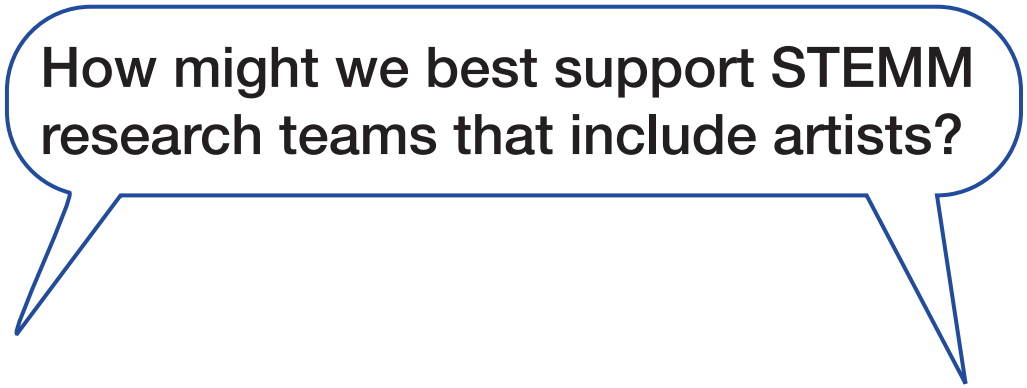
Supporting an Expansive Interdisciplinarity: Artists on STEMM Research Teams



Veronica Stanich

a²ru ALLIANCE FOR THE ARTS IN RESEARCH UNIVERSITIES

Elizabeth LaPensee & Aalap Doshi

MICHR MICHIGAN INSTITUTE FOR CLINICAL & HEALTH RESEARCH UNIVERSITY OF MICHIGAN

STEMM/arts groups supported by MICHR

Group 1: “How might we improve non-surgical and pre-surgical scoliosis management options and outcomes?”

Group 2: We want to connect people across disciplines whose work involves sensory perception, towards research or outreach outcomes that exceed what we could do alone.

"...and then **had COVID not hit, I think we would have been in really good shape**, but that just changed the world. So that was, you know, just unfortunate timing."
—leader Group 1

"She has been completely occupied with COVID-19—**zero bandwidth for a follow-up**."
—MICHR staff re leader Group 1

"I want this to be simple and fast. We need to be conservative with what we ask of this group—**there are so many Zoom demands on their time**."
—leader Group 2

"In light of the current challenges and demands of conducting our work within the constraints of COVID-19, I realize that **some of you may no longer have the time** or that your focus may have shifted." —leader Group 2

"Unfortunately, **only 6 people are available** during any of the potential meeting times."
—MICHR staff re Group 2

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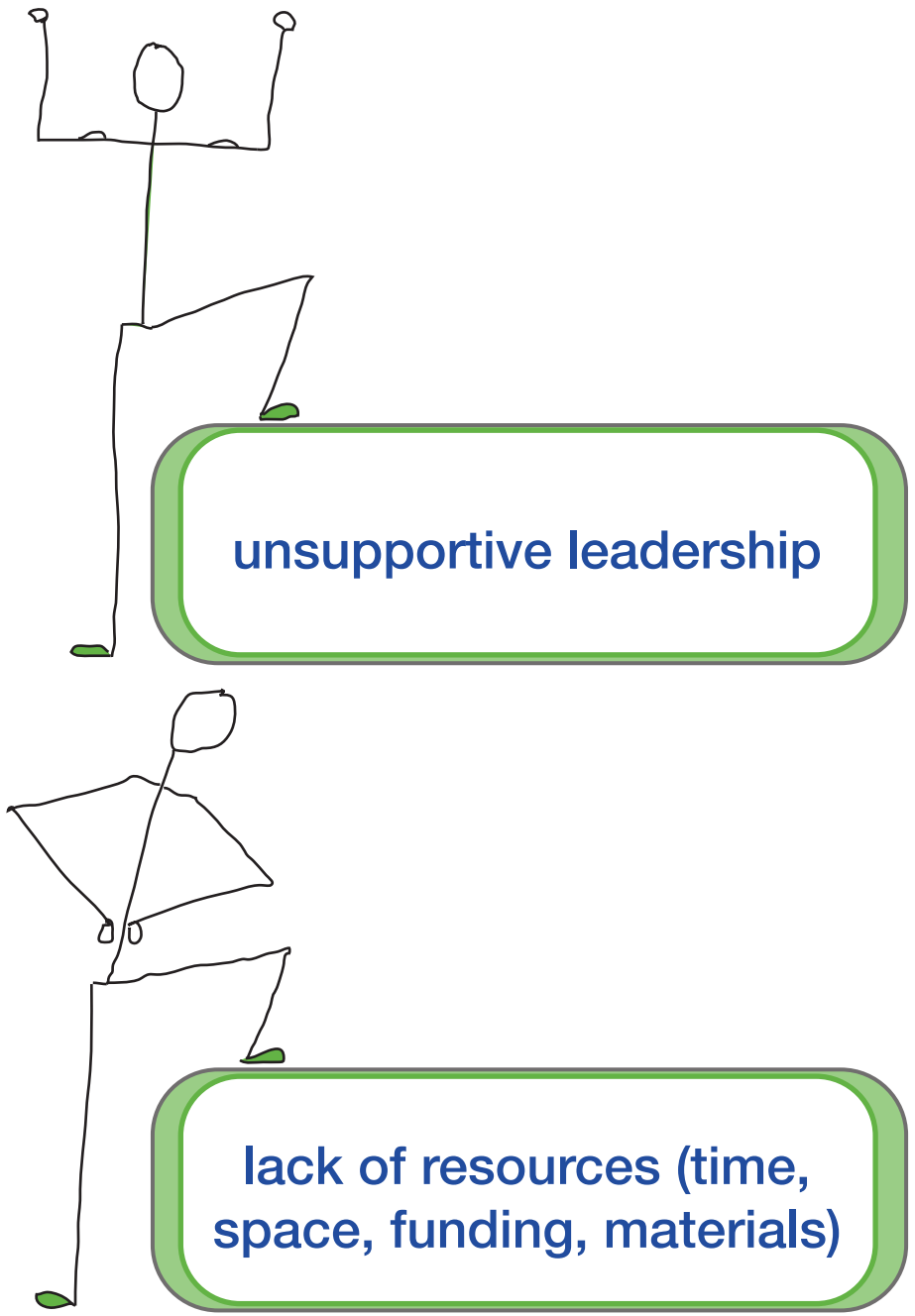
SPARC: a2ru's cycle of over 700 interviews with faculty, leadership, staff, and students at 39 research universities

Challenges to arts-integrated research

unsupportive leadership

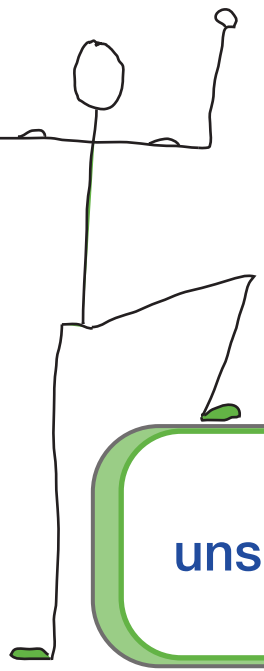
lack of resources (time, space, funding, materials)

STEMM/arts groups supported by MICHR

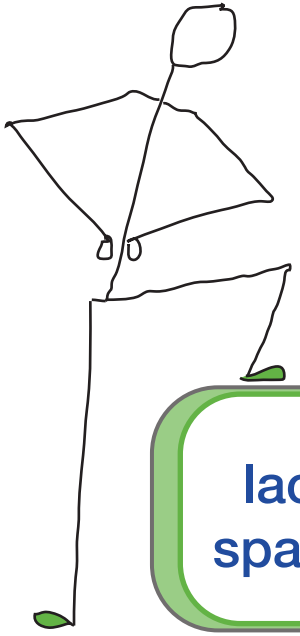


"I think that falls in the category of: you don't know what you don't know. I**t's only when you bring in totally new perspectives, that they can help connect the dots**, where it's really hard for any individual to kind of see that path forward."` —leader Group 1

"There is always a dichotomy between the basic sciences versus social sciences and the humanities and the arts. **This meeting will determine whether this becomes a holistic initiative or specialized. And I want to strive for the holistic version**."—leader Group 2



unsupportive leadership



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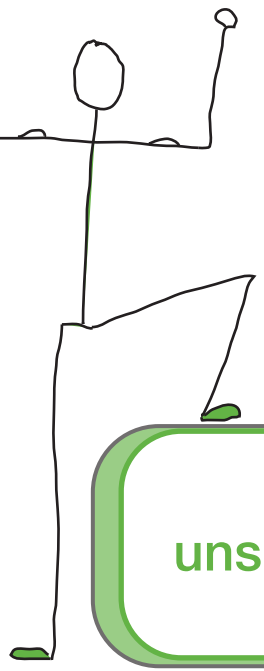
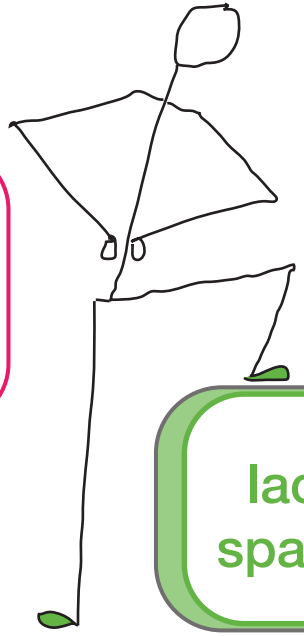


unsupportive leadership

MICHR support:

- basic project management
- session design and facilitation
- modest financial support



lack of resources (time, space, funding, materials)

Challenge: Disciplinary Difference

different practice

"Someone can take a look at the outcome, the product, and go, 'Wow, that product is beautiful. I have no idea how you got there. It seems like you just got there by fancying around in your studio until the muse struck you on your head and then off you went.' No, there's an actual practice to that, that can be taught and learned, and honed, and perfected. Bringing those two things together can be useful, if you just share that much. **How do you do your work and how do I do mine?**"
(SPARC arts faculty interview)

different knowledge

"**There was a lot of both of us not understanding what the other did, and what the capabilities of what the other person was doing.** For example, [my collaborators thought] 'We can have the robot do this and this and this,' and it's sort of like in the movies. "
(SPARC engineering faculty interview)

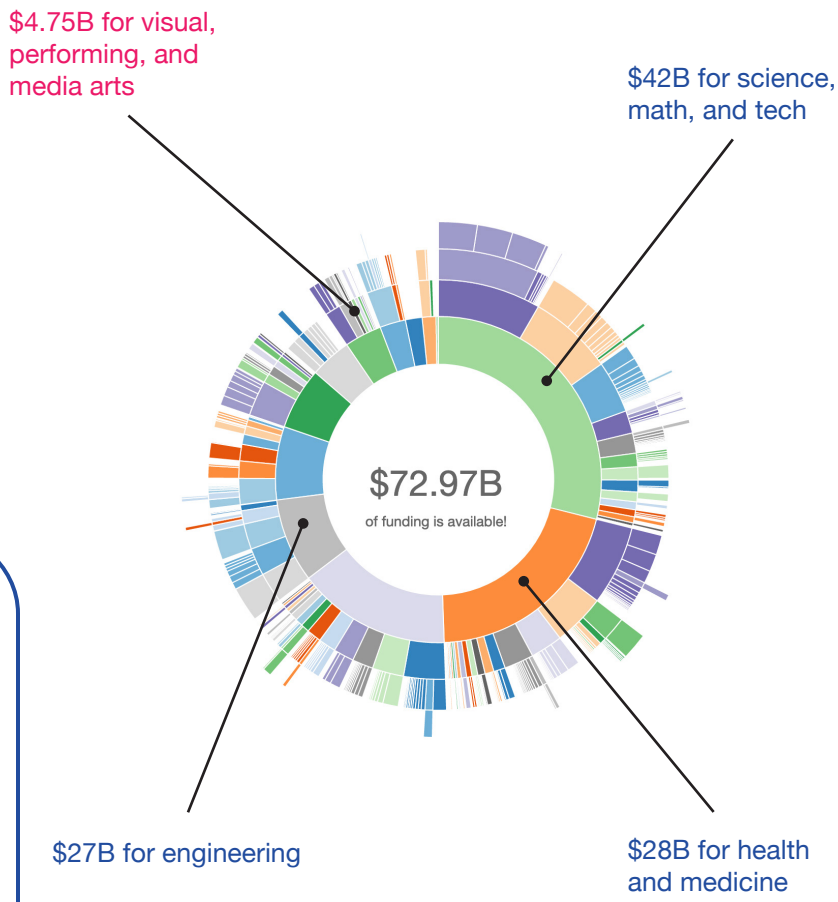
different language

"That takes time to find a common language, an understood way of moving forward, because I think each discipline has its ways of research. The main thing is, we assume we understand what we're talking about, and **we all use discipline-specific language that is not understandable to others initially**." (SPARC arts faculty interview)

Challenge: Disciplinary Hierarchy

"The most common misapprehension is that what we do is about decoration and entertainment, and that **we're not the people who really deal with the serious ideas**; we're just the ones who make serious ideas look good, or we make them entertaining." (SPARC arts faculty interview)

"Most artists pay for their own studios, and their own materials... I don't think that the repercussions of **the lack of federal funding in this country for arts research, it's very hard for people to comprehend what that means**. It means there are no labs. None! It means there are no PhD students. It means there are very few materials. It's like no, there's no test tubes, mate. Of course you haven't got that microscope. Or yes, you have, but you're paying for it out of your own salary...I completely get why this is not understood, because it's beyond the lived experience of most scientists." (MICHR arts faculty interview)



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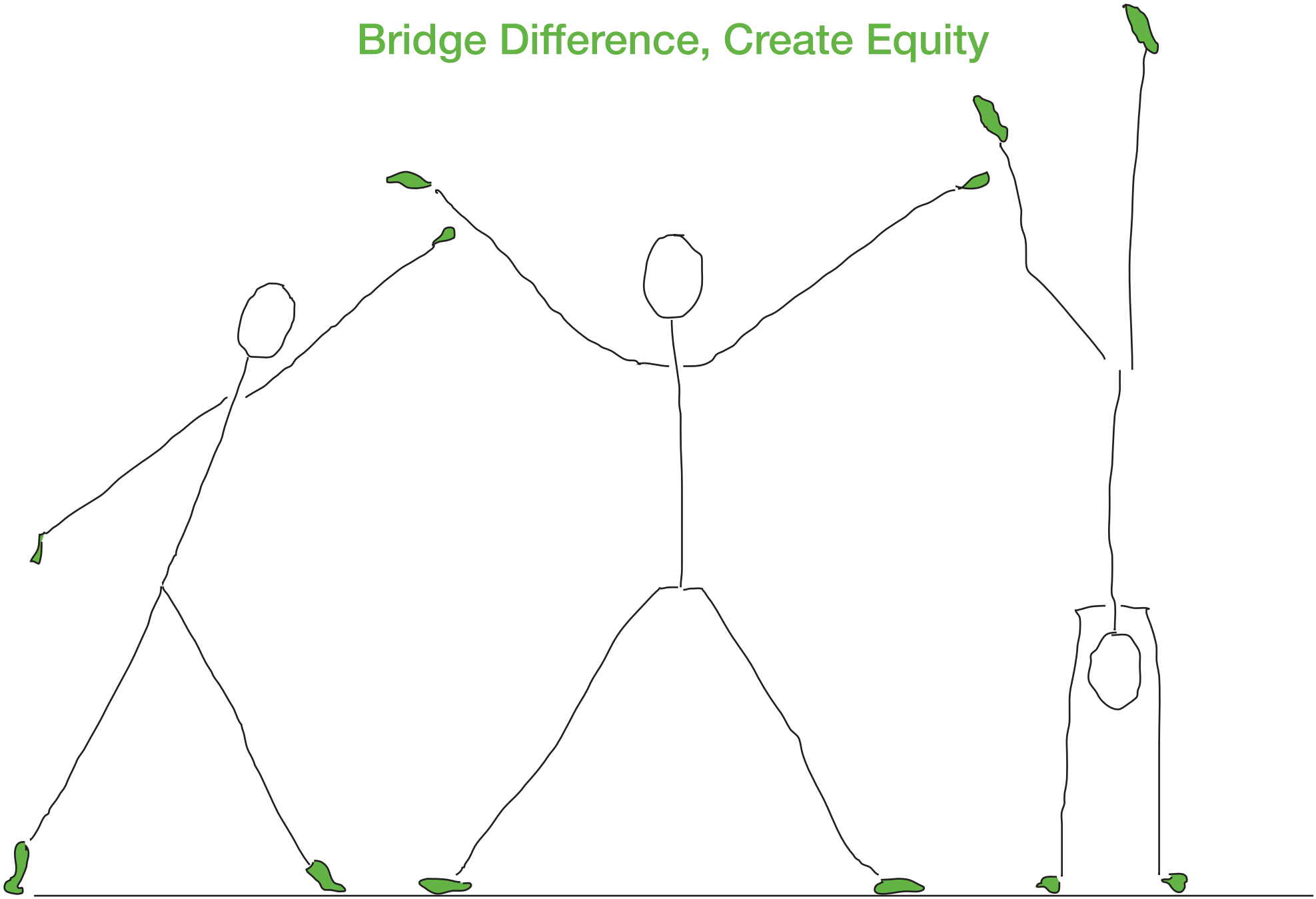
Bridge Difference, Create Equity



Bridge Difference, Create Equity

welcome artists in to a STEMM initiative

- **Bring artists in at the beginning**.

Bridge Difference, Create Equity

welcome artists in to a STEMM initiative

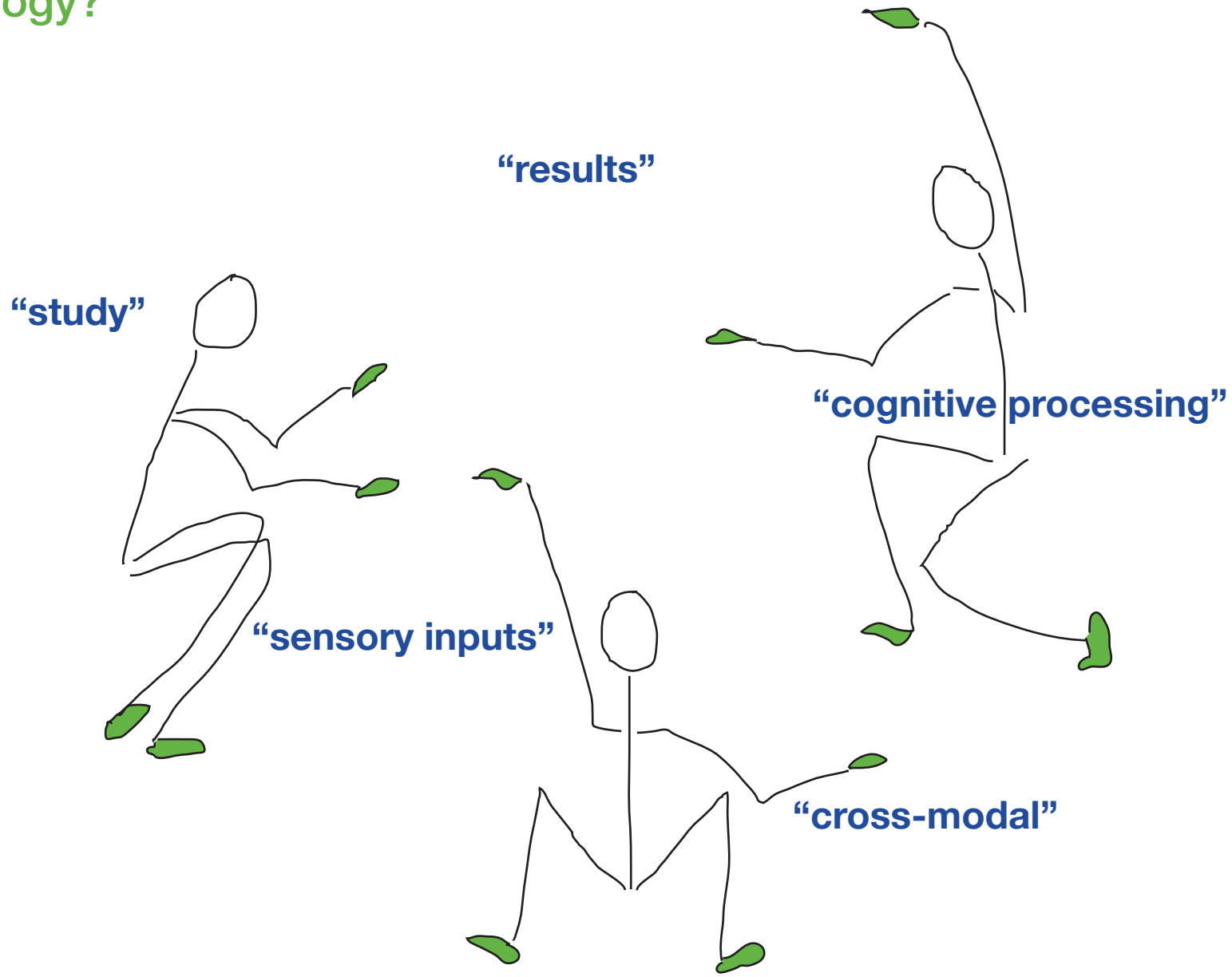
- **Bring artists in at the beginning.**
- Choose a setting for initial group meetings that creates **a convivial atmosphere** and emphasizes participants' shared status as members of university community rather than disciplinary affiliations. A hospitable space on "neutral turf," with snacks and adult beverages, works well.
- Use **visual structures** (e.g., sticky notes in affinity groups) to communicate organization of ideas in group meetings, lowering cognitive burden on participants.
- Make **multiple modes of participation** available; participants in a group meeting might write sticky notes, speak up in discussion, or contribute to organization of sticky notes in a shared space.

Bridge Difference, Create Equity

close STEMM knowledge gaps for artists

- Before meeting, **explain to artists the purpose of the group** and how their expertise and interests might contribute to the conversation.
- **Establish and share a *framing question*** — designed to situate participants in the clinical or scientific problem space and provoke critical thought about its potential.
- **Provide need-to-know information** about the problem space, in several accessible formats such as:
  - a graphic *journey map*
  - a brief and jargon-free presentation

What if artists, scientists, and clinicians in a group all use STEMM terminology?



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What if artists, scientists, and clinicians in a group all use STEMM terminology? Questions:

"results"

- The artists in one MICHR-supported group seem comfortable with STEMM concepts and terminology. How would the group be different if it included artists who aren't as comfortable?
- What were the mechanisms that brought these particular artists into the group? What networks or outreach would be needed to reach other artists who don't conceive of their work in scientific terms?
- What extra facilitation would be required to integrate artists who aren't familiar with STEMM concepts and terminology?
- Are artists who "speak STEMM" especially valuable to an interdisciplinary team because they have boundary-crossing expertise?
- Are artists who don't "speak STEMM" especially valuable because they bring a different perspective?
- How would the conversation be different if all members of the group used arts concepts and terminology?

"study"

"cognitive processing"

"sensory inputs"

"cross-modal"

Toward an expansive interdisciplinarity

Expansively interdisciplinary science teams, ones that include artists and humanists, need support.

Some of that support is no different from what any interdisciplinary team needs, and some of it is tailored to uniquely disciplinary dynamics. Although our study is still in its early stages, it begins to provide an idea of what that tailored support could look like.

This support could be equally valuable for teams with other disciplinary mixes, that also face challenges like disciplinary hierarchy and a knowledge gap.

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