



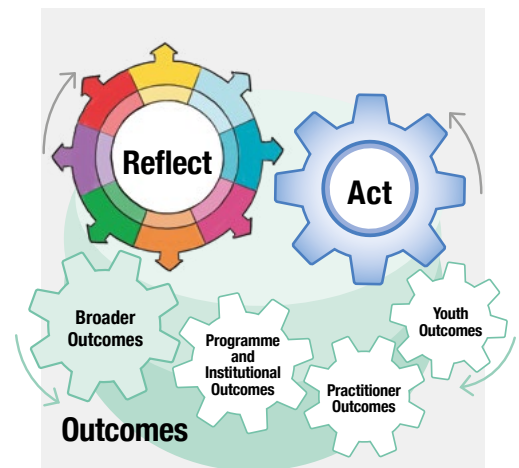
Authority Sharing



YESTEM Insight #2.8

What is the issue?

- Typically, in learning environments, the educator is viewed as the expert in their particular topic. They decide what knowledge is important to share with youth and how youth can demonstrate competency in taking up that knowledge. Practitioners have their own particular expertise, **but youth also bring valuable experiences and expertise to educational spaces.**
- **When authority is shared, youth have opportunities for their knowledge and practices to be centered in informal STEM learning (ISL).** Youth are viewed as experts because of who they are and what they know.
- Western science has been culturally grounded in White, Western, masculine worldviews and may not reflect the worldviews of all youth.
- Valuing youth knowledge and practices helps to de-center traditional Western epistemology. When new, more egalitarian authority structures are created, whose knowledge and experiences matter (and how and why) is expanded.



YESTEM Model for equity in ISL

Please see yestem.org for the full model and related Insight documents detailing each component.

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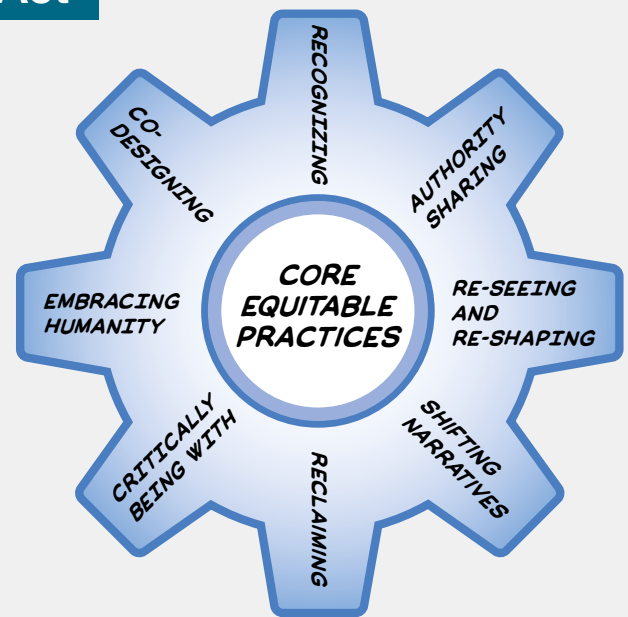
What is the practice?

There are many different ways authority is structured in informal learning environments. These include: the **roles** educators assign to themselves and to youth; what “counts” as valuable **input and forms of participation**; how **expertise and accomplishments are represented** in a space visually and discursively.

Authority Sharing involves **supporting youth in using their expertise to educate others**, whether that be other youth or the adult educators themselves. The practice of Authority Sharing involves the stance that youth have powerful ideas and experiences that matter in learning and doing STEM.

Beyond giving youth the opportunity to be an expert/authority in the traditional Western science sense, Authority Sharing also means giving up the centrality of Western science and supporting new forms of authority that bridge/merge and/or challenge traditional forms.

Act



The practice of Authority Sharing challenges views of practitioners as sole authorities. Authority Sharing supports youth in seeing how their lived experiences and expertise matter in STEM.

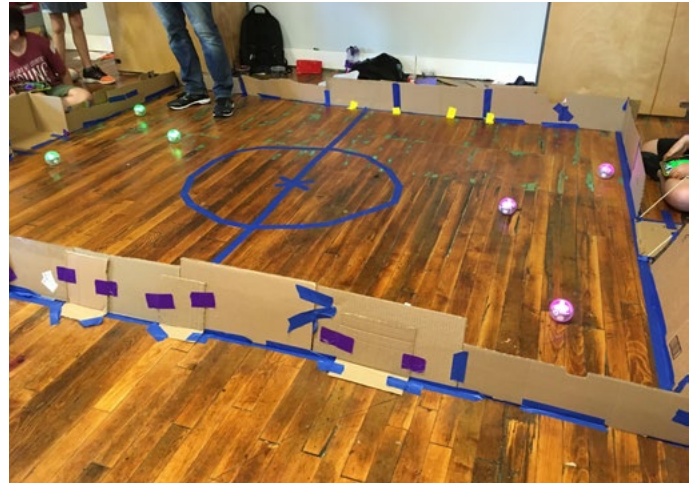
Visit yestem.org for more information and resources from our international research effort.



Spotlight on practice: Sphero-robot game (US)

During summer camp, educator Chris noticed youths' excitement in programming the sphero-robots. He said to the youths: "I found you really liked Spheros. How can we make Spheros be our design activity?" Youths brainstormed many ideas, and came to agreement on the idea of playing a soccer match with the Spheros. Chris leveraged the youths' ideas and interests to reorganize camp activity to support youths in designing, building and playing Sphero soccer. Youths moved throughout the room building walls and goals, testing ideas, trying new ones, and sharing their discoveries with each other.

Chris took on a support role for youths as they designed and played their Sphero game. He reflected: "That was my big highlight of today, where the kids got to run the show more or less. I kept trying to – I kept getting so amped up that I wanted to get in and be like, but Natalie's like, "Mr. Chris, you keep interrupting me." I'm like, "You know what? You're right. I'm sorry." [Chuckles] I got told to step back, I think, which was fantastic. I got to just be on the perimeter trying to make sure Spheros were charging so that when one died, I had one to replace it."



Chris' decision to support youths in re-designing the camp reflects the practice of Authority Sharing. He turned over the ownership of the activity itself to the youths. He also supported the re-design of the camp activities. Both of these actions helped to redefine what it meant to do STEM and to be recognized as an expert. When youths (or their parents) entered the camp room, they were greeted with the new soccer arena, youth-authored rules for participation, and decorations.



Spotlight on practice: Innocent leads a STEM club session (UK)

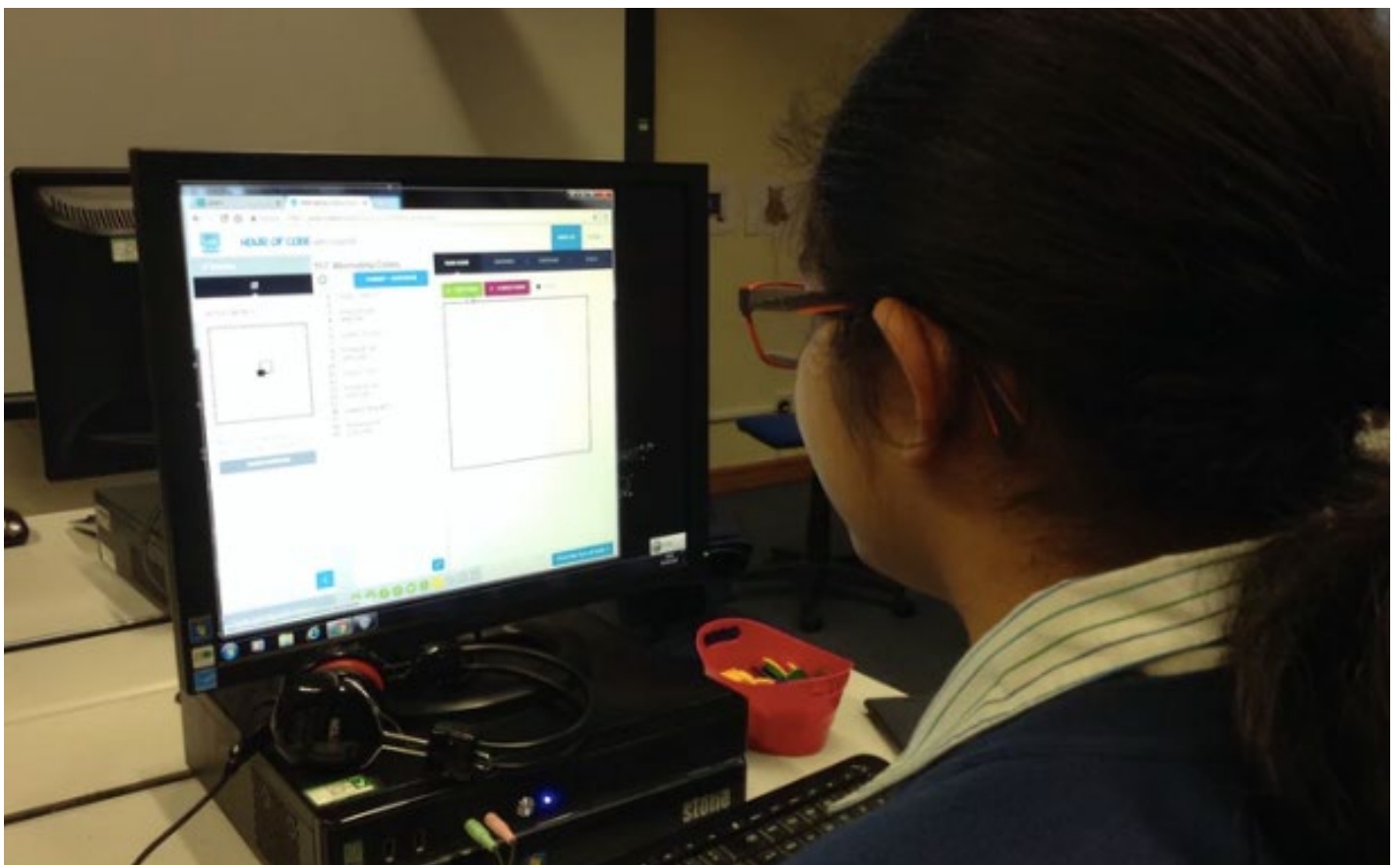
Innocent was a young Black woman who lived in London and attended a weekly after-school STEM club run by a social enterprise working with young women. The club sessions generally started by showcasing a female STEM professional and were fairly typical of many STEM clubs in that they tended to follow a prescribed curriculum and were led by a facilitator. Innocent was usually disengaged, chatting to her peers and paying little attention to the activities.

At the end of one session, one of the facilitators, Bobbi, noticed that Innocent had not been very engaged that day and decided to do things differently. **Bobbi shared authority by asking Innocent if she might be prepared to lead the next club session** that focused on Black computer scientists who had contributed to space exploration. By doing so, Bobbi disrupted the usual practice of an adult facilitator leading and steering the content and learning.

The following week, **Innocent led the session with competence and confidence**. She stood in front of the group and confidently introduced the topic of space and the Black women who worked in space science and computing. After the group watched a YouTube clip about the film *Hidden Figures*, Innocent led a discussion about the film and the role of the Black women in computing –

a topic she appeared to be particularly passionate about. This passion was evident in her follow up interviews after the program had ended, when she spoke about how “it’s usually men, especially in the Western world, so knowing that women can do it as well is really empowering to little girls like us, it makes me feel better”, adding that STEM “it’s usually, predominantly, a White career”.

There seemed to be a greater amount of student talk about science during the session that Innocent led - more so than the research team had observed in any of the other club sessions. We felt that this change was related to the shift in the power dynamics, when Innocent (rather than an adult practitioner) led the session and facilitated the group discussion. Bobbi’s invitation to Innocent to lead the session was an attempt to shift adult-youth power relations towards centering and supporting youth agency. We noted that Innocent herself also participated more vocally and actively in this session and that, as a group, the young women raised questions and shared ideas more in this moment compared to previous club sessions.



How to use this practice: Reflect

Reflection questions

1. How are youth encouraged to enact authority in your learning space?
What roles are they given or are they supported in creating?
2. What are some ways in which you have created (or could create) spaces for youth to try out new ideas and ways of doing things?
3. What obstacles could be addressed to support youth authority more broadly at your institution?
Who would need to be invited to that planning session?

How to use this practice: Act

Things to do

1. Youth as Experts

The educator does not have to be the only expert in the room. Youth bring their own knowledge and experiences to spaces. Find ways to learn about and recognize youth expertise. The youth who watches Discovery Channel may be knowledgeable about animals. The youth who bakes may be skillful in helping peers measure during experiments. The youth who hunts with family may know ecosystem interactions and seasonal changes. All expertise can be recognized and valued. When do you take opportunities to position youth to share the expertise they have?

2. Showcasing

Is your program space a place where youth see their expertise displayed in powerful and sustained ways?

3. Noticing and flexibility

What opportunities do you take to notice what youth bring to lessons/activities each day?
Consider strategies that elicit youth interests and experiences so that you can adapt activities to include their interests.

4. Environments where everyone is a learner

How do you work with youth and position yourself in activities? Educators are not the only ones who teach. We are just the ones who are typically recognized as teaching. Youth learn from the educator, but also from each other. Educators also learn from youth. What strategies can you use to reposition everyone as a leader?

5. Youth relationships

Who are the youth in your program? Are they youth from the same school or neighborhood who know each other? Do the youth in the program not know each other?

Sometimes being recognized as an expert in particular ways can be negative, depending upon how peers take it up. Keep in mind your relationship with youth and how much you know about their relationships with peers.

Additional tools and resources

Try out some “Talk Moves”

Talk moves can help to elevate and value youth contributions. Some moves create spaces to help youth share their expertise. Other moves show value to and connections among practices/ideas youth already contributed.

Creating spaces to help youth share their expertise

- **Prompting Youth for Further Participation:** “What do others think about the ideas we have so far about how we might use our robotic arms to help clean the room? What would you add or change to our list of ideas?”
- **Asking for youth expertise:** “Does anyone know how to sew?”; “Would any of you help me lift my fingerprints?”
- **Think/Pair/Share:** “I want everyone to have a chance to think about their own ideas first and share them with a friend first.”
- **Changing the direction of lessons based on youth ideas/questions:** When a youth asked, “but what if [the idea different from what the educator just said]” The educator, acknowledging the point the youth made, “Oh! I didn’t think like that but

that totally makes sense! Thanks for that point. Would you share your idea how we can [reflect the youth idea]?”

Valuing and connecting to practices/ideas youth contribute

- **Revoicing:** “Timmy has a great idea. He said that we should put the greenhouses by the southside windows in our room. Timmy did you want to tell everyone why you thought that?”
- **Valuing youth artifacts:** “Thanks. I learned that I could do like what you do.”
- **Valuing youth ideas/questions:** “Thanks for asking that. Your question reminds me that I ...”

Example tools from educators

- **Help board:** A poster where youth add their questions which is used to support youth in sharing their expertise with one another.
- **Tips & techniques share outs:** Time for youth to share the day’s discoveries with the group to support sharing youth expertise.
- **Showcasing:** Providing youth with space and time to share what they have created and learned.

About our project

- Over four years, our project involved researchers, ISL educators and young people working in partnership to develop new understandings and insights about how ISL might better support equitable outcomes for young people aged 11-14 from minoritized communities.
- Our project partnership involved data collection in the UK and the USA with partners in two science centres, two community STEM clubs, a zoo and a digital arts centre.
- Overall, 260 young people and 30 practitioners took part.
- In the wider project we also conducted surveys with 2,783 young people.

For the full range of Insights documents summarizing the project’s tools and resources, including Core Equitable Practices and Equitable Youth Outcomes Model, please see yestem.org

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