



**ADVANCING THE
CONVERSATION**
on Scaling National
Informal STEM Programs

Collaborative Decision-Making Tool

for Equitably Scaling Informal STEM Programs

Guidelines for Equitably Scaling Informal STEM Programs outlines the contextual issues around scaling informal STEM programs, discusses the limitations of current frameworks for scaling, and provides six guidelines to consider for equitable scaling.

Practitioners can also utilize this companion document, ***Collaborative Decision-Making Tool for Equitably Scaling Informal STEM Programs***, to begin implementing the guidelines. This decision-making tool provides a starting place for those interested in applying these ideas to their practice.

The guidelines and tool are not intended as how-to guides on program scaling. Rather, they serve to empower people to engage in conversation and ask critical questions related to equity and scaling.



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OVERVIEW

In 2023, the National Girls Collaborative Project (NGCP) and Education Development Center (EDC) collaborated with informal STEM learning practitioners to co-design *Advancing the Conversation on Scaling National Informal STEM Programs*, a conference to examine current frameworks and conceptions of scale in informal STEM learning. This conference convened and elevated voices commonly missing from scale-related conversations: the people who work directly with youth and families to provide informal STEM learning programs.

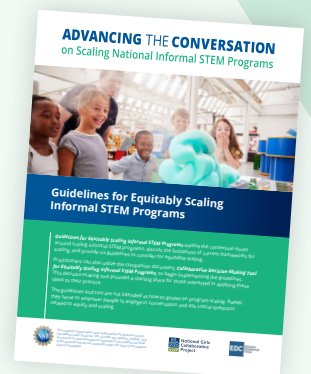
During the conference, participants concluded that there is a need to create interventions to help people think differently about scaling in informal STEM learning communities.

To meet this need, a subset of conference participants collaboratively developed the following guidelines, which are covered in more detail in *Guidelines for Equitably Scaling Informal STEM Programs*.

These guidelines provide the foundation for this tool, which conference participants and leaders across the informal STEM education field co-developed following the conference.

Guidelines for Equitably Scaling Informal STEM Programs

- 1 Proactively build authentic relationships with the educators, youth, and families you aspire to reach.
- 2 Collaboratively determine whether to scale alongside these educators, youth, and families.
- 3 Determine together what will be scaled, how, and with whom.
- 4 Redefine program success by co-defining or refining goals and outcomes.
- 5 Prioritize flexibility over fidelity by collaboratively deciding what is essential to the program model and what can be adapted.
- 6 Empower participants through capacity building and iteration.



In an ongoing effort to advance the conversation, we welcome your thoughts, reflections, and questions. Please reach out to us at the [National Girls Collaborative Project](#).



USING THE TOOL

The following four-step process is designed to help practitioners apply more equitable strategies during scaling through collaborative decision-making with those receiving, developing, funding, and studying the proposed scale-up program.

STEP 1

Identify Your Collaborators and Build Authentic Relationships.

STEP 2

Collaboratively Determine Whether to Scale.

STEP 3

Collaboratively Determine How You Will Scale.

STEP 4

Reconvene Collaborators Regularly.



DEFINITIONS

Many definitions exist for the terms below. Following is how they are used in the context of this tool.

Equity: A process of consistently reflecting on, evaluating, and disrupting broader systemic barriers and biases that implicitly and explicitly exclude people from participating in order to ensure that everyone has what they need to thrive.

Implementers: Site directors, coordinators, and educators working directly with youth in informal learning settings, such as afterschool programs, museums, libraries, and other community-based organizations.

Informal STEM learning: Science, technology, engineering, and math education opportunities and experiences that occur outside of the classroom in settings such as museums, afterschool programs, libraries, and other community-based settings.

Practitioners: Individuals who actively engage in the design, facilitation, and implementation of STEM education activities, programs, and experiences in informal learning environments. Practitioners may include both implementers and program developers.

Program developers: Individuals who conceptualize and design informal STEM learning curricula, programs, or experiences. These individuals may work in museums, universities, corporate outreach departments, and other community-based organizations.

Scaling: The process of taking a curriculum or program that has shown positive impacts in one context and spreading, replicating, or reproducing it in other informal learning contexts to reach more people and maximize impact (Dede & Rockman, 2007; Koch & Penuel, 2010).

STEP 1

Identify Your Collaborators and Build Authentic Relationships.

Before deciding if you should scale an informal STEM learning program, identify the people and groups that you wish to collaborate with, understand those whom you already have relationships with, and build authentic relationships with potential new partners.

Who should be at the table to review the needs, goals, resources, and outcomes of the program? Collaborators could include program developers, implementers, educators, evaluators, researchers, funders, youth, and families. You may already have relationships with many of these individuals. Still, it is important to intentionally build trusting and authentic relationships with people in the communities where the initiative aims to scale before diving into collaborative decision-making. Consider using these trust-building strategies as you get to know one another and develop relationships.



Your collaborators may expand as you begin holding conversations about scaling. You may realize you initially left someone out of the conversation or need additional perspectives. Consider adding individuals to the conversation throughout this process, and revisit your trust-building strategies as needed.

STEP 2

Collaboratively Determine Whether to Scale.

Host a meeting with your collaborators, ideally all together and in person, to determine if the conditions are right for bringing your informal STEM learning program to scale.

During the meeting:

- Allow time for people to get to know each other, such as by sharing personal and professional backgrounds, goals, and interests.
- Set a shared purpose for the meeting. For example, “In this meeting, we will aim to determine if X program is right or ready to scale within this community.”
- To lead to effective decision-making, collectively establish group norms for the meeting. For example, you could discuss power sharing, transparency, communication methods, and roles.
- Give everyone at the table an equal opportunity to share in the conversation. Such strategies could include asking participants to monitor their speaking time and providing multiple options for sharing feedback, including written formats.
- Have a discussion where each collaborator helps determine where there is alignment and misalignment if you feel the project is ready to scale (see discussion questions).



Bringing together all collaborators in person may be challenging or infeasible, especially if you aim to scale the program nationally. However, there are other ways to provide opportunities to give input, such as gathering virtually or asking the discussion questions via a survey.



Discussion Questions

NEEDS	<ul style="list-style-type: none"><input type="checkbox"/> What do we know about the needs and desires of the communities participating? What don't we know? What evidence do we have to support what we do and don't know?<input type="checkbox"/> Does this program align with the needs and desires of the communities participating? How do we know?<input type="checkbox"/> How are these needs being addressed in the program design?
GOALS	<ul style="list-style-type: none"><input type="checkbox"/> What are the goals of my organization related to STEM learning? Are they aligned with this program?<input type="checkbox"/> Is each collaborator clear about the expectations and benefits of participation? Is there an opportunity to co-develop the expectations and benefits?
RESOURCES	<ul style="list-style-type: none"><input type="checkbox"/> What resources does my organization have to support scaling this program (funding, materials, curriculum, people, etc.)?<input type="checkbox"/> What resources does my organization need to scale this program?<input type="checkbox"/> Does the funding adequately address the needs of the communities participating, and will the funding be distributed equitably?
OUTCOMES	<ul style="list-style-type: none"><input type="checkbox"/> What outcomes are we each hoping to achieve through this program?<input type="checkbox"/> Is there evidence of past program impact?
CONCERNS	<ul style="list-style-type: none"><input type="checkbox"/> Are there any additional concerns about the program? How are these being addressed?<input type="checkbox"/> What are the risks of partnering to scale the program?<input type="checkbox"/> What are the risks of not partnering to scale the program?



At this point, you might feel that everyone is aligned and ready to move on to Step 3. However, you will likely need to continue meeting to address unanswered questions, and it is possible that some collaborators may decide that there is not enough alignment to continue pursuing this potential work together. It is important to give this process time and allow for multiple conversations that continue to address points of concern and lead to shared decision-making. If the group feels that misalignments have been addressed and you are ready to discuss how to scale, continue to Step 3.

STEP 3

Collaboratively Determine How You Will Scale.

Host a meeting with your collaborators, ideally all together and in person, to discuss how you will scale your informal STEM learning program.

During the meeting:

- Follow similar strategies as outlined in Step 2, including providing equal opportunity for everyone to share their unique perspectives, allowing time for community building, and setting a shared purpose, goals, and norms.
- Have a discussion to determine how you will scale your informal STEM learning program equitably (see discussion questions).

Discussion Questions

Co-define or Refine Goals and Outcomes	<ul style="list-style-type: none"><input type="checkbox"/> Are there opportunities to modify or co-create the program elements and outcomes with educators, youth, and families?<input type="checkbox"/> Have educators, youth, and families informed the evaluation and/or research plan?
Prioritize Flexibility over Fidelity	<ul style="list-style-type: none"><input type="checkbox"/> What are the essential elements of the program that we want to maintain as it scales, and how does the program build the capacity of participants to implement the essential elements successfully?<input type="checkbox"/> What elements can be adapted to meet community needs (e.g., length, language, format, and/or location)?<input type="checkbox"/> How does the program build the capacity of implementers to understand what is flexible and how to adapt it to meet their community needs?
Empower Participants through Capacity Building and Iteration	<ul style="list-style-type: none"><input type="checkbox"/> How does the approach to scaling empower (1) implementers to feel confident in delivering the program and (2) youth and families to take ownership of their learning?<input type="checkbox"/> Are there opportunities for program participants to provide ongoing feedback and inform redesign as the program scales? What is the process for surfacing and addressing roadblocks?<input type="checkbox"/> How will failure and learning be embraced as part of the iterative process? How will learnings be shared internally (within the project) and externally (with those outside the project) to advance informal STEM learning opportunities?



At this point, the group should have developed a working plan for the upcoming implementation. Outstanding issues or opportunities should be reviewed regularly and resolved as implementation gets underway, and collaborators should continue to stay in communication about the progress of the work.

STEP 4

Reconvene Collaborators Regularly.

Reconvene your collaborators regularly to check in and provide support as needed.

These conversations will be the first of many regarding equitable scaling. This process does not start and end with one conversation. Instead, it is an iterative process that requires shared dedication throughout the program's life cycle. To keep your collaborator team accountable to the process of equitably scaling, consider using the following check-in and reflection questions as you continue to meet.

Check-in and Reflection Questions

- Do the program goals, outcomes, and essential elements still align with the needs and desires of the community? How do we know?
- What has been successful so far? Have we experienced any failures? Have we shared these successes and failures internally and externally?
- Have we been responsive to community needs and challenges? How do we know, and do we need to make changes in how we respond?
- Do program participants, including implementers, youth, and families, feel heard and empowered to make decisions? How do we know?
- Are we communicating effectively as a collaborative team? Do we need to make changes to the way we work together?



● **NOTES AND REFLECTIONS**

STEP 1 | Identify Your Collaborators and Build Authentic Relationships.

STEP 2 | Collaboratively Determine Whether to Scale.

STEP 3

Collaboratively Determine How You Will Scale.

STEP 4

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