

Asset-Based Approaches to Visitor Observation in Science and Natural History Museums

A practice brief for program evaluators and informal science educators

There are many ways to support deep and meaningful learning in STEM. An [asset-based approach](#) involves recognizing and supporting what researchers call learners' [funds of knowledge](#). But what would that look like in practice? This research-practice brief aims to help your team incorporate an asset-based focus into visitor observation protocols in museums and other informal institutions of learning.

Asset-Based Views of Visitor Knowledge

Science knowledge does not only originate from nor exist solely in a museum. As much as museums display a wealth of new things to learn from, museum visitors hold important knowledge, too. They bring their own [experience](#), knowledge, interests, ideas, values, goals and beliefs to the exhibits.

Science and natural history museums develop exhibits that cultivate visitors' interests and understanding. Programs and exhibits aim to provide meaningful experiences and stimulate engagement. It is important for museum staff to recognize that prior knowledge is the starting point for visitors to construct new ideas and experiences.

It is also important for museums to support visitors' knowledge because doing so builds a pathway towards a more inclusive and [equitable](#) science learning ecosystem, where multiple ways of knowing about natural phenomena are supported and valued.

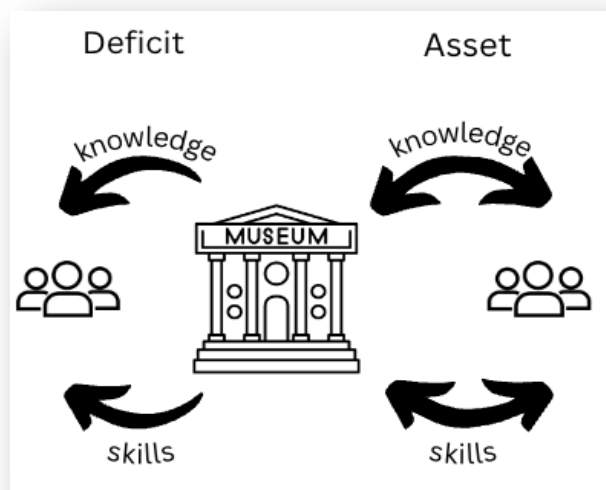


Figure 1. On the left, a deficit orientation focuses on visitors collecting knowledge from the museum. The right side of the image shows an asset-based orientation, where visitors and the museum have valuable knowledge to share.

Visitor Observations

Visitor observations are widely utilized by evaluators and program managers. They provide useful information about how visitors engage with museum exhibits, events, and programs. There are different visitor [observation approaches](#) including timing and tracking, demographics, behaviors, and conversation transcription. They are often combined with other tools such as surveys, interviews, or concept maps, but for this brief, we focused exclusively on observation protocols.

In deficit-oriented protocols, the museum is the source of science knowledge, and the visitors are the consumers. Most observation protocols check to see if an exhibit or program fills a supposed gap in visitor's knowledge. These types of protocols might include items like, *the visitor walked away with the main message of the exhibit*.

In contrast, an asset-based protocol gathers information about how the visitor's knowledge is recognized, valued, and shared in the museum. But what does this look like in practice? The Reimagining Equity and Values in Informal STEM Education (REVISE) Center [Community Repository](#) contains 100+ observation protocols. In this brief, we highlight three examples that foreground visitor knowledge and experience.

An asset-based protocol gathers information about how the visitor's knowledge is recognized, valued, and shared in the museum.

Examples of Asset-Based Observation Protocols

Visitor-Scientist Interactions

Evaluation firm Audience Focus conducted a [summative evaluation](#) for the National Museum of Natural History to assess visitors' experiences with their *Scientist Is In* program. *Scientist Is In* enables museum scientists and researchers, as well as staff from partner organizations, to interact with visitors and their research, normally utilizing a cart to display specimens, media, and other interactives.

The observation protocol for this study included many standard items such as time spent, behaviors, demographics, facilitation techniques and an area to record conversations. However, the coding rubrics for the observed conversations included several asset-based indicators. For example, the protocol checks if visitors provide "their thoughts and opinions" when discussing connections between human and nature with scientists. They also had a secondary code for whether the scientists or the visitor initiated those conversations. Many of the evaluators' recommendations were also asset-based, stressing an emphasis on mutual learning and multi-direction dialogue.

User-Generated Exhibit Content

The [Baseball Stories](#) project is an exhibit with the feature of user-generated content, presented at the Museum of Science in Boston in 2008. This project was created to allow people to share stories and experiences with baseball in the *Baseball as America* traveling exhibition so that they could contribute their knowledge to the exhibit. People could leave their stories or read other stories, and they could view those stories at the exhibition kiosk

or on the website. Importantly, as shown in Figure 2, the protocol clearly acknowledges that visitors bring their own knowledge and

stories about baseball to the exhibit. The protocol tracks whether visitors watch each other's stories and search for their own stories.

TABLE 13. Activities Visitors Were Observed Doing at the “Baseball Stories” Kiosk. (N=40)

	Number of Visitors
<i>Watch stories</i>	36
Watch both types of stories	18
Watch only a non-MOS story	11
Watch only a MOS story	8
<i>Interact with the computer</i>	12
Pick “Find Your Story”	6
Pick “Send an Email”	1
Pick both	1
Didn't pick either	4
<i>Read the text label</i>	5

Figure 2. This observation protocol records how visitors interact with knowledge shared by other visitors. Reprinted with permission from Elizabeth Kunz Kollmann and Anna Lindgren-Streicher (2009).

Staffed Exhibit Tables

Oregon Museum of Science and Industry (OMSI) educators worked with Portland State University (PSU) scientists to develop facilitated activities onsite at the museum and offsite through community outreach. The goal was to engage the public with solar cell projects developed in PSU and figure out ways to reach a wider audience.

The summative [evaluation](#) included observations, surveys, and interviews. The observation protocol was adapted from research by [Barriault and Pearson \(2010\)](#), and included items such as “makes connections with past experiences” and “shares information with staff or group members about topic or activity” (p. 43). These items reflect an awareness of the museum’s responsibility to recognize and sustain visitors’ knowledge.

Discussion Questions for Your Team

- How do your observation protocols reflect an asset-based approach to STEM learning? Do some of your protocols reflect an asset-based approach more than others?
- How can we move beyond standard timing and tracking to incorporate asset-based indicators more robustly into observation protocols?
- What factors need to change for museum educators and evaluators to feel supported to incorporate more asset-based approaches?

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