Building Supports Memo Report: Takeaways from the Transference Panel

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Background and Approach

The *Building Supports Towards a Useful, Usable, and In-Use Framework of Professional Competencies in the Informal STEM Learning Field* (AISL #2215274) project is working toward creating professional learning and development tools for those who engage the public in informal STEM learning (ISL). This work builds on the prior funded project, *Collaborative Research: An Evidence-based Informal STEM Learning (ISL) Professional Framework* (AISL #1514815, #1514884, #1514890, #1515315), which developed the Informal Science Professional Learning Framework (hereafter, Framework).

A panel to explore the transferability of the Framework and the underlying research from the DACUM Competency Profiles across types of informal science institutions was held at COSI on March 20-21, 2023. The panel consisted of nine invited participants. Participants were recruited from eleven different informal science organizations in central Ohio to represent a range of different types of informal science learning organizations and different amounts of time in the informal science learning field. All participants were active in the field at the time of the panel; their collective experience reflected time working in zoos, botanical gardens/conservatories, arboretums, natural history/history museums, independent evaluation consultancy for informal science learning institutions, a national informal math education association, after-school education, and distance learning. Panelists also represented a range of departments (e.g., education, events, research and evaluation, philanthropy) and ranks (e.g., senior director, director, manager, educator) in their current and former positions. Panelists were contacted by the ED, a VP, or a Director of an organization, and names/positions were shared with CRE to send direct invitations.

The panel focused on reverse engineering the Framework and the DACUM Competency Profiles, which were products developed under the prior funded project. Panelists were given grounding in the language and the process of the DACUM prior to intense work on deconstructing the documents and examining them for transferability to other informal science learning organizations and institutions. The process included activities that deconstructed the products so that the panelists could then determine if they, or others in the ISL institutions where they work or had worked, shared the same duties (covers a cluster of job responsibilities) and tasks (specific sets of actions that lead to a product/outcome under a duty). By working from the most current products to the grounding research, we felt we could confirm or disconfirm agreement on the duties and the tasks across the types of ISLs represented.

The Approach

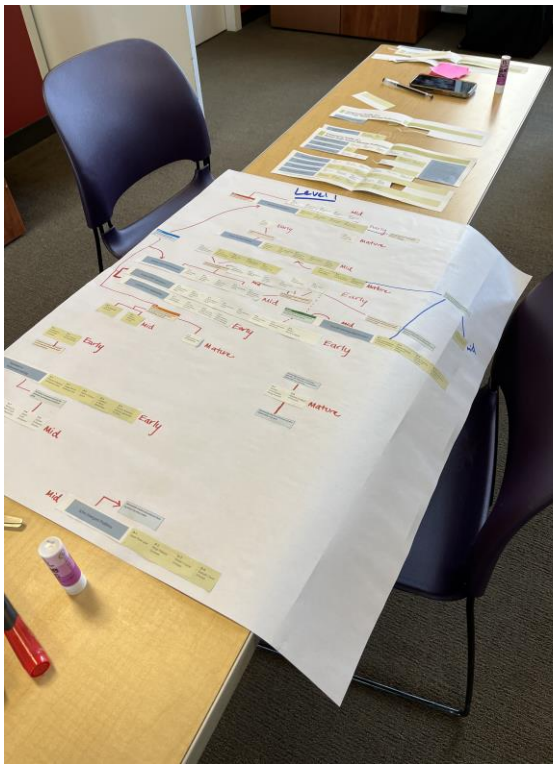
Both days started with a presentation. For day 1, the presentation focused on the history of the Framework, and the process used to build the Framework. The second day focused much more on the duties, tasks, and skills component to better inform the primary focus of the day. The morning of the first day was spent building familiarity with the Framework and concepts central to the process.

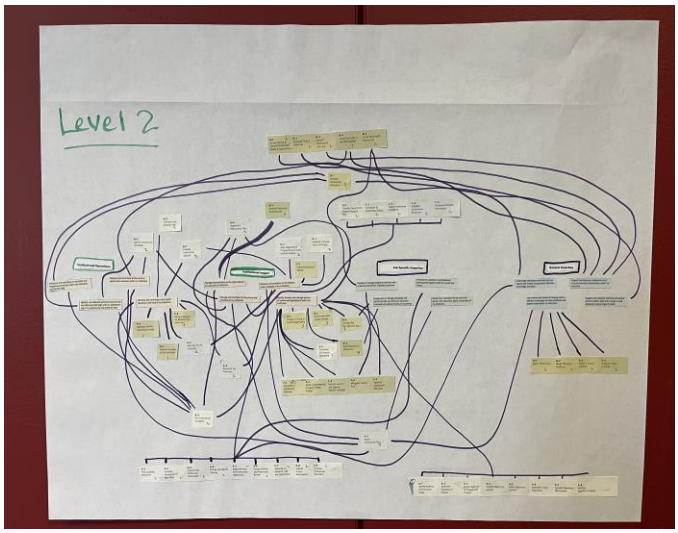
The deeper research on the Framework started in the afternoon of the first day when four working groups each went through one of the domains and then discussed if the individuals could "see themselves" in these duties and then if they could see others in their institution with those duties. They were also tasked with clarifying language if they found it needed.

The consensus in the discussions was that individuals saw themselves or others in the duties they discussed. A few mentioned that they had to talk about some duties for a couple of minutes, but after the discussion, the group agreed. One individual mentioned it was hard coming up with definitions that were not the existing language in the Framework, noting that "these were so concise, and we were trying not to use the same words." Others expressed similar sentiments about "breaking out the thesaurus."

The final part of the first day was panelists naming skills and attributes they saw as needed in their jobs and then comparing those to the lists of skills and attributes named by the DACUM panels. Overall, the brainstorm lists and the DACUM charts were fairly parallel, even though "different words were used." The theme of having to have all the duties in one level versus across levels emerged in this discussion.

The second day was primarily focused on matching the DACUM Profiles to the Framework. In three working groups, each group looked at one of the levels across the profiles to see how the DACUM Profiles did or did not connect to the competencies in the Framework. This was not intended to provide a consistent mapping process, but rather to allow the three groups to look critically across the Framework and the Profiles and see, for themselves, if they found logical progressions of DACUM duties to Framework levels.





Two of the maps generated during the mapping process

A large proportion of the second day was spent on the verification of the DACUM Competency Profiles to explore if different institution types and the time since the original DACUM panels created gaps or included duties and tasks that were no longer germane. In the final transference activity, we explored how well panelists could see themselves and see others in the DACUM profiles. This was done by looking at the DACUM Profiles by duty, and within each duty by task. Through the facilitated process, designed to parallel the rigorous process of finalizing the chart at the end of a DACUM workshop, each task within a duty was discussed starting with initial reactions or thoughts. When there was general sense of completeness, a vote was taken where each individual would determine if it is was *easy*, *moderately easy*, or *somewhat difficult* to see themselves or others in their institution doing the task, or if they *did not see* themselves or others doing the task.



Verification of transfer of one of the three DACUM Competency Profiles. The pink sticky notes show where comments were made on specific tasks. These are then data to be used for consideration in revising the Framework.

Findings

The Transference Panel led to three primary findings:

1. The reverse engineering of the Framework revealed that across the institutions, individuals see both themselves and others in their institutions in the competencies, across the domains and the levels.

2. It is possible for current ISL professionals to map the competencies in the Framework back to the DACUM Competency Profiles.

3. While some language and sequencing was challenged, the process revealed that in general, the Framework statements are concise, clear, and appropriate.

Some of the more specific findings by activity follow.

Representation in the ISL Professional Learning Framework

The Framework captures the work of the panelists and others in their institutions.

In the first general discussion, there was generally widespread appreciation for the Framework and a sense that it was capturing the work that the individuals and others in their institutions were responsible for. There was the same initial response by some that has been seen across uses of the Framework of initially thinking a job is always fully located within one level of the Framework. One panelist shared that they initially felt they needed to go down

one column (level), but several of the panelists shared that they did see themselves in differing levels. One panelist noted, "I have only been in this position for a few months, most of mine are in Level 1." This led to more discussion on the use of the Framework and how people are supported when they first start exploring it to understand that positions often require duties (those job elements that consist of at least three tasks) performed at varying levels within a domain.

These discussions were to determine if there was a consensus that the duties in the Framework were relevant across the different types of ISL institutions. The consensus in the discussions was that it is "very easy to find ways to say yes to everything," meaning they saw themselves or others doing that duty, and a few mentioned that they had to talk about some for a couple of minutes, but after the discussion, the group agreed on the duties. One individual mentioned it was hard coming up with definitions that were not the language in the framework as "these were so concise, and we were trying not to use the same words" and others agreed about "breaking out the thesaurus."

Connecting the Framework with the DACUM Competency Profiles

Panelists were able to map the Framework to the DACUM Competency Profiles.

In connecting the Framework back to the DACUM, the Level 1 competencies in the Framework were clearly mapped to the tasks of the Early Career DACUM, and the panel found many Level 2 duties also were well connected. Few Mature Career duties were reflected in Level 1. The review of the Mid-Career DACUM linked to Level 2, with overlap in both directions to Level 1 and Level 3, which was expected. While there were some connections to Level 2, the panelists felt the Mature Career DACUM was very much focused on leadership and administration, which they felt was appropriate. The panelists noted some inconsistencies in language use, or scale (institution, community, field). The panel echoed other comments the project team has heard about scale and influence being uneven between institutions.

Panelists were able to demonstrate there were consistent sources for the duties and the tasks across the DACUM Competency Profiles at each Framework level and in how the competencies "scale" from Level 1 to Level 3.

Verification of the DACUM Competency Profiles

The panelists felt very strongly that the DACUM Profiles still hold.

The reverse engineering of the DACUM Profiles revealed that the profiles seem to still be relevant, complete, and meaningful. There were some concerns over specific words, and several notations of where time has changed language and perceptions, especially in terms of inclusion and diversity. Using a scale of how easy it was for panelists to see themselves or others in their institution doing this at each career stage, aggregated responses across the 19 total possible duties were 81.1% easy, 15.5% moderately easy, and 3.0% difficult. Not surprisingly, a dominant proportion of the difficult ratings came from the Mature Career Profile, with comments about how these tasks are not seen within the institution by those who are not in higher levels of administration and leadership.

The DACUM Profiles were seen by the panel as being relevant and performed across the different types of institutions.

Looking Ahead

During the panel, the research team noted that challenges in participants' use of the Framework were consistent with those that had been seen and discussed by the larger team on this and the prior project. These repeating "stop" points (i.e., how to make meaning of levels and evolving language around ideas like equity and community) are strong indicators that meaningful support might include a means of introducing the Framework and how it works in both real and asynchronous approaches.

Comments from the panelists reveal that the organization and flow of the panel provided panelists with the necessary information they needed before an activity required the application of that information, suggesting the sequencing was both correct and important.

The technical use of terms tied to the DACUM process, job analysis as a field, and career pathways must be explicitly named upfront, and definitions continually reinforced as the dialogue progresses.

Some of the discussion notes will be useful in the considerations for changes to language and tasks in the Framework. In addition, some of the notes will be of value in contemplating the range of supports that can/are to be built in the next phase of the project.

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