

Association of Science-Technology Centers
Evidence-based framework/PD

Characteristics and Dimensions of Professional Development Frameworks:
How emerging fields of expert knowledge identify and advance the competencies of professionals
in those fields.

A review and comparison of Professional Learning Frameworks
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Review of Professional Development Frameworks

This purpose of this review was to identify characteristics common across professional development frameworks within emerging professions (i.e. fields that are not regulated or licensed) and to identify practices and heuristics from those fields that could inform our work. The review began with; 1) creating a protocol for searching for frameworks; 2) identifying criteria for selection of representative frameworks; and 3) developing strategies for recording and sharing content with the research team. From the initial inventory of frameworks, we articulated a set of criteria for selecting a handful of professional frameworks to review (See Table 1). Five frameworks were selected for systematic review:

- [Core Facilitator Competencies](#) framework developed by The International Association of Facilitators (IAF)
- [Vitae Researcher Development Framework \(RDF\)](#) developed in the UK to guide professional development of researchers
- [Evaluator Competencies for Professional Development](#) developed by the Visitor Studies Association (VSA)
- [Certification and Training Program](#) developed by the National Association of Interpretation (NAI)
- [Standards for Excellence: Professional Development of Environmental Educators](#), developed by North American Association for Environmental Education

The stEPs program (American Association of State and Local History) also provided substantial ideas and resources but StEPs focuses on organizational development rather than the competencies of the individual.

The review was representative rather than comprehensive, meaning we did not attempt to identify every existing professional development framework but we continued the search until we were no longer identifying new dimensions or characteristics of frameworks. The review was coordinated by Kris Morrissey and Dennis Schatz (co-PIs), assisted by Kirsten Gausch (Research Assistant).

Questions addressed by the review:

1. How are frameworks created?
2. What are the common characteristics and dimensions of professional development frameworks?
3. What is the potential impact of a framework on individuals and the field at large?

Table 1. Criteria for selection of frameworks to review

| Characteristics of the Comparative Field | Characteristics of the Comparative Framework |
|---|---|
| <ol style="list-style-type: none"> 1. Provides a public service related to education. 2. Substantial and growing knowledge base. 3. The required competencies are not taught or assessed through a formal or systematic system | <ol style="list-style-type: none"> 1. Purpose is to guide the development of the competencies of the individuals who work in that field. 2. Includes clear description of competencies. |

| | |
|---|--|
| <p>such as in the fields of education, law or medicine.</p> <p>4. There is no regulatory body that accredits who can work in the field or licensing that documents an individual's preparation such as a teaching certificate or medical license.</p> | <p>3. Publicly available and evidence of use by professionals in that field.</p> <p>4. Cited or referenced by professional organizations in the respective fields.</p> |
|---|--|

1) How are Frameworks Created?

Each of these frameworks was developed and/or sponsored by a professional organization (although in one case the organization was created to develop and support the framework) and the competencies were identified through a peer-review process, with professionals and/or experts in each field identifying competencies in their field. For example, the VITAE Researcher Development Framework was “created from empirical data collected through interviewing researchers” and the Visitor Studies Association describes the process as “a good many people thinking about the essence of visitor studies.”

The literature around these frameworks references the extensive time needed to develop and refine a framework. The International Association of Facilitators (IAF) describes its framework as “developed over several years with the support of its members and facilitators from all over the world” and National Association of Interpretation’s certification program is the result of “years of discussion and the efforts of numerous committees.” NAAEE provides the most comprehensive information about their process of developing a framework, which incorporated a literature review and expert critiques via workshops and written reviews.

Take Away: The process of creating a professional development framework is usually (perhaps always) driven and/or initiated by a professional organization and involves a peer-reviewed process to identify professional competencies. Because our framework is designed to be evidence-based, the documentation and transparency of our process for identifying and verifying the competencies will be critical to the credibility and usefulness of the framework.

2) What are the common characteristics and dimensions of Professional Development Frameworks?

Language & Structure

There was some consistency in the vernacular used, although each field elevated or de-emphasized different terms and sometimes used generic terms such as “category” and other times, used more specialized terms such as “indicator.” The terms “professional” and “professional development” were used frequently

and “competency” was used either the title or in identification of skills and knowledge with all the examples we reviewed.

The structure of the models was similar with 4-6 categories (also called *domains* or *themes*) of competencies and 3-6 competencies within each category. The simplest example is the Core Facilitator Competencies—a modest but robust list of six competencies presented on the website as an outline with core competencies such as “Plan Appropriate Group Process”, each with a few subheadings such as “Prepare time and space that support the group process.” The most complex was the Researchers Development Framework with sixty-three descriptors, each containing between three to five phases. That framework is presented as a circle with one quadrant for each of the the four categories of descriptors— Engagement, Influence and Impact; Knowledge and Intellectual Abilities; Research Governance and Organisation; and Personal Effectiveness.

All the models presented professional learning as lifelong and continuous and the majority included stages or levels of achieving competency. The two that didn’t have a continuum- Core Facilitator Competencies and Standards of Environmental Educators— were also the only two that had certification programs, perhaps suggesting a more standardized or less ambiguous approach to recognizing a specific level of competency rather than a self-directed process of progressive development. The Researchers Framework uses the term *phases* “representing distinct stages of development or levels of performance within that descriptor” with 1-5 phases for each descriptor whereas VSA uses three levels (without calling them levels) of Excellent, Competent, and Needs Strengthening and stEPs uses Basic, Good and Better. While learning is assumed to be continuous, there was also an acknowledgement that all individuals may not want or need to move beyond a certain point given their career goals.

From this review, our project chose to use the following terms;

- *Competency* - A cluster of related abilities, commitments, knowledge, and skills that enable a person to act effectively in a job or situation.
- *Domain* - area or categories of professional performance/knowledge
- *Levels* - progression of learning and demonstration of competencies
- *Framework*- to describe our final product including visual presentation of the organization and relationships between competencies

Characteristics of Competencies

We were interested in the categories of competencies (domains) and what those categories suggested about how different fields viewed the nature of “being professional.” We organized our review around the Generic Learning Outcomes (GLOs), a framework that UK Museums, Libraries, and Archives Council developed to describe the types of impact institutions have on people’s informal, lifelong learning. The

GLOs include specific definitions and guidelines for describing and identifying competencies which helped us compare professional competencies across each framework. The domains of the GLOs are:

1. Skills (e.g. communication, management)
2. Knowledge and Understanding (e.g. facts, information, connections)
3. Attitudes and Values (e.g. perceptions, opinions, motivations, tolerance)
4. Enjoyment, Inspiration, Creativity (e.g. enjoyment, surprise, wonder)
5. Activity, Behavior, Progression (e.g. what people do/have done/intend to do) ?

The majority of competencies across all the frameworks were related to *Knowledge and Understanding*. For example, the Core Facilitators Competencies framework includes, “Be knowledgeable in management, organisational systems and development, group development, psychology, and conflict resolution” and NAI identifies “a basic knowledge of history of the interpretive profession.” Skills-based competencies were also very common (particularly around communication) and sometimes indistinguishable from knowledge competencies (i.e. competencies were sometimes described in ways that blurred the distinction between *knowledge of* and *skill with* a particular concept or action.) We found little evidence of competencies that aligned with the category of *Enjoyment, Inspiration & Creativity* with the exception of the research skills framework which included competencies related to creativity in problem solving and “Maintains enthusiasm and motivation for own research.” In searching for competencies related to *Activity, Behavior or Progression*, the most prevalent competency related to participating in professional organizations and contributing to the field. For example, the Evaluator Competencies includes “consistent VSA membership and/or membership in several related organization” and the Core Facilitator Competencies includes “Engage in learning related to our field” and “Practice reflection and learning.” Competencies we saw as values-based, most often were related to acceptance or appreciation of diversity and inclusion, although the Facilitator framework included a number of other competencies that we categorized as *Values and Attitudes* such as “Maintain congruence between actions and personal and professional values” and “Act with integrity.”

Take Away: Our framework will likely include competencies across all the GLO categories although, like our examples, it will likely focus on *Skills* and *Knowledge and Understanding*. Diversity and inclusion should be integrated and the framework should emphasize interacting with and contributing to the field at large. The language will need to align with the ethos of our field and we might consider terms such as professional learning rather than professional development.

3. What is the (potential) impact of a framework on the individuals and the field at large?

Do professional development frameworks help individuals improve their level of competency and do they advance the capacity of the field? Under what circumstances do they work? These questions tugged at our investigation and challenged our interpretations.

There were two significant limitations to answering these questions:

1. The measurement of an individual's competency is subjective and difficult to quantify, thereby creating a challenge to find a reliable measure of assessing growth or change in competency.
2. There was very little documentation or evidence of research on the impact of these frameworks for individuals or for the field.

There was anecdotal and empirical evidence of the use and presumed value of these models of professional development including membership numbers, participation in credentialing, and references to the frameworks in the literature. According to NAI, job postings often require or prefer NAI certification. IAF maintains a searchable, online database of certified individuals. In contrast, the VSA's Evaluator Competencies were difficult to find on their website, and a number of the hyperlinks were broken and although some VSA literature references the document, there wasn't evidence of field-wide use or awareness.

We saw two approaches to the identification or documentation of professional competencies of individuals: 1) certification of competencies through an assessment process, 2) self-assessment of competency, usually across a continuum. National Association of Interpretation provides certification after individuals participate in required training and pass an assessment. The International Association of Facilitators utilizes an expert-review system to determine if individual should be certified. Both systems use portfolios or documentation of competency in action as part of the process. All the models we reviewed presented professional learning as lifelong and continuous and indeed, this commitment to ongoing learning is one of the trademarks of a professional. Resources or training opportunities were associated with all the models we reviewed.

Important to our research, we found very little evidence of assessment of frameworks across the field, although all the models did include peer or expert review as part of the development process. Vitae appears to be the only model which had some supporting assessment of impact of the framework on both the competency of the individuals who used it and the general level of competency in the field. Other assessments seemed to focus on the satisfaction of specific training opportunities.

With our focus on evidence-based practice, there are opportunities and a strong need for practice-based research on the value and usefulness of any professional development model. The role-out of our model could integrate systematic processes of reflection, assessment and research. It will also be important to be mindful of the implications of the connotations of "professional development," especially when working

in a field built on the idea of self-directed learning, which can conflict with ideas of certification or assessment.

While fields such as Informal Science Education are distinct from credentialed professions such as law (board certification), education (teaching certificate) or medicine (license), they do share characteristics with these fields in their service to community, standards and ethics shared across the field, a developing body of research and corresponding evidence-based practice, and the emergence of theories and principles of practice specific to our field. Research on professional development in our field will also add to the knowledge base around professions.

Summary & Recommendations

1. Framework structure: The final product needs to be accessible and relatively easy to use and yet it also needs to provide enough specificity and complexity to provide guidance. This review suggests 3-6 domains or categories of competencies with 2-4 levels of learning.
2. Assessing Competency: All the models provided guidance for assessing competency which suggests that the ISL model should at the minimum, include indicators or examples of competencies to help individuals assess and perhaps document their competency level.
3. Resources and training: All the models included resources and sometimes extensive training opportunities associated with the competencies in the framework. The next stage of developing the model should consider identifying and/or developing resources to support the development of competencies.
4. Certification and licensing: As a field that focuses on informal learning, we have an opportunity to reinforce and advance the principles of informal learning as we consider mechanisms and strategies that support, without constraining, the learning paths of individuals and of the field.
5. Research on professionalization: Discussions and debates about the value, purpose and efficacy of professionalization have evolved in past decade, driven by changing ideas about education, new research about learning and a more diverse and global society. While there is significant research about professional development strategies in regulated fields such as medicine or education, there is very little research about self-directed professional learning. There is an opportunity for significant research that could advance both the fields of ISL and the broader field of formal education.