

# Identifying Knowledge Dimensions for Program Design in Continuing Education through Bodies of Knowledge (BOK)

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## Abstract

In learning design, it has been long understood that a body of knowledge (BOK) is the complete set of concepts, terms and activities that make up a professional domain. The literature describes the purpose of bodies of knowledge in their role as a requirement for professional identity, the development and furtherment of professionalism, and the acclamation and dissemination of knowledge to embody shared values and practices. Professional status requires the field to monopolize a discrete BOK, but how this knowledge is organized varies from profession to profession which may present difficulties in the development of conceptual frameworks for continuing education course development where courses are frequently created and aligned to developing trends and issues in the field. In this paper, a matrix of professional knowledge aggregates in the form of subject matter experts is presented and their expertise is considered from the perspective of Anderson and Krathwohl's (2001) Knowledge Dimensions. Five (5) approaches for the development of continuing education programs based on the BOK presented by the subject matter expert at the beginning of course development will be shared. The benefit of this design approach is to create continuing education programs more successfully aligned with professional practices.

## **Introduction**

In learning design, it has been long understood that a body of knowledge (BOK) is the complete set of concepts, terms and activities that make up a professional domain. The literature describes the purpose of bodies of knowledge in their role as a requirement for professional identity, the development and furtherment of professionalism, and the acclamation and dissemination of knowledge to embody shared values and practices. Professional status requires the field to monopolize a discrete BOK, but how this knowledge is organized varies from profession to profession which may present difficulties in the development of conceptual frameworks for continuing education course development where courses are frequently created and aligned to developing trends and issues in the profession.

The world and cultures in which we live, and experience are constantly changing. Continuing education course work and certificate programs allow workers to stay current with the latest developments, knowledge, skills, and technologies of their perspective fields. Some professions also require the completion of continuing education coursework to comply with laws governing licensing and certification within the profession. In the creation of continuing education programs, as in the construction of any coursework or program, most instructional design models begin with an evaluation of the structure of the knowledge and skills. Structure is determined and instructional content, activities, and assessments are developed. “This may seem quite straight forward, but the designer faces a problem: the different instructional design theories do not show much similarity in the way they describe ‘knowledge and skills. Sometimes even the labels ‘knowledge’ and ‘skills’ are not explicitly used” (Dijkstra, 1991). More still, the identification of knowledge and skills for subject matter experts in the development of coursework and programs may be hampered by the limitations of their own evolving knowledge of practice within the field, and the expectations of course development at the institutional or organizational level. The successful identification of knowledge and skills upon which any coursework and programs will be based is the first step in developing successful continuing education programs. An identified BOK and its organization and resulting skill development may inform the selection of an approach for course and program design and more information about how knowledge is organized should be a part of the instructional design process.

### **Continuing Education Programs**

The development of continuing education (CE) programs, which for the purposes of this paper will be considered workforce learning outside of traditional degree programs and trade schools, was born from a demand by enterprise as early as World War II for “employees to be knowledgeable, skilled, and responsive to social and professional changes” to enable employers to compete in the marketplace (Mizzi, et al, 2020). The public policies of the Roosevelt era emphasized workforce education and training would be necessary for Americans to join the new developing economy (Roumell & Martin, 2020). Public policy continued to herald this need. In 2014, the Workforce Innovation and Opportunity Act reinforced the purpose of continuing education programs as an opportunity for access to education and training needed to be successful in the labor market.

At the same time professional organizations during the 20<sup>th</sup> century and to this day have spent time in the development of “boundaries” surrounding their professional practice. Most professional organizations determine what formal education and entry requirements are necessary for the profession and exercise autonomy over the conditions and terms of ethical

practice; and, with this process, the organization develops a monopoly over a discrete body of knowledge and related skills (Morris, et al, 2006). How each organization disseminates that information among its membership, including education and training, which results in continued membership, certification, and licensure varies from profession to profession and, sometimes, by level of government oversight.

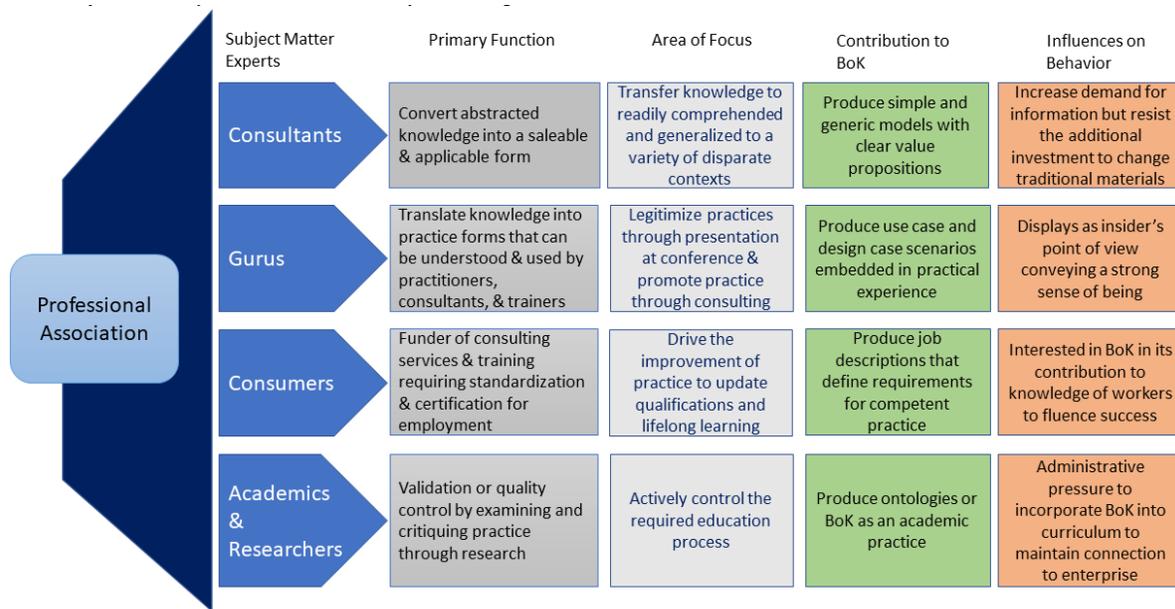
### Subject Matter Experts

When attempting to serve the profession through education and training, educational providers seek to access the BOK of the profession frequently through subject matter experts (SMEs). What information these SMEs provide about the BOK of any given profession varies according to the skills, knowledge, and training they possess. In seeking to develop courses or programs for continuing education, instructional designers may be tasked with determining an organization for the knowledge presented by the SME. At this time, there is no systematic process or conceptual framework for evaluating a BOK presented by a SME. This circumstance may present a challenge to organize the presented knowledge effectively for learning design. Further, the perspective from which a SME may deliver a given BOK for course development may also affect the quality, type, and depth of knowledge received by the instructional designer further complicating the process of knowledge organization.

Morris, et al (2006) expressed concern about the focus and function of SMEs in the effective delivery of knowledge in their explorations of the BOK associated with project management. The authors noted that from the “socially constructed viewpoint of knowledge, one cannot avoid reflecting on the power relations” of the actors on a BOK. In Figure 1, the matrix of SMEs that serve as professional knowledge aggregates is an interpretation of these roles.

**Figure 1**

*Subject Matter Experts as Professional Knowledge Aggregates*



In their case study, these authors recognize the complexities and different functions that associated SMEs have in relation to the BOK (Morris, et al, 2006). The professional organization serves as the coordinator of the collective group of SMEs exercising regulation of the community of practice through registering participants and providers, sponsoring conferences, and funding research. It is common practice among professional organizations to view the identification of a BOK to which the organization will subscribe as a steppingstone in unifying the community of practice.

Within the professional association, consultants and gurus find their opportunities to affect the BOK through participation in the organization, though their purposes, focus, and function are different. These motivations accompanied with other influences on their behavior affect their contribution to the BOK. Consultants ensure that knowledge is easily comprehended and generalized for the community of practice and those attempting to join the profession while gurus legitimize practices and demonstrate expertise. Combined with the function and focus of enterprise and government serving as consumers, a provider/consumer relationship is recognized within the community established by the professional organization. Academics and researchers provide the quality control and validation for the BOK, which affords control of the educational processes of the profession. Morris, et al (2006) also acknowledged that there was a balance struck among the SMEs that sustained the BOK within the community of practice.

A well-established professional organization with an intent on regulating or establishing the boundaries of professional practice is positioned to provide governance and regulation to the development of the BOK. Standards of Practice are often the result of this governance and regulation. It can be equally effective for instructional designers in the role of organizing knowledge provided by a SME for course development to recognize the SME's role in the profession and therefore their approach to the BOK as well. Their approach to defining the BOK for a given profession may provide insight into the assessment of given knowledge and its organization.

### **Categorizing Knowledge for Organization**

How we define a BOK varies according to who is defining. For the academic, a BOK is the complete set of concepts, terms and activities that make up a professional domain, its ontology. According to Oren (2005), it is the “structured knowledge that is used by members of a discipline to guide their practice or work.” Dijkstra (1991) acknowledged that “there are differences in the ways that the description of knowledge and skills for purposes of instruction can be described” but also acknowledged that “these differences were not much help to instructional designers”. To define knowledge organization for instruction, Dijkstra borrows labels for knowledge types from cognitive psychology. Knowledge is broken down into three types--conceptual knowledge, causal knowledge, and meta knowledge—and associates a problem as an interrogative statement and connects relevant skills to the knowledge type, as seen in Table 1.

**Table 1***Dijkstra's (1991) Types of Knowledge, Related Problems, and Relevant Skills*

<b>Knowledge Type</b>	<b>Problem</b>	<b>Relevant Skills</b>
<b>Conceptual Knowledge</b>		
Fact	What is the name of this single symbol, object, event?	Recognition
Concept		
Class concept	To which category does this object belong?	Identification operations --Categorization
Relational concept	What is the relationship between these objects?	--Application of problem-solving procedures
<b>Causal Knowledge</b>		
Conditions and biconditions (series of events, process, causal chain)	What will happen after a certain time lapse?	Making predictions by application of the lawful relationships
<b>Meta Knowledge</b>		
Plans, Strategies	How to plan, how to attack a problem?	Thinking skills, self-regulatory skills

Anderson and Krathwohl (2001) categorized knowledge, separating facts from concepts into factual knowledge and conceptual knowledge staying abreast of changes in cognitive psychology, as seen in Table 2.

**Table 2***Anderson and Krathwohl's Knowledge Dimensions*

<b>Factual Knowledge</b>	Essential facts, terminology, details to understand a discipline or to solve problems within it.
<b>Conceptual Knowledge</b>	Classifications, principles, generalizations, theories, models, or structures that enable function.
<b>Procedural Knowledge</b>	Information or knowledge, methods of inquiry, specific skills, algorithms, techniques, and particular methodologies establishing criteria for action.
<b>Metacognitive Knowledge</b>	Reflective knowledge about how to go about solving problems, cognitive tasks, including contextual and conditional knowledge, thinking about the thinking of practice.

It is when we combine the SME function, focus, and contribution as knowledge aggregates with the four dimensions of knowledge, as seen in Figure 2, that we may have a method for categorizing the knowledge presented by SMEs for continuing education program development.

**Figure 2**

*Subject Matter Expert Primary Function and Association Knowledge Dimension*

Subject Matter Experts	Primary Function	Area of Focus	Contribution to BoK	Knowledge Dimensions
Consultants	Convert abstracted knowledge into a saleable & applicable form	Transfer knowledge to readily comprehended and generalized to a variety of disparate contexts	Produce simple and generic models with clear value propositions	<b>Factual Knowledge</b> Essential facts, terminology, details to understand a discipline or to solve problems within it.
Gurus	Translate knowledge into practice forms that can be understood & used by practitioners, consultants, & trainers	Legitimize practices through presentation at conference & promote practice through consulting	Produce use case and design case scenarios embedded in practical experience	<b>Conceptual Knowledge</b> Classifications, principles, generalizations, theories, models, or structures that enable function.
Consumers	Funder of consulting services & training requiring standardization & certification for employment	Drive the improvement of practice to update qualifications and lifelong learning	Produce job descriptions that define requirements for competent practice	<b>Procedural Knowledge</b> Information or knowledge, methods of inquiry, specific skills, algorithms, techniques, and particular methodologies establishing criteria for action.
Academics & Researchers	Validation or quality control by examining and critiquing practice through research	Actively control the required education process	Produce ontologies or BoK as an academic practice	<b>Metacognitive Knowledge</b> Reflective knowledge about how to go about solving problems, cognitive tasks, including contextual and conditional knowledge, thinking about the thinking of practice.

If we consider the role from which a SME may approach the profession and the knowledge dimension they provide within the BOK, instructional designers may develop approaches to knowledge organization to inform course development for continuing education programs that more closely align course goals with desired outcomes. In this way instructional designers also acknowledge that SMEs do not demonstrate command of the body of knowledge with the same focus or contribution. Understanding what a SME may contribute also supports our understanding of the role of knowledge aggregates defining the boundaries of the profession.

**Approaches for Developing Programs from BOK Knowledge Organization**

With the understanding of the SME’s contribution and what knowledge dimension is represented by their work, an approach to program planning may be made. Each approach focuses on the contribution of a specific SME and how that knowledge may be developed into a context for learning. Examples of suggested approaches are provided.

**Approach 1: Foundational, Introduction to Profession**

Knowledge is curated concepts and nomenclature, essential facts, terminology, details to understand a discipline or to solve problems within it, as most often created by consultants.

Example. Most continuing education courses found on LinkedIn’s Learning platform.

## **Approach 2: Role of the User, Organization or Project**

From the field of practice, conceptual knowledge consisting of best practices provide the framework for the program of study or analysis of case studies to identify relevant professional skills (Romme, 2016).

Example. Web Accessibility Certificate

## **Approach 3: Levels of Implementation**

This approach is developed from procedural knowledge and the most used for professional continuing education courses associated with the licensing of service providers. This information can be drawn from professional organizations (INFORMS, 2009).

Example. Project Management Professional (PMP)

## **Approach 4: Levels of Performance**

This approach is most often used in technical trades, generally providing a three-part advancing model (Oliver 2012), which incorporates factual knowledge, conceptual knowledge, and procedural knowledge.

Example. Beauty School/ Real Estate Certificate

## **Approach 5: Competency Construction (Modified Degree Model)**

Developed similarly to degree construction but stripped down to identified competencies based on meta knowledge for shortened time experience while focused skill acquisition development.

Example. [Teaching Certificate Redesign: Making a Flexible Program for Future Faculty](#)

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