The Global Learning Society and the Iterative Relationship between Theory and Practice in Knowledge Organization Systems

Abstract: In the global learning society, we need to understand how knowledge is transferred within one field and among different fields. In addition, we need to know how to create an atmosphere of tolerance for different points of view. One way of achieving understanding between different cultures and from different vantage points within the same culture is to study the relationship(s) between theory and practice. For this purpose, it is useful to understand the relationship(s) among ideas, how initial ideas migrate into practice and back into theory, and how “best practices” are identified and become widespread. In this paper, knowledge organization systems are used as examples of how knowledge organization systems are created, how knowledge of the systems may be disseminated, and how that new knowledge is integrated into accepted theory and practice. This examination provides clues about the development of theories and practices that can enhance the contributions knowledge organization systems make to the global learning society.

1. Introduction and Background

The recent growth of electronic information access and retrieval capabilities, particularly using the ubiquitous internet, has created an environment in which human societies can engage in various new kinds of electronic dialogues and interactions. In turn, this new kind of information environment fosters the capacity for different civilizations to learn from each other on both the micro- and macro-levels. In such an evolving global learning society, we need to understand how knowledge is transferred within one field and among different fields and how to create an atmosphere of tolerance for different points of view. One way of achieving understanding between different cultures and between different vantage points within one culture is to study the relationships of theory and practice, both in basic knowledge organization in our fields and in the many other fields that create their own knowledge organization systems and practices (Kwasnik, 1993). To these ends, we need to understand how knowledge creation and revision takes place, how knowledge organization systems are created and revised, how new ideas migrate between practice and theory, how “best practices” are identified and then disseminated, and how these iterative and cyclical procedures can be encouraged to perpetuate themselves in the electronic world.

This paper approaches some of these problems by taking knowledge organization systems as examples of how theoretical and practical processes interact and influence each other. In particular, the paper depends upon and expands upon the two-stage cyclical iterative process model of the relationship between theory and practice developed by Keedy (1992). This model provides clues about how ideas are created, disseminated, and integrated into human thought and action, and it provides a basis for understanding how the global learning society can profit by the development and use of knowledge organization systems.

2. Keedy’s Model

Keedy (1992) developed his model in a multi-case interpretive study of how successful public school principals used interactions between theory and practice to improve their schools. It is appropriate to enlarge the model developed for research in one relatively narrow
field by examining whether it can be usefully applied to the broader and longer-term field of knowledge organization research for the global learning society. Keedy’s model consists of two interlocking steps. First, during Keedy’s study, “interaction among theory based assumptions, procedure, and discovery of practices” occurred (1992: 161). These interactions helped increase the quality and utility of the original procedures. Second, theory-building arose, in Keedy’s case, after the study was completed. At that time, increased thought about the study made theoretical breakthroughs possible.

In developing an analogy between Keedy’s work and the creation and development of knowledge organization systems, we may generalize the model to take in more than one study. That is, we may consider various aspects of the histories of modern classification and knowledge organization systems to be the constructs under study and use these histories to ascertain empirically how theory and practice have been related in knowledge organization over an appropriately long period of time. The conclusions will help indicate how knowledge organization systems can be used as one element in evolution of the global learning society. Of particular use in this endeavour is Keedy’s model of the interactions between theory and practice. Keedy’s diagram is copied as exactly as possible below.

![Model describing Interaction Between Theory and Practice](Keedy, 1992: 162, Fig. 2)

In this diagram, two distinct paths to theory and knowledge discovery are shown. First, theory and “discovered practices” interact reiteratively and fertilize each other through procedural decisions that are made before, during and after the study. In knowledge organization systems, procedural decisions are made about, for example, basic classificatory elements such as notational devices, class structure, depth of analysis, auxiliary tables and many others. Second, new hypotheses can arise from discovered practices that suggest and inform new and/or revised theory. In knowledge organization research and development, new hypotheses can be seen in major changes based on developments in literary warrant and consensus, complete revisions of various schedules, new notational practices and the like.

Keedy’s diagram was created on the basis of his multi-case educational study, and he did not suggest that these processes occur in every case or, if they do occur, that they are necessarily fruitful. Interactions between theory and practice have been observed in a number of fields (e.g., Schiffrin 1997). Nevertheless, Keedy’s diagram is suggestive as a fundamental method for studying the development and revision of knowledge organization systems. In particular, it suggests that theory development is both a top-down and a bottom-up process in which elements of both theory and practice are interwoven to create new theories, new practices, and new relationships between the two.
3. Keedy’s Diagram and the Development and Revision of Knowledge Organization Systems

In the field of aeronautics, according to Fairthorne, “theory and practice are regarded as aspects of the same reality” because in aeronautics “separation of practice from theory was lethal” (1970: 557). In the study of knowledge organization systems, however, a different view has been customarily taken. Theories for knowledge organization systems have sometimes been presented as something that arise suddenly and artlessly from the mind of one seminal thinker and that new practices follow seamlessly from this spontaneously-generated theory. For example, Melvil Dewey wrote that the idea of a decimal notation for his bibliographic classification occurred to him during a church service at Amherst College (Dewey, 1920). Similarly, S.R. Ranganathan claimed that the idea for faceted classification occurred to him when he observed how the separate pieces of a Meccano set could be joined together to make different kinds of toys (Friis-Hansen, 1985: 30). These stories from the creators of two important bibliographic classification systems may be apocryphal and self-serving, but their longevity demonstrates the strength the belief that theoretical ideas spring apparently from nowhere has attained in the field of bibliographic classification. In contrast, the actual situation is somewhat different. We may take the two classification systems and theories developed by these important classificationists as examples of how theory and discovered practice have interacted in the history of modern classification and knowledge organization systems.

In spite of Dewey’s claim to have personally invented decimal notation and the general structure of his classification system, it is unlikely that he did so. Comaromi (1976) suggested three possible sources for decimal notation and the structure of the system: 1) the notation, which Dewey may or may not have seen, devised by William Phipps Blake for the Centennial Exhibition in Philadelphia in 1876; 2) various ideas in Battezzati’s Nuovo Sistema di Catalogo Bibliografico Generale in Milan, as mentioned by Dewey himself in the preface to the first edition of DDC; and 3) the work of William Torrey Harris at the St. Louis Public School Library and the work of Jacob Schwartz at the Apprentices’ Library of New York, which were also mentioned in the preface to the first edition.

Wiegand (1998) has broadened and deepened the kinds of analyses Comaromi made by considering additional contemporaneous sources and by including discussion of the cultural milieu within which Dewey designed his classification system. Like Comaromi, Wiegand credits Harris’s St. Louis Public School Library classification as a source for many of the ideas in Dewey’s first edition, but he also considers other sources, such as the work of C.A. Cutter and Nathaniel Shurtleff. In addition, Wiegand suggested that the courses Dewey took at Amherst, the faculty members who befriended him, the texts he read there, and the general intellectual environment he encountered greatly influenced both Dewey’s character and his classification system. Investigations into the origins of Dewey’s system will undoubtedly continue. What seems clear, however, is that Dewey’s ideas came from a rewarding mixture of “discovered practices” and from his own ideas. This interaction of theories and practices generated what could be argued to be the most successful modern bibliographic classification system.

The Colon Classification, and particularly the concept of “facet,” have received considerable scholarly attention. A number of faceted classificatory ideas have been found to have been developed long before Ranganathan (e.g., Svenonius, 1978; Schulte-Albert, 1979; Whitrow, 1983). In addition, Cordonnier (1961) claimed that he was the first to use the term “faceted classification” in its modern meaning, and a number of influences and re-influences of facet principles on classification systems such as Dewey, UDC, and the schemes and publications of the CRG have been identified (Cockshut 1976:40, Fig. 1). It can be reasonably
argued that faceting is a universal cognitive method of subdividing a whole, based on the large number of examples that have been found in different disciplines and in different historical contexts (Beghtol, 2006). In addition, the concept of faceting and of facet indicators was clearly understood in the development of the Classification Bibliographique of the Institute International de Bibliographie (now UDC), although with different terminology and somewhat different definitions. Early editions of the UDC contained basically the same auxiliary tables that the UDC now contains, including the marks that are still used as what would now be called facet indicators (e.g., Manual…1907). The reasons that facet indicators were needed in an analytico-synthetic notation were also clearly understood both in England by readers of the Library Association Record and in the United States by Melvil Dewey (Hopwood, 1907).

Thus, the practice of facet analysis and of analytico-synthetic predated Ranganathan’s theoretically rich amplifications of the concepts. His ideas were popularized by the Classification Research Group (CRG) in their investigation of the possibility of creating a new classification for science, and particularly in their seminal paper “The Need for a Faceted Classification as the Basis of all Methods of Information Retrieval” (CRG, 1955). Like Dewey, then, Ranganathan may be said to have used “discovered practices” in his development of the Colon Classification and of the facet concept, including its attendant concepts of analytico-synthetic notation equipped with facet indicators.

4. The Global Learning Society and Knowledge Organization Systems

Classificatory activity is a cognitive universal (Beghtol 2000, 2006; Kwasnik, 1999), but the processes of creating and revising knowledge organization systems on the basis of discovered practices are not well-documented. Communication among scholars and classificationists can be facilitated by discussion of existing and emerging classification systems, their theories and their discovered practices. We need, therefore, to study the effects of the relationships of theory and practice in classification research. Understanding the different purposes, materials, and contexts of classification and knowledge organization systems helps advance our knowledge of how classificatory techniques can span boundaries between cultures, languages, times, and places in a globalized information society that values and promotes continuous learning.

It seems likely that a conscious and detailed search for useful discovered practices can help in promoting knowledge organization systems for use in a globalized learning society. In particular, those practices that signify the core value of access to information through knowledge representation and organization systems should be advanced and actively advocated. For example, those practices that enhance “cultural hospitality” and provide individual choice for information retrieval systems of all kinds need to be pursued. These concepts were described in detail in previous papers (Beghtol, 2002, 2005). They provide both top-down and bottom-up elements that can be incorporated into the search for useful discovered practices in knowledge organization in appropriate contexts with appropriately ethically based and globally acceptable points of view.

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References