Book Reviews

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A Schema for Unifying Human Science: Interdisciplinary Perspectives on Culture by Rick Szostak
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Classifying science: Phenomena, Data, Theory, Method, Practice by Rick Szostak
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As an enthusiastic promoter and practitioner of interdisciplinary research, Rick Szostak believes that disciplinary boundaries artificially and unnecessarily create obstacles to interdisciplinary scholarship. Classification by phenomena rather than discipline would expose researchers to different methodologies and reduce scholarly duplication, thus advancing research more quickly (2003; 2004; 2008; 2010). Showing the causal links between theories would reveal formerly hidden connections, benefiting both students and scholars. In two volumes, one aimed toward the philosophy of science community (2003), and the other for information science (2004), Szostak partially lays out his own classification scheme that classifies by phenomena, data, method, theory, and practice, along with practical instructions for applying it, including a notational system. He intends the 2003 volume not to be a bibliographic classification, but rather a "map" of the types of human sciences, whereas the 2004 book is meant to be a reference work for use by scholars, in particular graduate students and interdisciplinarians, to assist them in seeing "full range of possibilities" of phenomena and "what uses particular theories and methods best serve" (2004, xiii). As a point of reference, Szostak (2004, ix) notes that, in his view, "'science' encompasses the natural and social sciences, plus the humanities." In the 2003 book, he provides a justification of his project and an outline of the categories of phenomena under the concept of "culture" and how they can be organized and linked. In his 2004 work, he specifically describes his 5W approach (Who, What, Where, When, Why), questions used to guide the classification of scientific documents by phenomena, data, methodology and practice.

Szostak picks up on a tradition that originated in the mid-1960's when the Classification Research Group (CRG) investigated the potential to create a universal faceted scheme, not arranged by discipline. The group believed that disciplines, as used in dominant schemes such as LCC and DDC, resulted in classificatory rigidity hostile to new concepts (Spiteri 1995). The result, though not ever fully realized, was the theory of integrative levels, introduced by Douglas Foskett (a copy of the draft schema can be viewed at http://www.iskoi.org/ilc/crgc.php). The system was partially operationalized by Derek Austin, forming the inspiration for his Preserved Context Index System (PRECIS) (Gnoli and Poli 2004, 154). Other KO researchers have advocated for or attempted to devise ontological classifications based on a similar structure, such as Dahlberg (2008, 163), who applies the integrated levels based on Aristotle's four levels to her Information Coding Classification (ICC). More recently, the efforts of the CRG has been continued by the advocates of the Integrated Levels Classification (ILC) structure, whose mission, as expressed in the León Manifesto are to be innovative, phenomena-centered, faceted, and reflect the "multidimentional nature of complex thought" (Gnoli and Szostak 2007). Although he is now a frequent collaborator with members of the CRG, particularly Gnoli, Szostak was not associated with the group until after his scheme was created, and the work of none of the CRG members was referenced in either volume.

The central idea behind integrated levels is that reality is divided into fundamental divisions to which all phenomena belong or have qualities; Hartmann's fun-

damental divisions, for example, are material, organic, mental and social (cited in Gnoli 2007, 169) and Dalhberg's (2008, 163) nine levels include "Matter and Energy," "Societal Beings" and "Intellectual Products." The "integrative" level means that basic levels combine to make a new item, such as steel (part relationship), or, an "aggregative" level creates a new thing where the individual elements retain their original identities (whole relationship) (Gnoli & Poli, 2004, p. 155); for example, a gaggle (whole) is made up of individual geese (individual wholes). These levels can repeat unlimitedly to reach the appropriate level of specificity, but then break down into facets to express the purpose or function of the concept or phenomena (Gnoli 2006, 138). For example, a chair could be considered in terms of several uses or purposes. In a discipline-based classification, those different functions of "chair" would be scattered in several LCC classes, for example, manufacture (TS), depictions in art (ND), and decorative arts (NK). Using integrative levels, purpose and function are included as facets of the search process to ensure that the appropriate use of the topic sends the searcher on the right path (Gnoli & Poli, 2004, p. 158). So, for the example of chair, the basic level might be something like "Matter," integrating until it reaches "chair," at which point the subdivisions (facets) would indicate the specific function or purpose of "chair" the searcher requires.

Szostak's schema has structural similarities to the ILC, but differs in significant ways. Szostak's (2003) categories of phenomena include culture, non-human environment, genetic predisposition, individual differences, economy, politics, social structure, technology and science, health, population and art (329-335). He then breaks down into second level phenomena and third level phenomena, in a hierarchical structure. He too, envisions a synthetic structure where hierarchically organized phenomena and methods are enumerated, but with the theory and scientific critique faceted rather than function or context (2004, 220). Rather than asking for named theories and methods, Szostak instead uses the 5W questions to analyze the components of each. To break down theories, for example, he sets up a chain where the "who" of theory identifies the agent effecting change, the "what" is what the change agents do, the "why" is why the change agent acted in such a way. He asks whether the behavior is intentional or non-intentional, and whether those agents are individuals, groups, or whether the theory focuses on the interaction between people (2004, 56). He then delineates positivistic, interpretivist, and passive (constraint and incentive based) and lays out five types of ethical analyses (2003, 66-67). For notation, he suggests that phenomena be represented by mnemonic letters and facets by numbers from a list. This has been practically developed as a synthetic notation for theory types using ILC phenomena (Szostak and Gnoli 2008).

Over the last few years, a polite debate has been simmering on the pages of the *Journal of Documentation* and the *Journal of the American Society of Information Science & Technology* between Szostak and Birger Hjørland over their fundamental approaches toward classification of the human sciences (Szostak 2008, 2010; Hjørland 2008, 2010, in response to Hjørland and Pederson 2005, Hjørland 2009 and Szostak 2008). Instead of the universalist stance taken by Szostak, Hjørland argues for a domain-centric approach based on the epistemological positions of pragmatism, rationalism, empiricism, and ideally, historicism (cf., Hjørland and Hartel 2003; Hjørland and Pederson 2005; Hjørland 2008). In particular, pragmatism dictates that the concepts are defined in accordance with how the information will be used by the audience of the classification. He believes that concepts are the product of the disciplinary domain, and that theories produce definitions of concepts that may differ from each other, even within a domain. Furthermore, particular domains may require multiple classifications to accommodate different user groups or different goals (Hjørland 2008). Hjørland has many followers, mainly because his theory manages the pseudo-poststructuralist problem that has plagued classification, that is, the problem of multiple realities creating differing conceptual definitions based on perspective. Put simply, he rejects the notion of a universal classification and believes that Szostak's rationalist approach "assumes a kind of universality and stability that is problematic" (Hjørland 2010, 1079). Despite managing multiple perspectives, Hjørland's theory does not address classification in broader environments that might call for inclusion of multiple domains.

Hjørland argues that Szostak conflates positivist and pragmatic approaches, or, that Szostak does not find problematic the act of "choosing" a viewpoint "at the expense of other views" (Hjørland 2008, 337). Indeed, Szostak claims that his scheme can be "applicable to all people and societies" (Szostak 2003, 44), and that the existence of basic phenomena is not in dispute "across scholarly communities," but rather, their "relative importance" is what is in dispute (2010, 1076). Szostak believes that scholarly consensus on the definition of concepts to be possible, and where

no consensus exists, at least a middle ground can be found. He claims that "to deny the very possibility of an objective reality" is to "place arbitrary limits on scientific practice" (2003, 77). He follows the Platonic notion that as humans, our imperfect senses prevent us from reaching the truth, but through research, we can get closer and closer to it. Hjørland (2008, 335), on the other hand, believes that "'neutrality' and 'objectivity' are not attainable" and that "Any given classification will always be a reflection of a certain view or approach to the objects being classified" whether it is easily detectable or not. Although in reality, Szostak's schema attempts universality, he claims that it "can be seen as a postmodern attempt to show how science can deal with complexity," which he takes to mean "embrac[ing] diversity" (2003, 42). He dismisses postmodern thinkers who believe universal scientific understanding to be impossible, instead taking an optimistic approach that it is indeed possible to manage multiple meanings as intersections of a variety of causal links. He believes that postmodernists can either "give up hope of advancing our understanding so that we can aid society … Or, they can strive to battle complexity and subjectivity, holding out hope that we can slowly advance our understanding" (2004, 43) with the assumption that a singular truth exists to be discovered.

Szostak's work goes beyond Cutter's advisory function in that he believes that classification should be overtly evaluative; that is, he wants his classification to "reflect some theoretical order" that would help "identify strengths and weaknesses of different types of science" (2004, 2). Theories should be "evaluated on their merits according to…criteria. Theories that are composed of illogical or unrealistic components should be highly suspect" (2003, 80). He continually invokes Aristotle's Golden Mean to justify his project and decisions, by which he means that "a belief that the truth generally lies somewhere between extreme positions" (2004, 247). However, with the Golden Mean, Aristotle meant the "extremes" to be vices, and that the mean is not a universal truth, but rather an ethical emotional reaction that shifts depending on the context, so much so that no universal rules can be made to guide its use (*Nicomachean Ethics*). In terms of classification, including the "extreme" ends is not a defense of relativism as much as an acknowledgment that warrant has some role in classification. It appears that extreme views are normed out of Szostak's schema, which erases important scholarship to arrive at the middle ground that he deems "correct" (2004, 16). However, the goal of document classification is access, so as disagreeable as some extreme views may seem, they may be still need to be accessible.

The Golden Mean approach in this case simply obscures alternate viewpoints with the chosen view based on the judgment of one, based on surface knowledge of the phenomena. The explanations he provides buttress Hjorland's (2008, 335) point that "Any work on any subject is always made from a point of view." For example, in his discussion of sexual preferences, he writes, "Not surprisingly, suggesting genetic determinants of gender-specific cultural behavior can be controversial. This is regrettable" (154-158) and goes on to cite six male zoologists, psychologists and anthropologists, no women, and no scholars from gender studies to support his position. In terms of classification, the subordination or marginalization of minority views, people and ideas in purportedly universal classification scheme has been the target of criticism from A.C. Foskett (1971) to Olson (e.g., 1998, 2002), along with other KO scholars. These scholars argue that the ostensibly objective truth has been constructed by the powerful with the intention of constructing "reality" as a means to maintain power for the dominant group. Szostak acknowledges that some might consider existing scholarship "suspect due to the past domination of scholarship by white middle-class males" (2004, 44) but as he describes his decision-making process in detail, he shows his classification is a series of decisions. It is the opinion of this author that judgments do not make universal truths.

Furthermore, the logistical issues associated with such a classification cannot be disregarded. Szostak (2004, 34, emphasis his) writes that his schema shows that "human science *must engage* thousands of links among thousands of phenomena," which means that the cataloguer must be able to break down the theories and phenomena using Szostak's method, with a critically thorough understanding of the work, of theories and methodologies, and of the links to other phenomena. Additionally, Szostak (2004, 234) acknowledges that the classification as it exists will cause huge recall in retrieval because so many documents will be associated with each component part, which then "can only be solved by scholarly efforts to summarize research" through meta-analyses and survey articles. It is unclear, however, how "Writers of surveys [can] overcome the tendency to stress their favored view" or even how coverage summarizing all human science can be achieved or maintained at all (234).

Even with the above points of criticism, Szostak has thought creatively, with the hope of improving the scholarly process rather than merely critiquing the ex-

isting classification schemes. His ideas have benefited from collaboration with the CRG, and some components of the scheme could supplement existing classification practices. His goal of enhanced interdisciplinary research certainly is valuable and ambitious, and the dialogue his work has opened up can help advance interdisciplinary classification.

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