The Blues and the Scientific Method: Codified Cultural Schemas and Understanding Adult Cognition from a Multicultural Perspective

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Abstract: Codified cultural schemas are presented as mental structures reflective of a particular culture or language that have been made public, recorded, and disseminated. The Western scientific method and the Blues are contrasted as two examples of codified cultural schemas. Analysis of such schemas that goes beyond Eurocentric structures--and beyond the modalities of language and mathematics--to include the arts and other forms of human intelligence can help us better understand adult cognition across cultures, as well as aid us in the work of adult education in multicultural societies.

Attempts to understand adult cognition and learning must move away from universalistic approaches in order to become more inclusive of multicultural perspectives. We must continuously challenge dominant constructions that claim to represent "how (all) adults learn" or "how (all) adults think." One way to move beyond these universalistic approaches is through deconstructing Eurocentric ideas about adult cognition and posing multicultural alternatives. Improved understandings of these issues will enable us as adult educators to better conceptualize adult learning and education processes in multicultural societies.

Codified Cultural Schemas

A useful tool for conceptualizing and deconstructing cognition and its cultural influences is the idea of the cognitive "schema." Schema theories have been influential in cognitive science, cognitive psychology, learning theory, and reading theory for well over two decades. Schemas are vehicles for comprehension, storage, and recall of information. They are associative structures in declarative memory; network structures that store general knowledge about objects, events, and structures. A schema can be thought of as an abstracted pattern onto which information can be organized; as a set of rules or strategies for imposing order on experience. A schema is best seen as being at the same time both structure and process--a set of rules. In perception, schemas have an assimilation function: they work to recognize and process input. In memory, they provide organization for the storage of memories, and they may reorganize these memories in the face of new information or changing goals. In recall, schemas provide the rules of arranging memories, and for determining the "what must have been" for any gaps they detect. When we learn something new that we interpret as related to pre-existing schemas, we integrate the new knowledge into those pre-existing schemas. Schemas are thought to be primarily unconscious, but in some cases they may be evident to the conscious mind (Bruer, 1994; Minsky, 1975; Rice, 1980; Rumelhart, Hinton, & Williams, 1976).

The idea of the schema is supported by inferential evidence; physical evidence would be difficult to provide. The general nature of the arguments for the existence of cognitive schemas is: "Schemas or something like them must be there; how else could we explain how minds operate?" This is quite similar to--and no less influential than--Chomsky's (1975) argument for the existence of the "language acquisition device" in understanding the young child's rapid development of linguistic competence. Schemas are thus widely accepted as inordinately useful tools for conceptualizing human cognition and learning.

Different schemas encompass various scopes and are applied at various levels of abstraction. They are also likely to have different distributions throughout various populations. Researchers like Piaget (1952) have supposed that certain schemas are universal in the cognitive development of young children. At the other end of the spectrum are idiosyncratic schemas, developed through the unique elements of an individual's experience. On the continuum between "universal" and "idiosyncratic" lie numerous culturally-derived schemas. They are experientially-developed, but they are widely distributed among the members of a cultural group. It is these cultural schemas, these socially-given perceptual modes, which operate to produce a recognizable world view (Rice, 1980; Lakoff, 1987). It is the notion of the cultural schema which is of most interest to us in understanding cultural influences on cognition in the current study. **Figure 1** summarizes a possible continuum from "universal" through "cultural" to "idiosyncratic," with several examples.

This paper expands upon the concept of the cultural schema to argue that within many cultures and language systems there may also be particular cultural schemas that are publicly "codified." That is to say, as **Figure 2** suggests, they are publicly named, they are promoted for their symbolic power, rules have been developed for them, they are recorded and disseminated, they are often reified, and they are often viewed ahistorically.

Codified cultural schemas are important to attend to, then, because they provide us with "public handles" on cultures that we may grasp for analytical purposes--whether or not we are members of those cultures. Examples of codified cognitive forms might include: the Western scientific method (the focus of this paper); Western logic and rationality; particular religions; the Confucian system of social mutuality of obligation and respect; and the Blues (also the focus of this paper).

The Scientific Method as a Codified Cultural Schema

We will briefly deconstruct the Western scientific method as a codified cultural schema prior to moving to a discussion of the Blues. Elsewhere (Hemphill, 1994) I have presented a similar deconstruction of Western critical rationality as a codified cultural schema.

The historical context of development of the scientific method is 15th and 16th century Europe. The ingredients of the schema include: (1) deductive reasoning; (2) inductive reason and experimentation; and (3) mathematics.

Deductive reasoning originated in the syllogisms of Aristotle (if A=B, and B=C, then A=C). It assumed that through a sequence of formal steps of logic, from the general to the particular, a

valid conclusion could inevitably be deduced from a valid premise. The deductive schema allowed a powerful chain of ideas to be linked together. Deductive reason was a dominant European thought form from Ancient Greece through the Renaissance which had gradually became sterile without an experimental base.

Inductive reasoning as a cognitive schema argued for the study of a number of individual cases that would lead to an educated guess (a hypothesis), and eventually to a generalization. Induction presumed that if one collected enough data without any preconceived notion about their significance, inherent, generalizable relationships would emerge. The use of induction could be seen in the work of Renaissance artist-engineers such as Da Vinci, who experimented constantly and codified their findings from experience.

Mathematics during the Renaissance and later in the Enlightenment began to be seen as a way of understanding underlying "laws" of nature. Everyday experience was seen as deceptive, and mathematical abstractions were thought to be able to clear away confusion. The use of mathematics in such a pervasive way required a radical form of abstraction to imagine invisible worlds and forces, as well as a ruthless simplification and concentration on formulating hypothetical abstractions that could be tested abstractly.

As **Figure 3** suggests, ultimately, the Western scientific method emerged as a complex and innovative blend of deduction, induction, and mathematics.

Figure 3: The Western Scientific Method as a Codified Cultural Schema

The Scientific Method emerged as a back-and-forth movement in which the investigator:

(1) First operates inductively from observations to hypotheses.

(2) Then operates deductively from these hypotheses to their implications, in order to check their validity from the standpoint of compatibility with accepted knowledge.

(3) After revision as needed, submits hypotheses to further test and inductive analysis through the collection of data specifically designed to test their validity at the empirical level.

(4) Then often links together the new findings with other findings or knowledge, again employing deductive reason.

Why deconstruct the Western scientific method as a codified cultural schema in this way? In truth, its phenomenal success created problems along with tremendous technological advancement. For one, it has become rather too easy to accept the scientific method uncritically as a given cognitive universal, naturally occurring in the brain, in all cultures. We have also been encouraged to see it ahistorically, and as a privileged form of knowledge, with more validity or legitimacy than other knowledge. Furthermore, the scientific method schema accepts only certain kinds of phenomena as evidence: observable, measurable, countable phenomena, thus conceiving of knowledge in only one, rather narrowly-focused kind of way. If we limit ourselves to this way of thinking we limit our own cognitive potential.

Finally, we must also engage in this sort of deconstruction because the scientific method is at the heart of the dominant, Eurocentric paradigm of North American culture. The processes of deconstructing dominant Western codified schemas like the scientific method and Western rationality are well under way in many fields, and may be seen in the work of postmodernists (Foucault, 1972; Lyotard, 1989; Hemphill, forthcoming), postfeminists (Haraway, 1997) and postcolonialists (Said, 1979). However, in addition to deconstructing dominant cultural schemata such as the scientific method, it is also fair to ask: What alternative cultural schemas that emerge from non-Eurocentric perspectives can we identify to help us investigate and better understand adult cognition from a multicultural perspective? For us to develop multicultural societies and inclusive schooling, we must recognize the legitimacy and equal weight of cultural schemas that emerge from more diverse cultural sources.

The Arts as a Source of Alternative Codified Cultural Schemas

Gardner's (1983) theory of "multiple intelligences" provides a heuristic first step for the effort to broaden our conceptions of cognition across cultures. Gardner identifies at least seven areas of human intellectual performance: linguistic intelligence, musical intelligence, logical-mathematical intelligence, spatial intelligence, bodily-kinesthetic intelligence, interpersonal intelligence, and intrapersonal intelligence. It is all too clear that the predominant focus of Western considerations of cognition in research and schooling have focused on what Gardner would call "linguistic" and "logical-mathematical" intelligence. Indeed, these are the areas of cognitive performance most often assessed in schooling and research studies on human cognition.

The area of musical intelligence in particular offers one promising possibility. To lay a base for investigating musical intelligence, we can cite Gardner (1983) and Dowling & Harwood (1986) on music and human intellectual performance: certain parts of the brain may be identified as key to production and perception of music; music is a universal faculty appearing in all cultures and historical periods; there is an identifiable core set of cognitive operations (including pitch, rhythm, and melody) in music; musical notation provides an accessible and lucid symbol system; and musical intelligence yields significant cultural products. It is clear that accurate interpretation of music, as of language, requires appropriate mental structures. High-level mental structures are prerequisite to music cognition.

The Blues as an Important Codified Cultural Schema

Once we move down the path of music cognition, the work of Murray (1996), Davis (1998), Floyd (1996), and Jones (1963) lead us in the direction of the Blues. Murray (1996) makes particularly compelling arguments that portray the Blues as a powerful codified cultural schema. It is much more than a 12-bar or 16-bar musical form. He describes the Blues as an African American cultural schema that conveys not simply musical messages, but also complex aesthetic, cultural, and political messages. He further suggests that the Blues reflects a value system that includes: affirmation in the face of adversity; improvisation, creativity, innovation, adaptability, and continuity in situations of disruption and discontinuity; grace under pressure; and an unsentimental but heroic and romantic struggle in the face of bad odds. In addition, he argues that a blues statement employs its own language and syntax, including such language forms as:

vamps, riffs, breaks, fills, call and response, chase, bar trading, and polyrhythms. Thus, the Blues conveys messages not just through its lyrical content, but through its form and practice. Davis (1998) argues equally powerfully for the Blues as a codified cultural schema that displays the power to convey complex meanings and counternarratives on sexual politics, ideology, resistance, emotion and other psychosocial realities. Floyd (1995) and Jones (1963) argue persuasively for the African origins, as well as the enduring African features of the schema of the Blues. **Figure 4** summarizes a view of the Blues as a codified cognitive schema.

The influence of the Blues is by no means limited to African American culture. Indeed, even the most cursory analysis of the history of jazz, rhythm and blues, rock and roll, country, and the American popular song leads rapidly to the conclusion that the Blues is the dominant subtext and underlying form of American popular music. It has long been accepted among popular musicians and critics alike that the pervasive influence of the Blues is readily evident in the vast majority of twentieth century American popular musical expression. Beyond this, due to global markets, the world's popular music has become increasingly dominated by American music. This suggests the global pervasiveness of the schema of the Blues.

Despite these arguments, it is still no mean feat to bring the discourse of the Blues into an academic discussion of cognition. The difficulty researchers may have in accepting the Blues as a schema on a par with the Scientific Method is surely related to the effects of Eurocentrism and marginalization on non-dominant cultural schemas. It is no accident that a cultural schema such as the Blues, as a musical form generated from African American culture and primarily found in expressions of popular culture, will not generally be found in academic discussions of cognition.

Identifying a potent schema like the Blues as a counternarrative to such dominant schemas as the Western scientific method, then, is not a trivial act. Doing so can aid us in broadening our conceptions of adult cognition, learning, and education beyond received Eurocentric categories. Neither the arts, nor music, nor the Blues are trivial areas--they are simply marginalized from a Eurocentric perspective, and have to date been ignored as cognitive processes in the ways that science and rationality have been. This marginalization is a function of power, and not the result of any universal or abstract measure of cognitive value.

Implications and Directions for Further Research

The issues raised here can contribute in several ways to adult education theory and practice. First, the notion of the 'codified cultural schema' can be used as a tool in identifying mental structures for purposes of deconstruction as well as education. Second, the specific case of the Blues and its contrast with the scientific method can aid us and our students in conceiving of the ranges of form, content, and influence of mental structures across cultures. Finally, this foray into the arts can serve to remind us that adults as learners have many forms and reasons for self-expression. We would do well to use this example to broaden our conceptions of adults as learners, their purposes, and their processes for learning.

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