Analysis of Kolbe Measurement of Conation

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Abstract

This paper reviews two questions concerning the use of the Kolbe system as a basis for utilizing conative information to improve learning, problem solving and group effectiveness. The first deals with the effectiveness of conation in predicting how individuals and groups will direct their energies in accomplishing specific roles and assignments. The second focuses on the effectiveness and accuracy of the Kolbe system in identifying conative patterns.

The first section concludes that there is strong support in psychological and educational theories and research for conation as a predictor of human behavior that can be used to improve the effectiveness of team and individual performance.

The second section concludes that recent research, including Kolbe qEEG brain studies, support the accuracy of the Kolbe instruments in identifying conative patterns.

I. Section 1

a. The Relationship of Conation to Productivity and Goal Attainment

Conation, defined by Atman (1987) as "vectored energy: i.e., personal energy that has both direction and magnitude" (p. 15), involves intrinsic motivation, volition, agency, self-direction, and self-regulation (Kane, 1985; Mischel, 1996). Historically, it has been considered the complement to human cognition--"knowing how" and emotion or affect-- "feeling about," in explaining the motivations for human behavior. Campbell (1999) has described the independence of conation from learned behaviors, suggesting that the human power to "get things done" is often in conflict with environmental or behavioral influences. Bagozzi (1992) has argued that conation has particular significance in human learning and that, without considering conation, it was not possible to accurately predict how learning and associated behavior will occur.

In a recent study focusing on the effects of cognitive, affective and conative domains in learning, Tait–McCutcheon defines conation as:

> The act of striving, of focusing attention and energy, and purposeful actions. Conation is about staying power, and survival. The conative domain includes students' intentions and dispositions to learn, their approach to monitoring their own learning and to self-assessment. Conation includes students'dispositions to strive to learn and the strategies they employ in support of their learning. It includes their inclination to plan, monitor, and evaluate their work and their predilection to mindfulness and reflection. (Tait-McCutcheon, 2008)

Tait-McCutcheon's study of 64 mathematics students concludes that conation plays an important role in students' persistence and ability to learn. (Tait-McCutcheon, 2008)

Reitan and Wolson's substantive review of conation concludes that conation is:

> The ability to marshal and focus the intellectual energy that must often be applied in order to deal successfully with complex problems that require some time to solve….Conation, insofar as it might be represented in neuropsychology, could be thought of as the ability to focus and maintain persistent effort in order to achieve maximal production in performance of a task—in a sense, the ability to apply maximal intellectual energy to the task at hand, to work with continued efficiency and speed, and to achieve as much effective production as possible…. A high level of conation would obviously be an important factor in achieving productive competence in everyday problem-solving situations. Few practical problems can be solved merely on the basis of having the knowledge that might be required. The effective person must have the intellectual energy and ability to apply persistent effort in adapting to the various aspects of a problem until the problem is solved. (Reitan and Wolfson, 2000)

Reitan's research, which considers the effect of brain damage on conation, establishes that conation plays a significant role in the efficiency and achievement of productive goals. (Reitan, 2000)

Two Arizona State researchers, Gerdes and Stromwall, recently examined the implications of conation in therapy conducted by social workers. Their article reflects case studies using the Kolbe system for identifying conative strengths as a tool in facilitating the development of strengths in a counseling setting. (Gerdes and Stormwell, 2008)

Fitzpatrick, in her master's thesis at the University of Arizona, examines conation as one of the human factors that contribute to team success. She writes:

> Worker training becomes an integral part of cellular team formation and success. In creating empowered teams, additional technical, teamwork, and administrative skills must be developed among the workforce. Cell productivity depends not only on the technical and administrative skills the workers possess but also the effective interaction among team members. This interaction and the related personality aspects are difficult to include in the aforementioned models due to the problems associated with quantifying their measures.

After evaluating several tools, she concludes that conation, using the Kolbe tools, " were better on every criteria. The greatest increase in correlation occurs for Goal Attainment. This may be attributable to the additional input from the instructor on the skill levels of participants. This reflects the importance of the assumption that skills have previously been carefully assigned to individuals and shows the additional importance of management input in doing so." (Fitzpatrick, 2000)

While not as extensively researched as the cognitive and affective domains, conation has proven to be significantly associated with improved learning and performance.

II. The Kolbe system for Assessing Conation

Kolbe (1990) has developed an assessment tool that focuses solely on the conative domain. Conation, as measured by the Kolbe Index, is defined as innate strengths which are driven by universal instincts. Particular strengths differ from person to person, but each individual's strengths are unchanged

throughout their lives. Strengths can be observed and measured as people engage in purposeful actions. The strengths can be categorized in consistent behavioral patterns or instinctive ways of striving to attain goals. The Kolbe system identifies four Action Modes®:

Kolbe Action Mode	Striving Behaviors
Fact Finder	Gathering and sharing information
Follow Thru	Organizing, arranging and designing
Quick Start	Dealing with unknowns, uncertainties and risks
Implementor:	Handling tangibles, mechanics and space

The Kolbe system describes three "Zones of Operation", or ways of initiating action within each Action Mode. For example, in the Fact Finder action mode, a person might 1) conduct in-depth research before acting; 2) gather a moderate amount of information, then act; or 3) get right to the bottom line.

The Kolbe Index identifies the Zones of Operation within each Action Mode for each individual and reflects the result in four, ten-point scales. (adapted from Kolbe, 2005) Kolbe's research and independent studies have found the scores to have significant test-retest reliability and to have high correlations with predicted behaviors. (Kolbe, 2001; Young, 2008; Fitzpatrick, 2000; Thomas, 1998)

III. **Differentiating Brain Activity Associated with Conation, Cognition and Affective Behaviors**

Human decision-making and action will typically involve elements of conation, cognition and affect. (Hilgard, 1980; Huitt & Cain, 2005; Park et al., 2008). However, placing an individual in cognitive, affective, or conative stress can be used as a means to discriminate between the primary brain activities associated with each (Cao et al., 2009; Kret, Denollet, Grezes, & Gelder, 2011; Lane et al., 1997; Lumer & Rees, 1999; Mitelman et al., 2005; Vickery & Jiang, 2009; Volle, Gilbert, Benoit, & Burgess, 2010). This research is consistent with the conclusion of Keller, et al, who concluded in a recent article that, "the brain's intrinsic functional architecture, exhibit(s) a remarkable correspondence with patterns of task-evoked coactivation as well as maps of anatomical connectivity.(Keller et al, 2011)

For example, Vickery and Jiang, in a cognitive stress study involving 27 subjects, were able to identify Brodmann area 40 as a primary area of cognitive processing in contrast with Brodmann area 32, which was more clearly associated with" attentional activity." The researchers stimulated a cognitive response by asking subjects to engage in a game before and after feedback. They found that attentional activity was reflected in increased activity in the medial superior frontal gyrus (mSFG) Brodmann Area 32 , while feedback processing resulted in increased activity in the right inferior parietal lobule (rIPL) Brodmann Area 40. (Vickery &

Jiang, 2009).

In an affective study involving 26 subjects, the researchers identified Brodmann areas 44 & 45 as primary centers for affective brain activity. The stress was induced by having the participants view highly emotionally charged images and listen to an a short emotion- inducing story. (Kret, Denollet, Grezes, & Gelder, 2011).

Huitt and Cain (2005), in an extensive bibliographic review of conation, concluded:

> One reason the study of conation has lagged behind the study of cognition, emotion, and behavior is that it is intertwined with the study of these other domains and often difficult to separate (Snow, 1989). Conative components are often considered when measuring cognition or emotion. For example, the Wechsler scales of intelligence include a conative component (Cooper, 1997; Gregory, 1998); Goleman's (1995) construct of emotional intelligence includes both affective (e.g., empathy, optimism, managing emotions) and conative (e.g., setting goals, self-regulation) components.

Past studies have suggested that conative-like activites are reflected increased brain activity in Brodmann areas 18, 19, & 30 (Cao et al., 2009; Lumer & Rees, 1999; Mitelman et al., 2005; Volle, Gilbert, Benoit, & Burgess, 2010). However, these past studies have described the conative activity as incidental to other activity and research has not been done to specifically isolate conative activity from other activities.

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