



ON KOLBE CAPABILITIES AND RESEARCH

Abstract

This paper describes the Kolbe system of characterizing and measuring conative patterns of action, the development of the Kolbe Indexes, the validity and reliability studies that have been performed on use of the Kolbe Index, and other studies on the Kolbe Index.

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EXECUTIVE SUMMARY

Kolbe Indexes are forced-choice instruments that assess conative strengths or needs that have been developed by Kathy Kolbe and published by Kolbe Corp, an enterprise she founded in 1975, with the original name of Resources for the Gifted.

The purpose of this report is to define the concepts relevant to the development of the Kolbe Indexes and to present the research related specially to the development of the Kolbe A Index. It is not intended to cover all of the research that has been done related to it and other Kolbe Indexes and does not include details related to applications in health, relationships, or specific areas of education (such as gifted, ADD/ADHD).

The body of Kathy Kolbe's work has become known as the Kolbe Wisdom. It comprises her set of theories that address how the conative instincts operate to affect individual and group performance when striving toward a goal. Kolbe's theories encompass creativity, modus operandi, decision making, striving instincts, conative Action Modes, conative stress, team dynamics, conative Synergy, relationships, leadership, productivity, and related topics.

Central to the development of the Kolbe Indexes is the concept of conation. Kolbe, an expert in cognitive development and assessment, came to realize that intelligence was not the driving force behind productive performance or personal achievements. Conation is one of the three faculties of the mind and brain which Kolbe realized was instrumental in the decision making and creative problem solving processes. The other two faculties, familiar to all, are the affective, or emotional, and the cognitive, or thinking.

Conation is the process that links knowledge and affect to actions, reactions and interactions.

Kolbe discovered that the conative part of the mind contains what she labeled striving instincts that drive a person's natural way of taking action. She tied these to what has been called the modus operandi (MO). A person's MO is observable and quantifiable. Innate instincts are subconscious and had not been specifically identified or found to be measurable.

Kolbe created a method of measuring individuals' differing MOs on a scale composed of scores ranging from 1 to 10 in each of four Action Modes, which she discovered were distinct, measurable clusters of behavior. She observed them as resulting from engaging the striving instincts. She named them: Fact Finder (FF), Follow Thru (FT), Quick Start (QS), and Implementor (IM). Having identified these conative modes, Kolbe was able to create the indexes by which they could become clearly defined and measurable behaviors, driven by instinct, not personality or IQ. Kolbe Index results have been proven to be unbiased by gender, age, or race, and they do not change over time.

An individual's MO can be determined by an instrument called the Kolbe A™ Index. Scores on the Kolbe A Index for each Action Mode in a person's MO determine what Kolbe identified as a person's Operating Zone in each mode. An Operating Zone indicates the perspective through which a person naturally uses an instinct in a Mode, and how individuals make the best use of each Mode. If an MO is in the 4-6 range, which is referred to as accommodating or responding in that Mode, a person will accommodate situations or respond to opportunities for using that Mode. A score of

1-3, which is referred to as being preventative or resistant, indicates a talent for preventing problems in that Mode.

The Kolbe A Index is a forced-choice instrument for adults that requires subjects to choose from four response choices two answers reflecting how they would most and least likely respond to 36 single-sentence problem-solving or behavioral scenarios. Kolbe has authored numerous other forms of the Kolbe indexes including the Kolbe B™ Index, which measures how an individual is attempting to do a job; the Kolbe C™ index, which measures how an evaluator requires that a job be accomplished; and the Kolbe R™ index, which measures how one partner in a relationship would like the other partner to take action. The Kolbe Indexes were developed based on decades of testing and refinement.

False expectations, unrealistic requirements, or conflicting MOs can lead to conative stress. Kolbe identified three basic types of conative stress: strain, tension, and conflict. Strain is a self-induced conative stress caused by trying to act outside one's MO. It is measured by comparing individual's Kolbe A Index results with their Kolbe B Index results.

Tension arises between employees and evaluators when there is a significant gap between how the evaluator requires that a job be done and the way a job holder naturally approaches doing it. It is measured by comparing Kolbe A Index results with Kolbe C Index results.

Conflict can occur between two people with significantly different MOs. This is measured by comparing the specific differences on each Action Mode on their Kolbe A Index results.

There are a number of team applications of Kolbe Index results. These include measuring team productivity and efficiency using Kolbe's

Team Tactix® software. Team Tactix results include reports on employees' Kolbe A, B, and C Index results, levels of conative Synergy, employees at risk for conative stress, predicted productivity of the team, and team culture. Kolbe's RightFit™ software was designed to use the Kolbe Index results to assist with employee selection. Kolbe predicts success in recruiting and retention by comparing the instincts necessary for a role with a person's innate instincts.

Numerous studies by the author, Kolbe Corp and its clients, and by independent researchers have been conducted on the Kolbe Indexes. Topics include reliability, including test-retest reliability and internal consistency; content validity, and predictive validity. Research has determined that the Kolbe Index is a bias-free instrument consistent with EEO guidelines. Additional research topics include leadership, potential for use in social work, job satisfaction, and education. The education research includes students ranging from preschool through university level, as well as with trade schools and programs for the developmentally disabled.

Abstract: This paper summarizes the body of research performed on use of the Kolbe A Index, which identify and measure the conative, or purposeful, acts derived from instincts. These instincts come into play when people take action in striving for a goal. There are four modes of action that are driven by conative energy: the instinct to probe for information, called *Fact Finder*, the instinct to create patterns and seek a sense of order, called *Follow Thru*, the instinct to innovate, called *Quick Start*, and the instinct to demonstrate ideas in tangible form, called *Implementor*. Everyone has all four instincts, but in different proportions. It is the relative proportions of these types of instinctual energy that determines each person's approach to taking action. The purposeful acts derived from those instincts can be measured with an instrument called the Kolbe Conative Index™. This paper describes the Kolbe system of characterizing and measuring conative patterns of action, the development of the Kolbe A Index, the validity and reliability studies that have been performed on use of the Kolbe Indexes, and other Kolbe studies.

INTRODUCTION TO CONATION

Conation is one of the three faculties of the mind and brain involved in the process of creative problem solving. The other two faculties, familiar to all, are the affective, or emotional, and the cognitive, or thinking [19].

“Conation has to do with our volition, the way we strive, the effort we put into tasks, our natural tendency to do things. The conative is your will—how you act, your talents; it is what you will or will not do naturally. These are your striving instincts” [5]. Conation is the process that links knowledge and affect to action. “It is the personal, intentional, deliberate, goal-oriented, or striving component of motivation” and is closely related to volition [15].

Conation is action derived from instinct, a purposeful mode of striving. It is a conscious effort to carry out self-determined acts. The Latin *conatus*, from which conation is derived, is defined as “any natural tendency, impulse, or directed effort.” [29]

Although the term conation fell out of vogue during the twentieth century, the instinct that it describes was recognized in ancient times and has been documented by Greek philosophers, medieval scholars, early psychologists, and social theorists [12].¹

The Kolbe website offers the following description of the three faculties of the mind and brain [28]:

Ancient philosophers and modern psychologists share the concept of a three-part mind with separate domains for thinking, feeling, and doing. The conative, or doing, part contains the striving instincts that drive a person's natural way of taking action, or *modus operandi* (MO). This is the unique set of innate talents every person has which remains unchanged from birth. Everyone has an equal amount of conative energy for engaging [with] the thinking (cognitive) and feeling (affective) parts of the mind to produce purposeful action. The words in Table 1 are other ways to refer to thinking, doing, and feeling:

Table 1. Words associated with thinking, doing, and feeling.

Cognitive <i>Thinking</i>	Conative <i>Doing</i>	Affective <i>Feeling</i>
IQ	Drive	Desires
Skills	Instinct	Motivation
Reason	Necessity	Attitudes
Knowledge	Mental Energy	Preferences
Experience	Innate Force	Emotions
Education	Talents	Values

CONATION AND THE KOLBE WISDOM™(XX)

¹ The primary source for both Huitt and Gerdes was Kathy Kolbe's *Wisdom of the Ages*, available at <http://www.kolbe.com/pdfassets/wisdomoftheages.pdf>.

Based on historical, philosophical and psychological research, the Kolbe Wisdom developed by Kathy Kolbe, has been field tested throughout the United States within business, government, and educational organizations for over ten years. The [original] Kolbe Conative Index™ (KCI™) has been refined through research and statistical analysis with the assistance of case studies and respondents from ages 4 to 88 years old, including various ethnic, racial and socio-economic backgrounds, all geographic areas of the country, and coming from all job classifications identified by the Dictionary of Occupational Titles” [22, p. 2]. The current version is published by Kolbe Corp as the Kolbe A Index, has been used with respondents from 15 to 97 years old.

Kathy Kolbe’s early description of the Kolbe Wisdom:

“The Kolbe Concept® holds that creative instincts are the source of mental energy that drives people to take specific actions. This mental drive is separate and distinct from passive feeling and thoughts. Creative instincts are manifested in an innate pattern that determines an individual's unique method of operation, or *modus operandi* (MO).

A person's MO is quantifiable and observable yet functions at the subconscious level. It governs actions, reactions and interactions. It also determines the person's use of time and natural form of communication. Understanding and exercising control over this mental resource gives people the freedom to be their authentic selves.

When people act according to instinct, their energy is almost inexhaustible – like water running downhill. But when people are forced to act against their instinct, their

energy is rapidly depleted – like water being pumped uphill.

Individual performance can be predicted with great accuracy by comparing a person's MO with self-expectations and the requirements of specific tasks. Performance fluctuates based on how closely these elements align.

MOs vary across the general population and show no gender, age or racial bias. When groups of people with the right mix of MOs function interactively, the combined mental energy produces synergy. Teams organized along these lines can perform at a higher level than is possible for the same group of people functioning independently. Team performance is accurately predicted by Kolbe's proprietary algorithms which determine the appropriate balance and makeup of MOs.” [27]

For an in-depth discussion of the historical and philosophical origins of the Kolbe Wisdom, please see Kathy Kolbe’s *Wisdom of the Ages*®, available at: <http://www.kolbe.com/pdfassets/wisdomoftheages.pdf> [22].

KOLBE THEORY OF DECISION MAKING

The Kolbe Wisdom is based on an underlying Kolbe Theory of Decision Making [31], which states that while people can be taught certain decision-making skills, they will revert to their innate decision making process when striving to achieve a goal. This theory includes five sub-theories, which address elements that have a significant effect on decision-making: the Theory of Creativity, the Theory of Hierarchy of Effort, the Theory of Striving Instincts, the Theory of Synergy, and the Theory of Leadership [18].

Kolbe Theory of Creativity

The Kolbe Theory of Creativity includes a model of the creative process, illustrated in Figure 1, which involves the elements of motivation, instinct, will, reason, and action [24]. The creative process is the path that integrates [these] otherwise separate elements of the mind. . .” [23, p. 219] Any action taken to solve a problem will involve varying levels of each these elements.

Motivation is the first ingredient in the creative process. Motivation is values, attitudes, desires, preferences, wishes, beliefs, emotions, and all other affective aspects of self. Without motivation as a starting mechanism, the rest of the creative process will not follow. The second element of the creative process is instinct. One’s innate striving instincts determine one’s natural approach to problem-solving. The striving instincts are represented by the four Action Modes®, which are described in the sections “The Axioms of Kolbe Wisdom” (page 8) and “The Four Action Modes” (page 11). The third element of the creative process is the Will, which translates instinctive tendencies into action. Will provides self-determination, which regulates the degree of effort that goes into solving a problem. The fourth element of the creative process is Reason, which functions as a checkpoint at which the feasibility of the effort is considered.

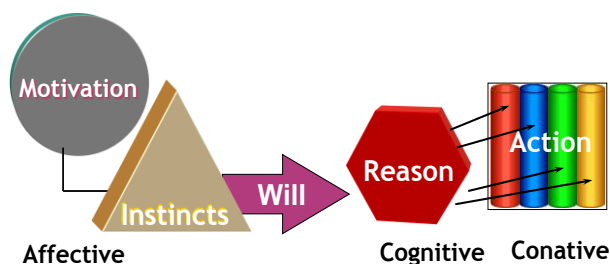


Figure 1. According to Kolbe, the creative process includes elements of motivation, instinct, will, reason, and action.

The Theory of Creativity has three sub-theories: the Theory of Procrastination, the Theory of Delayed Instinctive Response, and the Theory of Success. Procrastination is avoidance behavior—what you do to avoid working against your conative grain. Procrastination is one of the factors that can prevent or delay the creative process. The Theory of Delayed Instinctive Response addresses a different factor that can slow or halt the creative process: circumstances that rob a person of the free flow of instincts, such as fatigue, illness, or fear. The Theory of Success addresses Failure Factors—fatigue, fear, and frustration—and Action Advantages—ambition, alertness and achievement. Success results from having the freedom to act on instinctive power.

Kolbe Theory of Hierarchy of Effort

The Kolbe Theory of Hierarchy of Effort is embodied in the Kolbe decision ladder, also known as the Dynamynd®. The Dynamynd, illustrated in Figure 2, is a model of the graduated sequential steps that lead to higher levels of affective, conative, and cognitive effort expended during the creative problem solving process [23]. Designed to help maximize the use of conative instincts, the Dynamynd is actually three ladders, one for each of the three faculties of the mind. Each ladder is composed of a series of stages.

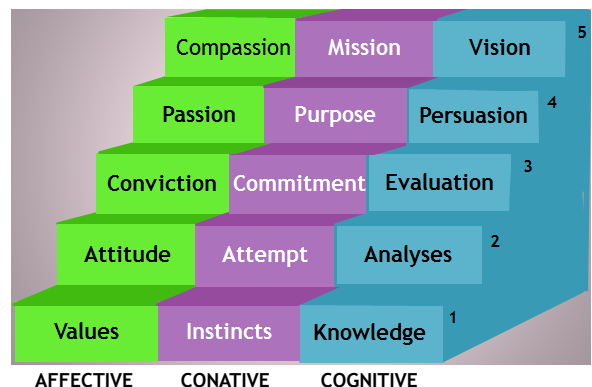


Figure 2. Dynamynd: the Kolbe Decision Ladder.

Level 1 of the Dynamynd is Self-Awareness. Self-awareness involves an expression of values (affective), an awareness of one's action-taking instincts (conative), and the absorption of knowledge (cognitive). Level 2 of the Dynamynd is Self-Esteem. A person at Level 2 expresses attitudes (affective), makes attempts (conative), and analyzes knowledge (cognitive). Level 3 is Self-Control, which consists of the expression of a conviction (affective), commitment to a goal (conative), and evaluation of the analyzed knowledge (cognitive). Level 4 of the Dynamynd describes being Self-Directed, at which stage the individual expresses passion for a goal (affective), acts with purpose (conative), and can be persuasive about the goal (cognitive). At Level 5 of the Dynamynd, an individual is Socially Responsible, which involves compassion (affective), taking action in pursuit of a larger mission, rather than a single goal (conative), and vision (cognitive), which is an insightful and empathetic conceptualization of the mission.

The Theory of Hierarchy of Effort includes three sub-theories: one for individuals, one for teams or cultures, and one for leaders. The Dynamynd for Individuals is a model of the specific behaviors exhibited by a person making decisions at each level of the Dynamynd hierarchy: Self-Awareness, Self-Esteem, Self-Control, Self-Directed, and Socially Responsible. The Theory for Teams is a model of the decision-making behavior of a group of people acting interdependently. A team's decision-making at each of the five levels exhibits Respect, Ambition, Courage, Perseverance, and Wisdom. The Theory for Leaders is a model of the five levels of decision-making required by leaders as they develop higher standards of performance for themselves and others: Interested, Involved, Engaged, Convincing, and Inspiring.

Kolbe Theory of Striving Instincts

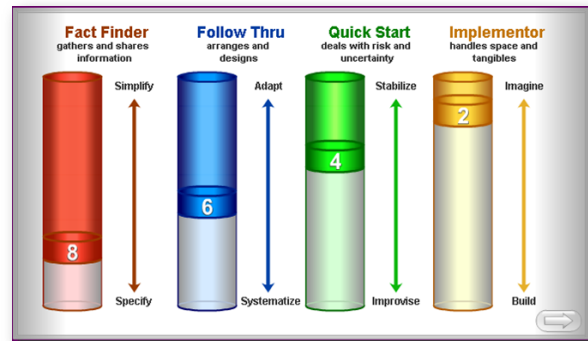


Figure 3. A visual representation of an individual's MO

The Kolbe Theory of Striving Instincts includes the Theory of Conative Action Modes, the Theory of Modus Operandi (12 Methods of Problem Solving), the Theory of Conative Stress, and the Theory of Time and Space by MO.

Theory of Conative Action Modes

For a description of the four Action Modes® and three operating zones, please see the section "The Conative Action Modes," page 11. A person's scores in each Mode are collectively known as that person's modus operandi, or MO. The four Action Modes are illustrated in Figure 3.

Theory of Conative Stress

Conative stress results when obstacles interfere with the use of conative strengths. A detailed explanation of the elements of conative stress is given in the section "Conative Stress," page 20.

Theory of Time and Space and Use by MO²

Each of the four Action Modes has a characteristic way of interacting with time and space.

Initiating Fact Finders take a historical perspective, employing experience and expertise to gauge how long a process will take. Preventative Fact Finders, on the other hand, don't pay close attention to the past or make much of an effort to keep track of historical events.

Initiating Follow Thrus act sequentially, providing continuity, pacing themselves, and setting a rhythm for the effort that can be coordinated with others. Preventative Follow Thrus don't need to conform to an established pace.

Initiating Quick Starts act with a sense of urgency. They predict and deal with events ahead of time, focus on the future, and anticipate change. Preventative Quick Starts refuse to be rushed and won't get caught up in competitive deadlines.

Initiating Implementors are grounded in the present and preserve today's most substantial assets. Preventative Implementors detach themselves from involvement in some current matters, so as to free up energy to work on more abstract concerns.

Kolbe Theory of Synergy

The Kolbe Theory of Synergy describes team synergy, which is covered in the section "Synergy and Team Culture," page 21.

² The sources for this section are the Kolbe Certification Manual [18] and Kathy Kolbe's book *Powered By Instinct* [23].

Theory of Team Dynamics

A collection of people working more or less together may be a true team, a work group, or a troupe [18]. In a true team, members work interdependently, relying on others for contributions. Success depends on all team members. A work group is composed of individual contributors who come together for reporting purposes. There is no ongoing reliance on the work of others, and some individual group members may succeed while others fail. A troupe is a hybrid of a team and a work group. Members work both interactively and independently.

Theory of Relationships

A mutually committed relationship, whether personal or business, targets talents in mutually supportive ways [19]. Personal and business relationships succeed when both partners have the freedom to be themselves. Each partner's MO is a resource that is brought to the relationship. In successful relationships, the partners understand and actively work to support each other's MOs.

Kolbe Theory of Leadership

Theory of Probability of Productivity

The probability of productivity is increased by ideal team synergy. It is reduced by inertia and polarization. Inertia, the lack of drive toward goal attainment, results from having too many of the same initiating Modes on the same team, a situation called conative cloning [24]. People who select their own teams tend to replicate their conative capabilities: initiating Fact Finders tend to look for more initiating Fact Finders, and initiating Quick Starts tend to fill groups with other initiating Quick Starts. Inertia often can be remedied by reorganizing teams and bringing in new members. Inertia is also

discussed in the section “Conative Cloning,” page 22.

Polarization occurs when there are insistent and resistant people on a team, without enough accommodators to balance them [24]. Teams with polarization are robbed of the benefits of their conative abilities, because energy is spent struggling over the process rather than focusing on results. Polarization is discussed further in the section “Polarization,” page 22.

Theory of Efficiency

Team efficiency can be reduced by strain and tension. Strain is a type of conative stress that occurs when there is a disparity between the reality of an individual’s conative instincts and the individual’s perception of his job’s conative requirements. Strain is discussed in greater detail in the section by that name, page 20.

Tension occurs when there is a disparity between the conative instincts of an employee and the supervisor’s perception of the conative requirements of the employee’s job. Tension is discussed further in the section by that name, page 20.

THE AXIOMS OF KOLBE WISDOM™

Since she first distinguished conation from the other faculties of the mind and of the brain and identified its distinct characteristics, Kolbe has proven several hypotheses about conation. These have become the Axioms of Kolbe Wisdom [30], which are the basis of her three books. The rest of this section is adapted from Kathy Kolbe’s Axioms of Kolbe Wisdom.³

³ We use the term *axiom* in following sense: “one of a basic set of statements from which all other statements of a theory may be logically derived.” [11]

Axiom #1: Every human being has innate conative strengths.

Conative strengths are driven by universal instincts. They are observable as volitional or purposeful actions. These are self-manageable, purposeful acts of volition that surface in the subconscious level of instinct, and enter the individual’s awareness when there is motivation to strive toward conscious goals.

Axiom #2: Four Action Modes are universal methods of striving.

Every human being has a conative strength in each of four Action Modes used in problem solving. These are the basis of an individual’s best methods of striving to reach a goal. Table 2 lists the striving behaviors associated with each of the four Action Modes.

Table 2. Striving behaviors that typify the approach to problem solving in each of the four Action Modes.

Kolbe Action Mode	Striving Behaviors
Fact Finder	Gathering and sharing information
Follow Thru	Arranging and designing
Quick Start	Dealing with risk and uncertainty
Implementor:	Handling space and tangibles

Axiom #3: Conative strengths determine an individual’s Modus Operandi or MO They are based upon how individuals operate in each Action Mode.

Conative strengths are quantifiable through the use of an algorithm that identifies an individual’s natural way of operating (MO) through three Zones of Operation, which are ways of taking action in each of the four Action Modes.

These zones divide a continuum from 1 to 10 on results for conative assessments (the Kolbe A™ Index), enabling individuals to self-identify strengths within each Action Mode. These conative strengths are predictable and reliable.

Axiom #4: All human beings have equal but different conative strengths or natural abilities.

Each of the 12 conative strengths is of equal value in goal attainment or the creative problem solving process. They are distributed equally between the genders and among the races. Because they are powered by instinct, they are imbedded and consistent over an individual's lifetime. Therefore, an accurate measurement of conative strengths is unbiased by gender, race, or age.

Conative strengths of parents, grandparents and siblings do not predict an individual's MO. Therefore, it appears that conative strengths are not distributed genetically. Even identical twins have shown no greater probability of having similar MOs than a random cross-section of the population.

In a randomly selected large population, distribution of the continuum of 1 – 10 across each mode generally results in a bell-shaped or normal curve, indicating the measurement of a trait or characteristic of nature, rather than nurture.

Axiom #5: Self-efficacy results from exercising control over personal conative strengths.

Self-awareness of conative strengths paves the way to exercising self-control over when and where to use those strengths. Persevering in their use provides a sense of self-efficacy. Conative strengths become observable during

striving activities; otherwise they are mere potential.

Axiom #6: Conative energy requires rejuvenation.

Instinctive energy that powers conative action is a finite resource, requiring rest and relaxation (the absence of striving) in order to be replenished.

Each unit of an individual's conative capacity can be considered an erg, with the full capacity being 100 ergs. Different Zones of Operation require different quantities of ergs.

Individuals tend to begin striving tasks by using the Action Mode for which they have the greatest number of ergs—even if instructions they receive tell them to do otherwise.

Axiom #7: Creativity requires use of all three mental faculties.

All three faculties of the mind contribute to the Kolbe Creative Process™, which is synonymous with productivity. Each faculty operates independently, yet all three are equally important to the process.

A hierarchy of effort for all three faculties of the mind ties to the level of importance of the goals an individual seeks. This results in a hierarchy or Dynamynd of decision making. Success in reaching minor goals is necessary to prepare for success in reaching higher level goals.

Other faculties of the mind may be impaired without diminishing the contribution of conative strengths. However, a disability in any faculty of the mind will impact the creative process, since it requires the integration of all three mental faculties.

Axiom #8: Conative stress results when obstacles interfere with the use of conative strengths

Obstacles that interfere with an individual's free use of conative strengths limit the potential for success or goal attainment. Striving becomes less joyful and frustrations ensue.

Self-induced conative stress is caused by an individual attempting to work against his/her conative grain. It is like paddling a boat upstream. Much effort is made, with little progress to show for it.

Strain, or a depletion of mental energy, results from forcing efforts based on false self-expectations. It leads to mental burn-out and low self-efficacy. This can be measured by the Kolbe B™ Index result.

When a number of people on a team are experiencing this Strain, it has measurable negative results, which are identified and quantified in organizational reports by Team Strain.

Axiom #9: Significant differences in MOs between individuals creates conative conflicts

Differences in conative strengths between people can be of great benefit. People with significant differences in Kolbe Index results can fill in each other's gaps or collaborate by doing what the other won't do well. However, these differences can also be the source of relationship-damaging conflict if either person considers the other's conative strengths to be a fault that needs fixing.

Axiom #10: Requirements that reduce a person's freedom to act on conative strengths diminish performance.

Attempts to force an individual to go against a conative grain causes tension and may escalate

into the individual's acting out or shutting down.

Requirements that do not give individuals the freedom to use their conative strengths cause tension, which is a form of conative stress.

This happens with highly-determined kids whose conative strengths are viewed as weaknesses. When their conative strengths are misidentified as ADD/ADHD, they suffer stress similar to that of workers who are told their conative strengths are inappropriate ways to perform job-related tasks.

In group settings this diminished performance magnifies and results in a higher probability of Team Tension.

Kolbe Axioms 11 through 14 are relevant to interactions or group behaviors:

Axiom 11: Synergy is a quantifiable conative factor.

Synergy comes from the right combination of MOs in a group of collaborators. A group that collectively has every zone in each mode will have all the conative talents in its arsenal. An ideal group would reflect the zones of operation as they naturally occur in the population, with 20 percent of their conative strengths initiating solutions in any mode, 60 percent accommodating and 20 percent preventing problems. A strategic balance of MOs in a group of collaborators increases the probability of goal attainment.

Degrees of conative synergy are predicted by the distribution of 12 conative strengths among team members.

Axiom 12: Conative Cloning is caused by redundant conative strengths.

A group with Conative Cloning, or too much energy in one Zone of an Action Mode, will show symptoms of inertia, and become plagued with inaction, no forward action or a narrow, repetitive approach to problem solving. The group has essentially cloned itself and often times finds false comfort in their sameness (birds of a feather, flock together), failing to find the benefits of synergistic conative talents.

Axiom 13: Polarization results when opposite conative strengths pull against each other.

Polarization is often present in groups in which participants fight amongst themselves. When conative talents for an Action Mode within a group are at opposite ends of the scale, actions become unproductive as each polar set of talents conflicts without enough accommodating energy. The problem-solving methods are so far apart that consensus building is difficult.

Axiom 14: Probability of team success improves as conative strengths are appropriately allocated.

Having the right people doing the right jobs is a matter of having the right conative fit. Assigning people to tasks for which they have the wrong conative strengths robs them and the organization of their opportunity to succeed.

High productivity is predicted in organizations with a high percentage of people who are able to contribute their conative strengths. As conative stress, or the inability to contribute conative strengths, increases among people in an organization, so do absenteeism, turnover, dissatisfaction, and errors.

THE CONATIVE ACTION MODES⁴

The Four Kolbe Action Modes

The Kolbe Action Modes are four distinct, measurable clusters of behavior which result from engaging our striving instincts: *Fact Finder (FF)*, *Follow Thru (FT)*, *Quick Start (QS)*, and *Implementor (IM)*. The Action Modes are observable behaviors driven by instinct, not personality or IQ. Instincts are not measureable, but the conative (or purposeful) acts derived from them are measureable by the Kolbe Index. Kolbe Index results have been proven to be unbiased by gender, age, or race, and they do not change over time. The Kolbe Action Modes are described in Table 3.

Table 3. These are the observable behaviors associated with each of the four Kolbe Action Modes. [17]

Fact Finder (FF)	Fact Finder behavior is the instinctive way we gather and share information.
Follow Thru (FT)	Follow Thru behavior is the instinctive way we arrange and design.
Quick Start (QS)	Quick Start behavior is the instinctive way we deal with risk and uncertainty.
Implementor (IM)	Implementor behavior is the instinctive way we handle space and tangibles.

The continuum of 1-10 in each Kolbe Action Mode represents a gamut of problem-solving behaviors that range from preventing problems to initiating solutions. Each position on the continuum is seen as an equally positive trait. When seen as a spectrum of behavior, the Fact

⁴ Unless otherwise noted, the content in this section has been adapted from Kolbe Corp's Bottom Lines pamphlet [17] and Certification Manual [18].

Finder mode will be arrayed along a continuum from generalist to specialist; the Follow Thru ranges from striving randomly to sequentially; the Quick Start ranges from stabilizing to improvising; and the Implementor ranges from functioning in a method that is abstract to one that is concrete.

A *modus operandi* (MO) is a quick way to describe a person's strengths in each mode. An MO is described by a list of four numbers that represent the Fact Finder score, the Follow Thru score, the Quick Start score, and the Implementor score, in that order.

Three Operating Zones

What Kolbe identified as an Operating Zone indicates the perspective through which individuals naturally use an instinct in a Mode, and how they make the best use of each Mode. When an MO is in the 7-10 range in any Mode, which Kolbe refers to as initiation or insistence in that Mode, an individual will initiate solutions through that Mode. When an MO is in the 4-6 range, which Kolbe refers to as accommodating or responding in that Mode, an individual will accommodate situations or respond to opportunities for using that Mode. A score of 1-3, which is referred to as being preventative or resistant, indicates a talent for preventing problems in that Mode. Kolbe found it is possible for an individual to operate in the response zone in three or all four Modes; however, has found no one who initiates solutions or prevents problems in all zones.

Kolbe decided to call individuals who respond through three or four Modes Facilitators, or Mediators.

Mediators / Facilitators

Kolbe defined a Mediator, sometimes called a Facilitator, as someone who does not need to initiate action in any particular way and who has an ability to move from one Action Mode to another as needs arise. Mediators have a talent for bringing together the opposing perspectives of Initiation and Prevention. A Mediator has an accommodating score (4-6) in three Action Modes and a preventative score (1-3) in the fourth, or an accommodating score in all four Action Modes. Kolbe found Mediators excel when working on teams, pulling forces together, bridging differences, responding to needs, and blending abilities into productive efforts.

Kolbe Strengths™

Kolbe Strengths (see Table 4), also called the 12 Methods of Problem Solving, are twelve ways of taking instinctive action when problem solving. Kolbe states that although individuals can all solve problems using any of the twelve methods, each individual has four personal strengths—one in each Action Mode—that allow them to do their best, most efficient, creative work.

Table 4. Kolbe Strengths in each mode are found in Kolbe A Index results

Action Mode Score	Fact Finder	Follow Thru	Quick Start	Implementor
1-3	Simplify	Adapt	Stabilize	Imagine
4-6	Explain	Maintain	Modify	Restore
7-10	Specify	Systematize	Improvise	Build

“While we can all learn to solve problems using any of these paths, each of us has four paths (one in each action mode) that are most natural. Individuals are more successful when allowed or (preferably) encouraged to problem-solve using their four natural tendencies” [12].

Transition

Kolbe A Index results identify individuals who are in states of conative Transition, which is a period Kolbe discovered as resulting from internal conflicts that prevent them from being able to report their innate methods of taking action.

Kolbe found conative Transition could occur during a life-changing event, or when an individual is under extreme pressure to change or conform at work or at home. Causes of conative Transition include periods of unemployment, a new boss, beginning or ending a relationship, moving to a new residence, loss or separation from a loved one, physical trauma, and changes in work, domestic, or scholastic responsibilities. Transition generally indicates an internal tug of war over the way a person tries to get things done. Perhaps the person is trying to do whatever he believes he has to do in order to satisfy the present situation or requirements of others. Kolbe recommends individuals retake the Kolbe A Index once the internal conflict is resolved.

If a Transition result was generated by trying to conform to someone else's expectations, the Index can usually be retaken immediately. The person should remember to answer the questions by thinking of the phrase "If free to be myself..." If a person is in transition due to self-imposed expectations, they will probably need a longer period to explore the reasons behind these expectations. The Index should be re-taken only when the individual feels they have the freedom to be who they really are. Someone whose transition result is due to significant life changes should wait until they have adjusted to these changes before retaking the Kolbe Index.

Kolbe Natural Advantages™

The Kolbe Action Modes combine in such a way as to give seventeen patterns or distinctive ways of operating; Kolbe named these Natural Advantages. Natural Advantages are not job titles, but rather a frame of mind or method of operation. An individuals' Natural Advantages are determined by their initiating Mode and highly accommodating Modes of operation. The Natural Advantages and their characteristics are listed in Table 5.

Table 5. The seventeen Natural Advantages and their characteristics.

MO	Natural Advantage	MO	Natural Advantage
	RESEARCHER		STRATEGIC PLANNER
FF	Probes Prioritizes Proves Specifies Calculates Defines	FF/ FT	Studies trends Evaluates sequences Puts priorities into context Organizes curricula Explains procedures Justifies policies
	MANAGER		TECHNOLOGIST
FF/ QS	Explains bottom line Calculates risk Justifies intuition Specifies challenges Qualifies sales Allocates variables	FF/ M	Studies tangibles Demonstrates probabilities Allocates space Evaluates quality Tests materials Strategizes for safeguards
	DESIGNER		SYSTEMS ANALYST
FT	Plans Charts Coordinates Arranges Graphs Budgets	FT/ FF	Structures data Concentrates on details Programs specifics Plans appropriately Charts probabilities Concludes thoroughly
	PROGRAM DEVELOPER		MANUFACTURER
FT/ QS	Focuses options Graphs changes Designs originals Sequences diverse elements Coordinates flexibility Tracks experiments Schedules alternatives	FT/ IM	Designs models Coordinates equipment Structures manually Concentrates materials Patterns work flow Maintains quality Plans for space utilization

QS	INNOVATOR	QS/ FF	ENTREPRENEUR
	Challenges		Promotes appropriateness
	Brainstorms		Challenges status quo
	Originates		Changes priorities
	Risks		Revises standards
	Promotes		Improves presentations
	Intuits		Converts data
QS/ FT	THEORIST	QS/ IM	PIONEER
	Innovates systems		Competes physically
	Reforms plans		Challenges endurance
	Reverses trends		Explores new territory
	Modifies procedures		Alters environment
	Originates concepts		Defies the elements
	Instigates transition		Invents tangibles
IM	DEMONSTRATOR	IM/ FF	INVESTIGATOR
			Handles meticulously
	Builds		Builds precisely
	Molds		Demonstrates thoroughly
	Constructs		Physically protects
	Forms		Establishes standards
	Shapes	Transports sophisticated equipment	
	Repairs	Makes complex maneuvers	
IM/ FT	QUALITY CONTROLLER	IM/ QS	ADVENTURER
	Installs systems		Remodels
	Builds structures		Explores
	Enforces regulations		Constructs futuristics
	Guards facilities		Renders uniquely
	Maintains equipment		Sculptures freeform
	Mechanically designs	Shapes intuitively	
	MEDIATOR / FACILITATOR		
	(No Insistences)		
	Accommodates in a variety of ways		
	Gains cooperation by mediation		
	Provides back-up support		
	Avoids being in the limelight		
	Commits to group progress		
	Responds as needed for success		

Kolbe Theory of Dominance

Kolbe found that when a result has two insistent modes with the same score (e.g., 7473), certain Action Modes dominate others. FF dominates all the other Modes; QS dominates FT and IM; and FT dominates IM. Given the Theory of

Dominance, the Natural Advantage of a 6671 would be “Entrepreneur” because FF dominates FT.

MEASURING CONATION

The Kolbe Indexes

*The Kolbe A Index*⁵

The Kolbe A Index is a forced-choice instrument for adults that requires subjects to choose from four response choices two answers reflecting how they would most and least likely respond to 36 single-sentence problem-solving or behavioral scenarios [4]. The raw scores reflect the frequency with which the subject would tend to initiate, respond to, or resist probing, organizing, improvising and constructing behaviors. These frequencies are plotted on four ten-point scales—the four Action Modes described earlier—that reflect the behavioral predispositions of the subjects. The Action Mode scores are always presented in the order FF-FT-QS-IM; for example, 8-7-3-2.

The percentages of conative energy available for expression via each of these Action Modes are provided visually in the form of a Pyramid of Energy, shown in Figure 4. In the Pyramid of Energy, the color that represents each Action Mode fills individual ergs, each of which represents 1% of the individual's total conative energy. The Action Mode with the highest percent of conative energy on a Kolbe A Index result fills the top units in that individual's Pyramid of Energy, with the others following in descending order of percent of conative energy identified for that person.

⁵ Unless otherwise indicated, the content of this section has been adapted from the *Kolbe Statistical Handbook* [43].

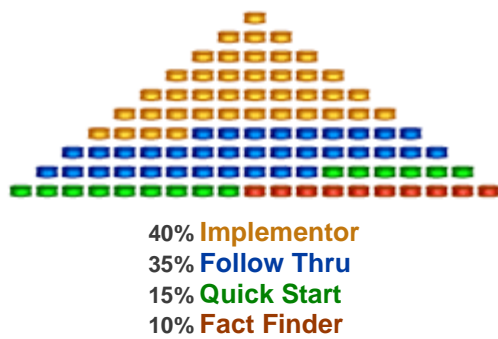


Figure 4. The Pyramid of Energy shows the percentage of conative energy available in each of the four Action Modes.

Other Kolbe Indexes

The Kolbe Index also comes in forms B, C, Y, and R. Four instruments (Forms A, B, C, and R) are intended primarily for adults; the Kolbe Y™ Index is intended for use with young people and students [4].

The Kolbe B Index measures the employee's own expectations about succeeding at their job. Respondents are instructed to select answers by completing the statement, "My job requires that I . . ." Respondents should take care not to answer according to how they would like to do their jobs or how their bosses would finish the statements [18]. A significant difference between the expectations in the Kolbe B and the reality of the Kolbe A identifies a point of stress, which is called strain.

The Kolbe C™ Index is a 24-question instrument that measures the functional expectations that a supervisor has for a specific position. It is intended to be taken by a supervisor, and the results help identify how the evaluator believes the job needs to be done for the jobholder to be successful in the position. Respondents are instructed to select answers by completing the statement, "This job requires that I . . ." Respondents should take care not to answer according to how they think the person in the job currently acts or how the respondent

would do the job. [18]. A significant difference between the requirements in the Kolbe C and the reality of the Kolbe A identifies another point of stress, which is called tension.

The Kolbe R™ Index was designed to measure how the respondent wishes another person (with whom the respondent is in a relationship) would take action.

The Kolbe Y Index, as noted, is the youth form of the Kolbe A Index. The Kolbe Y Index was designed for youth with a fifth-grade reading level comprehension, and the questions revolve around school and home environments as opposed to the workplace.

Development of the Kolbe Indexes

Construction of the Index⁶

In this section the development and testing of the Kolbe Indexes is described in stages to facilitate understanding of the critical assumptions, results, and conclusions that drove the formative process.

1. **Background.** Kathy Kolbe, the theorist who has authored all of the Kolbe Wisdom, began her discovery process related to it as a very young child. Her father, E.F. Wonderlic, pioneered the use of intelligence testing for job placement [13]). He taught her test development, item analysis, and research techniques as she worked with him even before she started high school.

As an adult, Kolbe became a nationally recognized leader in gifted education, founded a publishing company (Resources for the Gifted), developed and ran a lab

⁶ The content of this section has been adapted from *Foundations of the Kolbe Indexes* [21]. Emphasis has been added to selected parts of the text.

school for teaching critical and creative problem solving for K-12 students, and became an adjunct professor of gifted education. In the 1970s and 1980s, Kolbe led the development of public school programs to teach thinking skills to preschool through high school students, and trained teachers and parents on her methodologies through a non-profit foundation.

Her evaluation of hundreds of case studies in which high IQ-students were identified as “underachieving” and lower IQ students were labeled “overachieving” led her to focus on her long-held belief that there was something besides intelligence and attitude that determined levels of performance.

2. **Early studies related to creative problem solving.** During this period, Kolbe tracked the approaches to problem solving of several hundred students in her special-projects program. Each student studied was involved for at least two full weeks in the program and provided her with the opportunity to observe both independent striving and achievements in multiple group settings. Kolbe’s research concluded that *neither IQ test results nor personality assessments predicted a youngster’s success with specific activities.*
3. **Emergence of the four Kolbe Action Modes.** Kolbe developed a taxonomy of the unlearned behaviors which seemed to drive actions and developed a set of diagnostic tools to quantify the student’s use of these various paths to problem solving. Over several years of refining her categories, Kolbe found there were *four sets of independent variables that students were drawn towards or repelled from.* These four sets of independent variables were trademarked as the Kolbe Action Modes™, now broadly known as simply the Action Modes.
4. **Predictive capabilities associated with the four Action Modes.** Furthermore, Kolbe found that when she set up a highly motivating situation that required a student to perform with set of behaviors or one of the Action Modes, the same group of students repeatedly succeeded by using that Action Mode, regardless of whether they had prior knowledge related to the activity. *Thus, it became possible to predict whether a given student would succeed with an activity in a particular Action Mode. These predictions were accurate approximately 80% of the time.*
5. **The first index: conative paths to problem solving.** Based upon her refinement of the categories linked to the four Action Modes, Kolbe developed a 200-item index for observations reported by parents and teachers about the students’ paths to problem solving. Each item included four possible paths; one representing characteristics from each of the Action Modes. Kolbe developed a shorter version (50 items) for students to complete. In both the parent/teacher and student versions of the index, the respondent rank-ordered the four possible paths in descending order of the likelihood of being chosen.
6. **Differentiating conative (i.e., volitional) elements of problem solving from the cognitive and the affective.** Kolbe initially thought the behaviors she was observing were part of the then popular right brain/left brain or cognitive/affective problem solving theories. With further study she realized these behaviors were a distinct element of problem solving which differed from learned behavior or affect. Since what she was observing was volitional action, that is, those things that students did on purpose, she began studying current and historical discussions of volition, purpose and goal-oriented behaviors.

Through her work with education and a growing interest on the part of many major corporations in her assessment and consulting regarding high performance employees, Kolbe began writing descriptions of volitional efforts and the Action Modes. In doing so, she searched an early edition of Roget's Thesaurus which she had inherited from her father – and found the word *conation*. It was in 1984 that this led her to realize that *the proper term for the behavior she was observing was conative*.

7. **The second index: measuring conative, cognitive, and affective.** Kolbe developed another instrument (50 items) that was intended to *compare the relative strength in the individual of the cognitive, the affective and the conative domains*.
8. **First predictive capabilities of the index.** Teachers from several school districts in Arizona participated in research on both instruments with students labeled gifted, learning-disabled and average. Kolbe found that results from the indexes filled out by parents and teachers were inconclusive: patterns did not emerge, and the results did not predict student behavior. Results from the student index as a whole proved to be inadequate for significant prediction. *However, the subgroup of the questions on the student index was found to be highly predictive of the actions students would use to reach goals.*
9. **Equal amounts of conative energy.** The third instrument completed by the students resulted in an unexpected pattern. What Kolbe found was that across the board, for all 6th grade through high school students, *the amount of energy allocated to taking action was the same, plus or minus five percent*. In contrast, the amounts of energy allocated to the cognitive and affective domains varied widely. These results led

Kolbe to conclude that *each student had a similar amount of energy in the conative domain*, regardless of how they viewed themselves cognitively or affectively. She refined the language on the items in that instrument and repeated it with another group of students (in each case, n was greater than 30), and she obtained similar results.

10. **Focus on the student index.** Because neither parent nor teacher observations showed statistically significant results, Kolbe theorized that observers were less able to clarify conative behavior than the subjects themselves and therefore turned her attentions to the index taken by the student.
11. **Split-half reliability studies lead to selection of forced-choice method.** The first split-half study divided a 50-item version of the student index into two halves, which yielded nearly identical results. The second split-half study was designed to compare two alternative forced-choice approaches: most/least-likely and rank-ordering. Both halves had 24 items. The first half instructed subjects to identify which choice was most or least likely to be used in given problem solving situations, and the second half instructed subjects to rank order each of the options from one to four. *Results in the second split-half study indicated that the most and least approach showed little variance between the first and second halves. In contrast, there were significant differences between the first and second halves of the rank-ordering version.* Kolbe later repeated this study with an adult version of the index, and found the same patterns repeated. *As a result, she selected the forced-choice method.*
12. **Further refinement of the student index.** Kolbe further refined a 24 item forced-choice index of the conative domain. Three more rounds of study ensued in which

students between 5th and 12th grade completed the instrument. Parents and teachers were given individual respondents' results and asked to rate the accuracy of the information on a scale of one to ten. Based on the test results and the parent-teacher ratings, changes were made to the vocabulary of the index to assure that questions were readily understood and truly characteristic of observable behaviors. This index eventually became the Kolbe Y Index.

13. Developing an adult version of the index.

In parallel with refining the youth index, Kolbe developed multiple versions of an instrument designed to explore problem-solving approaches taken by adults. Early versions of this test were called the Test of Creative Thinking and the Impact Factors Analysis. When she became convinced she was measuring the conative domain, Kolbe changed the name to the Kolbe Conative Index (KCI). All versions of the adult instrument were completed by the subject, except for a minor study in which sales people tried to predict the conative domain among clients. The results showed salespeople ineffective in matching the self-reported characteristics of their clients.

14. Adult split-half studies result in a 36-item instrument.

Split-half studies of results indicated that 24 items were sufficient for the subjects to maintain focus and to obtain significant results. With 24 items, however, while respondents validated the accuracy of the predictions, they didn't believe the face validity. With 36 or more items, they validated the face validity as well. With 40 or more questions, the split-half study showed that the second half lost consistency.

15. Test-retest reliability. A series of test-retest reliability studies with both youth and adult versions indicated a reliability that

was at first between 70 and 80 percent. With vocabulary changes and refinements, that reliability increased to between 80 and 86 percent.

16. Test scoring method. The first adult version of the KCI was self-scored. Because it involved numerous steps utilizing addition, subtraction, multiplication and division, a high percentage of respondents miscalculated their final score. Kolbe determined that the degree to which results were inaccurate as a result of the miscalculations was unacceptable; therefore, as soon as the technology was available, and prior to offering the index to the public, she developed an electronically scored result.

17. Validity studies. Since there is no other validated measure of the conative domain, Kolbe could not compare total test results, or do item analyses based upon parallel results. Therefore, on-going validity studies have been based upon actual performance of respondents in quantifiable workplace or school environments.

Theoretical Positioning⁷

The Kolbe Index evolved from Kathy Kolbe's observation that quite often humans' actions and behavior do not go hand in hand with either their learned processes or their perceived desires. For centuries, three facets of the human mind have been postulated involving knowledge, desire, and volition.

Kolbe's research on the conative dimension of the mind includes a review of the historical works of philosophers, psychologists, sociologists, and anthropologists, from Plato

⁷ The content of this section has been adapted from *Powered By Instinct* [23].

and Aristotle to the present. She found that the predominant thinking regarding the three faculties of the mind and brain had never been fully disputed, but that the early 20th century emphasis on the then new IQ measurements focused attention primarily on the cognitive dimension and normative testing. When it became clear that cognitive norms were influenced by cultural biases, a dual focus developed that included numerous attempts to assess affective behaviors. Generally fueled by Jungian archetypes, tests of social style or preferences often reported results that also implied action-orientations without referencing the conative dimension. [22]

The Kolbe instrument reflects the human-environment interaction which was central in the work of Dewey, Jung and other theorists, but goes further to include the conative. Carl Jung, who, like Dewey, focused on the interaction of the individual with the environment, articulated a theory of human development premised upon persistent individual preferences for certain types of human-environment interaction.

Jung's work is an important foundation for the Kolbe Index in its recognition of the following ideas:

- That there are persistent patterns or types of behavior that influence interaction with the environment
- That behavioral responses can be used to measure dominance of the patterns
- That there are overlays in behavior that may be represented as a continuum between two polar positions, and that these may, in turn determine how individuals employ their cognitive or emotional responses in a specific setting

The Kolbe theory recognizes that the individual has persistent predispositions conducive for interactions with the world. These predispositions can be measured through behavioral manifestations that can be reflected on a continuum. The Kolbe instrument does not measure the underlying affective functions identified by Jung, which are used in most social style or personality assessments.

Kolbe's research led her to the conclusion that there was no validated or proven reliable assessment of the then generally ignored conative dimension.

Through the studies observing behavioral patterns in a wide range of settings mentioned above, prior to her naming the four Kolbe Action Modes, Kolbe postulated four different continua which reflect the individual's predispositions to: 1) probe, 2) systematize, 3) innovate, and 4) demonstrate. She further postulated that these patterns, unlike the extroversion, introversion and judgment/perception continua were patterns that remained constant over time and influenced the way that individuals used their functional preferences. Testing confirmed the stability of the measures and their relative independence from the continua employed by Myers and others. Further testing established correlations between the predispositions and job performance and established that the measures were independent of race, gender or other confounding criteria.

Ipsative and Normative

The Kolbe A Index yields both ipsative and normative results.

The term *ipsative* refers to "a property of a multi-score measuring instrument in which responses that increase one of the scores necessarily reduce one or more of the others, so that the various scores must be interpreted

relative to one another rather than in absolute terms” [7]. Another way to say this is that an ipsative instrument measures the test taker against him or herself rather than against others. The Kolbe A Index is an ipsative instrument because it is the zone of strengths of the four Action Modes that define each person’s instinctive approach to taking action. Since Kolbe discovered that everyone has the same total amount of conative energy to channel into volitional action, she determined that a person’s Kolbe Index result is not comparable with any other person’s result.

Normative assessments measure quantifiable attributes on individual scales. These scales are compared and measured against a “normed” population. The normed population is often represented by a normal distribution [37]. Kolbe Corp research shows that, for each mode, the distribution of zones for each Kolbe Action Mode vary (in the populations studied) in a manner approximating the normal curve, with more than 60% of respondents scoring in the accommodation zone. Therefore, while Kolbe A Index results are interpreted without comparison to others in a value-based way, it is possible to estimate a percentile ranking for zone placement in a given Kolbe Action Mode. In this respect the Kolbe A Index is a normative instrument.

CONATIVE STRESS

Kolbe observed that conative stress resulted when any obstacle interfered with the freedom to use conative strengths. She saw it leading to poor work-related decision-making, and interference with the natural flow of an individual’s instinctive ways of taking action. Kolbe found conative stress could be caused by several factors, which she defined and labeled. Among the causes were false expectations, impossible requirements from others, or conflicting MOs of interdependent people [23]. Conative stress occurs when there are

significant differences between an individual’s A and B Indexes, or between B and C Index [18]. High conative stress results in reduced team efficiency.

Strain

Strain is a self-induced conative stress caused by trying to act outside one’s MO. This can happen when a person’s sense of how a task needs to be performed is substantially different from their natural methods of problem solving [18]. Strain can be measured or predicted by comparing an employee’s innate conative strengths, as revealed by the Kolbe A Index, with the employee’s conative self-expectations for that job, as revealed by the Kolbe B Index. If there are significant differences between the A and the B, strain is likely to occur. In this document, the Kolbe Indexes are explained in the section by that name, page 14. The KolbeCore® software produces a Comparisons A to B™ Report that illustrates and explains the differences between an individual’s innate conative strengths and that individual’s conative self-expectations.

Tension

Tension between employee and supervisor occurs when there is a significant gap between how the supervisor believes a job needs to be done and the way the person in the role naturally approaches doing it. Tension can be measured or predicted by comparing an employee’s innate conative strengths, as revealed by the Kolbe A Index, with the supervisor’s expectations for that job, as revealed by the Kolbe C Index. If there are significant differences between the A and the C, tension is likely to occur. The KolbeCore software produces a Comparisons: A to C™ Report that illustrates and explains the differences between an individual’s innate conative strengths and the supervisor’s expectations.

Conflict

Conflict can occur between any two members of a team whose M.O.s differ significantly in one or more Action Modes. Conflict may be alleviated by adding a team member who is accommodating in the conflicting modes. Conflict can be measured or predicted by comparing the innate conative strengths of two team members, as evidenced by their Kolbe A Indexes. If there are significant differences between the one person's A Index and another person's A index, conflict is likely to occur. The KolbeCore software produces a Comparisons: A to A™ Report that illustrates and explains the differences between the conative strengths of two team members.

Contradiction

While not technically a form of conative stress, a contradiction in a Kolbe B Index or Kolbe C Index result can lead to conative stress. The Kolbe B or C Index occasionally results in a contradiction in one or more modes. When a contradiction occurs, the job holder or job supervisor has identified conflicting requirements for the position.

TEAM APPLICATIONS OF THE KOLBE CONCEPT

Productivity Factors

After years of Kathy Kolbe working directly as a consultant to leaders in hundreds of enterprises, in 2009, she developed a set of analyses, with both predictive and prescriptive characteristics, and analytics entitled Kolbe Leadership Analytic™. She had previously discovered the algorithm for Team Synergy; and with her son, David Kolbe, at that time developed the algorithms that influence team productivity including: conative cloning, inertia in the Action Modes, missing methods, and polarization.

Synergy and Team Culture

“An organization's greatest competitive advantage lies in building employee teams that have a synergistic mix of striving instincts” [24, p. 142]. Synergy is created by the diversity within the team in terms of distribution across the twelve Strengths. Teams with good synergy have a productive balance of instincts within a team, a mixture of complementary conative talents. Project teams designed for maximum conative synergy have been as much as 225% more productive by company-established criteria than work groups that were created based solely on skill sets [24].

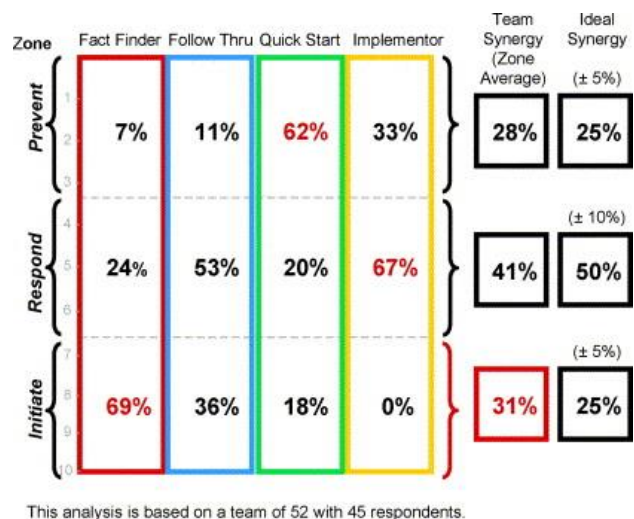


Figure 5. A sample Team Synergy Report™.

The Team Synergy Report indicates the proportion of the team that falls into each Operating Zone for each Mode and quantifies the team's variance from ideal symmetry. The ideal synergy for a team is 25% preventing problems, 50% responding to situations, and 25% initiating solutions. A Kolbe Team Synergy Report is displayed in Figure 5. The team portrayed in Figure 5 has too much energy in the preventative zone. Having too much energy in the preventative zone can result in

teams that are overly cautious and have trouble taking action [18].

Team Synergy Reports can be used to determine a team's culture from three perspectives: in actuality, as perceived by the members, and as required (and rewarded) by the supervisors. A Team Synergy Report that results from the analysis of all team members' Kolbe A Indexes produces a synergy report that portrays the team culture as it really is. A Team Synergy Report that is produced by analyzing all team members' Kolbe B Indexes results in a synergy report that illustrates the team culture as perceived by the team members. A Team Synergy Report that is created by analyzing all team members' Kolbe C Indexes results in a synergy report that illustrates the team culture as determined by the supervisors' requirements for the team.

If team members' perceived culture differs substantially from either the actual or required culture, then leadership needs to help employees realign their perceptions of how their jobs need to be performed. If the required culture differs greatly from the actual culture, then it is critical for leadership to determine why that is occurring.

Conative Cloning

Poor team synergy can stem from conative cloning, a leading cause of failure that results in team inertia. Conative cloning occurs when too many team members have the same Strength, for example, too many initiating FFs or too few preventative Qs. The twelve Strengths are explained in the section "Kolbe Strengths," page 12. As explained in the section "Theory of Probability of Productivity" (page 7), teams often wind up with conative cloning because existing team members search for more team members like them. Conative cloning occurs when there is not enough conative diversity on a team.

Missing Methods

Another factor in poor team synergy is missing methods. A team has missing methods when one or more of the 12 Methods of Problem Solving (also called Strengths) is missing entirely from the team. Missing methods can reduce a team's problem-solving capacity. The sample team illustrated Figure 5 has no initiating IMs, which means that the team is lacking the Strength called Build (see Table 4 on page 12 for a list of the 12 Strengths). A synergistically ideal team has representation from all 12 Methods of Problem Solving.

Polarization

While some differences in problem-solving methods is desirable and even necessary for team performance, polarization on a team, which is similar to conflict between individuals, occurs when there are too many people in the initiating and preventative zones. For example, if a team's productivity chart showed that the team has 31% FT resistors, 22% FT responders, and 47% FT initiators, that team would be polarized in the FT Mode. Polarization can be mitigated by adding team members who are accommodators in the polarized Action Modes.

Efficiency Factors: Strain and Tension

Factors that can reduce team efficiency include team strain and team tension, which can occur when members of the team are under conative stress. Strain and tension can lead to poor performance, absenteeism, and high turnover. For more information on the efficiency factors of strain and tension, please see the section "Conative Stress," page 20.

Team strain results from having team members who are trying to behave in ways that clash

with their innate conative talents, because they think their jobs require it.

Team tension results from having team members whose innate conative strengths differ from the conative strengths required for the jobs they hold.

Measuring Team Productivity and Efficiency

In 2009, Kolbe developed Leadership Analytics™ solutions, a software-based program that produces a 75 page analysis to improve team productivity. Leadership Analytics is the amalgamation of decades of observation, research, and testing of factors that determine group success. The breadth and depth of this detailed analysis is the codification of all practical applications of the science behind productive teams and effective leadership.

Sources of team productivity problems are not only identified by the program, but strategies are provided for solving them through proof-of-improvement metrics. One of the unique features to the report is the Degree of Independent versus Interactive Efforts™ (DIIE) report. A DIIE Scale Result determines what type of collaboration a team is, whether it is a truly interactive Team, an independently functioning Group, or a hybrid of the two called a Troupe. This identification is essential for management in an organization to define, as the methods and techniques for leading them will vary according to their classification. The DIIE Scale result produces customized strategies, or Team Conables for effective leadership of each type of team.

Contained within Leadership Analytics is the Leadership Analytics Executive Summary includes the following information:

- *At-Risk Employees Report.* Summarizes the severity of conative issues on a team with an overall numeric score and a list of employees found to be at risk for conative

stress that identifies the source and magnitude of each employee's stress.

- *Spreadsheet of Strengths™ Report.* Lists all employees' Kolbe A, B, and C index results, highlighting areas where strain, tension or contradiction may occur.
- *Productivity Report.* A graphical representation of a team's synergy, and the difference between the team's synergy and the ideal synergy. Includes multiple reports on team productivity factors and efficiency factors.
- *Team Culture Report.* A graphical representation of the team's actual culture, as evidenced by the Kolbe A Indexes; the team's perceived culture, as evidenced by the Kolbe B Indexes; and the team's required culture, as evidenced by Kolbe C Indexes.
- *Productivity Chart.* A graphical representation that identifies the differences between actual synergy and ideal synergy and highlights specific areas of concern.

The DIIE report is designed to determine where a group of employees is operating on the spectrum from team to troupe to group. The DIIE report includes a spreadsheet that identifies the degree to which each member of a group of individuals considers herself to be working independently versus interdependently.

RightFit™ Software for Employee Selection⁸

Kolbe's work proved effective in predicting success in recruiting and retention by

⁸ The material in this section has been adapted from the Kolbe Certification Manual [14].

comparing the instincts necessary for a role with a person's innate instincts. The first step is to identify successful employees in the job position (referred to as the target job) based on an objective measure of success. One's natural method for accomplishing tasks, solving problems, and making decisions is significantly related to success in any job. Conative style, as measured by the Kolbe A Index, provides that information.

The RightFit system empirically derives the profile for the target job from the Kolbe A Index results of the identified successful employees in the position, as well as the conative requirements for the job as defined by supervisors completing Kolbe C Indexes. This profile is referred to as the "Range of Success™." The Range of Success defines a Kolbe A Index profile with the greatest potential for success in the job. Candidates with Kolbe A results that match the Range of Success will perform in a manner most likely to result in success for the employee and the organization.

The Kolbe RightFit selection system assigns letter grade ratings (ranging from "A" to "F") to each candidate to signify the probability of performing successfully in the job. A candidate with an "A" rating matches the Range of Success exactly. This person will perform job functions in a manner consistent with the methods of high performers and in accord with the requirements of job supervisors. Conversely, a candidate with a "D" or "F" rating will employ a conative methodology that significantly differs with either proven methods or supervisory requirements.

The Kolbe RightFit rating should never be the only factor considered in personnel selection. Cognitive and affective factors associated with job success are also critical to the hiring process. A candidate might receive a Kolbe RightFit grade of "A," yet not have the requisite

skill set, experiences, or interpersonal skills to be successful in the job.

The Kolbe A Index has been demonstrated to be free from any gender, age, or racial bias.

DETAILS OF KATHY KOLBE'S RESEARCH PROCESS

This section, unless otherwise noted, is based on interviews with Kathy Kolbe [32]. It describes in greater detail some of the research methods she used to develop the body of work known as the Kolbe Wisdom, and refers to technical concepts presented earlier in this document.

Development and Applications of the First Kolbe Indexes

In the mid-1980s, Kolbe developed and ran a lab school for children. Over 700 youngsters, aged five through sixteen, attended the Summer Program for Individual Explorations (SPIEs) [26] over the course of five years. Teachers from across the country came to observe the program. In SPIEs, the kids worked together in mixed-age groups on weekly projects. Each child did an individual project and a group project each week. On Fridays, each team gave a performance of the activity it had developed or had other students execute the activity. One activity, for instance, was for the children to create an orchestra by collecting items from the environment that could serve as musical instruments. Another activity involved designing a device that would measure "the senses" (i.e., see, hear, touch, smell, taste). In addition to working in their project teams, participants also spent some time each day working on developing creative problem solving skills. During the creative problem solving part of the day, Kolbe observed the children and collected data on their problem solving processes. In studying these observations, Kolbe began her work on

distinguishing cognitive abilities and personality factors from conative abilities.

Parents were so impressed with the advances their children made in problem-solving that some of them asked Kolbe to work with employees in their companies to improve the employees' problem-solving abilities. The companies that Kolbe was working with during this period included the regional offices of Motorola, Loral, and AiResearch (later merged with Honeywell) which at that time were Fortune 500 companies. Kolbe also worked with a number of mid-sized companies, including the regional branch of Arthur Andersen and other well-known and highly-regarded legal and accounting firms, and entrepreneurial companies in Phoenix, Arizona.

As a result of working as a consultant with leaders in hundreds of entities, Kolbe gained substantial knowledge about what did and did not work with employees in different roles and learned to how to apply her work to both children and adults. The youth index was created first, and it was soon followed by the creation of the adult index. Alpha and beta testing were performed with both children and adults, with the beta testing of the children taking place at the same time as the alpha testing of the adults.

Kolbe conducted much of the alpha testing of adults during her consulting work. She became aware of the four Action Modes (now known as Fact Finder, Follow Thru, Quick Start, and Implementor) before she realized that the word for what she was observing is *conation*. At that time, Kolbe referred to the four Action Modes as Impact Factors (IF). Based on employee results on the Impact Factors index, Kolbe made recommendations about which people should work on which projects.

Studies Performed with Motorola and the University of Chicago

Motorola had a nine-month innovation training program for select employees. Kolbe had the opportunity to give the Adult IF Index to over 100 employees both before and after they completed Motorola's innovation training program. If a person were to become more innovative, one would expect the Kolbe Index results to show that the Quick Start mode score moved in the direction of the Initiating zone. Results showed no significant change in the Kolbe Index scores. Motorola's failure to stay at the leading edge of its industry, as evidenced by its decline in market share in the late 1980s and early 1990s, suggests that the innovation training was not particularly successful. For Kolbe, Motorola's inability to teach its engineers to be more innovative suggested that the Impact Factors (of which Quick Start was one) were instinctual, consistent over time, and not changed by training.

During this time, Kolbe gave the adult index to students in various majors at the University of Chicago and other institutions of higher learning. She collected performance data such as grades on the students and compared the students' performance, by major, to their Modus Operandi (MO). An MO is a person's natural way of taking action. Kolbe found patterns in the MO of students for different majors. For instance, students majoring in engineering and the sciences tended to be dominant in Fact Finder. In journalism, the dominant modes were both Quick Start and Fact Finder. In service industries, such as hotel management, Follow Thru was the dominant mode. Kolbe also found that in some areas, the women were more strongly insistent than the men in the dominant mode(s). For example, if male engineers averaged 7-to-8 in Fact Finder, the female engineers averaged 8.5-to-9. This suggests that there may have been some barriers to entry for women in those areas at that time.

Kolbe did similar studies with numerous high schools and found correlations between GPA and scores on the four action modes. The most significant patterns were a positive correlation between GPA and a high score in the Fact Finder Action Mode and a negative correlation between GPA and a high score in the Implementor Action Mode. This result helped Kolbe to see biases in the cultures of most schools, which tend to use methods that work best for Initiating Fact Finders and worst for Initiating Implementors, and enabled her to predict the performance for children with different types of MOs. Kolbe also found that, at the junior high school level, a student's having an MO similar to the teacher's MO was associated with having a higher GPA.

Kolbe carried out the same kinds of studies with businesses, learning about their training and reward programs, specifically whether they rewarded innovation as opposed to upholding the present system. It appeared to Kolbe that companies that gave employees the option to carry out assignments or projects in their own ways were getting the best performance results. To investigate this, she started keeping detailed records of the performance of individual employees who had taken the Kolbe Index. Analysis of these records in terms of the employee's role in relation to performance and MO led Kolbe to start to determine what kinds of jobs best suited what types of MOs.

Years of testing and analyzing the longitudinal results proved the predictive reliability of the Index, and convinced Kolbe that it was ready for distribution. The Kolbe A Index went on the market in 1985.

The Use of Kolbe Indexes in Personnel Selection

Kolbe began beta testing the Kolbe A Index for use in personnel selection for different types of

jobs. For Great Scott, a radio and television production company in Phoenix, AZ (www.greatscottprod.com), Kolbe had all the sales personnel, of which there were approximately fifteen, take the Kolbe A Index. Based on prior results with other sales personnel, Kolbe rank-ordered the Great Scott sales people from best to worst for each category of sales (for example, cold-calls, relationship-based sales, high-end complex sales). Subsequent comparison with Great Scott performance data showed that her predictions were 100% accurate.

Kolbe repeated this exercise with insurance sales and automobile dealership sales. For the auto dealership, Kolbe divided sales into categories of new cars and used cars and performance into categories of high, medium and low. Based on the Kolbe A Index results, Kolbe predicted the performance category for 150 individual sales people based on their Kolbe A Index results; her predictions were accurate approximately 75% of the time. Blind studies were conducted with over forty companies, in which Kolbe predicted sales performance as high, medium, or low based on Kolbe A Index results. Subsequent comparisons with performance data showed an accuracy rate of over 90%.

Companies from the beta-testing group began to ask Kolbe to figure out who would be the next best new hire. Based on her research results, Kolbe suggested hiring the person whose MO best matched the MOs of high performers in that job category. Kolbe's hiring success rate using the Kolbe A Index was between 65% and 70%. In comparison, the next highest hiring success rates are for cognitive testing and biographical data, at 53% and 37% respectively [14].

Kolbe branched out from sales to a very different field of endeavor—professional basketball, using her hiring selection method on

draft choices for the Phoenix Suns in the late 1980s. Kolbe and her husband, William Rapp, used their extensive personal knowledge of basketball to complete a Kolbe C Index, which measures the functional expectations that a supervisor has for a specific job, for each position on a basketball team. For example, a point guard needs to be able to come up with a strategy and change it on short notice, a combination of skills that comes naturally to people who are high in Fact Finder and Quick Start and low in Follow Through. After having the team's draft choices take the Kolbe A Index, she rank ordered the draft choices in terms of who would be best for each position. Kolbe's top two draft picks became rookie all-star players the following season. Kolbe also used this method for professional baseball players and professional golfers.

Kolbe worked with Autodesk, holding multiple retreats for employees and their spouses. The retreats focused on team synergy, in both personal and professional contexts. On a personal level, the employees and their spouses used what they learned to benefit themselves and their families. On a professional level, Autodesk as a company recognized the importance of using preventative Fact Finders to simplify complex instructions and information. Autodesk senior managers also realized that they needed insistent Implementors to effectively manage the hardware required to run Autodesk software. The entire company went through the Kolbe process, and Autodesk used the results to build synergistic development teams.

Kolbe conducted beta testing for personnel selection and team formation over a period of about ten years. During this time, she worked with United Bank of Arizona on branch management issues. Kolbe gave the Kolbe A Index to all the employees of approximately thirty branches. In analyzing the collective results, Kolbe found that the highest-performing

managers didn't necessarily run the most profitable branches. The most profitable branches turned out to be the ones with the greatest degree of conative diversity. This was the origin of the Kolbe theory of team synergy.

The theory of team synergy was further refined as a result of Kolbe's consulting with Honeywell. Honeywell had hundreds of engineering project teams, ranging in size from approximately ten to fifty people. Out of all these teams, one stood out as a top performer: a team that did materials processing. Honeywell asked Kolbe to determine what made the high-performing team do so well. Kolbe asked to have members of the high-performing team, along with members of an average-performing team and members of a low-performing team, take the Kolbe A Index. Kolbe was not informed which group of results came from which team. She noticed that for one of the teams, the distribution of the scores in each mode was 25% in the Initiating operating zone, 50% in the Responding operating zone, and 25% in the Preventative operating zone. She predicted, correctly, that this team was the high-performing team, and that the team whose collective scores were furthest from this distribution was the low-performing team.

After correctly identifying the high-performing team at Honeywell, Kolbe did a retrospective analysis of the teams she'd been consulting with and found that an operating zone distribution of 25%-50%-25% was ideal for optimal performance. Kolbe contacted the companies involved and recommended reforming the teams to bring their compositions closer to the ideal operating zone pattern of 25%-50%-25%.

During the 1990s, Eastman Chemical did a major revamping of its business transaction software to install SAP. Using Kolbe's Team Tactix® software to form optimal project teams, Eastman successfully completed its SAP

project. According to Robert Dorsey, Project Director at Eastman Chemical, “Most companies - in fact every company that I know of - have not met their timelines and have significantly exceeded their budgets. I think we've come closer to meeting our timeline and budget than anyone else that I know of. I think the competitive advantage it (the Kolbe) gave us enabled us to install the software more quickly and at less cost. . . . It really does take a lot of interaction of people working effectively together to make that happen. And I think Kolbe helped us achieve something most companies haven't been able to address.” Kolbe's work with Eastman Chemical confirmed Kolbe's theories on team performance.

In the early 1990s, research was conducted on turnover at Norwest Financial Corp. The Kolbe Indexes were used as part of a comprehensive selection system that also included recruiting strategies, interviewing guidelines and evaluation guidelines. Effectiveness of the comprehensive selection system was evaluated by comparing turnover rates between two groups, one of which used the comprehensive selection system, and the other of which did not. The group which used the comprehensive selection system had an annualized turnover rate of 26%, and the group that used no selection system had an annualized turnover rate of 36%⁹.

Kolbe worked extensively with information technology teams. At one point, Kolbe was working with information technology teams from eighteen different companies. Kolbe consulted with Hershey Foods shortly before the company's difficulties with its distribution-management information systems [16] became

public knowledge. Her assessment of Hershey's situation was that the information technology teams lacked sufficient Follow Thru to be able to integrate on a scale that would facilitate a smooth transition to the new system.

Improving synergy made teams outperform results they'd achieved in the past. Sales teams often were able to double their profits. However, the process of conducting team synergy analysis was labor-intensive and error-prone, requiring hours of charting and graphing. In order to obtain consistently correct results, Kathy Kolbe and David Kolbe formalized the process into algorithms that could generate computerized reports. The software program that resulted from those algorithms is called RightFit. During the extended period of development and testing of the algorithms, the Kolbe Index results were prominently labeled “Not to be used for selection.” The selection product was not marketed until testing was completed. Kolbe witnessed firsthand the consequences that ensued when the test that her father, E.F. Wonderlic, had developed was used for purposes not intended by its creator. Kolbe was determined that the Kolbe Indexes would not be used for selection until Kolbe had developed a product, RightFit, that protected the Indexes from being improperly used for selection.

Conative Recommendations

Over years of consulting with many different companies and educational institutions, Kolbe formalized her recommendations into prescriptions called Conables®. Conables are tips and tricks that people can use when an individual's MO does not quite match the MO that is called for to complete a particular task, when the MOs of individuals working together are in conflict, or when teams are suffering from problems such as low synergy or polarization. Conables exist for all variations of individual and team Kolbe results. Conables for

⁹ The content of this paragraph is based on a research report prepared by an independent consultant [40].

specific Kolbe individual and team results are available through the Kolbe.com website. Reports that provide MO-specific guidance are available to takers of the Kolbe A Index.

Kolbe's Career MO+™ Report, released in 2007, provides career guidance for any given MO¹⁰. The Career MO+ Report begins with a statement about the ideal job for that MO. For instance, for an MO of 8-7-3-2, the "ideal job will allow you to structure your tasks and organize information so you can take appropriate actions. Look for opportunities to gain expertise in the use of complex systems." The Report continues by providing multiple recommendations specific to each mode. For someone with the example MO (8-7-3-2), one of the recommendations for the Fact Finder mode is to seek job opportunities that use the initiating Fact Finder strength to "investigate the background of what's happening." One of the recommendations for the initiating Follow Thru strength is to seek opportunities to "design systems of operation." A recommendation for the preventative Quick Start strength is to seek opportunities to "work with what's known." For the preventative Implementor strength, one of the recommendations is to seek opportunities to "visualize a solution."

After these recommendations, the Career MO+ Report presents a list of about twenty "jobs that have brought satisfaction to people with an MO similar to yours." For the example MO, the list includes statistician, talent scout, database administrator, and strategist. Further suggestions for the 8-7-3-2 MO (overall suggestion as opposed to the previous mode-specific recommendations) include finding a career that provides regular opportunities to "gain credentials in your area of interest" and

"clarify objectives and define terms so you can minimize interruptions and later changes."

The Career MO+ Report concludes with recommended questions to ask an interviewer, along with the answers that suggest that the job would be a good fit for the applicant's conative strengths.

In addition to the Career MO+ Report, MO-specific reports are available that provide Conables that will assist the holder of that MO to succeed in a given career. For instance, the Sales MO+™ Report, released in 2007, describes how the MO-holder can capitalize on his strengths in each mode for a sales career. The holder of the example MO would use his Fact Finder strength to provide strategic solutions and research competitors' offers; his Follow Thru strength to classify and track clients, prospects, and leads; his Quick Start strength to minimize uncertainty and manage change incrementally; and his Implementor strength to imagine solutions that meet clients' needs and focus on concepts of quality. The Sales MO+ report continues with MO-specific guidance for different types of sales activity, such as making cold calls, following a "script," handling negotiations, demonstrating a product, closing the sale, and providing service. The Sales MO+ Report concludes with a tip for dealing with the person who is likely to be the toughest customer for the seller's MO. For the example MO of 8-7-3-2, the tip is, "When prospects interrupt your key points or ask seemingly inconsequential questions- ditch your usual approach and ask them what questions they would like answered. Then, give them 50% of the answer and wait to see if they want more."

Kolbe's Financial MO+™ Report, released in 2002, identifies ways in which instincts can be used to make smarter decisions about money and finances. This report is based on an

¹⁰ Quotations in this section are taken from actual Career MO+ Reports.

individual's Kolbe A Index result and offers personalized paths to financial success.

Kolbe's Conflict CounterActives™ workbook can be used when there is a conflict between two employees. The workbook guides the user through the process of determining whether the conflict is conative, cognitive, or affective.

Kolbe has created a host of training programs related to the Kolbe process. A three-day certification program with a lengthy detailed manual is the path to becoming a certified Kolbe consultant. Kolbe employees are cross-trained to be able to teach any part of the certification program. Separate from the consultant's certification program is a Kolbe Educators certification. Kolbe created the Perfectly Capable Kids program [26] to teach kids and their parents how to use Conables with children. There also is an extensive library of audio training programs tailored for different end users, including employees, managers, parents, and teachers. Video training is available as well, on topics such as entrepreneurship and how to develop a business.

History of the Dynamynd Model

Kathy Kolbe began work on her Dynamynd model while she was still in high school. In creating and producing a high school musical, Kolbe noticed that even talented kids who were suited for the roles they were in didn't necessarily perform at the high level expected. They had the right capabilities, but they didn't produce because they didn't work as hard as other cast members. Kolbe realized that the variable was work ethic. Over decades of teaching and consulting, she found the same thing: that cognitive and conative capabilities are not enough on their own to produce high-quality results—that a strong work ethic is required as well.

To characterize for the varying levels of work ethic that she observed, Kolbe created the Dynamynd model. Developed in the 1990s, the Dynamynd model originally had ten steps; the current five-step version of the model was created during the 2000s and published in Kolbe's book *Powered By Instinct* [23]. In 2012, Kolbe created and began to market the Dynamynd interview process as a technique to be used as part of the personnel selection process. Kolbe advises her clients not to hire anyone below Level 3 on the Dynamynd, which is the level of conviction, commitment, and evaluation. Kolbe asserts that since leaders need to be passionate about what they do and have a strong sense of purpose, they therefore should be on Level 4 of the Dynamynd. Senior leaders, who need to have compassion and a clearly-defined mission should be at Level 5 of the Dynamynd.

The Dynamynd model explains why, no matter how well-suited cognitively and conatively a person is for a job, that person can still be the wrong person for the job if they are not sufficiently advanced in the Dynamynd model. Rather than being an innate capability, the Dynamynd model describes how people use their innate abilities and the level of effort they expend on a job's tasks.

In 2012, Kolbe created the Dynamynd Interview™ system with interview questions that help assess the level of effort an employer could expect from a job candidate.

Kolbe also used the Dynamynd model in personal relationship consulting, in conjunction with the Kolbe R Index. The Kolbe R Index identifies what conative qualities the Index-taker wants in a partner. Kolbe tells clients that a conative mismatch between partners does not necessarily doom the relationship; however, the couple needs to be aware that they will need to deal with conative stress on a long-term basis.

Kolbe also began holding family sessions. She prefers to meet with three or even four generations of extended families, particularly families running a family-owned business. In conative testing of families who ran businesses, Kolbe found that frequently the oldest boy is expected to be the next-generation leadership for the company, a younger boy is expected to specialize in sales, and the girls are expected to manage the finances. Conative testing often showed that the children were not best-suited for the roles they were slated for, and Kolbe advised her clients on the best match between the children's conative talents and the requirements of the jobs in the company.

Kolbe has been asked to consult with between forty and fifty family companies to diagnose and solve problems within the businesses. The tools she used included the Kolbe A, B, C, and R Indexes and the Dynamynd model. When Kolbe found that persons holding specific jobs were not conatively suited to those jobs, she recommended changes. Family businesses that followed Kolbe's recommendations tended to be successful in overcoming the company's problems.

In addition to using the Kolbe Indexes in personnel selection, Kolbe is developing a Health MO+™ program to enhance the outcome of conversations between doctors and patients, particularly with regard to the patient's adhering to a treatment protocol.

Additional Consulting

In the late 1980s, Kolbe opened an office in Australia. The purpose of opening this office was to prove that personal administration of the Index and interpretation of Index results by Kathy Kolbe was not required for success of the Kolbe products.

Kolbe noticed that psychologists and psychotherapists often tried to treat conative

issues as if they were affective issues. To make sure that her work was used correctly as part of psychotherapy, Kolbe trained over 300 psychotherapists in the use of conative testing and interpretation. Kolbe consulted jointly with a number of psychotherapists, with the psychotherapist treating the patient's affective issues and Kolbe handling the conative issues. The purpose of the joint consultation was to train the therapists in the use of the Kolbe system; however, patients benefitted as well. Kolbe has received numerous letters from patients and therapists that describe significant breakthroughs they have had after patients became aware of their conative strengths and how best to use them.

Kolbe also collaborated with a number of university professors, particularly in engineering. As a result, academics at many universities are now using conation as an integral part of their university teaching, incorporating conation and the Kolbe system into methods for building sustainable teams.

Kolbe's model for consulting with members of different professions is to provide knowledge transfer so that experts in these professions can adapt Kolbe's work in their areas of expertise. Certified Kolbe consultants are required to complete continuing education courses to ensure that their Kolbe knowledge remains accurate and current.

Summary

Kolbe Corp has over one million Kolbe Index results in its databases. All Kolbe Indexes are scored by Kolbe-owned-and-operated computers, which assures quality control on the scoring process and also has the advantage of building a complete record of all Kolbe Indexes taken. Kolbe has developed a library of about sixty audio recordings that describe different types of Kolbe results one can obtain (i.e., different MO combinations) and prescriptions

for how to be successful at various activities with a given MO. Over three thousand people, coming from every state in the U.S. and from 36 countries, have been certified as Kolbe consultants.

STUDIES

In the first few years of Kolbe trained consultants, every trainee was required to submit studies. Their research was overseen by Ryan Thomas PhD, LLD. Many of these studies were conducted on the accuracy and efficacy of the Kolbe Indexes. In this paper, we describe studies that address reliability, validity, and lack of bias, as well as studies covering a range of topics that includes prediction of performance, retention, absenteeism; and use in education, leadership, social work and team formation.

Reliability

Reliability refers to the degree to which items of a test measure a psychological attribute in which people differ from one another, and the degree to which the test or measuring instrument yields approximately the same scores when administered to the same respondents on separate occasions [7].

Test-Retest Reliability

1992 Study¹¹

A 1992 study was done on a sample of 43 sets of test/retest results drawn from pooled KCI results. The results were compared to determine the frequency of change between zones (Resist, Accommodate, and Insist) from the initial test to the retest. Movement between zones, even though it may only be a change of one unit, is less likely than a change of one unit within a

zone. In over 96% of the cases there was no change between zones from the test to the retest. The strong test-retest correlation and the comparatively small percentage of changes that fell beyond the standard error of measurement of the test are persuasive evidence that conative characteristics measured by the KCI are relatively constant over time and represent appropriate criteria for job-selection testing, which must not test criteria that are likely to change through time.

1993 Study¹²

A study completed in 1993 found that the Kolbe A Index has an extremely high degree of test-retest reliability. The study included 70 employees from two major corporations: a marketing, management and economic development firm; and a Big Six accounting firm. The employees were given the Kolbe Index twice with a gap of 8 to 15 months from the time of the original testing. The results were analyzed using three different statistical analyses to determine:

- Whether or not there was a statistically significant difference between the means obtained in the initial and retest situations for each Action Mode
- Whether or not there was a strong correlation between the actual results (1-10 on for each Action Mode) obtained in the initial testing situation and those obtained in retest
- What percentage of the sample groups changed more than two units on any Action Mode result

¹¹ Material in this section has been adapted from the Kolbe Statistical Handbook [43]

¹² Material in this section has been adapted from the Kolbe Statistical Handbook [43].

Subjects whose initial or retest profiles suggest they may be in transition would be expected to change profiles upon retest and therefore were eliminated from analysis. These represented less than 10% of the total number who participated in this study.

T-tests comparing the means for each test situation revealed no significant difference between the means. In order to demonstrate any significant difference between the test and the retest at the 95% confidence level, p would have to be less than .05. None of the p scores are less than .05, supporting the conclusion that there is no statistically significant difference between the test and the retest. This means that the scores for the two tests tend to be extremely similar to one another.

A Pearson product-moment correlation was used to measure the correlation between the original and retest scores by Action Mode. Test-retest correlation results ranged from .69 to .85, which indicates statistically significant correlation between the test and retest scores.

Frequency tables for examination of change in intensity units by Action Mode reveal that less than 6% of those participating in the study changed more than two units on any given Mode.

The strong test-retest correlation and the small percentage of changes that fell beyond the standard error of measurement of the test point to the fact that the Kolbe Index as an instrument yields reliable results.

2006 Study¹³

¹³ Material in this section has been adapted from Kolbe *et al.*'s paper on Striving Instincts and Conative Strengths [33].

This study was undertaken to assess the test-retest reliability of Kolbe A Index scores from 282 participants who had taken the Kolbe A Index at different times prior to July 2006. Subjects were contacted via email request to participate in a retest of the Index. Participation in the retest was voluntary, but most of the respondents took the initial Kolbe A Index as part of their employment. The retest data were gathered by the Center for Conative Abilities (a non-profit entity in Phoenix) between March and July of 2006. Participants were recruited in a way designed to maximize diversity of location and type of employment. Participants represented the following industries: consulting, education, banking, manufacturing, and legal, government, automotive, insurance, and accounting. The overall sample size of 282 was broken down into 5 sub-samples, according to the length of time that had elapsed between the first and second administration of the Kolbe A Index.

Data from 282 participants who took the Index between 2002 and 2006 and again in 2006 were analyzed in terms of association between Time One scores and Time Two scores and in terms of differences in Mode scores based on non-parametric analysis. Frequency distributions were calculated for the overall sample and each sub-sample to identify the number and percentages of scores that denoted a change in zone.

Over 60% of participants in each sub-sample remained in the same zone with occasional changes of one zone and rare changes of two zones. In the overall sample of 282 participants, only 3 scores or 1.1% of the overall sample reflected a 2-zone change in the Quick Start Mode and 2 scores or .7% reflected a 2-zone change in the Implementor Mode. Next, data were analyzed in terms of each sub-sample: the correlation coefficient of each Mode score (i.e., 1 to 10 units) was calculated by comparing each person's Time One score in each Mode with the

Time Two score in that same Mode. Correlation coefficients for all scores between times 1 and 2 were significant at the $p < .05$ level. A nonparametric analysis, the Wilcoxon Signed Ranks, was performed to determine if statistically significant changes occurred in overall MO scores. (A non-parametric analysis accommodates data that are categorical and not necessarily from a normally distributed population.)

The results of comparisons using Time One scores prior to 2002 indicated that no zone changes, except those for Implementor Mode, were significantly different. Improvements to the Kolbe A Index questions related to the Implementor Mode were made in 2002. For Time One scores collected in 2002 or later, no significant zone changes were found in any Action Mode. “The strength of the Index’s reliability must be emphasized as it is rare to find an assessment that yields such stability over long time intervals between tests” [33, pp. 8-9]. The conclusive finding of this study is that the Kolbe A Index is a highly reliable self-assessment tool.

Comparison with Myers-Briggs Type Indicator® (MBTI®) on Test-Retest Reliability

For practical purposes, the important element of test-retest reliability for the KCI is the degree to which the Action Modes of insistence remain the same. The most significant criticism of test-retest reliability of the Myers-Briggs made by the National Research Council’s Committee on Techniques for the Enhancement of Human Performance was the instability of type. In a 1983 study, only 47% of the MBTI test-takers retained their original type [8]. In contrast, test-retest studies of the Kolbe Index reveal that for 90% of test-takers, modes of insistence remain the same [39; 43].

In terms of vocational choice, conclusions made by the Committee regarding the MBTI include comments regarding three methodological problems ([8], as cited in [43]):

- “There is weak discrimination among occupations due to an overlap between types and preferred occupations,”
- “Attention to basic normative data [is lacking],” and
- “No evidence has been presented on the relationship [of type] to performance.”

The third methodological problem is highly pertinent to employee selection. EEOC Guidelines for Selection require that a statistically significant relationship be established between a given selection procedure and job performance criteria. The MBTI, while useful in regard to providing an interesting framework for conceptualizing individual affective preferences, should not be considered valid for use in predicting successful job performance.

A study with a sample size of 12 was undertaken to determine the independence of the results of the Kolbe and the MBTI assessments [42]. Earlier studies had established no statistical association between the results of these two instruments, and this study was undertaken to confirm those results. Because the population was small, the unadjusted Chi-Square statistic was unreliable, so a Lambda statistic, which measures the increase in the ability to predict one score if the other is known, was used to determine whether to reject the null hypothesis that the Kolbe and MBTI were independent and that a score on one instrument did not influence or predict the score on the other instrument. The only statistically significant score out of the 48 reported scores was the ability to predict the MBTI Awareness

score based on a Kolbe Follow Thru score and this difference became insignificant when the symmetric Lambda was computed.

According to a statement issued by the publishers of the MBTI [36], “The MBTI instrument is not a selection tool or clinical diagnostic instrument and should never be used for those purposes.”

Internal Consistency Reliability

Internal consistency reliability addresses the degree of uniformity and consistency among constituent parts of the test [44]. The Center for Conative Research undertook a study of the correlation between answers on each question to the overall score obtained.

The four response options for each item were compared on a scale of 1-10 for each of the Kolbe Action Modes. The probability that a certain option would be selected was derived from the scoring algorithm for each of the ten scalar levels. Predicted results for each option were further adjusted relative to the percent of response at each scalar level. Correlation was then determined between the frequency with which an option was selected at all ten scalar levels and the probability that the option would be selected by an individual with a score in that particular scalar range. The study compared the actual response frequency on each option to the expected response frequency, given the overall score, using Pearson's Weighted Moment Correlation. A low correlation indicated that the question was not a reliable predictor of actual conative style; that is, the particular question was not measuring the same thing as the rest of the test.

Any question showing a correlation coefficient of less than .4 (a generally accepted standard of high correlation) were discarded or changed. In this way, the test was structured for internal consistency reliability [20].

Split-Half Reliability

The split-half reliability studies are described in the section “Development of the Kolbe Indexes,” p. 15.

Validity¹⁴

Face Validity

Face validity is not validity in the technical sense, since it refers not to what the test actually measures, but rather to what it appears to measure. Face validity pertains to whether the test “looks valid” to test takers and to administrative personnel who decide whether to use the test [1]. Having face validity increases the likelihood that the test will be used and that it will be met with acceptance and cooperation from test takers.

Face validity is discussed further in the section “Development of the Kolbe Indexes,” p. 15.

Content Validity

Content validation involves the systematic examination of the test content to determine whether it covers a representative sample of the behaviors to be measured [1]. In the case of the KCI, the behavior being measured is conation, or all human striving action. It would be impossible to break down all human action into specific and quantified categories because of both the range of different actions and the fact that some people devote more of their lives to

¹⁴ Unless otherwise specified, material in this section has been adapted from Kathy Kolbe's *Summary Of Reliability And Validity Studies On The Kolbe Conative Index* [20]

art, others to sports, others to mathematics, and so on [20].

The principal method of determining content validity is by comparing the coverage provided by the test items with the postulated universe of behaviors, or content, the test is supposed to represent. If the test items appear, to the expert judge, to adequately represent the universe, the test can be said to possess content validity. The Kolbe Conative Index is designed to incorporate a range of activities which subjects will have experienced or be able to imagine. Questions are general enough for people to visualize themselves in the position described decide how they would act [20].

Criterion-Based Validity

Criterion-based validity relates to the effectiveness of a test in predicting an individual's performance in specified activities [1].

Scores on the KCI predict success in a job based on the set of conative demands specific to that job [24]. If a particular occupation demands a high level of Quick Start, then a person with a high level of Quick Start would be more likely to succeed in that occupation.

Every activity is composed of a set of functional characteristics. Given that the functional characteristics of a job have been identified using the Kolbe B Index or Kolbe C Index, a person's innate tendency to act using certain functional characteristics more than others is an indication of how well a person will operate in that job. The KCI is a measure of the innate tendency to act using a particular combination of functional characteristics.

To establish criterion-based validity for the KCI, an acceptable indicator of success in the particular endeavor undertaken must be established. For example, a test claiming to

predict success in a given job must establish an accurate gauge of performance in that job, such as sales performance figures.

The Kolbe Concept [27] states a number of assumptions relating to the predictive ability of the Kolbe Conative Index, which have been tested by Kolbe Corp. The stronger-willed a respondent is in a particular Mode, the more she will succeed in career paths which require an MO which correlates with the characteristics of the particular Action Mode.

Predicting an Individual's Performance in Specified Activities

An insistent Fact Finder would most likely succeed at a job which requires that individual to research in depth, define objectives, establish priorities, create analogies, and develop complex strategies [17]. Therefore, insistent Fact Finders succeed in industries, companies and professions which require that they perform in these ways, such as law, accounting, engineering and management.

An insistent Follow Thru will most likely succeed at a job which requires the individual to create plans and systems, categorize differences and similarities, itemize procedures, and coordinate needs [17]. Therefore, insistent Follow Thrus succeed in industries, companies and professions which require that they perform in these ways, such as clerical administration, programming and design.

An insistent Quick Start will most likely succeed at a job which requires the individual to initiate change, have a sense of urgency, improvise solutions, generate options, experiment, and take risks. Therefore, insistent Quick Starts succeed in industries, companies and professions which require that they perform in this manner, such as sales and entrepreneurial activities.

An insistent Implementor will most likely succeed at a job which requires the individual to tackle tangible solutions, build hand-crafted models, erect and install mechanical devices, and create substantive demonstrations. Therefore, insistent Implementors succeed in industries, companies and professions which require that they perform in this manner, such as crafts, sports, construction and other similar areas.

The following job titles are those reported by people insistent in each Action Mode:

Fact Finder:

Controller	Marketing Director	Executive Director
General Manager	High School Teacher	Engineer
Library Technician	Accountant	Curriculum Coordinator
Business Manager	Researcher	Investigator
Lawyer	Editor	Admin Assistant
Budget Analyst	Estimator	Strategic Planner

Follow Thru:

Customer Service Rep	Quality Assurance Coordinator	Data Processing Coordinator
Facilities Coordinator	Warranty Administrator	Fashion Designer
Logistical Specialist	Office Supervisor	Travel Agent
Dispatcher	Auditor	Buyer
Planner	Bookkeeper	Inventory Controller
Executive Secretary	Graphic Designer	Purchasing Agent

Payroll Manager	Records Clerk	
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Quick Start:

Entrepreneur	General Agent	Promoter
Salesperson	PR Specialist	Advertising Executive
Account Rep	Real Estate Broker	

Implementor:

Gardener	Mechanic	Plumber
Transporter	Fire Fighter	Printer
Potter	Carpet Layer	Rancher

Criterion-Based Validity Results for the Kolbe A Index

To study the criterion-based validity of the KCI, 100 subjects found to be dominant (score a seven or above on the Kolbe Conative Index scale) in each of the four Kolbe Conative Modes were randomly selected from a universe of total respondents. A list of the professions or job categories represented was compiled based on the demographics of each of the four groups.

It was found that the following percentages of insistent respondents in each Mode had chosen a career path which closely correlated with the characteristics of the Mode in which the subject is insistent:

FACT FINDER 93%
FOLLOW THROUGH 84%
QUICK START 85%

The data on the Implementor Mode are not available.

Other studies have been done taking a pre-determined occupation which was identified as having the characteristics of a particular Action Mode, and examining results of the KCI to see if people in those positions matched the predicted conative profile.

For the Fact Finder Mode, the management team of an engineering firm, and the total employee populations of an accounting firm and a legal firm were selected for study. 67% of the respondents were insistent in the Fact Finder Mode, and an additional 29% were in the accommodating zone, which indicates that 96% would perform without stress in the Fact Finder Mode.

For the Follow Thru Mode, non-management employees of a large wholesale/retail products company and graphic designers from advertising agencies were selected for study. 56% were insistent in the Follow Thru Mode, and an additional 44% were in the accommodating zone, which indicates that 100% would perform without stress in the Follow Thru Mode.

For the Quick Start Mode, a national sales association whose members are recognized as being in the top 5% of the industry (based on sales volume) was selected for study. 57% were insistent in the Quick Start Mode, and an additional 29% scored in the accommodating zone, which indicates that 86% would perform without stress in the Quick Start Mode. It should be noted also that many of those not comfortable in the Quick Start Mode reported that their roles in the sales organizations were managerial rather than strictly sales oriented; however, all respondents from the group were included in the study.

For the Implementor Mode, the outside labor force of a large communications firm was selected. 95% of those responding to the study scored either in the insistent (7 and above) or

accommodating (4 through 6) zone, which indicates that 95% would perform without stress in the Implementor Mode.

Predictive Validity¹⁵

Predictive validity is a form of criterion-based validation. Please see the section “Criterion-Based Validity Results for the Kolbe A Index,” p. 37, for additional studies demonstrating predictive validity.

Predicting Project Team Performance

A sample of 53 respondents from the University Of Chicago Graduate School Of Business completed the Kolbe Index A. Three teams were created: Team 1—a team of insistent Fact Finders and Follow Thrus; Team 2—a team of insistent Quick Starts; and Team 3—a team with a mix of insistent Action Modes. Each team was given the same assignment to complete in front of the class: to develop a game from a bag of materials they had been given and to design either a marketing plan or a set of rules suitable for their game. They were given 10 minutes to complete the assignment. It was predicted that the conative similarities within Team 1 and Team 2 would cause cloning of behaviors which would lead to inertia or lack of complete productivity. It was predicted that Team 3, which contained a synergistic mix of Action Modes, would complete its assignment successfully and that the team’s leadership would move back and forth among its members.

The observers were unaware of the conative makeups of the teams.

¹⁵ Material in this section has been adapted from Dr. Ryan Thomas’s *Kolbe Statistical Handbook* [43] and Kathy Kolbe’s *Summary Of Reliability And Validity Studies On The Kolbe Conative Index* [20]

The teams were videotaped, and the behavioral observations reported by the class members and professors were consistent with the predictions.

Team 1, as predicted, got bogged down in weighing pros and cons, detailing information, and categorizing materials. Team 2, as predicted, acted with a great sense of urgency, brainstormed with one another, and continually changed the direction of their progress.

When it was time to present the games to the class, Team 1 read from one member's detailed notes that described the game and its rules. Team 1 did not complete a marketing plan or give a demonstration. Team 2 attempted to demonstrate a game that team members were making up as the demonstration progressed; Team 2 had a sales approach but no marketing plan. Team 3 successfully completed the total assignment, having designed a game, which it was able to demonstrate and for which it had outlined the rules and established a marketing plan. When asked to have a leader present the game to the class, Team 3 began with the Fact Finder insistent person's listing of priorities and then turned to its insistent Quick Start to explain the benefits. The insistent Follow Thru kept Team 3 focused on the process, while the insistent Quick Start kept reminding the team of the deadline.

Predicting Debilitating Stress

Over a ten year period of time, hundreds of CEOs were given Kolbe A and B Indexes, and interviewed regarding stress levels. Those found to have closely aligned index results reported significantly lower levels of stress. One specific study consisted of a sample group of fourteen group vice presidents and the CEO of a large national corporation. The group vice presidents had overview responsibility for

subsidiary companies. All participants completed both a Kolbe A Index¹⁶ and a Kolbe B Index but were not shown their results. In addition, the CEO completed a Kolbe C Index for the job of group vice president.

The A, B, and C indexes were analyzed using Kolbe software. Based on these analyses, one person in the sample group was judged to be suffering intolerable amounts of stress and tension, and his performance was expected to reflect this. This person had a significant difference in three Action Modes between his Kolbe A Index and his Kolbe B Index (the Kolbe A vs. Kolbe B analysis indicates the degree of internal stress based on conative differences between a person's instincts and his self-expectations). He also had significant differences in all four Action Modes between his Kolbe A Index and the Kolbe C Index filled out by the CEO (the Kolbe A vs. Kolbe C analysis indicates the amount of tension between the employee and his supervisor based on conative differences between a person's instincts and the supervisor's expectations).

Within a year of the Kolbe analyses, the individual suffering from this conative stress was no longer able to function on the job and was unable to continue working for the company. The other members of the sample group were retained or promoted or reached retirement age.

Predicting Success by Career Path and MO

The Million Dollar Round Table (MDRT) consists of the top 3% of producers in sales of

¹⁶ As described in the section "The Kolbe Indexes," p. 12, the Kolbe A Index measures an individual's conative instincts. The Kolbe B Index measures an individual's perceptions of the conative requirements of his job. The Kolbe C Index measures a supervisors perceptions of the conative requirements of a job.

insurance products. Attendees at the MDRT's 1987 international annual convention participated in this study.

After having received an introduction to the Kolbe Concept, 425 attendees at this convention completed the KCI and received a results report. In every case the respondent confirmed that the prediction for how he or she would perform was a valid description of his or her talents.

In addition to predicting how each individual would perform, this study predicted that agents who qualified for the MDRT were substantially more likely than the general population to be insistent in Quick Start, and that a substantially greater number of MDRT members would be insistent in Quick Start than in any other Action Mode. Prior research had indicated that approximately 20% of the general population would be insistent in any one mode.

58% of the respondents from the Million Dollar Round Table were insistent in Quick Start. Only 14% were resistant in the mode, compared to 20% in the general population. There was no variation in Quick Start zone by age when the data was summarized in three differing age groups. In-depth interviews with 30 of the respondents resistant in Quick Start indicated that 21 of them were not in a sales function but rather supported the sales activity of others in a partnership relationship; six were general agents responsible for the overview management of sales people; and three provided sales through servicing only to key accounts and did very little generating of new business.

Predicting Success in Multiple Careers

This section describes the conative profiles of successful individuals in marketing management, engineering, manufacturing sales, and construction.

- In 1988, a sample of marketing managers (n=55) attending the International Convention of Meeting Planners completed the KCI to identify the conative profile of a successful marketing manager. As expected, compared to the general population, the group was more insistent in Fact Finder, reflecting the need to research and gather data and in Quick Start, reflecting the conative need for risk taking.
- In 1992, a sample of professionals engaged in engineering careers (n=124) completed the KCI to identify the conative profile of a successful engineer. As expected, compared to the general population the group was more insistent in Fact Finder, reflecting the need to research and gather data and resistant in Quick Start, reflecting the need to avoid taking risks.
- In 1992, a sample of manufacturing salespeople (n=164) completed the KCI to identify the conative profile of a successful manufacturing salesperson. As expected, compared to the general population, the group was more insistent in Quick Start, reflecting the need to take risks, change their approach, or try new methods. This sample was also resistant in Implementor and showed considerably less insistence in Follow Thru than the general population.
- In 1992, a sample of construction workers (n=100) completed the KCI to identify the conative profile of a successful construction worker. As expected, compared to the general population, the group was more resistant in Quick Start reflecting the need for avoiding taking risks.

Conative Stress as a Predictor of High Absenteeism

In a study conducted in 1992, 60 employees from a national marketing firm, half of whom had the highest absenteeism in the company and half of whom had the lowest absenteeism, were studied. Each employee completed a Kolbe A Index and a Kolbe B Index for their own position. The supervisor of each employee also completed a Kolbe C Index for the employee's position. The results of the study indicated that 50% of the high absenteeism group were experiencing conative stress while only 20% of the low absenteeism employees were experiencing similar stress. Length of employment and gender were found not to contribute to absenteeism.

Conative Stress as a Predictor of Retention

Dr. Richard S. Deems, an independent Kolbe consultant, conducted a study in 1991 in which he used the Kolbe to predict branch manager turnover in a national financial services company. His study included all 483 branch manager trainees hired in 1991, who were divided into three approximately equal groups: 1) a control group which was not given the Kolbe, 2) a study group of trainees given the Kolbe whose scores fell outside the recommended range but whose managers were trained in conation to respond to the conative dissonance, and 3) a study group of trainees whose scores fell within the recommended range. At the end of six months, 11.7% of the group that had not used the Kolbe had left the company for job-related reasons, 5.5% of those who were conatively mismatched, but whose managers tried to mitigate the conative dissonance by using the trainee's Kolbe results had left for job-related reasons, and none of the conatively matched trainees left for job-related reasons. Dr. Deems concluded, "Selection within the recommended Kolbe range resulted in 100% retention of the desired Branch Manager-trainees."

Predicting Success for Air Force Pilots

This study included 94 pilots at Luke Air Force Base, of whom 30 were Long Term Fighter Pilots (LTFP), 26 were Short Term Fighter Pilots (STFP) and 29 were Trainee Pilots (TP). Pilots in Group One, the LTFP, and Group Two, the STFP, were defined as "successful" by standards established by the Air Force. All groupings and evaluations were made prior to introduction of the Kolbe instruments or results to the Air Force.

Members of all three groups completed the Kolbe A Index privately on the job and returned the forms directly to Kolbe Corp. Additionally, Kolbe C Indexes were completed by the supervising officers and each pilot completed his own Kolbe B Index. As with the Kolbe A Indexes, supervising officers did not learn of the index results during the time of this study.

Once the conative characteristics for each group were established, researchers analyzed the results of the LTFPs and developed a Kolbe Range of Success. Under Kolbe methodology, the Range of Success is derived from an algorithm that determines the average score in each of the action modes plus and minus the standard deviation of the scores. This range reflects the conative characteristics that best match the Kolbe A Indexes of high and low performers. The study found that compared to the general population, the LTFP group had significantly more insistence in Fact Finder and nearly half the prevention in the Fact Finder mode. The results for Group Two closely mirror that of Group One, while Group Three was composed of pilots with Kolbe A Index results more like those of the general population.

The results show that as the groups progressed through the program and into their careers, there emerged a consistent conative profile for pilots identified as "successful" by the Air Force. Comparing the profiles of the STFPs and TPs to the Range of Success for LTFPs

generated letter grades which reflected this progression.

Kolbe-recommended letter grades are derived by a proprietary algorithm from a comparison of a person's Kolbe A Index results with the Range of Success for his position or prospective position. An "A" grade indicates that the respondent is within the determined Range of Success in every Kolbe Action Mode. An "F" score indicates that the respondent is outside the Range of Success in three or four modes by at least four units. The Kolbe-recommended cut score for selection is a grade of "B-" or above.

Seventeen of the pilots in Group Three (TP) rated below a "B" fit for the position. Kolbe Corp predicted that, based on the Kolbe Index and RightFit results, these 17 would be most likely to drop out of the training program because of the mismatch between their conative MOs and that of highly successful pilots. This is in fact what happened. According to senior officers, seven weeks into the training program, seven people had dropped out to that point. Of those seven trainees, six were ones who had received letter grades of C+ or below.

Subsequently, two similar studies were conducted for commercial airline pilots (n = 53 and n = 33), and generated very similar results.

Predicting Success for Life Insurance Sales

1,031 life insurance sales personnel in the U.S. and Canada voluntarily completed the Kolbe A Index after their performance levels for the previous year had been determined either by self-reported total dollar sales or by total dollar sales as reported by supervisors. The respondents were then separated into three groups, by level of sales revenue:

- High Performers included 520 individuals who had qualified for the insurance industry Million Dollar Round Table (MDRT) in the

same year by achieving sales revenue from their individual production in the top 5% of the industry for that year.

- Average Performers included 425 individuals who had not qualified for the MDRT in the year of the study, but whose sales revenue was within one standard deviation of the average for the industry in the same year. All of these individuals had been in the "insurance sales" job title for at least four years.
- Low Performers included 86 individuals who had not qualified for the MDRT, and whose sales revenue production in the previous year was outside one standard deviation from the average for the industry and at least 25% below the average for the industry. All of these individuals had been in the "insurance sales" job title for at least two years.

Results of Kolbe A Indexes taken by the High Performers were analyzed to determine the Range of Success for this population in each Kolbe Action Mode. This range is determined by a proprietary algorithm which is derived from the average level of intensity in each of the Action Modes plus and minus the standard deviation of the scores. This range reflects the conative characteristics which best match the Kolbe A Indexes of high and low performers as well as the expectations of supervisors for how the job should be done.

Kolbe-recommended letter grades are derived from the combination of all four Ranges of Success. A proprietary algorithm within the Kolbe selection software converts Kolbe A Index raw scores, which determine those ranges, into letter grades for each individual whose Kolbe A result is compared to the established ranges. In this study all Average and Low performers' Kolbe A scores were compared to High performers' Kolbe A scores,

and every individual was given a computer-generated letter grade of A through F. An “A” grade indicates that the individual was within the determined Range of Success in every Kolbe Action Mode. An “F” score indicates the individual is outside the Range of Success in three or four modes by at least four units. The Kolbe recommended cut score for selection is a grade of “B-” or above.

Based upon Kolbe cut scores developed for the job title of Insurance Sales in the life insurance industry in the U.S. and Canada, 93% of the High Performers in the study would have been recommended to be in the candidate pool. Only 7% would have been misidentified as being below the cut score. Among Average Performers, 69% would have been below the cut score.

Had the 51 general agencies participating in the study used the Kolbe cut scores from the High Performer study, 90% of those who proved to be Low Performers in the previous year would not have been selected.

Predictive Validity for Accounting

- In 1990, 99 successful certified public accountants from two internationally recognized accounting firms were selected by their employers to complete the Kolbe to identify the conative profile of a successful accountant. As expected, successful CPAs were more insistent in Fact Finder than the general population (49% compared to an expected 20%), more accommodating in Follow Thru (77% compared to an expected 60%), and less insistent in Quick Start (11% compared to an expected 20%) and Implementor (2% compared to an expected 20%) than the general population.
- A second study compared the percentage of turnover between two groups of professionals within an internationally

recognized accounting firm. Group 1 consisted of 30 professionals whose Kolbe scores indicated that they were mismatched for their positions. Group 2 consisted of 57 professionals whose Kolbe scores indicated a good match with their positions. The turnover rate for Group 1, where the Kolbe scores indicated a job mismatch, was significantly higher than that of Group 2, where the Kolbe indicated a good job fit.

- In a third study, performance ratings for 49 employees were compared with their Kolbe scores indicating the relative job match to the conative profile identified for accountants. A significantly higher percentage of those with Low performance ratings were not matched to their jobs as contrasted with those with Mid to High performance ratings.

Kolbe A Index Correlation with MBTI

One aspect of predictive validity is demonstrating that different instruments measure different constructs or traits.¹⁷

Two hundred sixty eight individuals completed both the Kolbe Index and the Myers-Briggs Type Indicator (MBTI). Correlations between MBTI dimensions and Kolbe Action Modes are of only moderate degree. Examination of individual MBTI items reveals an unclear mixture of cognitive, affective and conative statements. It is conjectured that some portion of the items which score to the Intuiting scale

¹⁷ In 1996, studies presented to Federal Judges Hardy and Broomfield were vital for the court to find the Kolbe Indexes were unlike any other measurement of human behavior, and were determined to be copyright protectable.

and the Perceiving scale relate to the intuitive bent and behavioral adaptability of the insistent Quick Start. Items which score to the Judging scale may relate to the detailed, orderly approach of the Fact Finder/Follow Thru.

Construct Validity

Construct validity is the extent to which a test measures a theoretical construct or trait. Construct-related validation requires the gradual accumulation of information from a variety of sources [1].

Studies performed to prove other types of validity and reliability can be used as evidence of construct validity. Of the five different classifications of methods for proving construct validity – intra-test methods, inter-test methods, criterion related studies, experimental manipulation, and generalizability studies -- four have been used, and are described in this section and in the section “Development of the Kolbe Indexes” (page 15): item analysis for internal consistency reliability proved the homogeneity of the test; the KCI has been proven not to correlate with personality and intelligence tests, the KCI is a predictor of employment in selected, conation-specific jobs; and results are stable over time. Only generalizability studies have not been done, because no other method of identifying conation exists to use for making generalizations.¹⁸

Compliance with EEOC Requirements¹⁹

¹⁸ Material in this paragraph has been adapted from Kathy Kolbe’s “Summary Of Reliability And Validity Studies On The Kolbe Conative Index” [20]

¹⁹ Material in this section has been adapted from the Kolbe Statistical Handbook [43], unless otherwise indicated.

Consistent with the requirement for job-specific validation, the Kolbe is a non-subjective criterion-based test whose criteria may be correlated with job-specific criteria (such as sales productivity, absenteeism, etc.) by correlating Kolbe Index scores with objective criteria reflecting job-related criteria. The Kolbe Index is a bias-free instrument, both in its more general use, and as a tool assisting in personnel-selection processes for specific jobs. Consistent with the U.S. Civil Rights Act of 1991, the Kolbe Index does not differentiate on the basis of a group to which the individual belongs.

Initial Kolbe Study

Dr. Robert T. Keim of the Decision Systems Research Center of Arizona State University conducted an extensive study on bias and the Kolbe instrument in 1990, in which he examined 4,030 Kolbe results which were broken down into 17 groups reflecting common conative patterns similar to job selection criteria.

Study samples were drawn from the database of Kolbe Corp. Because the Kolbe Index has been predominantly used in the corporate management environment and with smaller entrepreneurial firms, the number of middle-aged white males is over-represented. For the same reasons, the number of insistent Implementor profiles used in analyses represent a smaller percentage of the database than is reflected in the general population. The database included profiles obtained from respondents worldwide, but a preponderance of the profiles are from individuals currently residing in the United States.

Dr. Keim initially performed analyses of variance with each of the four conative instincts as dependent variables and the independent variable being race, gender or age. In 65 out of 68 analyses of variance, the results showed that at the .05 level of significance, the differences

in scores on the Kolbe could not be attributed to the dependent variables of race, gender or age. For the three values where the initial analysis of variance did not provide conclusive results, a Chi Square analysis was conducted by computing a Chi Square base-model value for each with gender, race and age. Subsequent analyses of variance and Chi Square values were computed leaving out each of the independent variables. Comparisons between the base-model values and the subsequent values demonstrated that in no case do the independent variables of race, gender or age explain differences in scores.

Dr. Keim concluded that “at the Alpha = .05 level the Kolbe is not biased by gender, age or race.”

General Selection Study

In a subsequent selection-bias study performed in 1992, 24,416 Kolbe results were studied. The Kolbe results were cross-tabulated by each of 51 professions and 10 professional levels. In each profession and level in which there was an adequate minority sample (30 or more) the data was analyzed to determine whether the Kolbe would have selected any minority group (determined by the federally protected categories of race, gender and age) less than 80% as frequently as the most frequently selected group (the criteria for adverse impact established by the EEOC). In no category in which there was an adequate minority sample would the Kolbe have adversely selected on minority status. There was no evidence that the Kolbe would have an adverse impact on any minority group if used as part of a properly designed selection process.

EEOC Job-Relatedness Requirement

In addition to providing evidence that shows a lack of adverse impact on any protected group,

the EEOC Uniform Guidelines for Selection also require proof of job-relatedness.

To show job relatedness, the employer must prove three things: (1) that the test does correlate with successful job performance (criterion-related validation); (2) that the test actually measure the performance of job-related tasks or traits (content validation); and (3) that the trait being identified or measured by the test is a trait that is a requirement to do the job well (construct validation). In a 1991 opinion, Dr. Jane Armstrong [3] noted that

“appropriate use of the Kolbe Concept Selection Process™ [now called the RightFit™ system] builds in procedures which address both criterion-related validity and construct validity job-relatedness measures for a specific position or job title” in the following ways:

- “Clients are asked to identify and measure top performers, mediocre performers and poor performers in numbers which can provide a statistically significant sample. Comparison of KCI scores with these three internally-defined achievement levels provides criteria-related validity data.”
- “The Job-KCI© [now called the Kolbe C Index] is completed by all supervisors to provide objective, job-related measures of the degree to which supervisors do or do not reward various actions in evaluating performance of a specific job. Consensus scores derived from the supervisors' [Kolbe C Index] form the basis for construct validity.”
- “Together, scores for peak performers and [Kolbe C Index] consensus form the basis for establishing ranges of tolerance and cut-off scores for a specific job title

when using the KCI in employment and promotion decisions.”

Dr. Armstrong also affirms that,

“To my knowledge, generic analysis of the 30,000+ KCI database demonstrates that no statistically significant bias (0.05 level) was found when comparing the KCI scores of individuals by gender, race or age. Use of the KCI, therefore, would have no inherent biases which could be identified as a specific factor contributing to a finding of "adverse impact."

In a 1991 professional opinion, Vally Sharp [41], M.A., a psychometry supervisor, states that,

“...it is my opinion that you have designed the approach to the use of the KCI in selection in such a way that validity is ‘built in’ and in fact, reestablished every time the requirements for successful performance in a given job or job group is defined by completion of the [Kolbe C Index] by those individuals who will ultimately evaluate performance of those selected for the position. There is clear definition of what "observable work behaviors" will be valued and rewarded [as required by the EEOC *Uniform Guidelines on Employee Selection*] when conative requirements are used to establish concrete performance criteria relevant to the job. The relationship between individual scores on the four Action Modes and the [ranges] defined as required for success is obvious before any statistical procedures are performed.”

Regarding adverse impact, Sharp [41] asserts,

“Of the results I have seen, when population parameters were well defined in terms of homogeneity and measures of central tendency and dispersion, there have been

NO SIGNIFICANT DIFFERENCES at the .05 level of significance between any combination of racial, age, sex or ethnic groups [emphasis original].”

Sharp concludes,

“I have examined your approach to the use of the KCI as a selection procedure, and many of your recent statistical analyses in detail and I see no reason to believe that the data you have regarding the KCI's predictive validity, job relevance, and adverse impact would fail to meet EEOC guidelines.”

Other Studies

Leadership

Author Elizabeth Berry analyzes the conative talents inherent in the management of California State University-Northridge after the January 1994 earthquake [5]. The motivation for this study was her observation of the remarkable recovery efforts made by the university administrators after the earthquake: “I watched with amazement how quickly decisions were made and how certain leaders seemed to be thriving in chaos, whereas other experienced extreme stress.” Based on her prior experience with the KCI, Berry believed that analysis would show a preponderance of Quick Start (QS) talent.

Eight university administrators and two faculty completed the Kolbe A Index and participated in an interview a year after the earthquake. Each had played a key role in the reopening of the university and represented units of the university's administrative structure and faculty.

Berry's belief turned out to reflect reality: QS talents dominated the team of academic leaders. The President and Provost/Vice President had the highest QS insitencies; other

administrators, though also insistent QSs, were not as insistent. Only the Associate Vice President, Facilities Planning and Operations, and the Manager, Academic Resources, for the School of Science and Mathematics had both insistent Fact Finder (FF) and Follow Thru (FT) talents. Of the two faculty, the art professor was an insistent QS and Implementor (IM); the faculty union leader had no insistent talents and therefore was a Mediator.

As insistent QSs, the President's (4393) and the Provost's (4293) striving instincts "were well-matched for dealing with a crisis, because they had to make hundreds of quick decisions daily without the luxury of gathering data, weighing pros and cons, and systematically assessing longer-term consequences." The Vice Provost (4574) is an example of an insistent QS who is accommodating in the other three Modes; that is, FF, FT, and IM. "Although she is not naturally inclined to initiate action in these three Modes, she is comfortable working in situations where she needs to probe and examine, plan and organize, and use physical space and equipment." The Vice Provost made a decision during the crisis to engage in high-risk physical activity to retrieve admissions, financial aid, and payroll data stored on backup tapes. The process required use of a cherry-picker to recover the tapes from a dark and structurally damaged building. The decision to take risks is characteristic of an insistent QS; while the motivation for the decision—retrieval of vital information—was consistent with accommodating FF and FT instincts.

Berry describes how the Dean of the School of Social and Behavioral Sciences (7373), an insistent FF/QS, "played an important role in bridging the gap between the insistent QS administrators and those on campus who had the need for more information and data before taking action. This combination of talents allowed him to act with a sense of urgency and try to compress time with short-cuts and a

bottom-line focus; however, he also developed processes to assess priorities, gather information, and keep others informed."

The administrator for planning and providing academic resources, such as classrooms, equipment, and security systems, was a 7833, an excellent match under normal circumstances for the requirements of this job, which include gathering information and creating and using plans and schedules. In the aftermath of the earthquake, however, he experienced extreme conative stress. Nonetheless, he rose to the occasion, enlisting his FF and FT instincts to ask questions, set priorities, weigh pros and cons, and attend to detail.

As a facilitator, the President of the state-wide faulty union (6365) was ideally positioned to act as a mediator, having no need to initiate action in any Mode. Resistant in FT, he instinctively found shortcuts and cut through bureaucracy during the emergency.

Berry concludes, "It was clear that the QS insistency, combined with the FT prevention modus operandi, facilitated the quick thinking and action that took place."

Team Formation

In this 2000 study conducted at the University of Arizona by Erin Fitzpatrick [10], the goal was to form multiple effective teams from an existing labor pool. The experimental labor pool consisted of 40+ members of an undergraduate Systems Engineering course that would be carrying out two team projects during the semester. Each member of the labor pool (the class) completed a Kolbe A Index, and the results were used to predict team performance in terms of project grades. The class was divided into four skill categories that were approximated by grade point average (GPA).

In the first project, half of the project teams were formed to maximize effectiveness according to Kolbe team measures of goal attainment, profitability, and viability, and the other half were formed randomly. Team formation was constrained by the mix of MOs in the class, which included many insistent FFs and few insistent IMs, which is typical of engineers. One person from each skill group was placed on each team of four to remove the bias of academic ability. To remove evaluator bias, the professor was not informed of the teams' conative compositions.

Kolbe's Team Tactix® software was used to predict the performance of the teams based on measures of viability, profitability and goal attainment. A positive correlation was found between project performance and the measures of profitability and viability. There was a lesser correlation between project performance and goal attainment, possibly because the students' GPAs turned out to be not representative of their capabilities.

For the second project, the class was once again divided in half, but this time the Kolbe-based teams were formed using a heuristic that incorporated the Kolbe Action Modes and operating zones as well as skill levels and partial team composition. The correlations between team performance and team effectiveness improved on every Kolbe criterion. The greatest increase in correlation was for the goal attainment measure. The correlations between team performance and Kolbe effectiveness measures provides evidence of the value of using WAREwithal software for team formation.

Team Synergy

In an effort to improve group project experiences among software engineering

students at California State University-Northridge, Lingard and Berry [34] explored the relationship between teamwork and Kolbe team synergy. For this study, the achievement of 23 teams in four classes over two semesters was analyzed. One of the hypotheses of the study was that team synergy would correlate positively with team performance.

A productive team requires a balance of talents with respect to operating zones in order to maximize synergy. Ideal Kolbe team synergy occurs when 25% of the team's instinctive energy is in the initiating zones, 50% is in the accommodating zones, and 25% is in the preventative zone. Team synergy is calculated as 100% minus the sum of the absolute values of the differences between the actual and ideal values in each of the three operating zones (initiate, accommodate, and prevent) [24]. The synergy score was calculated for each team.

In evaluating the relationship between project scores and group synergy the Kolbe measure of viability was used. Viability is the Kolbe metric for calculating how closely the team's combined Kolbe A Index scores matches the scores of a team with ideal synergy. Initial analysis showed no correlation between synergy and performance; however, there was a high correlation between project scores and the combined test scores of the team members, which might have been obscuring the effects of team synergy.

After eliminating teams that contained exceptionally high or low test scores, the data were re-analyzed, and a significant correlation was found between team synergy and project scores.

Personnel Selection

For studies related to personnel selection, please see the section on Predictive Validity studies, page 38.

Potential Use in Social Work

Dr. Karen Gerdes's research on "Conation: a missing link in the strengths perspective" [12] includes discussion of a case study that illustrates the potential for the practical application of conation in the field of social work.

Jeff, a 16-year-old student with an I.Q. over 150, scored extremely high on standardized tests, but he had trouble completing classroom assignments and homework, resulting in a grade point average of 2.0. Jeff's father and teachers speculated that his poor performance may be the result of "laziness." During his high school years, he became increasingly withdrawn from his family. Someone suggested that Jeff, his parents, and his sister, take the Kolbe A Index. Jeff's MO was found to be 3378, making him preventive in FF and FT and insistent in QS and IM. He naturally resists consuming information in-depth and following a schedule or procedures, all of which are generally considered necessary for succeeding in high school. As Gerdes explains, "When problem-solving, Jeff will be most successful when he is allowed to utilize a process of trial and error rather than writing a detailed research report or completing complicated assignments in a linear and logical order."

Jeff's parents and sisters were all initiating FFs and FTs and preventative QSs and IMs—a direct conflict with Jeff's MO. Using these Kolbe results, Jeff's parents asked Jeff's teachers to encourage Jeff to solve problems in ways that came naturally to him, rather than frustrate him by demanding that he use processes that were contrary to his instinctive style.

Having this conative information at hand, Jeff became able to cognitively process conflicts that arose for him at home and school without feeling misunderstood or judging himself. Gerdes concludes that "the inclusion of conative data in Jeff's case helped turn his self-reinforcing negative cycle of failure, blame, hopelessness, and silent defiance into a positive cycle of understanding, adaptation, success, and confidence," enabling him to finish high school and go on to college.

Job Satisfaction

This study [38], completed in 2005, was undertaken in response to the need in California for more licensed physical therapists, under the supposition that a clearer understanding of the factors associated with job satisfaction and willingness to remain in the field may counter the discrepancy between supply and demand in this profession and location. Existing studies to date had focused primarily on external factors. This study addressed the possible role of intrinsic characteristics of the physical therapists, namely their conative MOs. If a correlation were to be found between certain conative MOs and job satisfaction in specific subspecialties of physical therapy, students entering professional physical therapy programs could be evaluated and guided towards the most appropriate setting.

The study posed two questions: "Do physical therapists have similar MOs?" and "Do physical therapists who are satisfied with their work have similar MOs?" Subjects were recruited both from a randomized sample of 500 physical therapists working the Los Angeles area, and also via emails to local hospital physical therapy department supervisors. A total of 24 subjects were found who had available Kolbe MOs, were treating patients full-time, and had completed a job satisfaction questionnaire. The group's MOs were found to be disproportionately high in resistant QSs,

insistent FFs, and insistent FTs. A lesser, but still disproportionate degree of IM resistance was also found. No statistically significant findings could be established between job satisfaction and Kolbe conative characteristics, including insistent MOs, resistant MOs, and Natural Advantages. However, it was noted that insistent FFs, FTs, and Qs had satisfaction scores below 80%, while the two insistent IMs in the sample had a mean satisfaction score of 94%.

Phillips comments, “While the researching and gathering of information noted among insistent Fact Finders is certainly applicable for the problem solving and evaluative activities of physical therapists, the relatively high resistance to manual activities (Implementor) and avoidance of unknowns found in resistant Quick Starts is surprising. The nature of treating human beings is unpredictable, which would conflict with the natural instincts of the resistant QS. The avoidance of working with tools and one’s hands found in resistant Implementors is counterintuitive when thinking about individuals working in an occupation where manual techniques are a cornerstone of practice, particularly in orthopedic therapy” and that “By this same rationale it is not surprising that the two therapists insistent in Implementor had the highest average satisfaction score of 94, one at 88 and the other at 100, both scores higher than the average for the group (80.9).”

Phillips hypothesizes that a better understanding of the activities involved in physical therapy may reveal “less time spent performing manual techniques compared to the amount of time and energy involved in prioritizing patient problems, justifying treatments and investigating symptoms – activities quite natural to the Fact Finder insistent mode.” For future research, Phillips recommends obtaining Kolbe B and Kolbe C Indexes to identify job characteristics from the employee and employer perspectives and to

evaluate the presence or absence of conative stress and tension.

Education

Computer Science Program Retention

In 2005, Lingard *et al.* of California State University published a paper [35] on using the Kolbe A Index to address the issue of undergraduate computer science program retention rates. The long-term goal was to improve retention rates for computer science students with non-typical conative talents by engaging them to a greater extent in the types of problem solving activities in which they thrive. To determine the conative talents of students just entering the computer science program, Kolbe A Indexes were given to students taking the first course in the program. Data from a past study provided the conative profiles of students taking upper-level courses.

Results showed that twice as many beginning computer science students as advanced students initiate in the IM mode. No statistically significant difference was found between initiating IMs and other students in terms of average grade, rate of course failure, or rate of withdrawal from the course. This suggests that initiating IMs may be leaving the computer science for reasons other than the difficulty of the coursework. One of those reasons may be that they are not comfortable with the learning environment in the computer science program, and that their natural ways of doing things are inconsistent with the ways in which they are required to operate.

Evidence of Previous Success with Elements of *Project: Go Ahead*

Since 1975, The Center for Conative Abilities has sponsored multiple programs for teaching youngsters to manage their own natural abilities and apply decision-making techniques for

improved performance. *Project Go-Ahead* [26] is a continuation of a series of programs in Maricopa County, AZ, which have proven successful over time.

Over 700 local children participated in the highly praised SPIES program (*Summer Program for Individual Explorations*) over a period of five years. The Center trained the SPIES faculty in methods for individualizing activities to a child's natural instincts for taking action, that is, the children's conative strengths. Parents of participating youngsters were provided with tips for helping them manage these abilities. The SPIES program led to early versions of *Perfectly Capable Kids*™, a training program for parents and educators which has been honed over the years with attendees from around the country and will be incorporated into *Project: Go Ahead*. Arizona State University has co-sponsored and provided continuing education units for this program. Participants have consistently rated it over 97% for meeting their needs and the program's objectives.

In addition to working with kids through schools and family programs, The Center has provided individual coaching for kids labeled ADD and/or ADHD, making individualized results for Kolbe Youth Indexes available online and in written and audio formats. Thousands of children have taken advantage of this opportunity, resulting in improved grades, and admission to high-level academic and talent-oriented programs, reduced need for prescription drugs, and reduced levels of family stress.

Project: Go Ahead continues the work of The Center for Conative Abilities with youngsters labeled ADD and/or ADHD. It incorporates the best practices of previous programs sponsored by the Center that have proven effective in helping such kids manage their own natural abilities.

Evidence of the success of these programs comes from responses to an online survey by educators, parents, psychologists, and social workers who have worked with participating youngsters. Fifteen respondents rated the impact of the programs on 122 youngsters from nine states and three countries (USA, South Africa, and Canada). Using a 1-5 Likert scale, with 5 indicating the greatest impact, they reported that the positive impact on the kids averaged 4.8. Improvements in behavior and grades have proved to be sustainable. The predecessor programs to *Project: Go Ahead's* that were rated in this study were confirmed to have provided results that lasted at least 3.5 years.

Arizona State University Research on the Distribution of Conative Modus Operandi (MO) within Groups

In this study [2], teachers and students in first through twelfth grade classrooms from several public school districts, private schools, and charter schools completed Kolbe Indexes to assess their conative traits. The teachers and students in the sample represent diverse economic and cultural areas of a Southwestern and three Midwestern states (Arizona, Kansas, Missouri, and Oklahoma). Kolbe Indexes were completed over a two-year period.

This study compares the results of the conative assessments for teachers with the results of conative assessment for students who were identified in school records as having Attention Deficit Disorder (ADD) and/or Attention Deficit Disorder with Hyperactivity (ADHD), and with results of conative assessments for students from the same classes who were not identified as either ADD or ADHD.

The premise of the Center for Conative Abilities (The Center), based upon quantitative studies with smaller sample sizes, was that

classroom teachers, as a group, have a **significantly different** set of conative traits than a subset of their students who have been identified as ADD and/or ADHD, and a **more similar** set of conative traits in comparison to most of the others students who were not identified as ADD/ADHD.

The sample consists of 554 students between the ages of 8 to 16, with 246 females and 308 males, primarily middle school students between the ages of 12 and 14. The students completed the Kolbe Y Index between 2004 and 2006. Within the sample of 554 students, 51 subjects had a diagnosis of ADD or ADHD. Arizona State University (ASU) compared Kolbe results from this group of students with the results from the remaining 503 students.

ASU found that students who have the greatest distances from teachers in their conative patterns of action have a higher probability of being labeled ADD or ADHD than other students whose patterns of action are closer to that of teachers. A *t*-test showed statistically significant differences between the two student groups in each of the four Action Modes. The Mann Whitney U test, which is the nonparametric equivalent of an independent *t* test, yielded results similar to the *t*-test. Students with ADD or ADHD were more resistant to Fact Finder and Follow Thru, and they were higher in Quick Start and Implementor than the students who had not been labeled ADD or ADHD. These findings suggest that students with a diagnosis of ADD or ADHD differ significantly from those without an ADD or ADHD diagnosis in their natural approaches to creative problem solving.

The Center for Conative Abilities and other collaborators in *Project: Go Ahead* believe that some students may have been identified as having a problem that has been given the ADD/ADHD label, when they may actually have conative strengths or methods of operation

that are causing conflicts between their way of naturally taking action and the way most of their teachers need them to take action.

The Center has found it useful to offer students constructive alternatives, or “tricks” for dealing with the realities of most classroom structures. The student who is labeled ADD/ADHD, and who is likely to be singled out for not adhering to the dominant MO of his or her teachers, can be encouraged to succeed through self-managing behaviors so he or she is able to act, react, and interact according to his or her MO without interfering with the needs of teachers and other students.

Kansas Project: Conative Awareness

In 2013, The Center for Conative Abilities is in the 10th year of a project with the Kansas State Department of Education [25]. The purpose of Kansas Project: Conative Awareness is to provide statewide educator awareness of innate individual student learning needs and to develop leadership within school districts that takes responsibility for educating entire school communities of the implications of the diverse conative abilities among faculty and students.

In over 32 school districts, representing every geographical area of the state, the leadership have actively disseminated information regarding previously unknown conative abilities. Over 2500 individuals (1494 adults and 1021 youngsters) within those districts have received validation of their personal conative abilities. Classes on conative abilities have been offered in Kansas universities, junior colleges, trade schools, programs for teachers of the disadvantaged, parent organizations, and community centers.

This program has been made possible through collaborative efforts and in-kind contributions from The Center, Arizona State University, independent educational services centers

throughout Kansas, donated assessment tools and services from Kolbe Corp, a public grant from the Teacher Enhancement Grants funded by the Kansas State Legislature, and the commitment of Kansas educators and school board members.

In 2012, The Center for Conative Abilities granted Shawnee Heights Middle School in Kansas a grant for assisting all of its 560 plus students to maximize the use of their conative abilities. This study is providing significant data now under review by independent researchers.

FUTURE RESEARCH

Kolbe Corp plans to conduct a new study to reconfirm the KCI's success in performance prediction. The new study will obtain sample data, including Kolbe A and C Index results and performance metrics such as sales performance figures, from multiple current and former clients. Kolbe's RightFit system will be used to analyze the Kolbe A Index results, which describe the employees' instinctive approaches to problem-solving, and the Kolbe C Index results, which describe the problem-solving instincts necessary to succeed at a specific job, as defined by supervisors. Based on this analysis, RightFit assigns a letter grade indicating that employee's suitability for his job. The RightFit suitability results (i.e., letter grades) will then be compared with the performance metrics to determine the success rate of the RightFit system.

SUMMARY AND CONCLUSIONS

A review of research files at Kolbe Corp confirmed findings on multiple reliability and validity studies, and also on studies that showed that the Kolbe Index is compliant with EEOC requirements.

Reliability and Validity

Studies performed in 1992, 1993, and 1996 found a high level of test-retest reliability. The 1993 study showed a test-retest reliability of .69 to .85. An internal consistency reliability assessment was used to identify questions that needed to be discarded or changed. Split-half reliability studies were conducted during the development of the Index. A criterion-based validity study found that over 80% of participants chose a career path which closely correlated with the characteristics of the participant's dominant Mode. Many predictive validity studies have been performed, including predicting absenteeism, retention, turnover, and success in multiple career paths. Construct validity has been demonstrated over multiple studies, including item analysis for internal consistency reliability, studies that show that the KCI does not correlate with known personality and intelligence tests, and a study that demonstrated prediction of career paths taken.

Equal Employment Requirements

A 1992 study with over 24,000 participants found no evidence that the Kolbe would have an adverse impact on any minority group if used as part of a properly designed selection process. This result was corroborated by two psychometric professionals, who also documented that the KCI meets the job-relatedness criterion of the EEOC Uniform Guidelines for Selection.

Additional Studies

Additional studies have been conducted on a range of topics, including leadership, team formation, job satisfaction, education, and potential use of the Kolbe Indexes in social work.

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