CLUSTERING COMPETENCE IN EMOTIONAL INTELLIGENCE: INSIGHTS FROM THE EMOTIONAL COMPETENCIE INVENTORY (ECI)

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In this chapter, we will briefly describe a model of emotional intelligence based on the competencies that enable a person to demonstrate intelligent use of their emotions in managing themselves and working with others to be effective at work. The history and development, as well as preliminary statistical results from a new test based on this model, the Emotional Competence Inventory (ECI), will be reported. The implications for a theory of performance in work settings and an integrated personality theory will be mentioned in emphasizing the importance of clusters of competencies in predicting performance and making links to all levels of the human psyche.

Emotional intelligence is a convenient phrase with which to focus attention on human talent. Even though it is simple as a phrase, it incorporates the complexity of a person's capability. While the earliest psychologist to explore this arena of "social intelligence" (Thorndike in the 20's and 30's, cf. Goleman, 1995) offered the idea as a single concept, more recent psychologists have appreciated its complexity and described it in terms of multiple capabilities (Bar-On, 1992, 1997; Goleman, 1998; Saarni, 1988). Gardner (1983) conceptualized this arena as constituting intrapersonal and interpersonal intelligence. Salovey and Mayer (1990) first used the expression "emotional intelligence" and described it in terms of four domains: knowing and handling one's own and others' emotions. Other conceptualizations have used labels such as "practical intelligence" and "successful intelligence" (Sternberg, 1996), which often blend the capabilities described by the other psychologists with cognitive abilities and anchor the concepts around the consequence of the person's behavior, notably success or effectiveness.

A closely related stream of research focused on explaining and predicting the outcome of effectiveness in various occupations, often with a primary emphasis on managers and leaders (McClelland et. al. 1958; McClelland, 1973; Bray, Campbell, and Grant, 1974; Boyatzis, 1982; Luthans et al, 1988; Kotter, 1982; Thornton and Byham, 1982; Spencer and Spencer, 1993). In this "competency" approach, specific capabilities were identified and validated against effectiveness measures, or often inductively discovered and then articulated as competencies.

An integrated concept of emotional intelligence offers more than a convenient framework for describing human dispositions- it offers a theoretical structure for the organization of personality and linking it to a theory of action and job performance (Goleman, 1995). Goleman (1998) defined an "emotional competence" as a "learned capability based on emotional intelligence that results in outstanding performance

at work." Integrating the work of Goleman (1995 and 1998) and Boyatzis (1982), we offer the following descriptive definition: *emotional intelligence is observed when a person demonstrates the competencies that constitute self-awareness, self-management, social awareness, and social skills at appropriate times and ways in sufficient frequency to be effective in the situation.*

If defined as a single construct, emotional intelligence might be deceptive and suggest an association with cognitive capability (i.e., traditionally defined "intelligence" or what psychologists often call "g" referring to general cognitive ability) (Davies and Stankov, 1998; Ackerman and Heggestad, 1997). Although this has not been substantiated when empirically studied, the tendency to believe that more effective people have the vital ingredients for success invites the attribution of a halo effect. For example, person A is effective, therefore she has all of the right stuff, such as brains, savvy, and style. Like the issue of finding the best "focal point" with which to look at something, the dilemma of finding the best level of detail in defining constructs with which to build a personality theory maybe an issue of which focal point is chosen. Photographers appreciate the difficulty and complexity of choosing appropriate focal point, because there are many ways to view something- each with its own perspectives and detriments to understanding the scene. With regard to emotional intelligence, we believe the most helpful focal point allows for the description and study of a variety specific competencies, or capabilities, that can be empirically, causally related to effectiveness *and* describe the *clusters* within which these competencies are organized. But we must start with the competencies.

Development of the EI Model and the Emotional Competence Inventory

Building upon and integrating a great deal of research, Goleman (1998) presented a model of emotional intelligence with twenty-five competencies arrayed in five clusters Boyatzis, 1982; Spencer and Spencer, 1993; Rosier, 1994-1997; Jacobs, 1997). They were:

a) The Self-awareness Cluster included Emotional Awareness; Accurate Self-assessment; and Self-confidence;

b) The Self-regulation Cluster included Self-control, Trustworthiness, Conscientiousness, Adaptability, and Innovation;

c) The Motivation Cluster included Achievement Drive, Commitment, Initiative, and Optimism;

d) The Empathy Cluster included Understanding Others, Developing Others, Service Orientation, Leveraging Diversity, and Political Awareness;

e) The Social Skills Cluster included Influence, Communication, Conflict Management, Leadership, Change Catalyst, Building Bonds, Collaboration and Cooperation, and Team Capabilities.

Although numerous methods were available to assess these competencies behaviorally through behavioral event interviews (Boyatzis, 1982; Spencer and Spencer, 1993), simulations and assessment centers (Thornton and Byham, 1982), a questionnaire form was desirable for ease of use (i.e., amenable to a 360^0 applications), comprehensiveness (i.e., to insure that all of the competencies in this theory could be measured within one instrument) and validity (i.e., capturing others' views of a person's behavior easily). Starting with a competency assessment questionnaire developed by Boyatzis in 1991 (Boyatzis, 1994; Boyatzis, Cowen, and Kolb, 1995; Boyatzis et. al., 1996 and 1997) called the Self-Assessment Questionnaire, Boyatzis and Goleman rewrote items for the non-cognitive competencies. Additional items were created for competencies not addressed in Boyatzis' model (i.e., it focused on managers, executives, and leaders and there was a desire to develop an instrument with broader applicability across all occupations and life settings). About 40% of the new instrument, the ECI (Emotional Competence Inventory) were from the earlier questionnaire. The earlier instrument was a useful starting point because it had been developed from competencies validated against performance in hundreds of competency studies of managers, executives, and leaders in North America (Boyatzis, 1982; Spencer and Spencer, 1993). The specific questionnaire had also been validated against performance for a variety of job families in dozens of industrial organizations in Italy and one large financial institution in Brazil (Boyatzis and Berlinger, 1992; Valenca, 1996; Boyatzis et al, in press; Vitale, 1998). Reliability and construct validation had been established against other questionnaire measures as well as behavioral measures coded from videotapes and audiotapes, and numerous longitudinal studies of competency development (Boyatzis, Wheeler, and Wright, in press).

In Summer and Fall of 1998, data was collected with the ECI from 596 people composed of samples of managers and salespeople from several industrial corporations, and graduate students in masters programs in management, engineering, and social work. Based on analysis of the reliabilities and intercorrelation of items, the scales of the ECI were revised in December of 1998. In January and February, 1999, the ECI was rewritten again with Ruth Jacobs, Ron Garonzik, Patricia Marshall, and Signe Spencer (i.e., several of the

research staff of McBer and Company, a unit of the Hay/McBer Group) using their database of competency assessment information from hundreds of companies. At this time, the items were arranged and constructed to reflect the developmental scaling characteristic of the current McBer instruments (see Spencer and Spencer, 1993 and McClelland, 1998 for a description of the developmental scaling and some of its implications). Although the developmental scaling will be empirically determined, for the early applications of the ECI the developmental scaling assumptions were based on expert opinion from previous studies (Spencer and Spencer, 1993; McClelland, 1998).

A preliminary sample was collected with the revised ECI from the managers and professionals in several industrial and professional service companies. Scale reliabilities are shown in Tables 1 and 2 for the earlier instrument, both versions of the ECI, the average item score method of composing the scales and the developmental weighting method of composing the scales (Boyatzis and Burckle, 1999). The reliabilities of the earlier SAQ were based on a sample of 180 MBAs (average age 27, 32% female, 19% non-native English speakers). This earlier instrument included scales assessing a number of cognitive competencies or abilities: Use of Concepts, a= .896 ; Systems Thinking, a= .857; Pattern Recognition, a= .838; Theory Building, a= .881; Use of Technology, a= .882; Quantitative Analysis, a= .891; and Written Communication, a= .881.

The SAQ and its 360^0 version, the EAQ, as well as both versions of the ECI have similar response categories based on frequency of demonstration or observation. An optional answer of "I don't know" or "I have not had the opportunity to observe the person in an appropriate setting" is read into the data as blank. The current version of the ECI asks the respondent to describe themselves or another person on each item on a scale of 1 to 6. Each step is progressively labeled starting from "...the behavior is only slightly characteristic of the individual (i.e., he/she behaves this way only sporadically)..." to the highest response indicating "...the behavior is very characteristic of this individual (i.e., he/she behaves this way in most or all situations where it is appropriate)..."

Table 1. Scale Reliabilities in Terms of Cronbach's alpha's for Average Item Scores

Competency	Self-Assmt. Quest. (180)	ECI:1**	ECI:2 ** Self-assmt.	ECI:2** Others' Assmt.
Emotional Self-Awareness	na	.761(585)	.629 (668)	.798 (427)
Accurate Self-Assessment	na	.706(584)	.715 (663)	.886 (427)
Self-Confidence	.825	.684(595)	.825 (660)	.909 (428)
Self-Control	.735	.710(575)	.808 (668)	.906 (427)
Trustworthiness	na	.543(584)	.667 (667)	.814 (427)
Conscientiousness*	.774	.751(596)	.816 (664)	.911 (428)
Adaptability*	.819	.721(561)	.618 (664)	.834 (428)
Achievement Orientation*	.700	.751(553)	.835 (660)	.921 (428)
Initiative	.769	.789(571)	.754 (663)	.897 (427)
Empathy	.838	.715(567)	.837 (657)	.948 (425)
Organizational Awareness	na	.721(558)	.786 (660)	.913 (426)
Developing Others	.904	.769(523)	.818 (653)	.927 (426)
Service Orientation	na	.707(509)	.854 (628)	.938 (426)
Leadership*	.824	.801(521)	.658 (649)	.824 (427)
Influence*	.824	.739(541)	.767 (637)	.881 (425)
Communication*	848	.695(557)	.789 (654)	.910 (427)
Change Catalyst	na	.799(535)	.866 (637)	.935 (426)
Conflict Management*	.902	.773(529)	.778 (660)	.894 (426)
Building Bonds*	.822	.600(565)	.773 (670)	.882 (427)
Teamwork & Collaboration*	,909	.785(522)	.842 (645)	.943 (426)

* In the Self-Assessment Questionnaire: Conscientiousness = Attention to Detail; Adaptability = Flexibility; Achievement Orientation = Efficiency Orientation; Leadership = Persuasiveness; Influence = Persuasiveness; Communication = Oral Communication; Conflict Management = Negotiation; Building Bonds = Networking; Teamwork & Collaboration = Group Management.

** The number of subjects is shown in parentheses following the instrument; for the ECI II, due to missing item and scale data the "n" is shown for each scale separately.

*** From Boyatzis and Burckle (1999) "Psychometric Properties of the ECI," Technical Note, Boston, MA: Hay/McBer Group. On the basis of factor, cluster, and reliability analyses of the data on the first version of the ECI, a number of competency scales were reconsidered and reclassified from Goleman's (1998) earlier

model. Innovation behaviors were integrated into the Initiative scale. The Optimism Scale were highly correlated with the Achievement Drive scale, so they were integrated into the newly named Achievement Orientation scale. The Leveraging Diversity items were highly correlated with the Understanding Others scale, so they were integrated into the newly named Empathy scale. A number of the original Leveraging Diversity items formed the highest developmental levels of the Empathy scale consistent with other empirical evidence from the McBer database and the Boyatzis SAQ scale relationships. The Commitment items were highly correlated with the Leadership scale; they all addressed commitment to "group" goals, values, and vision which was a set of the themes in the Leadership scale. So they were integrated into the Leadership scale. The Collaboration items were highly correlated with the Team Capabilities scale, so they were integrated into the newly named Teamwork and Collaboration scale. Two other minor name changes were changing Political Awareness to Organizational Awareness and Emotional Awareness to Emotional Self-Awareness.

Table 2. Scale Reliabilities in Terms of Cronbach's alpha's for Developmental Scores
(sample size is shown in parentheses following each coefficient alpha)

	Self-Assessment	Composite Others' Assessment
Emotional Self-Awareness	.609 (668)	.732 (427)
Accurate Self-Assessment	.677 (663)	.847 (427)
Self-Confidence	.778 (660)	.870 (428)
Self-Control	.780 (668)	.866 (427)
Trustworthiness	.587 (667)	.743 (427)
Conscientiousness	.817 (664)	.878 (428)
Adaptability	.546 (664)	.779 (428)
Achievement Orientation	.761 (660)	.864 (428)
Initiative	.721 (663)	.858 (427)
Empathy	.774 (657)	.905 (425)
Organizational Awareness	.734 (660)	.856 (426)
Developing Others	.750 (653)	.870 (426)
Service Orientation	.811 (628)	.896 (426)
Leadership	.660 (649)	.795 (427)
Influence	.761 (637)	.856 (425)
Communication	.747 (654)	.873 (427)
Change Catalyst	.807 (637)	.890 (426)
Conflict Management	.747 (660)	.856 (426)
Building Bonds	.705 (670)	.822 (427)
Teamwork & Collaboration	.760 (645)	.892 (426)

Clustering of Competencies

The clustering, or organizing, of several of the competencies into larger categories for the purpose of analysis or application offers two choices: 1) Do we organize the characteristics theoretically (i.e., using a priori framework) or empirically? and 2) Do we organize them in the context of the other competencies which may affect each other most closely, independently (i.e., treating each as if the human organism has it independent of the other characteristics), or developmentally (i.e., arranged in framework of inferred causality)?

Clusters are behavioral groups of the desired competencies. They are often linked conceptually and defined by a "theory" as a convenient way to describe which competencies are associated with others. It provides parsimony. The competencies within such a cluster may be linked empirically. That is, statistical analysis may allow us to discover how the human organism demonstrates these desired competencies in various settings, answering the question, "Which of the desired competencies are demonstrated together or associated with each other?"

Within a cluster, various competencies may have one of four types of relationships.
First, they may be parts of a whole and complement each other in functional behavior (e.g., Adaptability and Conscientiousness). A person can demonstrate flexibility in adapting to situations. His/her demonstration of reliability and consistency (i.e., Conscientiousness) would not interfere with the demonstration of Adaptability, but if the person can use both competencies their effectiveness would increase in many situations. For example, if the situation changed but a reliable response was still needed, the use of Adaptability and Conscientiousness would allow for continued appropriate behavior even in the new situation.

Second, they may be alternate manifestations. The specific competency used would vary by setting or stimulus. This often depends on the degree of micro or macro definition of the competencies in the study. Alternate manifestations are often found in competency models with highly behaviorally specific definitions of the competencies. If the competencies are defined as more of a broad capability, the behavioral indicators of the competency are alternate manifestations. This reduces the likelihood that the cluster may have competencies within it that have this relationship.

Third, the competencies within the cluster may be compensatory. That is, using one competency makes up for using less of another (e.g., Achievement Orientation and Initiative). A person can demonstrate a great deal of concern about doing better, contemplating and acting on cost-benefit utility analysis and so forth (i.e., Achievement Orientation). This may drive a degree of innovation and discovery of new and better ways to accomplish things. At the same time, someone else in the same situation may find new and better ways to accomplish things because they are starting things before anyone has thought of them, seeking information in distinctive ways, and so froth (i.e., demonstrating Initiative). While the outcomes are the same, the specific behavior used and the intention underlying the behavior are different.

Fourth, the competencies within the cluster may be antagonistic. Frequent use of one "crowds" out the ease or possible use of another (e.g., Self-control vs. Initiative). If someone demonstrates a great deal of Self-control and inhibits their impulses and actions, they would have an increasingly difficult time demonstrating Initiative and starting things before anyone asks.

Clusters Within a Model

Clusters within a competency model should be related in some way, and not be just a list. They maybe related as being parts of a whole. In other words, the clusters might complement each other (e.g., Goal and Action Management and Social Skills or People Management). Demonstrating the competencies in one of these clusters does not preclude nor arouse the competencies in the other cluster, but when both are demonstrated the person is typically more effective in professional and management positions.

The clusters within a model may have a developmental relationship. For example, the Self-Awareness Cluster of competencies is needed for sustainable Self-Management, or more specifically for the competencies in the Self-Management cluster to be demonstrated in sustained ways. Another example is that the Social Awareness Cluster is needed for sustainable demonstration and use of the Social Skills Cluster.

The clusters within a model may have compensatory relationships. For example, the Analytic Reasoning Cluster and the Goal and Action Management or Self-Management Cluster can occasionally compensate for the demonstration of the other. Using more Initiative, Achievement Orientation, and Adaptability competencies may compensate for System Thinking-- or visa versa. In other words, using the competencies in the Self-Management Cluster may allow a person to want to think about and organize what is needed to solve a problem. Using the competencies in the Analytic Reasoning Cluster, in particular

Systems Thinking and Pattern Recognition could also result in a framework or model being constructed that organizes the issues and needs in the situation. Competencies in either cluster, in such a situation, could provide ideas for what to do next to solve the problem.

The dilemma facing the scholar or researcher is that the a priori clustering seems to make more sense-- it comes out of our mental and theoretical models. On the other hand, the actual appearance of the competencies and clusters may be different, suggesting the importance of an empirical method of determining the clusters. There are dramatic differences. The clustering shown in Table 3 reflects both theoretical and empirical clustering from two sets of studies reported in Boyatzis' The Competent Manager (1982) and Boyatzis, Cowen, and Kolb's Innovation in Professional Education (1995) regarding generic competency models of management and leadership.

Table 3. Theoretical and Empirical Clustering of Generic Models of Management and Leadership From Boyatzis (1982)

Theoretical Cluster	Empirical Clustering (via cluster analysis)
Entrepreneurial Cluster:	**Goal and Action Management Cluster**:
Efficiency Orientation	Efficiency Orientation
Initiative	Initiative (i.e.,Proactivity)
Interpersonal Cluster:	Diagnostic Use of Concepts
Concern with Impact	Concern with Impact
Use of Unilateral Power	**Directing Subordinates Cluster:**
Developing Others	Developing Others
Managing Group Process	Use of Unilateral Power
Use of Socialized Power	Spontaneity
Oral Presentations	**Human Resource Management Cluster:**
Intellectual Reasoning Cluster:	Managing Group Process
Diagnostic Use of Concepts	Use of Socialized Power
Logical Thought	Accurate Self-Assessment
Conceptualization	Logical Thought
Socio-Emotional Maturity Cluster:	**Focus on Others Cluster:**
Stamina/Adaptability	Stamina/Adaptability (i.e.,Flexibility)
Accurate Self-Assessment	Perceptual Objectivity
Perceptual Objectivity	Self-Control
Spontaneity	**Leadership Cluster:**
Self-Control	Self-Confidence
	Conceptualization
	Oral Presentations

From Boyatzis, Cowen, and Kolb (1995)

Theoretical Clusters	**Empirical Clustering (via factor analysis**)**
Goal and Action Management Cluster:	**Goal and Action Management Cluster:**
Efficiency Orientation	Efficiency Orientation
Planning	Planning
Initiative	Initiative
Self-Control	Self-Confidence
Attention to Detail	Persuasiveness
Flexibility	Written Communication
People Management Cluster:	Oral Communication
Empathy	Flexibility
Persuasiveness	**People Management Cluster:**
Networking	Empathy
Negotiating	Networking
Self-Confidence	Negotiating
Group Management	Group Management
Developing Others	Developing Others
Oral Communication	Social Objectivity
Analytic Reasoning Cluster:	Self-Control
Use of Concepts	**Analytic Reasoning Cluster:**
Systems Thinking	Use of Concepts
Pattern Recognition	Systems Thinking
Theory Building	Pattern Recognition
Use of Technology	Use of Technology
Quantitative Analysis	Quantitative Analysis
Social Objectivity	
Written Communication	

Footnotes:
*= cluster analysis of 253 managers; predominantly male. Alverno College study of 103 female managers revealed similar empirical structure with the exception of: Accurate Self-Assessment associated with the Goal and Action Management Cluster instead of Concern with Impact; Stamina/Adaptability clustered with Concern with Impact and Use of Socialized Power; Positive Regard clustered with Developing Others and Managing Group Process.
**= integration of four factor analyses via Learning Skills Profile (self-report card sort, n=724), Self-Assessment Questionnaire (self-report, n=454), behaviorally coded critical incident interview (audiotaped, n=497), behaviorally coded Group

Although the a priori clusters appear conceptually meaningful, and the empirical clusters seem to be a confused assortment, the empirically determined clusters showed greater validity (Boyatzis, 1982) against performance data. They also "made sense" to executives and human resource professionals when presented and discussed at various professional meetings. For example, the Goal and Action Management Cluster does not include only entrepreneurial competencies, it appears to reflect a person's orientation to their environment. The empirical cluster could be said to represent how the person asserts himself/herself in various settings. The finding from the research conducted at Alverno College (Mentkowski et. al., 1982) on an exclusively female managerial sample showed the fascinating substitution of Accurate Self-Assessment

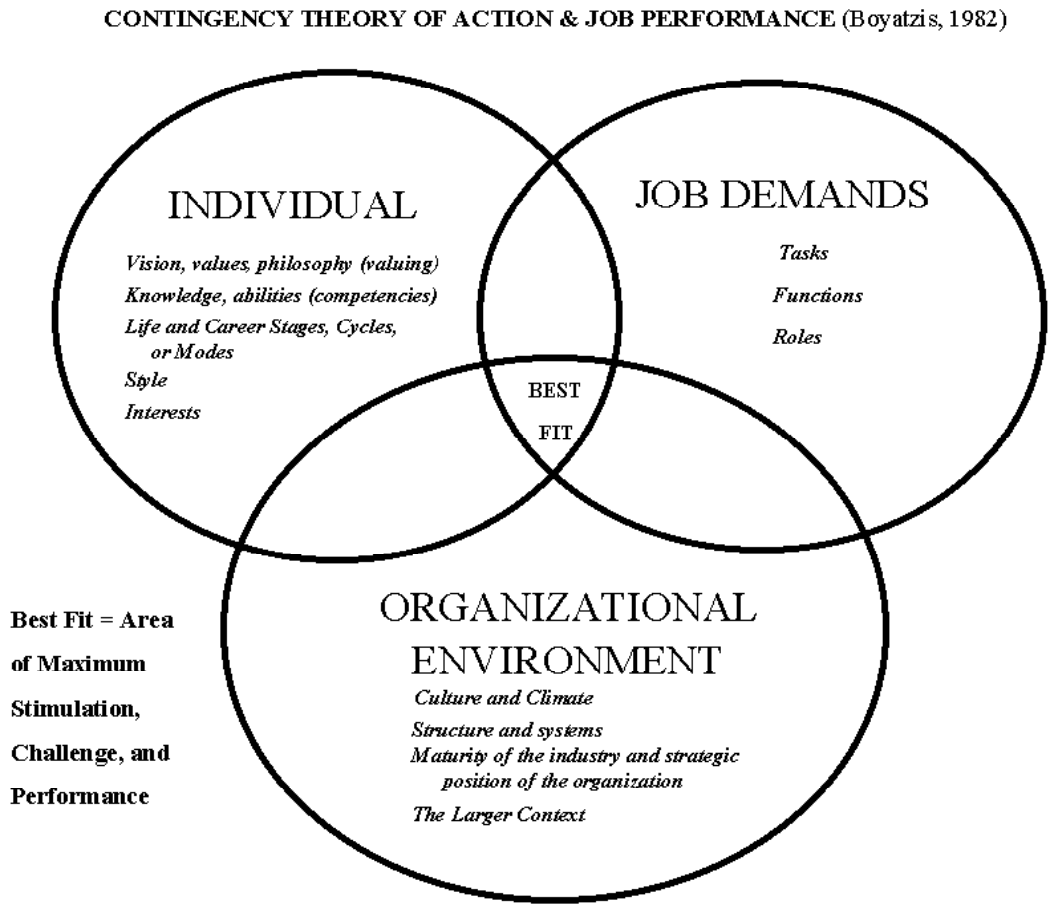
for the Concern with Impact competency in this cluster as noted in the footnote to Table 1. The researchers' interpretation was that women in middle-level management positions had to be far more self-monitoring than their male counterparts to "make it" in the private sector in 1982.

Other shifts shown in Figure 1 include the observation that cognitive abilities or competencies do not cluster together for this management sample. The analytic or cognitive competencies sort themselves into clusters of functional behavior with other competencies that are often used along with the specific cognitive ones. For example, Conceptualization, which was later renamed Pattern Recognition, loaded with the Leadership Cluster. In studies of executives and CEOs, it has often been found that Pattern Recognition, the ability to see themes and patterns in seemingly unrelated data, is crucial in "reading" the internal organizational climate, trends in the market, and concerns of customers, stakeholders, and such (Dalziel, 1998; Goleman, 1998). The competency would be expected to fit more closely with Self-Confidence and within the Leadership Cluster than to be clustered with other cognitive abilities.

In the 1995 and later samples (Boyatzis et. al. 1995; Boyatzis, Leonard, Rhee, and Wheeler, 1996; Boyatzis, Wheeler and Wright, 1997), the clustering appears different. The Analytic reasoning or cognitive competencies cluster with each other. This is probably a function of the samples; the 1995 and later samples were from MBA students who come from and seek a wide variety of occupations from sales, financial analyst, human resource professionals, and manager. In this sample, the assertiveness on the environment aspect of the Goal and Action Management Cluster appears even stronger. Persuasiveness and the Oral and Written Communication competencies load within this cluster, as well as Self-Confidence. It appears closely related to the Self-Management Cluster within the Emotional Intelligence Model from the ECI analysis, as shown in Table 4.

On the basis of preliminary factor analysis and cluster analysis of the ECI with the 596 subjects' responses , three clusters emerged: 1) Self-Awareness, which included Emotional Self-awareness, Accurate self-assessment, and Conscientiousness; 2) Self-Management, which included Self-confidence, Adaptability, Achievement Orientation, Initiative, Change Catalyst, and Self-control; and 3) Social Skills: Empathy, Service Orientation, Developing Others, Communication, Organizational Awareness, Building Bonds, Collaboration, Trustworthiness, Leadership, Influence, and Team Capability. The comparison is shown in Table 4.

Figure 1



To assess the differential impact of demonstration of the competencies in each of these clusters, recent findings from Boyatzis (1999) will illustrate. He found that experienced partners at a large consulting firm contributed significantly more profit to the firm from their accounts if they had demonstrated a significant number of the competencies from that cluster above the tipping point. The tipping point analysis determined the frequency of demonstration which appears sufficient to "tip" a person into effectiveness and superior performance (McClelland, 1998) or in complexity theory terms the "trigger" point precipitating the discontinuous break into effectiveness. In his study, McClelland (1998) found that this tipping point could be identified where the line describing the frequency of demonstration of a competency by "superior" performers crosses the line describing the frequency of demonstration of that competency by "average" performers. He showed that this significantly differentiated bonuses paid to divisional top executives at a food and beverage company; the bonuses paid to the executives were a function of the division's financial

performance. The results comparing the four clusters in this firm's competency model of partners are shown in Table 5a and 5b.

Table 4. Theoretical and Empirical Clustering of the Competencies in the EI Model

From Goleman (1998) **Theoretical Clustering**	**ECI Original Version** **Empirical Clustering**	**ECI Current Version** **Current Clustering**
Self-Awareness Cluster:	**Self-Awareness Cluster:**	**Self-Awareness Cluster:**
Emotional Self-Awareness	Emotional Self-Awareness	Emotional Self-Awareness
Accurate Self-Assessment	Accurate Self-Assessment	Accurate Self-Assessment
Self-Confidence	Conscientiousness	Self-confidence
Self-Regulation Cluster:	**Self-Management Cluster:**	**Self-Management Cluster:**
Self-Control	Self-Control	
Trustworthiness	Trustworthiness	Self-Control
Conscientiousness	Self-confidence	Conscientiousness
Adaptability	Adaptability	Adaptability
Innovation	Change Catalyst	
Self-Motivation Cluster:		
Achievement Orientation	Achievement Orientation	Achievement Orientation
Commitment		
Initiative	Initiative	Initiative
Optimism		
Empathy Cluster:	**Social Skills Cluster:**	**Social Awareness Cluster:**
Empathy	Empathy	Empathy
Organizational Awareness	Organizational Awareness	Organizational Awareness
Service Orientation	Service Orientation	Service Orientation
Developing Others	Developing Others	
Leveraging Diversity		
Social Skills:		**Social Skills:**
Leadership	Leadership	Leadership
Communication	Communication	Communication
Influence	Influence	Influence
Change Catalyst	Trustworthiness	Change Catalyst
Conflict Management	Conflict Management	Conflict Management
Building Bonds	Building Bonds	Building Bonds
Collaboration & cooperation	Teamwork & Collaboration	Teamwork & Collaboration
Team capabilities		Developing Others

Table 5a. From Boyatzis (1999b) a Comparison of the Impact of the Number of Competencies Above/ Below the Tipping Point by Cluster (000's)

Cluster	Above TP Acct. Rev.	Below TP Acct. Rev.	Above TP Acct. Margin	Below TP Acct.Marg.
Self-Management	$2,942	$1,803	59%	54%
Self-Regulation	2,969	896	62%	42%
Social Skills	2,819	1,797	63%	47%
Analytic Reasoning	2,545	2,164	60%	47%

Table 5b. From Boyatzis (1999b) a Profit Contribution Comparison of the Impact of the Number of Competencies Above/ Below the Tipping Point by Cluster

Cluster	Incremental Profit per Year per Partner
Self-Management	$ 762,000 per year = 78% more/experienced partner
Self-Regulation	$ 1,465,000 per year = 390% more/experienced partner
Social Skills	$ 931,000 per year = 110% more/experienced partner
Analytic Reasoning	$ 510,000 per year = 50% more/experienced partner

It shows that experienced partners demonstrating a significant number of the competencies within the Self-Regulation Cluster above the tipping point contributed the highest differential profit to the firm per year than those demonstrating the competencies below the tipping point. The Social Skills and Self-Management Clusters followed in size of contribution. It is worth noting that frequently demonstrating the competencies in all of the clusters was linked to substantial increased profit contribution to the firm. Using the same type of tipping point analysis, Boyatzis (1999) showed that demonstrating three or four of the clusters with the sufficient number of competencies in each shown above the tipping point was sufficient to trigger effectiveness.

Implications for a Theory of Action and Personality Theory

Clusters Help in Building a Theory of Action

Boyatzis (1982) used a contingency model of management effectiveness which postulated that the degree of overlap, or "best fit" between the individual, his/her job demands, and the organizational environment would predict effectiveness, as shown in Figure 3. He claimed that seeking one-to-one correspondence between the competencies and job functions or tasks was a futile exercise. Similarly, the search for connections between specific competencies and element of the organizational climate, culture, structure, systems, or strategy would be a reductionistic nightmare. To try and link elements of specific job demands or the organizational environment to one of the competencies such as Building Bonds forces you to stretch your connections. For example, if you examine the function of "championing a specific change

project" would require Building Bonds, but you could not use it alone. You would have to use it with other competencies such as Change Catalyst, Conflict Management, Teamwork and Collaboration. To see the connections easily, you expand the competency to a cluster of competencies, such as Social Skills.

Similarly, connecting a component of the organizational culture to a competency cluster seems easier than to a single competency. To ask that a person "fit into" an entrepreneurial culture in a fast growing company is asking for a person to frequently demonstrate Achievement Orientation *and* Initiative *and* Adaptability, to name a few competencies in the Goal and Action Management or Self-Management Cluster. Merely showing Achievement Orientation frequently could lead to a fascination with cost-cutting and risk moderation which might work against the cultural norms of taking advantage of opportunities, if not making your own opportunities.

This confusion between searching for links at the competency or cluster level has often been the source of mistakes in linking competencies needed from individuals to be effective and the "core competence" of the organization. If engineering excellence is the core competence of an company, we would predict that the Goal and Action Management Cluster (or the Self-Management Cluster in the EI Model) would need to be the most frequently observed cluster to create and sustain this culture and strategy. If an increasing number of the executives had this as their third most frequent competency, we would predict increasingly confusing messages within the organization as to priorities and a shift from utilizing their core engineering excellence as a distinguishing feature in their strategy, customer service, and product innovation.

Clusters Offer Hope in Building a Theory of Personality

One of the major benefits of the conceptualization of Emotional Intelligence is the potential for establishing causal connections among the various levels of a person's psyche. Boyatzis (1982) followed an often described causal link between the unconscious motive and trait level of personality to the social role and self-image level to the behavioral level, as evident in competencies. The effort resulted in attempts to make the links for each competency. The result was intriguing to some, but had the conceptual elegance of a hardware manual.

The clusters of competency, on the other hand, offer an appropriate "focal point" from which to identify, predict, and establish the multiple levels of causal connections, as suggested in Figure 2. Neurological and hormonal characteristics predispose or arouse certain motives or traits, which in turn

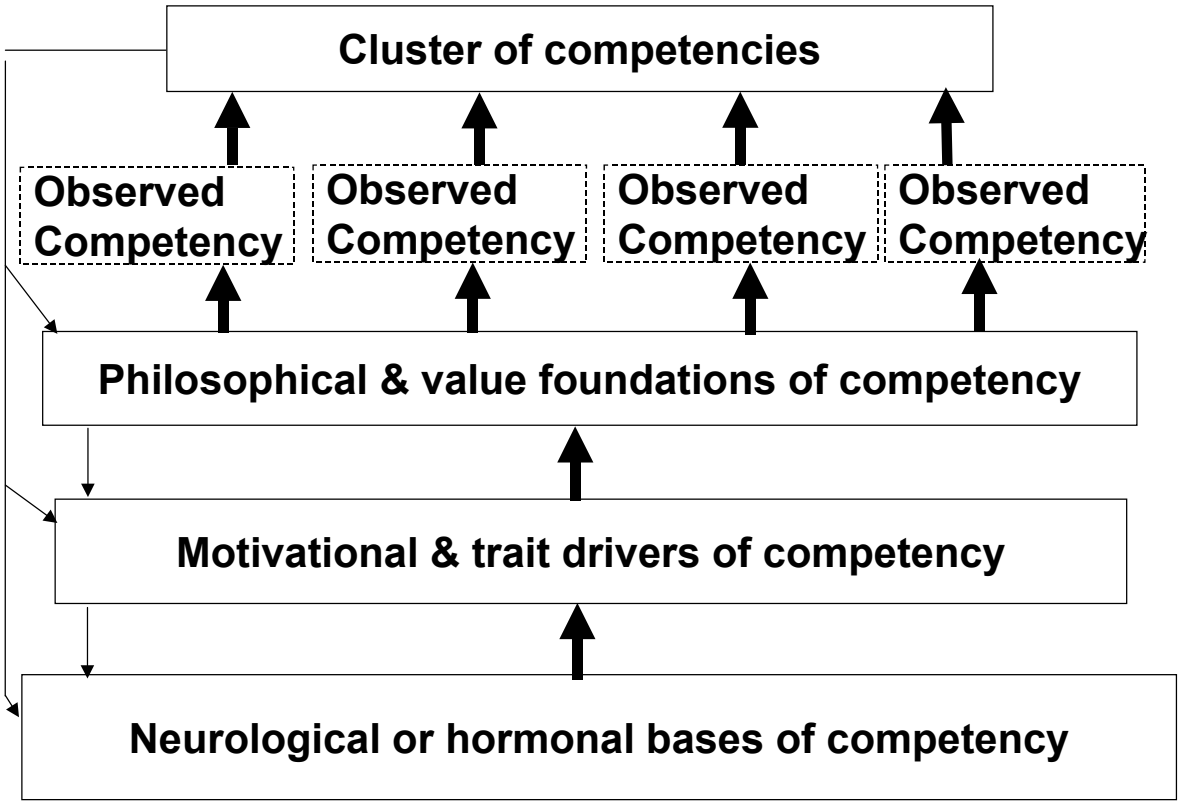
predispose, arouse, or drive competencies within the context of certain philosophical orientations (Goleman, 1995, 1998; Boyatzis, 1982). Our contention is that these connections or causal paths are easier to identify for clusters of competencies than separate competencies. For example, research has begun to establish a link between high resting levels of epinephrine secretion and high Need for Power motives (McClelland, 1985) and other such links among hormonal levels and unconscious motives (Schultheiss, 1999). We also know that high Need for Power predicts frequency of demonstration of influence behaviors, such as those evident in the competencies of the Social Skills Cluster.

The links between unconscious motives and traits and behaviorally observed competencies are the most clearly established of these links in the literature. Need for Power drives Teamwork and Collaboration, Influence, Building Bonds, Leadership, and so forth (McClelland, 1985; Winter, 1975; McClelland and Boyatzis, 1982). Need for Affiliation drives Empathy (Boyatzis and Burruss, 1977; Burruss and Boyatzis, 1981). Need for Achievement drives Achievement Orientation (McClelland, 1961, 1985). A Sense of Self-Efficacy and Self-definition drives Initiative (Stewart, 1978; Boyatzis, 1982). In a similar way, cognitive complexity drives Systems Thinking and Pattern Recognition, as analytic competencies.

We can also conjecture relationships among the "big five" traits and competencies (McCrea and Costa, 1990). For example, extroversion probably drives Building Bonds, Influence, Leadership, Communication, and so forth-- the Social Skills Cluster. Openness and Conscientiousness probably both drive the Goal and Action Management or Self-Management Cluster, although they probably have different sets of competencies within the cluster. Agreeableness probably drives the Social Awareness Cluster. There appears no direct link to the Self-Awareness Cluster of competencies.

Philosophical orientations, such as Pragmatism, Rationalism, and Humanism, offer a conceptualization which provides a closer link to the underlying traits, such as learning style, while at the same time a closer link to the frequency of demonstrated behaviors of specific competencies (Boyatzis, Murphy, and Wheeler, 1996). Boyatzis et. al. (1996) reported evidence from multiple samples showing a stronger association between a person's operating philosophy (i.e., philosophical orientation) and clusters of the competencies, than specific competencies.

Figure 2: Levels within the personality structure.



These causal links do not imply determinism but forms of association and disposition. For more specific causality, we must conduct further research with comprehensive multi-method, multi-trait, multi-level designs. Complexity theory suggests that fractals do exist. We predict they exist within the structure of human personality and that competency clusters are a necessary level of variable needed to find and see the fractals. At the same time, prior research suggests that arousal or activation of any of the motive, trait, philosophical, and/or behavioral level through competencies affects and arouses the hormonal, motive, trait, and other levels within the personality, as suggested by the feedback loops indicated in Figure 2.

Concluding Thoughts

The need for more research into the construction of personality and determinants and consequences of our behavior is more than a perpetual plea of scholars- it is an expression of our commitment to the

benefits that accrue from our drive to satisfy our curiosity about being human. We seek to understand characteristics that predict better performance because we wish to be more effective. We seek to understand characteristics that predict more fulfilling lives because we see injustice, suffering, and know that many of our lives are "out of balance." Although cynics can point to hundreds or even thousands of irrelevant if not misleading studies that have been published during the past one hundred years, few would contradict the observation that our understanding of individual personality and behavior has advanced tremendously during this century. Research has contributed to this advancement. More research is needed to understand how our emotions and capability affect our lives and work. In this paper, we have offered a number of observations and emerging theoretical frameworks that we hope will stimulate curiosity and more research.

References

Ackerman, P.L. and Heggestad, E.D. (1997). Intelligence, personality, and interests: Evidence for overlapping traits. Psychological Bulletin. 121(2). pp. 219-245.

Ballou, R., Bowers, D., Boyatzis, R.E., and Kolb, D.A. (1999). Fellowship in lifelong learning: An executive development program for advanced professionals," Journal of Management Education. 23(4). pp. 338-354.

Bar-On, R. (1992). The development of a concept and test of psychological well-being. Unpublished manuscript. Tel Aviv: Reuven Bar-On.

Bar-On, R. (1997). Bar-On Emotional Quotient Inventory: Technical manual. Toronto: Multi-Health Systems.

Boyatzis, R.E. (1982). The competent manager: A model for effective performance. New York: John Wiley & Sons.

Boyatzis, R.E. (1994). Stimulating self-directed change: A required MBA course called Managerial Assessment and Development, Journal of Management Education, 18(3):304-323.

Boyatzis, R.E. (1996). Consequences and rejuvenation of competency-based human resource and organization development,' In Woodman, R.W., and Pasmore, W.A.(eds.), Research in Organizational Change and Development, volume 9, pp. 101-122, Greenwich, CN: JAI Press.

Boyatzis, R.E. (1999a). Self-Directed Change and Learning as a Necessary Meta-Competency for Success and Effectiveness in the 21st Century. In Sims, R., and Veres, J.G. (eds.), Keys to Employee Success in the Coming Decades, Westport, CN: Greenwood Publishing. pp. 15-32.

Boyatzis, R.E. (1999b). The financial impact of competencies in Leadership and Management of Consulting Firms. Department of Organizational Behavior Working Paper. Case Western Reserve University, Cleveland, Ohio.

Boyatzis, R.E. and Burckle, M. (1999). Psychometric properties of the ECI: Technical Note. Boston: The Hay/McBer Group.

Boyatzis, R.E. and Burruss, J.A. (1977). Validation of a competency model for alcoholism counselors in the Navy. Report to the U.S. Navy on Contract Number N00123-77-C-0499 from McBer and Company (Boston, MA.

Boyatzis, R.E., Baker, A., Leonard, D., Rhee, K., and Thompson, L. (1995). Will it make a d differences?: Assessing a value-based, outcome oriented, competency-based professional program. In Boyatzis, R.E., Cowen, S. S., and Kolb, D.A. (Eds.)Innovating in professional education: Steps on a journey from teaching to learning. San Francisco: Jossey- Bass.

Boyatzis, R.E. and Berlinger, L. (1992). Report to CORUM on managerial competencies of cooperatives in Northern Italy. Modena; CORUM S.r.l.

Boyatzis, R.E., Leonard, D., Rhee, K., and Wheeler, J.V. 1996. Competencies can be developed, but not the way we thought. Capability, 2(2). P.25-41.

Boyatzis, R.E., Wheeler, J., and R. Wright (in press). Competency development in graduate education: A longitudinal perspective, Proceedings of the First World Conference on Self-Directed Learning, GIRAT, Montreal

Boyatzis, R.E., Murphy, A.J., and Wheeler, J.V. (1997). Philosophy as the missing link between

values and behavior. Working Paper 97-3(3a) of the Department of Organizational Behavior. Cleveland: Case Western Reserve University.

Boyatzis, R.E., Cowen, S.S., and Kolb, D.A. (1995). Innovation in Professional Education: Steps on a Journey from Teaching to Learning. San Francisco: Jossey-Bass.

Bray, D.W., Campbell, R.J., and Grant, D.L. (1974). Formative years in business: A long term AT&T study of managerial lives. NY: John Wiley & Sons.

Burruss, J.A. and Boyatzis, R.E. (1981). Continued validation of a competency model of alcoholism counselors in the Navy. Report to the U.S. Navy on contract number N002-44-80-C0521 from McBer and Company (Boston: MA)

Davies, M., Stankov, L., and Roberts, R.D. (1998). Emotional intelligence: In search of An ellusive construct. Journal of Personality and Social Psychology. 75(4). Pp. 989-1015.

Dreyfus, C. (1990). The characteristics of high performing managers of scientists and engineers. An Unpublished Doctoral Dissertation, Case Western Reserve University.

Dulewicz, V., and Higgs, M. (1998). Emotional intelligence: Can it be measured reliably and Validly using competency data? Competency. 6(1). Pp. 28-37.

Gardner, H. (1983). Frames of mind: The theory of multiple intelligences. NY: Basic Books.

Goleman, D. (1985). Vital lies, simple truths: The psychology of self-deception. NY: Simon and Schuster.

Goleman, D. (1995). Emotional intelligence. New York: Bantam Books.

Goleman, D. (1998). Working with emotional intelligence. NY: Bantam.

Kolb, D.A. (1984). Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice-Hall.

Kotter, J.P. (1982). The general managers. NY: Free Press.

Kram, K. E. (1996) "A Relational Approach to Careers," In D. T. Hall (ed.) The Career is Dead: Long Live the Career, San Francisco, CA:Jossey-Bass Publishers, pp.132-157.

Leonard, D. (1996). The impact of learning goals on self-directed change in management development and education. Doctoral dissertation, Case Western Reserve University.

Luthans, F., Hodgetts, R.M., & Rosenkrantz, S.A. (1988). Real managers. Cambridge, MA: Ballinger Press.

McClelland, D.C. (1961). The Achieving Society. New York: D. Van Nostrand.

McClelland, D.C. (1973). "Testing for competence rather than intelligence." American Psychologist. 28, pp. 1-14.

McClelland, D. (1975). Power: The inner experience. New York: Irvington.

McClelland, D.C. (1985). Human motivation. Glenview, IL: Scott, Foresman & Co.

McClelland, D.C., Baldwin, A.L., Bronfenbrenner, U., and Strodbeck, F.L. (1958). Talent and society: New perspectives in the identification of talent. Princeton, NJ: D. Van Nostrand.

McClelland, D.C. and Boyatzis, R.E. (1982). Leadership motive pattern and long term success in management. Journal of Applied Psychology. 67, pp. 737-743.

McCrae, R.R., and Costa, P.T., Jr. (1990). Personality in adulthood. New York: The Guilford Press.

Mentkowski, M., McEachern, W., O'Brien, K., and Fowler, D. (1982). Developing a professional competence model for management education. Final Report to the National Institutes of Education from Alverno College.

Rosier, R.H. (ed.) (1994-1997). The competency model handbook: Volumes 1-4. Lexington, MA: Linkage.

Rhee, K. 1997. Journey of discovery: A longitudinal study of learning during a graduate professional program. An unpublished dissertation Case Western Reserve University.

Saarni, C. (1988). Emotional competence: How emotions and relationships become integrated. In R.A. Thompson (ed.), Nebraska Symposium on Motivation, 36. pp. 115-182.

Salovey, P. Mayer, J.D. (1990). Emotional intelligence. Imagination, cognition, and personality, 9, pp. 185-211.

Schultheiss, O.C. (1999) Psychophysiological and health correlates of implicit motives. Paper presented at the 107th American Psychological Association Annual Meeting, Boston, August.

Schultheiss, O.C. (1999) A neurobiological perspective on implicit power motivation, testosterone, and learning. Paper presented at the 107th American Psychological Association Annual Meeting, Boston, August.

Spencer, L.M.Jr. and Spencer, S.M. 1993. Competence at work: Models for superior performance. New York: John Wiley & Sons.

Sternberg, R.J. (1996). Successful intelligence: How practical and creative intelligence determine success in life. NY: Simon and Shuster.

Stewart, A.J. (1978). A longitudinal study of coping styles in self-defining and socially defined women. Journal of Consulting and Clinical Psychology. 46, pp. 1079-1084.

Thornton, G.C.III and Byham, W.C. (1982). Assessment centers and managerial performance. New York: Academic Press.

Valenca, A.C. (1996). Competency analysis of managers in a bank in Pernambuco. Recife: Valenca and Associates.

Vitale, P. (1998). Competency analysis of executives, managers, and technical professionals in the companies of ENI Gruppo, S.p.A. Presented at The Third International Conference on Competencies and Human Capital, Castelgondolfo, June 10-12, 1998.

Winter, D.G., (1973), The power motive, NY: Free Press.