

# Emotional Intelligence and Leadership Behavior in Construction Executives

Colleen J. Butler<sup>1</sup> and Paul S. Chinowsky<sup>2</sup>

**Abstract:** The study documented in this paper builds upon the concept of multiple intelligences by examining the need for a greater concept of intelligence within the construction profession. Specifically, the paper documents the study of 130 construction executives for their emotional intelligence (EI) as measured by their emotional quotient. In this study, the writers analyze the relationship between EI and leadership behaviors, specifically examining the relationship between EI and transformational leadership behaviors. The paper outlines the strengths and weaknesses found in executives in relation to developing transformational leadership behaviors. Through the use of established testing procedures, the researchers identify five specific components of EI that are related to transformational leadership behavior at a convincing level of statistical significance. Of particular importance is the identification of interpersonal skills and empathy as key EI behaviors that need additional attention during the development of construction industry executives. The writers contend that these traits are as important as classical traits of intelligence and experience in developing the leaders of tomorrow's construction organizations.

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## Introduction

Many factors contribute to the success of various endeavors in people's personal and professional lives. In the business world, numerous organizations contend that their "greatest asset is our people." This mantra acknowledges that technology or tools alone will not take an organization from start-up to guru, but the personnel executing different functions can make a large impact. Additionally, research findings in psychology on factors contributing to individual success have become popular in business. This was not always the case, as for many years the definition of intelligence was equated with academic intellectuality and measured with a number called the intelligence quotient (IQ). Researchers now believe there are more components to intelligence than the IQ score. Salovey and Mayer (1990) coined the term "emotional intelligence" (EI) based on their studies of the interaction between emotion and thought. Another researcher, Gardner (1996), included two types of EI in his theory of seven (multiple) intelligences. And in 1995, Daniel Goleman's *Emotional Intelligence* further acted as a catalyst for discussions involving why EI, measured by the emotional quotient (EQ), may indicate personal success in life endeavors (Goleman 1995).

Leadership behaviors are also a topic of interest within organizations. Although attitudes toward the definition of effective leadership have evolved through history, leadership is an important aspect of a business. Current research investigates transformational leadership behaviors and their relationship to EI, specifically defining the EI patterns of construction leaders and comparing these patterns with individual leadership behaviors. The research tested upper-level managers, defined as vice presidents and higher within the construction industry, to determine the relationship between EI and the leadership behaviors of these individuals.

Previous studies have found that EI and leadership effectiveness are correlated (Boyatzis 1999; Cherniss 2001), and these and other studies have correlated EI with effective leadership behaviors in middle and upper-level management (Barling et al. 2000; Palmer et al. 2001; Gardner and Stough 2002). Other studies have found that leaders with high EI engage in transformational leadership behaviors, and these behaviors contribute positively to organization success.

Given this historical background, current research has examined the following questions: (1) what is the EI profile of construction leaders today? and (2) is there a relationship between construction leader EQ and transformational leadership behavior?

<sup>1</sup>Community Concepts, Hermes Custom Homes, Vail, CO. E-mail: colleen.butler@colorado.edu

<sup>2</sup>Associate Professor, Dept. of Civil, Environmental and Architectural Engineering, Univ. of Colorado, Boulder, CO 80309-0428 (corresponding author). E-mail: paul.chinowsky@colorado.edu

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## Background

Beginning in 1970, psychologists began to depart from what was considered traditional psychology research and desired to study the combination of intelligence and emotion, resulting in exploration into the realm of "cognition and affect." In the decades that followed, more and more research focused on proving that humans possessed multiple intelligences. During 1990 to 1993, psychologists' interest in research on EI was gaining momentum,

and the early publications on emotions as an intelligence were introduced in that period.

EI is defined as an array of noncognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures (Bar-On 1997). Psychologists have been studying these noncognitive intelligences and been able to group them into three intelligence categories as follows (Johnson and Indvik 1999):

- Abstract intelligence: the ability to understand and manipulate verbal and mathematical symbols;
- Concrete intelligence: the ability to understand and manipulate objects; and
- Social intelligence: the ability to understand and relate to people.

These intelligence categories reflect the idea of multiple intelligences as introduced by Howard Gardner (1983), who contended that intelligence comprises an array of component intelligences, which include linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, and personal intelligence (Gardner 1983). Widespread attention and popularity were gained for the newly named "emotional intelligence" as psychologist and journalist Daniel Goleman's book of the same title reached the best-seller list in 1995. Goleman (1995) contends that emotionally intelligent people will experience greater success and satisfaction in life, therefore essentially equating EI with positive social behavior.

Goleman argues that individuals with high EI possess the most effective leadership qualities, and in addition he focused on the ability to learn EI. Goleman believes that EI can be learned if the proper training is used to teach individuals the competencies included in EI. Goleman and another researcher, Richard Boyatzis (1999) developed a test, the Emotional Competence Inventory 360 (ECI 360), in 1998. This test aims to assess the strengths and limitations of individuals' EI competencies and attempts to test and identify the competencies most associated with star performance of an individual in the workplace.

Another leading researcher on EI is Reuven Bar-On, who produced a model of "noncognitive intelligence" (Bar-On 1997), which includes a multifactorial array of emotional, personal, and social abilities that allow individuals to cope with demands and pressures of their environments. These 15 multifactors fall within five areas of EI: interpersonal skills, intrapersonal skills, adaptability, stress management, and general moods. These factors and the areas under which they fall are shown in Fig. 1.

Bar-On's model is multifactorial, relates to potential for performance rather than performance itself, and defines success as "the end product of that which one strives to achieve and accomplish" (Bar-On 1997). Bar-On believes that EQ scores, when combined with cognitive IQ scores, provide a better comprehensive indication of an individual's overall intelligence, hence offering a better indication of potential to succeed than relying on one score. During his 19 years of research on EI, he developed the Bar-On Emotional Quotient Inventory (EQ-i) test, measuring interpersonal skills, intrapersonal skills, adaptability, stress management, and general moods. Based on the extensive validation of this test as documented by Bar-On (1997), and the extended time in which it has been applied, the decision was made to adopt the Bar-On EQ-i for this research effort.

## Leadership

Leadership has been studied for many centuries and can be traced to writings from the philosopher Epictetus in the first century

Component Measured by EQ-i Subscales	Definition	Area
Self-Regard	The ability to respect and accept oneself as basically good.	Interpersonal Skills
Emotional Self-Awareness	The ability to recognize one's feelings.	
Assertiveness	The ability to express feelings, beliefs and thoughts and defend one's rights in a nondestructive manner.	
Independence	The ability to be self-directed and self-controlled in one's thinking and actions and to be free of emotional dependency.	
Self-Actualization	The ability to realize one's potential capacities.	Intrapersonal Skills
Empathy	The ability to be aware of, to understand and to appreciate the feelings of others.	
Social Responsibility	The ability to demonstrate oneself as a cooperative, contributing and constructive member of one's social group.	
Interpersonal Relationship	The ability to establish and maintain mutually satisfying relationships that are characterized by intimacy and by giving and receiving affection.	Adaptability
Reality Testing	The ability to assess the correspondence between what is experienced and what objectively exists.	
Flexibility	The ability to adjust one's emotions, thoughts and behavior to changing situations and conditions.	
Problem Solving	The ability to identify and define problems as well as to generate and implement potentially effective solutions.	Stress Management
Stress Tolerance	The ability to withstand adverse events and stressful situations without "falling apart" by actively and positively coping with stress.	
Impulse Control	The ability to resist or delay an impulse, drive or temptation to act.	General Moods
Optimism	The ability to look at the brighter side of life and to maintain a positive attitude, even in the face of adversity.	
Happiness	The ability to feel satisfied with one's life, to enjoy oneself and others and to have fun.	

Fig. 1. Bar-On's model of EI

A.D. There are many components that describe leadership, and therefore there is not a consensus among researchers as to what the definition of leadership should be. Goleman (1998) writes in *Harvard Business Review*, "What Makes a Leader?" "Effective leaders are alike in one crucial way: they all have a high degree of emotional intelligence." He argues that a good leader in an organization will have the ability to know what type of leadership to employ, depending on the situation.

The transformational/transactional leadership model was developed by Burns in the late 1970s, who defined transformational leaders as those that are inspirational to those they lead as well as provide intellectual challenges (Burns 1978). Transactional leaders deal with day-to-day activities as an exchange between themselves and their subordinates. Burns's model was extended by Avolio (1999) and Bass (1985), who added another type of leadership: laissez-faire. Table 1 outlines this model of leadership styles and definitions (Avolio 1999).

The frequency with which an individual engages in these three leadership behaviors can be determined by the Multifactor Leadership Questionnaire (MLQ), Form 5X. This self-report test developed by Bass and Avolio has been used in academic studies on leadership. Although leadership is an intangible trait, the MLQ method has developed a track record for providing insights into leadership behavior, as documented by Bass and Avolio. This track record provided a basis from which the writers decided to adopt the test and use it to obtain the leadership information required for this study.

**Table 1.** Leadership Behavior Definitions

Behavior type	Definition
Transformational	Arouses awareness and interest in group or organization Increases confidence of individuals or groups Attempts to move concerns of subordinates to achievement and growth rather than existence (Gardner and Stough 2002)
Transactional	Focuses on exchanges from subordinates to address their needs (Bass 1985)
Laissez-faire	Avoids accepting responsibility Absent when required Fails to follow up on requests for assistance Resists expressing opinion on important issues

## Emotional Intelligence and Leadership

In the past few years, studies have attempted to correlate effective leadership with EI. The studies identify leadership styles based on the transformational/transactional leadership model developed by Bass. The transformational leader is defined as one who arouses awareness and interest in the group or organization, increases the confidence of individuals or groups, and attempts to move the concerns of subordinates to achievement and growth rather than existence (Gardner and Stough 2002). The transactional leader is one who focuses on exchanges from subordinates to address their needs (Bass 1985).

One such study conducted by Barling examined the leadership styles and EI of 49 managers. The writers measured EI by the Bar-On EQ-i, but only reported total EQ and not the different subscales it comprises. This study found EI and three components of transformational leadership were positively related, and also found that one component of transactional leadership was positively related with EI. The highest correlation in this study was found to be between EI and inspirational motivation (Barling et al. 2000).

A second study conducted by Palmer found several significant correlations between transformational leadership and EI. The study used a modified version of the Trait Meta Mood Scale developed by Salovey to measure EI. The writers suggest that the correlations found in this study define two underlying competencies of effective leadership: the ability to monitor emotions in oneself and others, and the ability to manage emotions (Palmer et al. 2001).

A third study conducted to link EI and leadership (Gardner and Stough 2002) focused on senior-level managers for the population and used the Swinburne University Emotional Intelligence Test (SUEIT) to measure EI. A third leadership style was added to the transformational and transactional type of leader, laissez-faire leader, defined as one who avoided accepting responsibility, was absent when required, failed to follow up on requests for assistance, and resisted expressing an opinion on important issues. Of the 110 participants in the study, 69 were senior-level managers or above. The results found a strong correlation between transformational leadership and overall EI, but a negative relationship between a laissez-faire leadership style and EI (Gardner and Stough 2002).

## Research Methodology

This study builds upon previous research efforts in the specific domain of the construction industry. The organizations asked to

**Table 2.** Group Descriptive Statistics for General Data

Variable	Range	Minimum	Maximum	Mean	Standard deviation
Years in position	30	0.00	30.00	5.22	5.75
Years at organization	36.9	0.10	37.00	11.03	9.24
Years in construction industry	39.5	0.50	40.00	18.97	10.79
Years in any industry	40	2.00	42.00	22.58	10.13
Education completed	4	1.00	5.00	3.10	0.76
Age	40	21.00	61.00	43.19	9.98

participate in the study had been among Engineering News Record (ENR)'s top 400 contractors in 2004, which is the most accepted and comprehensive list of large contractors in the United States (ENR 2004). Test subjects asked to participate in the study were leaders in construction organizations who typically had the titles of president or vice president.

Overall, 155 individuals responded to the request to participate in the study out of 400 letters sent to ENR's top 400 contractors list. The participants were requested to complete the study using a research Web site developed specifically for this study. In addition, about 1,500 e-mails were sent as a follow-up to request participation. The response rate for the study was 8%, and of these respondents, 130 individuals completed all three parts of the survey and could be used in the analysis, of whom 96 were employed by those on ENR's top 400 contractor list. The response group included 18 females and 112 males, the average age being 43.19 years. The female average age was 38.5 years, while the male average was 43.95 (Table 2).

As seen in Table 2, the respondents have an average 5.22 years in their current position, 11.03 years at the current organization, 18.97 years in the construction industry, and 22.58 years experience in the workforce in any industry. The education group average is 3.10, which when interpreted means the group is educated just above a bachelors degree.

## EI Assessment

The Bar-On EQ-i test was selected as the method to obtain the EI scores because it breaks down the scores into five different areas and 15 subareas. The EQ-i relates to potential for performance and not performance itself and provides other measures by which to determine the validity of the individual scores. These measures include a positive impression (PI) scale, a negative impression (NI) scale, and an inconsistency index (II). The PI scale was designed to detect dissimulation or the feigning of enhanced emotional functioning. When these scores are elevated, the respondent may have consciously attempted to give a positive impression or engage in self-deception, show lack of self-insight, or possess an unwillingness to face his or her limitations. Sometimes a high PI score could also mean a need for social conformity, approval, self-protection, or avoidance of criticism.

A high score on the NI scale may indicate atypically low self-esteem or a need for attention, sympathy, or help in meeting personal problems. Most high scores on the NI scale indicate malingering, meaning that the individual tested evaded a consistent response because he or she pretended to be incapacitated. The II, another way to assess validity of the individual scores, addresses response inconsistency. The EQ-i contains several pairs of questions that have similar content and are highly correlated, and

**Table 3.** Interpretive Guidelines for Bar-On EQ-i Scale Scores

Standard score	Interpretive guideline
130+	Markedly high—atypically well-developed emotional capacity
120–129	Very high—extremely well-developed emotional capacity
110–119	High—well-developed emotional capacity
90–109	Average—adequate emotional capacity
80–89	Low—underdeveloped emotional capacity, requiring improvement
70–79	Very low—extremely underdeveloped emotional capacity, requiring improvement
Under 70	Markedly low—atypically impaired emotional capacity, requiring improvement

these item responses are used to gauge consistency in the results. For over 4,000 individuals who have taken the assessment, the II was greater than 12 in 2% of these responses, and therefore for any IIs greater than 12, the results are considered invalid.

Similar to an IQ score, the average EQ score is 100 with a standard deviation of 15 based on over 4,000 respondents in Bar-On's research. Table 3 outlines guidelines for interpretation of scores (Bar-On 2002):

## Leadership Assessment

Leadership data were gathered by administering the MLQ Form 5X, a text developed by Avolio and Bass, based upon the leadership research by Burns on transactional and transformational leadership styles. The MLQ Form 5X analyzes leadership traits in three primary areas: transformation, transactional, and laissez-faire behaviors. This self-report test, developed by researchers Bass and Avolio and used in academic studies on leadership, is a widely accepted method by which to obtain individual leadership behaviors. The MLQ 5X breaks these three primary categories into nine factors, five of which are considered transformational leadership behaviors, three transactional, and one laissez-faire. Fig. 2 outlines the categories of leadership behavior each factor falls under, followed by definitions of the nine factors.

## Data Analysis

The data collected in this study were analyzed with a combination of methods to answer the two primary research questions. Each step in the process provided different pieces of information about the data. The first step, descriptive statistics, gave an overview of the data and allowed one to see general patterns. Next, analysis of variance (ANOVA) was completed so that one could determine the statistical significance of differences in grouped variables. Then, multivariate data analysis techniques, cluster analysis, discriminant analysis, and regression analysis were applied to the data. Cluster analysis (CA) allowed one to see natural groupings within the data if they existed. From the CA groups, a multiple discriminant analysis was run to determine how the groups differed because of different independent variables. Finally, multiple regressions were run to find relationships between dependent and independent variables.

Transformational Factors	Transactional Factors	Laissez-Faire Factors
<ul style="list-style-type: none"> <li>• Idealized influence attributes – Influence to change worker attributes.</li> <li>• Idealized influence behaviors – Influence to change worker behaviors.</li> <li>• Inspirational motivation – Inspiring others to perform at a higher level.</li> <li>• Intellectual stimulation – Challenging the intellect to get new ideas and transformations.</li> <li>• Individual consideration – Acknowledging each individual for their contributions.</li> </ul>	<ul style="list-style-type: none"> <li>• Contingent reward – Rewards are only based on outcomes and the focus is on close management guidance of activities.</li> <li>• Management-by-exception (active) – Focusing on intervention only after a mistake has been made. Active implies close focus on every activity.</li> </ul>	<ul style="list-style-type: none"> <li>• Laissez-faire leadership – Letting the workers define and run tasks with little intervention.</li> <li>• Management-by-exception (passive) – Intervention is only made when workers make a mistake on tasks they have defined.</li> </ul>

**Fig. 2.** Leadership model factors as measured by MLQ 5X

## EQ—Group Descriptive Statistics

Examining the descriptive statistics for the entire sample shows that the average total EQ is 101.14, just above the general population average of 100 (Table 4). The standard deviation of the general population is 15, while this group's was 10.72. The respondent group also scored higher than the average 100 on four out of five major components of the EQ (intrapersonal skills, stress management, adaptability, and general mood), as well as 8 of the 15 subscales (self-regard, assertiveness, independence, self-actualization, stress tolerance, reality testing, problem solving, and optimism). The group scored right around average on 4 of the 15 subscales (self-actualization, flexibility, impulse control, and happiness). The only major component of EQ on which the group scored lower than average was interpersonal skills, and they were also lower than average on 4 of the 15 subscales (emotional self-awareness, empathy, social responsibility and interpersonal relationship).

## Leadership Behavior—Group Descriptive Statistics

The MLQ Form 5X reports frequency of behavior on a 5-point scale; 1 indicates a response of "not at all," and 5 indicates "frequently, if not always." When looking at the transformational leadership behaviors, on average the group felt they engaged in those behaviors regularly (Table 5). The overall average for transformational behavior was 4.08 out of 5; all five measurements of transformational leadership were close to a 4 response, representing "fairly often."

In regard to transactional behavior, the group had an average of 2.98, indicating just below the response of "sometimes." The contingent reward behavior average was 4.04, indicating "fairly often," while the other two behaviors, MBE Active and MBE Passive, were 2.78 and 2.13, respectively. Finally, the average response for the laissez-faire behaviors was halfway between "not at all" and "once in a while" at 1.56. The respondents as a group did not frequently report behaving in laissez-faire style.

## Analysis of Variance

ANOVA was applied to the both the EQ variables and leadership behavior variables to determine which were significant with respect to mean differences between groups separated by gender, position, and a combination of position and gender (Butler 2005). ANOVA was run by using gender, position, and position/gender as the factors, or categorical independent variables. The dependent or response variables included the scales of EI as well as the three leadership behaviors. For the gender ANOVA, there was one degree of freedom because there were two groups: 1= male, 2=female. For the position ANOVA, there were also two groups,

**Table 4.** Group Descriptive Statistics for EI

EI variable	<i>N</i>	Range	Minimum	Maximum	Mean	Standard deviation
Total EQ	130	50	76.0	126.0	101.14	10.72
Intrapersonal skills	130	58	70.0	128.0	102.55	11.78
Self-regard	130	56	70.0	126.0	102.65	10.64
Emotional self-awareness	130	71	60.0	131.0	99.25	15.72
Assertiveness	130	78	52.0	130.0	102.87	13.72
Independence	130	47	79.0	126.0	105.72	10.75
Self-actualization	130	60	63.0	123.0	100.22	11.44
Interpersonal skills	130	69	51.0	120.0	94.92	13.98
Empathy	130	89	34.0	123.0	94.58	15.37
Social responsibility	130	76	45.0	121.0	96.95	13.10
Interpersonal relationship	130	77	48.0	125.0	94.85	15.68
Stress management	130	49	79.0	128.0	103.50	10.65
Stress tolerance	130	47	81.0	128.0	106.05	11.11
Impulse control	130	63	62.0	125.0	100.22	12.49
Adaptability	130	50	78.0	128.0	101.65	10.03
Reality testing	130	51	71.0	122.0	102.42	10.47
Flexibility	130	69	60.0	129.0	100.12	12.60
Problem solving	130	51	71.0	122.0	101.25	10.41
General mood	130	55	67.0	122.0	101.82	11.06
Optimism	130	60	68.0	128.0	104.16	9.54
Happiness	130	69	51.0	120.0	100.35	13.47

1=presidents, 2=nonpresidents. Finally, for the position/gender ANOVA there were two degrees of freedom, 1=president/male, 2=nonpresident/male, and 3=nonpresident female. The position/gender ANOVA could not follow traditional models by inserting an interaction variable because no female presidents were studied, and therefore the position/gender variable was created to provide an accurate model.

Based on the ANOVA analysis, there are five EI areas where gender and position/gender are considered significant (total EQ, emotional self-awareness, interpersonal skills, empathy, and interpersonal relationship), and there are two areas where position and position/gender are both considered significant (independence and problem solving).

## Analysis

What is the emotional intelligence (EI) profile of the construction leaders studied in this research? The data analysis illustrates that

construction leaders have a slightly higher than average total EQ. The group's EI is less variable with respect to total EQ than is the general population, as shown by the standard deviation being less than the standard deviation for the general population.

## EI Strengths

The top three EI strengths in the group assessed for this study were stress tolerance, independence, and optimism. Stress tolerance falls under the stress management area of EI, independence is categorized under intrapersonal skills, and optimism is a component of general mood.

- **Stress tolerance:** Many people involved in construction would concede that stress is associated with the majority of jobs in the industry. There is pressure to complete a project within a specified time and financial budget, and risk is involved in undertaking a construction project because of the uncontrolled nature of the sites. Each project is different and has unforeseen conditions associated with it, and there is financial pressure

**Table 5.** Group Descriptive Statistics for Leadership Behavior

Leadership behavior variable	<i>N</i>	Range	Minimum	Maximum	Mean	Standard deviation
Idealized influence attributes	130	2.25	2.75	5.00	4.07	0.48
Idealized influence behaviors	130	2.75	2.25	5.00	4.02	0.60
Inspirational motivation	130	2.75	2.25	5.00	4.18	0.51
Intellectual stimulation	130	2.75	2.25	5.00	4.00	0.56
Individual consideration	130	2.5	2.50	5.00	4.11	0.54
Transformational	130	2	3.00	5.00	4.08	0.40
Contingent reward	130	2.25	2.75	5.00	4.05	0.49
Management by exception, active	130	3.75	1.25	5.00	2.78	0.76
Transactional	126	1.75	2.17	3.92	2.98	0.36
Management by exception, passive	130	2.5	1.00	3.50	2.13	0.60
Laissez-faire	130	2	1.00	3.00	1.56	0.47

because profit margins are historically low, reducing flexibility to make mistakes and still gain financially. The leaders assessed in this study have proven to be resourceful and effective as a way to handle stressful situations. The data show they are capable of coming up with suitable methods to deal with adversity and implement a plan to alleviate stress. Additionally, these people overall have a belief in their own ability to face and handle stressful situations.

- Independence: The next strongest EI subscale for the group studied was independence. Scoring high in the area of independence means the group has a high degree of self-confidence as well as the ability to make decisions. As a whole the leaders surveyed have the ability to think independently as well as involve others in their decision-making process. These are undoubtedly characteristics that strong construction leaders need to be successful. The higher score in independence shows that the leaders surveyed possess these characteristics and are in high positions within their companies.
- Optimism: Finally, optimism was found to be a strong EI component of the group assessed. This characteristic measures the way the group regards the future. This subscale may have been different if assessed a few years ago when the post-September 11, 2001, economy was uncertain and beginning a recession. In recent months, construction and the rest of the economy received a boost, and this may contribute to why leaders are more optimistic about the future than the general population.

### EI Weaknesses

The EI weaknesses identified in this study are each components of the interpersonal skills area within the EI profile. The three weakest subscales for the group were empathy, interpersonal relationship, and social responsibility.

- Empathy: Empathy was discussed above and was also an area where women strongly outscored the men in the study. The ability to be aware of, to understand, and to appreciate the feelings of others is not necessarily something practiced often in the construction industry. Historically, construction leaders did not need to be aware of others feelings because it was an industry of “low bidder wins.” There were no hurt feelings if one subcontractor was chosen over another because of a lower price. Historically construction leaders did not need to address issues of feelings in the workplace.
- Interpersonal relationship: The second weakest EI area for the group was interpersonal relationship. This subscale aligns with empathy in that it is the ability to form intimate relationships with others. Again, this was an area where the women studied outscored the men by a large margin. Construction is not considered a “touchy-feely” industry by any means. As mentioned above, relationships with subcontractors were historically based on pricing, not on how well one liked the subcontractor. Construction leaders did not need this aspect when they were expected to act as tyrant-type rulers. Intimate comfortable relationships were not typically formed between construction leader and subordinate.
- Social responsibility: The final subscale of EI where the group underperformed was social responsibility. This weakness shows that the group has an attitude that it is acceptable to take advantage of others for one’s own gain, which again is the historical nature of the construction industry. In addition, social responsibility may be lower for the respondents because their positions warrant them to focus a lot of their energy on increasing the stock value of the company if it is publicly held.

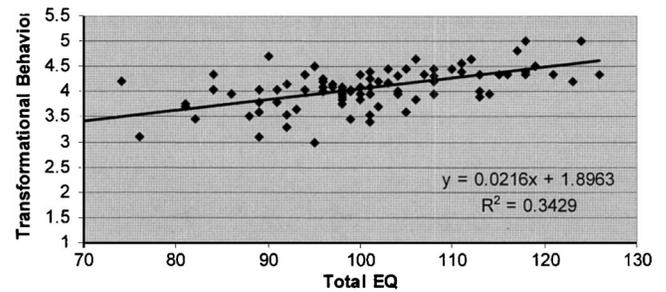


Fig. 3. Total EQ versus transformational behavior for respondents with regression equation and variance explained

Priorities may change in response to the shareholders of the company. This attitude would explain a lower score on social responsibility.

### Leadership Behaviors

The leadership behavior profile of the surveyed group is the second primary analysis completed in this study. Based on the data collected, the group sees themselves as transformational leaders who sometimes behave as transactional leaders. Overall they did not report engaging in laissez-faire leadership frequently.

Of the five transformational leadership behaviors, the group engaged most frequently in inspirational motivation, which refers to the ways by which leaders energize their followers by viewing the future with optimism. Behaviors such as stressing ambitious goals and projecting an idealized vision for the organization fall into this factor. In addition, communication to the followers that the vision is attainable is considered an inspirational motivation behavior.

Of the three transactional behaviors, the most frequent behavior was contingent reward, which refers to behaviors of leaders focused on clarifying role and task requirements. It also includes leader behaviors of presenting followers with material or psychological rewards contingent on the accomplishment of contractual commitments. The respondents engaged in this behavior almost as frequently as they engaged in transformational behaviors.

### EI—Leadership Relationship

To answer the question of whether a relationship exists between the EI of the leaders and their leadership behaviors, several bivariate and multivariate statistical techniques were employed. Although each of these techniques provided important statistical insights, regression analysis gives the clearest indication of the link between EI and leadership behaviors. To illustrate, bivariate regression was used to look at simple relationships between the dependent variable, transformational leadership, and single independent variables such as total EQ, age, and education level, as well as single subscales of EQ. It gives an easy-to-interpret first pass at the data to determine if relationships exist. A relevant bivariate regression analysis completed in the study was between transformational behavior and total EQ. Fig. 3 illustrates the scatterplot of the data as well as the regression equation and variance explained ( $R^2$ ).

This bivariate regression shows there is a relationship between total EQ and transformational leadership behavior and that 34% of the variance of transformational leadership behavior is explained by total EQ. The unstandardized regression coefficient for total EQ was 0.022, meaning that for a 1-point increase in total

EQ, transformational leadership increased by 0.022 on the 5-point scale. In addition, the model is significant to  $p < 0.001$ , meaning there is less than a 0.01% probability that the relationship in the model occurred by chance.

In addition to the bivariate regression analysis, 10 multiple regression analyses were also run on the data. The analysis found that the models with the highest variance explained are those that used all 15 subscales against transformational leadership behavior. The models that included total EQ improved the variance explained by the same models, excluding total EQ. Those models also showed that total EQ was more important when combined than were any of the individual components.

As illustrated by the regression analysis, interpersonal skills were found to be the most important of the five major components of EQ in explaining transformational behavior. More specifically, empathy, a subscale of interpersonal skills, was found to be the most important variable of the 15 subscales in explaining transformational leadership behavior variance.

## Conclusion

In summary, once the data were gathered, various techniques were used to analyze the data points. First, descriptive statistics gave a general overview of the EI and leadership behavior profiles of the leaders surveyed. ANOVA was next applied to various groups of the data to determine by which variables the groups differed. Then, the multivariate techniques of cluster analysis, discriminant analysis, and regression analysis were applied. Strong relationships were determined between EI and transformational leadership behavior based on the outcomes of the discriminant and regression analyses.

From the onset of this study it was thought that the most important piece of this research was determining if a relationship exists between emotional intelligence and leadership behavior. If proven, then many more questions can be asked and investigated regarding how to implement these ideas into a construction organization. The results of this exploratory study into the realm of emotional intelligence and leadership behaviors of construction leaders have indeed proven that a relationship exists. Not only does a relationship exist, but a strong one as measured by social science researcher standards. While an individual's total EQ composite was the most important to the relationship with transformational behavior, this study also showed specific areas where an individual could improve his or her total EQ with the most impact on transformational behavior.

This relationship has a significant potential impact for construction organizations. Specifically, as organizations prepare the next generation of executives, the criteria for selection as well as

the development of the selected individuals should be expanded to recognize the value of EI and leadership traits. Additionally, current executives should analyze their own leadership behaviors to determine if transformational leadership patterns are being adopted. Given the relationship between EI and transformational leadership, the potential exists for organizations to move current leadership in the direction of transformation decisions. This will ultimately enhance the ability to change and enhance the opportunity for the organization to remain competitive.

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