

THE QUEST FOR *LOGIA* *PSYCHE* IN BUSINESS LEADERSHIP

An Empirical Study of Cognitive Moral Development in Construction Industry Dyads

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This research study examines the ageless human debate of the body versus the soul, testing leadership in the industry of building constructors. Based on Kohlbergian theory of cognitive moral development, the multidisciplinary literature review advances the proposition that moral development proceeds in waves of egoism, leading to altruism that is couched in power—"the apple of the eye." The results from respondents of the Iowa Architects Institute of America ($n = 93$) indicated that, despite their higher education and aesthetic interests, the sample of architects ranked low on moral maturity level compared to the average of the Defining Issues Test data bank as a whole. *Principled* scores were 36.4 for architects and 39.1 for the data bank. This research also compared the moral maturity of intra-industry groups in marketing dyads consisting of architects, contractors, and suppliers using analysis of variance. Again, it was expected that architects with higher education and aesthetic interests would rank highest. Findings of post hoc comparisons revealed no significant difference in moral maturity level between architects and contractors engrossed in the same power paradigm ($p = 1.00$), yet a significant difference existed between architects and suppliers ($p = 0.024$). This implication is consistent with the teleological ethical pattern that is prevalent in research studies of salespeople.

The empirical quest for *logia psyche*, “the study of the soul,” was spurred by the European Enlightenment of the 18th century within the field of philosophy (Byrne, 2002). Soon after, psychological inquiry exploded onto the academic scene in concert with the Industrial Revolution. Remarkably absent from the research agenda was concern for the esoteric aspects of the human, treating workers “as mechanisms to be studied” (e.g., Hawthorne Studies; Wines, 2008, p. 485). Although the natural sciences paved the way for advancement in the *quantity* of life, little has changed in two centuries by way of advancement in the *quality* of life. Albert Einstein, an astute observer, exclaimed at the detonating of the first nuclear reaction, “Everything has changed except our way of thinking” (Cascio & Aguinis, 2005, p. 10) while U.S. Gen. Omar Bradley noted at an Armistice Day occasion that “the world has achieved brilliance without conscience. Ours is a world of nuclear giants and ethical infants” (Drumm, 2002, p. 17).

Business schools need a cohesive set of questions and methods (Ghoshal, 2005; Vermeulen, 2005; Pfeffer & Fong, 2004). But business leadership is resistant to the forms of good afforded to other disciplines such as law or medicine. Practices in business are always contested, tearing away the stability of “acceptable ‘ends’ as those, say, of justice and fairness that inform the profession of law, or of physiological well-being that inform medicine” (Chia & Holt, 2008, p. 472).

The purpose of this empirical study was to investigate human decision-making in business leaders as the unit of measurement for moral development on the basis of Kohlberg’s cognitive moral development theory (CMD): “For Kohlberg . . . the work of philosophy is to provide insight into the *ought* and the work of psychology is to provide insight into the *is*” (Richmond & Cummings, 2004, p. 199). The question becomes, what happens to ethical character (decision-making) in a profession well informed by idealistic education yet conformed to teleologist norms? As such, a contest between moral philosophy and industrial psychology emerges in this study of certain leaders in marketing dyads. Is *good* better informed by education or by rules of engagement? The business of construction affords an ideally controlled experiment from a frame of reference that mirrors pure competition. Because constructors’ rules of engagement allow only coercive forms of power, the research vari-

ables are cradled in the crucible of decision making *centeris paribus*. So if academia ordinarily posits that education level is the *prima fascia* variable—the predictor of good—then architects would be expected to score higher than contractors and suppliers. To advance this dilemma, a theory base to support the research is presented. Then the methodology, results, and implications are presented to test this tacit hypothesis that education will prevail over power.

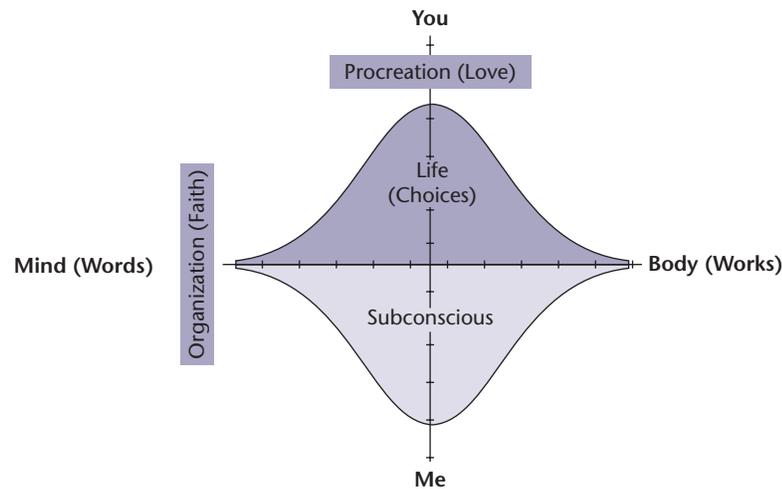
A Theory Base to Support the Empirical Study

BUILDING DECISION-MAKING THEORY

This research project builds on human theory in the arena of systems of power, exposing two diametrically opposed positions: the body versus the soul and preservation versus procreation. In psychology Mahoney (1991) posited that in ontology “the two most enduring debates have focused on the nature of reality (with idealism and realism as opposite poles) and on the related issue of how (and whether) physical and nonphysical realms can relate to one another” (pp. 35–36). In philosophy Forsyth (1980) developed a 2×2 taxonomy with idealism and relativism on opposite ends of the poles. The disciplines of philosophy and psychology both theoretically recognize the motivational pull of the body (affecting the dynamics of realism) and the motivational pull of the society (affecting the dynamics of idealism). Therefore, a parsimonious explanation of human decision making is depicted in terms of a normal distribution shown in Figure 1. Two general dimensions of choice are reflected in the x and y axes as simply horizontal and vertical motivation with the endpoints of organization and procreation. The third dimension is reflected in the hope of life—the place chosen on the plane. This statistical representation portrays a single moment of time, depicting the essence of every decision of every human being in the population of our universe. It is a Gaussian distribution (Aczel & Sounderpandian, 2006).

Using the interrogatories in life to represent the five exclusive variables of ethics, the question *what* encompasses the right side of the horizontal axis of Figure 1. One’s senses discover and explain reality. The question of *why* encompasses the left side of the horizontal axis. One’s mind searches for connections between the physical and

Figure 1. A Momentary Frequency Distribution for the Choices of all Living People



invisible as well as how experiences of life are explained and organized. *Who* encompasses the individual's choices of benefiting me or benefiting you along opposite ends of the vertical axis. *How* describes bases of power that each person uses to select the exact place (decision or action) on the plane of the distribution. Verbs used in semantics describe the quality of the place on the distribution, often with a hint of power needed to sustain that choice. For instance, coercive power suggests choices using the body for personal benefit (lower right in the distribution) while communication power suggests choices using the mind for the benefit of others (top center of the distribution). Finally, the *when* and *where* of the frequency distribution is here and now—the individual's place. But the human being practices feed-forward and feed-backward to veraciously position each succeeding place in time and space. Life cannot exist without a place on the frequency distribution. If depth were added to represent all moments of time, the distribution would be immeasurable and the shape of the bell curve would certainly change according to the particular epoch that mankind happened to be enduring.

Horizontal motivation is well documented in research literature. Kohlberg's cognitive moral development theory (CMD) depicts the range of the subject's choice along the axis of horizontal motivation, that is, from the body externally (by the senses) to the body internally (by the mind). These thinking patterns have been

labeled as pre-conventional (subdivided into stage 1 and stage 2), conventional (subdivided into stages 3 and 4), and post-conventional (subdivided into stages 5 and 6). Vertical motivation is also well documented in research literature. The byword today is culture, so vertical motivation depicts the subject's desire that ranges from intrinsic (for "me") to extrinsic (for "you"). The physical mechanism for preservation or procreation begins with eight tiny beadlike structures of the brain located in the roof of the mouth, the hypothalamus, and proceeds through both the limbic subdivisions and thalamocingulate division of the brain (Loye, 2002). Kohlberg's Moral Judgment Interview provided a scale that depicted the position of a subject's overall decision making schema on the plane of Figure 1, a reflection of *what*, *why*, and *who*. The quality of decisions moves from far right on the scale to far left on the scale, that is, from pre-conventional to conventional (center of the bell), to post-conventional.

Kohlberg basically built on the work of Piaget. He purported that individuals first view rules as external requirements (Mujtaba, 1997; Duska & Whelan, 1975). So principles such as prudence and authority would appeal to the *pre-conventional* mind-set, similar to Forsyth's teleologist moral philosophy (1980). However, interactions with others eventually cause self-centered behavior to give way to quid pro quo reasoning and reciprocity. For *conventional* reasoning, good behavior is a matter of adhering to

rules in order to please others in the peer group, similar to Forsyth's deontologist moral philosophy. Motives such as living up to expected roles and fulfilling obligations become paramount as well as acceptance and common good (Trevino, 1992). Oftentimes, Kohlberg's writings mention philosophic theories tied to *postconventional* cognition. His writings point to the common roots of John Rawls, John Dewey, and Immanuel Kant because "justice is an umbrella concept for them, covering concerns of liberty, equality, and respect for persons" (Boyd, 1980, p. 191). Justice is demonstrated by fairness and reciprocity, similar to Forsyth's relativistic idealistic skeptic moral philosophy.

Kohlberg (1980) did not claim that individuals exhibiting postconventional cognition were any more moral than those seen as pre-conventional. However, he did state that postconventional reasoning was more advanced because it required more differentiation of ideas and greater inclusion of lower-stage criteria. Thus the full range of Kohlbergian principles was available to the individual. That is, "prudence (and self-realization); welfare of others; respect for authority, society, or persons; justice" (Macdonald, 1980, p. 383). According to Kohlberg, welfare of others and justice are the only remaining factors at stage 6 reasoning. However, Gilligan (1982) noted that Kohlberg's seminal research was conducted on 84 boys. Stage 6 reasoning proved to be a rarity. Later research that included women seemed to confine female moral development to stage 3 "goodness," exemplified by helping and pleasing others (p. 18). The idea that stage 6 reasoning even existed in mankind was contested by such future researchers as Rest and his colleagues (Rest, Narváez, Bebeau, & Thoma, 1999; Mujtaba, 1997).

"The next major milestone in moral judgment research was methodological and occurred with the development of the DIT," write Nichols and Day (1982, p. 202). Rest developed the Defining Issues Test (DIT) to solve the complexity of ranking subjects as previously required in the Kohlberg interview process. By objectively scoring responses and assigning a number relative to importance, one produces a continuous index number that correlates with the six stages of moral judgment of CMD. This continuous index number is labeled the individual's Principled score (P-score). A subject is given a multiple-choice questionnaire that begins with a brief

reading of a moral dilemma and a corresponding decision or course of action. The subject must then choose among three scenarios according to what he or she would have done. Next, 12 statements are posed that describe possible ideas for fixing the problem. The respondent is asked to (1) rate the importance of the statement and (2) rank the four most important:

The DIT has been subjected to extensive study of its properties, which are reviewed by Davison and Robbins. For the 6-story version, test-retest reliabilities in the high .70s or .80s are reported, and internal consistency, using Cronbach's Alpha, is reported in the high .70s [as cited in Nichols & Day, 1982, p. 203].

The useful index score, traditionally called the Principled score or P-score, represents the subject's propensity to reason from postconventional thinking by ranking the choices in regard to ethical dilemmas. The scores range from a low of 0 to a high of 95, so the higher the subject's P-score, the higher the level of moral maturity.

The steady support for CMD since Kohlberg's passing in 1987 must be attributed in part to the work of Rest and his colleagues. In answer to serious criticisms of theory and methodology, Rest recasts both. Apparently, the alterations also conform to empirical validations performed by thousands of researchers who have employed Rest's DIT instrument. Core ideas retained are (1) the emphasis on cognition; (2) the self-constructed concepts of justice, duty, rights, and social order; and (3) the idea of growth, at least from conventional to postconventional reasoning. Important concepts changed include (1) a "macro morality" approach that applies CMD to structures of society (strangers) rather than a "micro morality" approach that deals with everyday acquaintances, (2) gradual stages represented by shifting distributions rather than the metaphor of hard stair-stepped stages, and (3) an admission that morality reflects other components and processes rather than implying that cognition is the endpoint (Brady & Hart, 2007). Besides these, stage 6 cognition as well as stage 1 have fallen to the wayside. What remains, then, are merely two *levels* of cognition according to Rest, conventional and postconventional. Postconventional thinking is described more narrowly. The reason for the

changes is lack of empirical evidence and peer criticism (Rest et al., 1999).

Looking back at Figure 1, we find it noteworthy that extreme pre-conventional reasoning and extreme post-conventional reasoning fall in the tails of the frequency distribution, indicating they have much more to do with “me” than social concerns. This fact caused one scholar to warn his students that biting and devouring each other leads to destroying one another. By contrast, one should not use freedom to indulge oneself, but serve one another in love (Gal. 5, New International Version). Then, the bulk of the human experience is depicted in the middle of the frequency distribution. Thus, the philosophical argument that reality is largely socially constructed merits favor. However, the human autonomous system, depicted in the shadow of the subconscious, similarly encompasses a large part of life. Consequently, the philosophical argument that reality is largely inwardly constructed cannot be denied. These perspectives mirror the debate between the respective adherents of Piaget and Vygotsky (Cole & Wertsch, 1996).

Kohlberg argued that the far left side of the frequency distribution (stage 6 reasoning) was always the most desired morally. It may be true that stage 6 CMD theoretically required greater cognitive ability, but when taken to the extreme, its stepchildren are labeled ethical egoists who completely disregard the welfare of others (Forsyth, 1980). Rest and his colleagues (1999) claimed that stage 6 reasoning did not exist at all because it could not be measured. His answer was to focus on the middle of the distribution. This conclusion bodes well for the work of the ancient philosopher Aristotle, who voraciously argued his moral Doctrine of the Mean (Cavico & Mujtaba, 2009). It is at the peak of the frequency distribution espoused by Aristotle where altruistic decision making proliferates.

The next section emerges from theory building to reflect on actual findings using Rest’s (1999) P-score scale in various disciplines. The evidence gathered from ethics research should be prefaced with the observation that the base-of-power variable remains a tacit assumption in many research studies. Rules of engagement affect *how* decision makers approach social decisions (e.g., the disciplines of law and medicine previously mentioned). For instance, Trevino and Youngblood (1990) used reward and punishment as independent variables in their empirical study of what individuals do in ethical dilemmas.

Rezabakhsh, Bornemann, Hansen, and Schrader (2006) reviewed the research literature regarding dynamic changes in consumer decision making caused by the emergence of the Internet. The researchers’ evaluation was based on French and Raven’s 1960s treatise on bases of power. The results of business research studies in ethics show a tendency to focus on the right side of the distribution of moral choice, feeling the pull of self-interest and teleologism (Premeaux, 2009; Wines, 2008). This supposition may be reflected in the lower P-scores of business students. In this new millennium, business schools are the largest discipline in higher education. Pfeffer and Fong (2004) wondered whether U.S.-dominated business schools can “find a soul” (p. 1510).

CURRENT SCHOLARSHIP ON CMD: THE BRIDGE FROM PAST TO PRESENT

Interdisciplinary Studies

Rest et al. (1999) argued that “education is by far the most powerful demographic correlate of DIT P-scores, typically accounting for 30% to 50% of the variance” (p. 70). Educators and researchers have deliberated on developing curriculum that would increase CMD as well as moral motivation. Rest and Narváez (1994) argued for a methodological approach, which included “dilemma discussion, deliberate psychological education” and “directly teaching justice operations” (pp. 41–43). The experimental labs at the University of Minnesota focused on the disciplines of nursing, teaching, counseling, accounting, dentistry, and medicine. The researchers’ efforts were supported with rising moral maturity level, despite the admission that such tightly targeted audiences would be difficult to replicate over an entire campus.

Cross-sectional comparisons such as those advanced at the University of Minnesota have been a popular theme in many research studies. Searching for naturally occurring traits as a common denominator in occupations has been an important proposition, yet an elusive one. The question is whether individuals trained in certain fields of study are more or less experts in moral decision making. Schulte (1997) measured the CMD of 92 respondent members of the American Hospital Association. Their mean P-score was 41.1. Reavy (1999) studied 207 members of the American Board of Vocational Experts or of the Certified Disability Management Specialists; their

mean P-score was 41.5. Evans's study (2005) of 122 members of the National Black MBA Association reflected P-scores at a mean of 36.99. Ariail (2005) surveyed 306 CPA respondents whose mean score was only 33.53. In addition, the large majority of these recent participants were at a master's level of education.

Recent empirical studies of bachelor's-level participants have shown some dispersion of results. Galla (2006) reported the mean P-scores of 61 finance students and 60 accounting students at 23.45 and 26.67, respectively. Finally, Loescher (2004) examined 349 business students with no ethics training; their P-score was approximately 37, while a target group of business students with ethics training ranked at only 30.38, which appears to be counterintuitive to heuristic methods of teaching ethics.

Intradisciplinary Studies

The study of CMD among cohorts of the same industry holds significant promise for understanding power relationships in connection with moral maturity, even though testing is quite limited. The difference is discovery within disciplines versus between disciplines.

For instance, Drumm (2002) examined the moral maturity of 412 public servants (fire chiefs, public works superintendents, police chiefs, and village/city administrators). Interestingly, the participants' mean ratings were 53, 41, 32, and 30, respectively. Drumm's literature review emphasized the social expectation for relatively high ethical standards because public servants have been thrust to the forefront of the public eye since September 11, 2001. Consequently, it seems odd that fire chiefs and public works superintendents ranked highest in moral maturity, even though their education level was significantly lower than the others (mostly bachelor's degree and below). Perhaps the better educated administrators and police chiefs do indeed fit the *laissez-faire* ethical patterns that are reflected by anecdotal presentations explored in the media.

Some interesting lines have been drawn in these intradisciplinary relationships. Drumm (2002) argued that the politically correct perspective (along with lower scores) of administrators and police chiefs emanates from a legalistic framework. Their attitude is necessary to survive in the tough arena of town politics. On the other hand, fire department chiefs reflect the high degree of trust (along with higher scores) typified by their

exemplary office. Thoma, Rest, and Barnett (1986) made reference to "political toleration" to explain the phenomenon of moral maturity resulting from positions in their respective disciplines.

Not-so-subtle positional relationships could explain a great deal about CMD, even more so than the effect of education level. In the throes of power, moral reasoning may best be assigned to schemas that reflect actual industry practice. Hence, life is all about power—the "apple of the eye." Although educational level has been parsed as the most salient feature of moral maturity level, occupational studies within industries may prove to be just as prolific in affecting P-score.

Methodology

THE CONSTRUCTION INDUSTRY POPULATION

The researchers proposed to test empirically the moral development of various constituents in construction: architects, contractors, and suppliers. In this industry the rules of engagement explicitly exclude all bases of power except coercive power; other forms are effectively controlled. Contractors work under a marketing paradigm in which exacting contract documents are developed by architectural professionals, who nullify communications (expert power), commitment and trust (referent power), and shared values (legitimate power). All of these noncoercive variables are controlled, which leaves opportunistic behavior (reward and coercive power) for the study. Success is measured only by a *low bid in accordance with the contractual documents* in an industry that aims for a level playing field. As a result, some amount of rule bending is common practice for contractors who try to get an edge up on the competition.

The profession of building design, contracting, and construction is highly regulated through rigorous training, licensing, and accepted business practices. Yet, according to Transparency International (TI), the global watchdog group, the construction industry has the highest potential for unethical practices. The Berlin-based TI reported that public works corruption topped its Bribe Payers Index in 2002; another survey of 851 international respondents reported that nearly 23% viewed standards as deteriorating further in the future (Reynolds, 2004).

On the local level, fraud oftentimes goes unnoticed except for rare cases, such as 31 architects and real estate

brokers who got caught red-handed in a 1999 bid-rigging scandal. Representing 24 firms in New York and New Jersey, the criminals lost their licenses and livelihoods. Just a few months earlier, five big contractors in the same municipalities were also caught in collusion. Yet without any licensing constraints, they were soon back in business or relocated; they were able to convince clients their questionable conduct was just an aberration (Croghan, 1999).

Miller (2005) reported 18 defective construction lawsuits against contractors in Colorado, amounting to 20–65% of original values. In a survey of members of the Construction Management Association of America, other most critical issues were ranked as “payment games, bid shopping, reverse auctions, over-billing, change order games, unreliable contractors, and claims games” (Parson, 2005, p. 52). One result is that clients are more aware of *caveat emptor*.

Businesses developing their infrastructures may or may not have considerable wealth and trade. The construction of related facilities requires hefty amounts of highly specialized material and labor. Contracting for infrastructure tends to be secured through the traditional process found in various regions of the world, whereby an invitation to bid may originate from procurement sources, including independent reporting services, constituent associations, governmental channels, and even local newspapers. Generally, building owners employ a team of architectural design and engineering professionals to steer them through the delicate process of feasibility, design, contract award, and construction. Sometimes the project will be broken down to subcategories to encourage the participation of small and medium-sized specialty constructors. With millions of dollars often on the line, everything is geared to stimulate optimum competition.

General contractors enter the fray soliciting numerous specialty subcontractors and suppliers to estimate the costs for various portions of the project. Along with familiarizing themselves with exacting plans and specifications, including contract documents, the general contractor must secure a financial relationship with a surety company for a performance bond and labor and material payment bond. It is not unusual for the documentation to consist of as many as 100 plan sheets two feet by three feet, and several thousand-page volumes

of specifications. Estimating systems must employ rigorously trained specialists who can combine the intricacies of design, dollars, and delivery. Estimators must be detailed, competent, and aware of many factors. The practices are widely known and accepted; they have been used for many years through generations of building construction cycles. Cost estimating is the primary step in the endeavor. Errors in cost estimates can occur when mistakes are made, but they always are borne by the contractor who throws his or her hat in the ring with a 10% guarantee to go through with the deal if successful with the low bid.

The actual bid day is chaotic, with hundreds of costs funneled into the actual bid. Although the track record of the general contractor is vital, it is practically a given that the award goes for low price. In some corners of the marketplace further negotiations are predicated on alternative laundry lists of additions and deductions to the base bid. Having the wits to be successful requires extensive experience and knowledge of the potential reactions of the negotiator on the other side of the table. Finally, actual construction begins only after administration of contract documents, among them shop drawings identifying every building component.

Throughout the entire process, opportunism can creep in. Sometime it is subtle and other times salient. The give-and-take between constituents is as natural as breathing for a seasoned team involved in construction projects. In addition, the line of propriety tends to blur back and forth between the background and forefront of moral choice. The contract is drawn up among owner, architect, general contractor, specialty contractors, and suppliers. In an ideal world, the contract between buyer and seller would be even-handed and with equal advantage. In practice, however, contract language and customs may be filled with ever more onerous allowances the further one goes down the food chain.

RESEARCH QUESTIONS

The question this study seeks to resolve is whether there is a relationship between work position in the construction industry and moral judgment level on Kohlberg’s scale as measured by the Defining Issues Test (DIT). Therefore, this research used the DIT’s Principled score (P-score) to examine and compare cognitive moral development of architects, construction contractors, and

construction suppliers. The purpose of the study is to answer these questions:

Research Question 1: Do architects have a higher moral maturity level as measured by P-score than the mega sample?

Hypothesis 1: There is a significant difference between the moral maturity level of architects as measured by the P-score and the mean score of 39.1 of the aggregate mega sample of DIT respondents.

Research Question 2: Do architects have a higher moral maturity level as measured by the P-score than contractors in the construction industry?

Hypothesis 2: Architects do have a significantly higher moral maturity level as measured by the P-score than contractors in the construction industry.

Research Question 3: Do architects have a higher moral maturity level as measured by the P-score than suppliers in the construction industry?

Hypothesis 3: Architects do have a significantly higher moral maturity level as measured by the P-score than suppliers in the construction industry.

THE CONSTRUCTION INDUSTRY SAMPLE

The Iowa chapter of the American Institute of Architects (AIA) was solicited for a current listing of all members of the association. The AIA of Iowa represents 750 individual member architects who are working in the field of architecture as well as 93 associate members who are working as suppliers or service providers in the construction industry. Second, the Associated General Contractors of Iowa (AGC) and the Associated Builders and Contractors of Iowa (ABC) were solicited for a current listing of all their members. These organizations were represented by 185 and 474 members, respectively.

A DIT survey with cover letter and demographics questionnaire was mailed first-class to 1,502 architects, contractors, and suppliers in Iowa, with a postage-paid return envelope. One hundred sixty-six construction industry constituents participated in the survey, representing the Iowa AIA, ABC, and AGC associations. Statistical testing and analysis for CMD was conducted by the Center for the Study of Ethical Development at the University of Minnesota. The scores of five respondents were purged because of too much missing data or

meaningless responses that were detected by data reliability checks of the DIT instrument. The scores of another eight respondents were purged because their occupation was indeterminate or simply not in the construction field; several participants who completed the DIT failed to fill in the demographics questionnaire, and other respondents indicated they were not involved in construction, including a CPA, a trainer, and a scientist. Thus, the final study sample n was 153; this response rate was 10.2%. The executive director for the AIA cooperatively emailed members about the survey. This boosted the response rate among architects to 94 respondents, while contractors and suppliers were only 32 and 27, respectively.

Results

DEMOGRAPHICS

The subjects responded to a number of additional questions concerning their demographical information as follows: construction field, education, work experience, age, gender, previous ethics training, and code of ethics. Respondents were also asked about their propensity to practice opportunistic behavior (1) when the other party knew and (2) when the party did not know that cutting corners or cutting prices was going on. The demographic results including education, work experience, and age were used to explore the statistical significance between construction field and DIT P-score using ANOVA. Other demographic questions were not critical to the research questions but will be used for possible future research.

Six construction categories were offered to the respondents: architect, engineer, general contractor, specialty contractor, supplier, and other. For purposes of this study, the responses of architects and engineers were combined as well as general contractor and specialty contractor. Only four of the design professionals were engineers rather than architects. The split between general contractors and specialty contractors amounted to 13 versus 19, respectively.

Six categories were offered to the respondents concerning their years of education: high school, Associate's degree, Bachelor's degree, Master's degree, doctorate, and other. These responses were ordinal data, reflecting their years of education as 12, 14, 16, 18, and 20, respectively. The category *other* was also appropriately scored such as a subject with a GED who received a 12.

The higher education level of architects was indicated by the profile of the sample. Sixty percent ($n = 56$) had a Bachelor's degree compared to 53% for contractors ($n = 17$) and 41% for suppliers ($n = 11$). Master's degree and above was shared by 31% of architects ($n = 32$) compared to only 9% of contractors ($n = 3$) and 11% of suppliers ($n = 3$). Conversely, the lower level of education for contractors and suppliers is indicated. Thirty-eight percent of contractors ($n = 12$) had an education level below the Bachelor's degree, and 48% of the suppliers ($n = 13$) had less than a Bachelor's while only 6% of the architects ($n = 6$) had a lower education level.

The respondents simply filled in their years of work experience and age. Generally, these continuous variables are well distributed across the spectrum, with the exception of older architects. There were 35 architects out of 94 (37%) with more than 30 years of work experience. The longest record was 65 years of work (at age 87).

P-SCORE: THE DEPENDENT VARIABLE

The most important index of the DIT is the subjects' recognition of postconventional ideations as indicated by P-score, which is the primary measure of CMD. Conventional and postconventional moral thinking has been defined as follows:

At Stage 4 the individual takes the perspective of a generalized member of society. This perspective is based on a conception of the social system as a consistent set of codes and procedures that apply impartially to all members. The pursuit of individual interests is considered legitimate only when it is consistent with maintenance of the sociomoral system as a whole. The informally shared norms of Stage 3 are systematized at Stage 4 in order to maintain impartiality and consistency. A social structure that includes formal institutions and social roles serves to mediate conflicting claims and promote the common good. That is, there is an awareness that there can be conflicts even between good role occupants. This makes it necessary to maintain a system of rules for resolving such conflicts. The perspective taken is generally that of a societal, legal, or religious system that has been codified into institutionalized laws and practices.

The stage 5 prior-to-society perspective is that of a rational moral agent aware of universalizable values and rights that anyone would choose to build into a moral

society. The validity of actual laws and social systems can be evaluated in terms of the degree to which they preserve and protect these fundamental human rights and values. The social system is seen ideally as a contract freely entered into by every individual in order to preserve the rights and promote the welfare of all members. This is a "society-creating" perspective rather than "society-maintaining." Society is conceived as based on social cooperation and agreement. (Colby et al., as cited in Rest et al., 1999, pp. 35–36)

The rating and ranking protocol in the three-story version of the DIT produces a score totaling 0 to 30 of the postconventional ideations. These are then converted to percentages, which can range from 0 to 95 for the subject's actual P-score. The overall P-score of the study sample, the construction industry, was 34.4, with a standard deviation of 15.32 and a range between 0.00 and 76.67. Apparently the construction field ranks solidly in stage 4 cognitive moral reasoning.

For the study at hand, the architects had the highest P-score, with a mean of 36.4. Contractors followed with 34.06 and suppliers had a P-score of 27.65. Table 1 lists the average scores of the groups as well as their standard deviations and ranges.

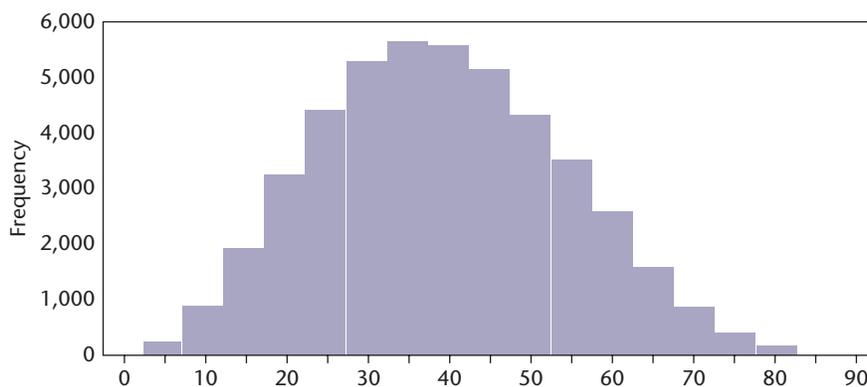
Two architects tied for the highest individual P-scores, at 76.67. The lowest P-score was also an architect, at 0. As far as the ranges of the subjects' P-scores, architects placed between 0.00 and 76.67, contractors placed between 3.33 and 56.67, and suppliers placed between 10 and 46.67. Consequently, the ranges for architects, contractors, and suppliers were 76, 56, and 36, respectively.

INTERINDUSTRY GROUP FINDINGS: RESEARCH QUESTION 1

The primary purpose of this research study was to compare the P-score of architects to certain other construction industry constituents as well as the DIT mega sample. Evens (1995) compiled a large sample from DITs; they were scored by the Center for the Study of Ethical Development from 1989 to 1993 (as cited in Rest et al., 1999). More than 800 studies were included, examining people of all walks of life dispersed all over the United States. Figure 2 displays the histogram, which was approximately normally distributed with a mean of 39.1 and a standard deviation of 14.84. The range was from 0 to 91.

Table 1. Descriptive Statistics for P-score in Various Construction Fields

Field	Sample Size	Mean	SD	Range
Architects	94	36.4	16.27	0.00 to 76.67
Contractors	32	34.06	12.32	3.33 to 56.67
Suppliers	27	27.65	12.01	10 to 46.67
Total	153	34.3648	15.10843	0.00 to 76.67

Figure 2. Histogram of P-scores for the "Mega" Sample

Source: From Rest et al. (1999).

Table 2 lists where architects fit into the overall scheme of P-scores, as well as contractors and suppliers.

Architects scored 28.6 points lower than moral philosophers and only 17.7 points above juvenile delinquents. The results are indicative of the conventional reasoning required for maintaining the norms in the construction industry, in lieu of postconventional reasoning that searches out the welfare of the social system. This is despite the architects' higher education level, which is counterintuitive to other research studies.

The construction industry is known for the tacit rules of the game, as indicated by a propensity to maintain bidding norms in day-to-day practice, which is reflected in the low P-scores for contractors and even lower P-scores for suppliers. Essentially this means that when these groups think about moral problems and dilemmas little thought is given to the betterment of society, compared to moral philosophers and the like. Compared to the DIT data bank mean of 39.1, architects scored only 36.4 on moral maturity level. In summary, research question 1 queried, Do architects have a higher P-score than

the average of the DIT data bank? Architects obviously did not. Thus the null hypothesis is accepted and the alternative is rejected for research question 1.

INTRA-INDUSTRY GROUP FINDINGS: RESEARCH QUESTIONS 2 AND 3

Is there a statistical difference in P-score among architects, contractors, and suppliers? The first step in the data analysis was a covariate screening to determine whether the dependent variable (P-score) was significantly related to any of three covariates: years of education, years of work, or years of age. Bivariate correlations were conducted to evaluate the effect of the potential covariates and their relationship with the independent variable. Table 3 displays the correlation matrix. The correlations showed that P-score was not significantly related to years of education, years of work, or years of age. Consequently, none of the variables were used as covariates in the statistical model.

The second step in the data analysis involved satisfying the assumptions for running ANOVA. The values

Table 2. P-scores for Various Groups

Group	Average P-score	Source
Moral philosophy graduate students	65.2	Rest & Narváez (1994)
Law students	52.2	Rest & Narváez (1994)
Doctors	49.2	Rest & Narváez (1994)
Fire chiefs	53.0	Drumm (2002)
Graduate business students	42.8	Cavico & Mujtaba (2009)
Average college students	42.3	Cavico & Mujtaba (2009)
Average adults	40.0	Cavico & Mujtaba (2009)
<i>Architects</i>	36.6	Authors
Certified public accountants	33.5	Ariail (2005)
<i>Contractors</i>	33.4	Authors
City administrators	30.0	Drumm (2002)
<i>Suppliers</i>	27.7	Authors
Prison inmates	23.5	Cavico & Mujtaba (2009)
Finance business students	23.45	Galla (2006)
Delinquent 16-year-old boys	18.9	Cavico & Mujtaba (2009)

Table 3. Bivariate Correlation for P-score in Intra-Industry Groups

	1	2	3	4
P-score (1)	—	0.15	0.01	-0.01
Years of education (2)		—	0.04	0.07
Years of work (3)			—	0.91**
Years of age (4)				—

Note: ** $p < 0.01$.

for P-score were standardized by group, which resulted in z scores. Standardized scores that were greater than the absolute value of 3 should be eliminated. However, the process revealed no outliers. The groups were tested for normality using the Kolmogorov-Smirnov test. The groups did not significantly differ, which indicated that the dependent variable was normally distributed in each case. Finally, the univariate of analysis (ANOVA) was conducted. Levene's test of equality of variances indicated no significant differences, suggesting homogeneity between the group variances.

The third step was examining the ANOVA to evaluate the relationship between P-score and construction field. The independent variable (construction field) consisted of architects, contractors, and suppliers while P-score was the dependent variable in the study. Table 4 displays the ANOVA table. It shows a significant difference in P-score between the groups, $F(2, 150) = 3.64$, $p < 0.05$ ($\eta^2 = 0.05$, power = 0.67). *Post hoc* tests were conducted to evaluate the pairwise differences among the means of the individual groups. Table 5 displays these results. Bonferroni multiple comparison tests indicated there was a significant difference in the means between the architects ($M = 36.4$, $SD = 16.27$) and suppliers ($M = 27.65$, $SD = 12.01$), but no significant difference existed between either the architects and contractors or the suppliers and contractors.

In summary, research question 2 queried, *Do architects have a higher moral maturity score than the average of contractors?* The question is not supported in the study. Although the average P-score of architects was 36.4 and the average P-score of contractors was 34.06, the difference is not significant and could be attributed to chance.

Table 4. One-Way ANOVA on P-scores for Intra-Industry Groups

Source	SS	df	Mean Square	F	Sig.
Between groups	1,606.29	2	803.15	3.64	0.029
Within groups	33,089.94	150	220.60		
Total	215,380.48	153			

Table 5. Bonferroni Post Hoc Tests for Intra-Industry Findings

(I) Field	(J) Field	Mean Difference (I-J)	SE	Sig.	95% Confidence Interval, Lower	95% Confidence Interval, Upper
Architects	Contractors	2.33	3.04	1.00	-5.03	9.69
Architects	Suppliers	8.74	3.24	0.024	0.89	16.59
Contractors	Architects	-2.33	3.04	1.00	-9.69	5.03
Contractors	Suppliers	6.41	3.88	0.302	-2.99	15.81
Suppliers	Architects	-8.74	3.24	0.024	-16.59	-0.89
Suppliers	Contractors	-6.41	3.88	0.302	-15.81	2.99

As such, the null hypothesis is accepted and the alternative hypothesis is rejected. Architects' and contractors' moral maturity levels are similar in the research study. Research question 3 queried, *Do architects have a higher moral maturity score than the average of suppliers?* The question is supported in the study. Bonferroni's multiple comparison *post hoc* test did indicate a significant effect at a level of $p = 0.024$ for the relationship between architects and supplier. As such, in this case the null hypothesis is rejected and alternative hypothesis is accepted. Architects have a significantly higher moral maturity level than suppliers in this research study.

Implications of the Study

Morality is an overarching theory that encompasses the *psyche logia* of man and woman. Business and industry have had a personal stake in understanding the human resource. In the early 1900s, a frantic effort to map a theory of performance took birth in organizational settings. Hugo Munsterberg set up his clinic at Harvard University as the first endeavor to empirically test individuals at work, which earned him the title "the father of industrial psychology." The problem is that the goals

of the industrial psychologist are laden with management self-interest. The word *performance* means "you win and I lose" to the ordinary workers who Frederick Taylor developed empathy for during his days at Enterprise Hydraulic, where he labored as an apprentice machinist. He blamed management for "bad industrial conditions," which resulted from lack of job design and incentives (Wren, 2005, p. 122). Taylor's remedy was piece-rate work and improvement of tools, which get the most press in management literature. But more important, he initiated an insightful approach to staff management positions that gave a sense of empowerment to workers. This concept, the task management system, was decades ahead of its time. Many of Taylor's ideas waned after his death because of his protégés' fascination for discovering the next neo-phenomena. Beating worker psyche is like defying gravity; the researchers at the Hawthorne plant found this out in the late 1920s.

The Hawthorne studies taught researchers at least two things. First, researcher bias can very easily get in the way of informed results in scientific experimentation. Second, what the researchers were really dealing with was management versus worker systems of power. In particular, class antagonisms came in to play in assembly

plant departments. Latham (2007) called this era of 1925–1950 “dust bowl empiricism,” suggesting researchers’ confusion and lack of rigor beginning in the Hawthorne studies. Although the next 50 years were full of empirical study, future researchers may possibly make the same charge. In other words, psychological research examining humans may still today be confounded by the same difficulty for controlling the five variables of the human psyche (see Figure 1), making “hard evidence . . . unavailable” (Wines, 2008, p. 484). The invention of mediators and moderators has helped to explain them but has probably done much less to control them. For instance, Mitchell and Daniels (as cited in Latham, 2007) stated that goal setting is now dominant in industrial psychology. The theory is underpinned by the presupposition that goals are “the situationally specific form of one’s values” (Latham, 2007, p. 176). Yet instrumental approaches such as goal theory are not supported by most scholars of stakeholder theory, and they reek of both consumerism and pre-conventional thinking (Wijnberg, 2000). A broader framework must be advanced.

The study at hand tested moral thinking in the construction industry. The question that this research study sought to resolve is whether there was a relationship between work position in the construction industry and moral judgment level on Kohlberg’s scale as measured by the Defining Issues Test. Therefore, this research used the DIT’s Principled score (P-score) to examine and compare cognitive moral development of architects, construction contractors, and construction suppliers.

Constituents in the construction industry scored in stage 4 of moral maturity, pre-conventional reasoning. Thus architects, contractors, and suppliers had more in common with juvenile delinquents than with moral philosophers. However, it is not surprising that social systems constrained by norms would think in common schemas. Being constrained by the rules of imprisonment may have more in common with the rules of the long-standing system of competitive bidding in the construction industry. Here, organizational life is controlled by rigid specifications that contractually eliminate any form of noncoercive interaction (i.e., referent, expert, and legitimate). Thus parties cannot measure success in procuring jobs by charm, or wisdom, or even social relations. The low bidder is always the winner. This mind-set in construction has survived through many generations of

building construction cycles. Pure dyadic exchange belongs in economic systems of coercive and reward power. Equity theory suggests how choices are made measuring risk and reward, which reflect the far right side of the frequency distribution described in Figure 1.

It is noteworthy that the only research question supported in the empirical study was the significant difference in the sales function compared to architects. Suppliers in construction scored lower than everyone, which is not dissimilar to other research findings. For instance, McClaren’s literature review of sales personnel and management (2000) showed that salespeople were morally less sensitive and relied on teleological considerations (CMD stage 3) rather than deontological considerations (CMD stage 4) when forming intentions for behavior. Thus the literature suggests sales personnel represent an independent sample that does not share in the construction industry power paradigm. In fact, some professions have purposefully distanced themselves from the sales function to preserve objectivity, as in the case of medical schools that recognize a difference of goals with pharmaceutical firms (Pfeffer & Fong, 2004).

Finally, one aspect of this study was control of the *how* variable in an intra-industry setting. Additional research across organizations, while recognizing positions of power, may add to the reliability and validity of the Kohlbergian-based framework of morality and be a bridge between theory and practice, which is essential for real progress in mapping and helping the human condition in the organizational setting. Essentially, this means taking into account the *y* axis of the moral framework of Figure 1, culture. Even though Rest forcefully argued that age and education were the most “powerful predictor of moral development” (Rest & Narváez, 1994, p. 15), this link is remarkably missing from this study. Furthermore, age and education were not significant covariates.

IDEAS FOR FUTURE RESEARCH

As discussed earlier, industrial psychology must come to grips with the issue of controlling ancillary variables in theory building and scientific experimentation: “competent criterion research is one of the most pressing needs” (Cascio & Aguinis, 2005, p. 66). The *quid pro quo* thinking of pre-conventional reasoning is involved in the typical performance measures used in research.

So task performance is the ultimate criterion for business research. However, the prosocial thinking of conventional reasoning is involved in contextual performance; this has been labeled organizational citizenship behavior. In this arena outcomes such as satisfaction become much more tenable (Organ, Podsakoff, & Mackenzie, 2006). Therefore, understanding morality as an overarching template in research can help to classify the range of these criterion possibilities. Future research conducted in the parsimonious morality framework (see Figure 1) may hold significant promise for establishing both higher reliability and validity.

The normative approach to stakeholder theory is concerned with the good produced by human choice and the underlying value. Freeman (1994) posited that all things that have value share in the nature of good. Values, then, are commensurable and theoretically can be measured and even achieve Pareto-optimality as the interests of stakeholders are balanced. Furthermore, when it comes to decision making and the resolution of conflicting interests, other values come to mind, such as justice, courage, generosity, etc.

LIMITATIONS OF THE STUDY

Researchers argue whether cognitive moral development does in fact lead to ethical decision making. Mitigating factors are likely the intense desires that arrest reason, such as those identified in the study. However, there is a growing body of research centered on the relationship among education, formal training, and its transference to ethical decision making (Cavico & Mujtaba, 2009; Mujtaba & Sims, 2006; Izzo, 2000; Loe & Weeks, 2000; Abdolmohammadi, Gabhart, & Reeves, 1997; Bishop, 1992; Rest, 1979). The limited results of this sample are advanced as a part of this larger debate.

The sample set was drawn from the construction industry in Iowa and may not be representative of the nation as a whole. The sample was not drawn randomly; all firms in the 2007–08 Iowa membership directories of the Associated Builders and Contractors (ABC), the Associated General Contractors (AGC), and the Architects Institute of America (AIA) were canvassed. Also, the construction industry in its entirety is much larger than the arena of publicly bid jobs, so this sample may not represent the whole industry. The CMD theory is based on how the subject maintains and balances justice in

cognitive reasoning rather than examining other bases for morality, such as religious beliefs or social norms as used by alternative moral reasoning theories (Rest, 1993).

Only 20 women were represented in the sample set of 153, which is typical of the male-female split in the construction industry. Gilligan (1982) posited that the voice (schema) of women extols caring over justice, in opposition to the justice argument of Kohlberg. However, even this anecdotal evidence suggests that the subject's preferred base of power weighs in on her decisions, whether or not she is cut out for a job in the first place. Paramount in the career seeker's mind is whether the individual must lower moral standards to become what the profession demands. This is a plausible question for future research, suggesting the tenacity of power bases for solving important ethical decisions of life.

The three-story DIT was administered to the sample rather than the five-story DIT in order to boost the chance of raising response rate. The cost in reliability is several percentage points, according to the Center for the Study of Ethical Development at the University of Minnesota; Rest (1993) reported reliabilities of 0.76 versus 0.77, respectively.

Summary

Many interorganizational studies using the Defining Issues Test have compared the moral maturity of leaders coming from various academic backgrounds. Previous studies have purported that education is the chief moderating variable for moral maturity, with little regard for paradigmatic bases of power. Yet in this study noncoercive power is carefully controlled because of the highly technical procurement process used in construction contracting. Coercive power and position in the food chain become the main moderators because success is not measured by charm or wisdom or even social relations, but only by the lowest bid in accordance with contractual specifications.

Few intraorganizational studies have been conducted examining moral maturity among the leaders of groups in the same work setting. This research compared the moral maturity of intra-industry groups in marketing dyads in Iowa, consisting of architects ($n = 93$), contractors ($n = 32$), and suppliers ($n = 27$) using the

Defining Issues Test and ANOVA. It was expected that architects with higher education and aesthetic interests would rank highest. Findings showed significant differences among the groups, $F(2, 150) = 3.64, p < 0.05$. Post hoc comparisons revealed there was no significant difference in moral maturity level between architects and contractors engrossed in the same power paradigm ($p = 1.00$). Yet a significant difference existed between architects and suppliers ($p = 0.024$). This implication is consistent with the teleological pattern prevalent in research studies of salespeople. In summary, performance-based organizations and theorists of stakeholder theory may expect no less than orthodox and opportunistic choices in the real world of business, so long as performance reigns as the ultimate criterion of success.

Apparently many studies of industrial psychologists fit a pre-conventional reasoning paradigm. With performance as the endpoint of the research enterprise, achieving equity has little to do with social issues concerning good. Aristotle argued that the issue of good is central to social life (Cavico & Mujtaba, 2009). Research that ignores culture ignores the middle of the frequency distribution of moral choice. Here, life is about the Great Ego espoused by Follett and the Gestalt movement of the 1920s (Wren, 2005). Conceptually, the debate between performance and good has caused quite a stir in industrial research, which is reflected by the transitive concept of satisfaction. It has been difficult to find a proper place for satisfaction in pre-conventional reasoning systems (Chia & Holt, 2008). This would be even more apparent should industrial psychology move to the left and take up the concept of the good of mankind.

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