BRINGING THE RIGOR OF RESEARCH TO THE ART OF LEADERSHIP

Evidence Behind The Five Practices of Exemplary Leadership® and the LPI®: Leadership Practices Inventory®

Barry Z. Posner, Ph.D.
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The Leadership Challenge® is the original research-based leadership development framework. There is considerable empirical support for The Five Practices of Exemplary Leadership® conceptual model from the authors and other scholars around the world. In this report we begin with providing an overview of the development and validation of the framework and the LPI®: Leadership Practices Inventory®.

Examinations of the construct validity of the model, using LPI data from more than 2.5 million respondents, along a number of critical dimensions are summarized. Brief insights into findings by scholars utilizing this leadership framework and instrument are also provided. Readers and scholars interested in more academic discussions of the LPI can refer to several published reports1 as well as review abstracts of research on our website.

INSTRUMENT DEVELOPMENT AND PERSONAL-BEST CASE STUDIES

The LPI: Leadership Practices Inventory was developed through a triangulation of qualitative and quantitative research methods and studies. In-depth interviews and written case studies from personal-best leadership experiences generated the conceptual framework, which consists of five leadership practices:

- Model the Way
- Inspire a Shared Vision
- Challenge the Process
- Enable Others to Act
- Encourage the Heart

The actions that make up these practices were translated into behavioral statements, and were tested and refined through several iterative psychometric processes. The resulting assessment survey has been administered to well over five million respondents since its original development. The current Kouzes Posner normative database contains information from more than 2.5 million managers and non-managers, who completed the online version of the LPI between 2007 and 2014. They represent a variety of organizations, countries, disciplines, and demographic backgrounds. A version of the LPI has also been developed for specific use with high school and college students, and is not part of this report.2,3

Validation studies that we and other researchers have conducted over the years consistently confirm the reliability and validity of the Leadership Practices Inventory and The Five Practices of Exemplary Leadership model. Overall, the LPI has been extensively applied in many organizational settings and is highly regarded in both the academic and practitioner world.4

The conceptual portion of The Five Practices of Exemplary Leadership framework grew out of the collection and analysis of case studies of personal-best leadership experiences. The Personal-Best Leadership Experience questionnaire is twelve pages long and consists of thirty-eight open-ended questions, such as:

- Who initiated the project?
- What made you believe you could accomplish the results you sought?
- What special, if any, techniques or strategies did you use to get other people involved in the project?
- Did you do anything to mark the completion of the project, at the end or along the way?
- What did you learn most from this experience?
- What key lessons would you share with another person about leadership from this experience?

Completing the Personal-Best questionnaire generally requires about an hour of reflection and expression. We’ve collected more than 5,000 of these surveys and another 10,000 respondents have completed a short form of this survey. In addition to the case studies, in-depth interviews have been conducted with managers and individual contributors across a wide variety of public and private-sector companies around the world. These interviews have generally
taken 45-60 minutes; in some cases, they have lasted four to five hours. The total number of interviews now numbers well over 500 respondents. The experience (and the process) has been relatively consistent since we began collecting case studies in the early 1980s.

The LPI® was created by developing a set of statements describing various leadership actions and behaviors. These items were derived by recording specific one-sentence descriptions of behavior demonstrated in the Personal-Best Leadership Experiences. Statements were selected, modified, or discarded following lengthy discussions and iterative feedback sessions with respondents and subject matter experts, as well as through empirical analyses of the behaviorally-based statements. Ongoing analysis and refinement of the instrument continues.

Each statement was originally cast on a five-point Likert scale and then reformulated in 1999 into a more robust and sensitive ten-point Likert scale. A higher value represents more frequent use of a leadership behavior. The anchors for the scale include: (1) Almost never do what is described in the statement; (2) Rarely; (3) Seldom; (4) Once in a while; (5) Occasionally; (6) Sometimes; (7) Fairly Often; (8) Usually; (9) Very Frequently; and, (10) Almost always do what is described in the statement.

The LPI contains 30 statements — six essential behaviors associated with each of The Five Practices of Exemplary Leadership®. Both a Self and Observer form of the LPI have been developed. Participating individuals complete the LPI-Self and request five to ten people familiar with their behavior to complete the LPI-Observer. The LPI-Observer is voluntary and respondents indicate their relationship to the leader; that is, this individual is my manager, co-worker or peer, direct report, or other. Except for the manager, identification of the respondent is anonymous. Typically, the instruments are returned directly to the researchers or seminar facilitator. The LPI (Self and Observer forms) takes approximately eight to ten minutes to complete, and is typically computer-scored but can also be hand-scored.

The vast majority of respondents have completed the LPI in English. The LPI is also available in Spanish, Simplified Chinese, Brazilian Portuguese, Mongolian, and Arabic.

### MEANS AND STANDARD DEVIATIONS

Means and standard deviations for each LPI scale for leaders (self) and their constituents (i.e., all observers, managers, direct reports, coworker or peers, and others) are presented in Table 1. Based upon mean scores, leaders used the practice of Enable most frequently. This is followed by Model, then Encourage, Challenge, and Inspire. This same pattern is true for all Observers, as well as from the perspective of Managers, Co-Workers, and Others.

<table>
<thead>
<tr>
<th>RESPONDENT CATEGORY</th>
<th>LEADERSHIP PRACTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MODEL</td>
</tr>
<tr>
<td>Leaders (Self)</td>
<td>46.17</td>
</tr>
<tr>
<td>(N = 416,717)</td>
<td>(8.20)</td>
</tr>
<tr>
<td>Observers (All)</td>
<td>47.03</td>
</tr>
<tr>
<td>(N = 1,890,393)</td>
<td>(8.92)</td>
</tr>
<tr>
<td>Managers</td>
<td>46.49</td>
</tr>
<tr>
<td>(N = 272,164)</td>
<td>(7.95)</td>
</tr>
<tr>
<td>Direct Reports</td>
<td>46.69</td>
</tr>
<tr>
<td>(N = 730,581)</td>
<td>(8.75)</td>
</tr>
<tr>
<td>Co-Workers</td>
<td>47.14</td>
</tr>
<tr>
<td>(N = 609,965)</td>
<td>(9.56)</td>
</tr>
<tr>
<td>Others</td>
<td>48.18</td>
</tr>
<tr>
<td>(N = 277,683)</td>
<td>(9.77)</td>
</tr>
</tbody>
</table>

### INTERNAL RELIABILITY

Reliability from a research perspective is about consistency or “repeatability.” This means that the instrument (assessment, survey, questionnaire, etc.) would give the same result over and over again; assuming that what was being measured isn’t changing. Remember that reliability is a characteristic of a measure taken across individuals and doesn’t speak to the reliability (consistency) of an individual. Scores will seldom, if ever, be 100% reliable (the same) because of random errors (often referred to as “noise”) that cause scores to differ for reasons unrelated to the individual respondent. The fewer errors contained, the more reliable the instrument, and instrument reliabilities above .60 are considered good, and above .80 to be very strong. The reliabilities for the LPI, as measured by Cronbach alpha coefficients, are consistently strong, and above this criterion, as shown in Table 2.

<table>
<thead>
<tr>
<th>RESPONDENT CATEGORY</th>
<th>LEADERSHIP PRACTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MODEL</td>
</tr>
<tr>
<td>Leaders (Self)</td>
<td>.814</td>
</tr>
<tr>
<td>Observers (All)</td>
<td>.855</td>
</tr>
<tr>
<td>Managers</td>
<td>.828</td>
</tr>
<tr>
<td>Direct Reports</td>
<td>.851</td>
</tr>
<tr>
<td>Co-Workers</td>
<td>.872</td>
</tr>
<tr>
<td>Others</td>
<td>.854</td>
</tr>
</tbody>
</table>
Researchers have reported sound levels of internal reliability in their studies, across a very wide range of sample populations, representing a variety of occupations and organizations. For example, reliabilities ranged from:

- .80 to .92 for engineering managers and their constituents 8
- .88 to .95 for U.S. Army government employees and support contractors 9
- .78 to .86 for NASA scientists 10
- .77 to .83 for construction site leaders 11
- .90 to .96 for managers in a petroleum products redistribution and services company 12
- .88 to .94 for manufacturing personnel 13
- .82 to .94 for hotel managers 15
- .80 to .90 for frontline supervisors in a large telecommunications firm 16
- .78 to .90 for a cross-section of mid-level managers 17
- .66 to .91 for police chiefs 18
- .77 to .86 for sales personnel 19
- .81 to .91 for women managers in non-profit organizations 20
- .71 to .82 for women in executive positions in banking and higher education 21
- .71 to .84 (Self) and from .85 to .91 (Observer) for college presidents 22
- .65 to .71 (Self) and from .87 to .91 (Observer) for college presidents of Christian colleges 23
- .88+ for community college presidents and chief instructional officers 24
- .74 to .88 for presidents from private colleges 25
- .70 to .89 for female vice presidents in nonacademic affairs 26
- .70+ for female college student affairs officers 27
- .70 to .91 for chief student affairs officers 28
- .75 to .85 for chief financial officers at community colleges 29
- .73 to .88 for Southern Baptist pastors 30, while another study of the same population reported reliabilities in the range of .61 to .85 31
- .65 to .86 for pastors associated with the Willow Creek Association 32
- .79 to .90 for Agricultural Education Department Executive Officers 33
- .61 to .80 for correctional institution leaders 34
- .80+ for superior court personnel 35
- .70 to .88 for home health care agency directors 36
- .85 to .92 for nursing home directors 37
- .88 to .91 for residential treatment staff 38
- .82 to .84 for adults enrolled in a community leadership development program 39
- .95 to .97 for faculty in a college nursing program 40
- .73 to .88 for community college faculty 41
- .93 to .97 for nursing managers 42
- .66 to .87 for chief nursing officers 43
- .92 to .96 for staff nurses 44
- .75 to .88 for nurse practitioners 45
- .71 to .90 for nurse managers 46

- .73 to .90 for healthcare managers 47
- .68 to .86 for field directors and from .80 to .91 for medical liaisons, both with a large pharmaceutical company 48
- .89 to .92 for emancipated foster care youth 49
- .86 to .91 for teacher leaders in charter high schools 50
- .93 to .95 for public high school teachers 51
- .78 to .91 for teachers working in independent schools 52
- .90 to .94 for superintendents of international schools 53
- .90 to .95 for school principals 54
- .73 to .85 for professional school counselors 55
- .75+ for college counseling center directors 56
- .68 to .80 for non-Caucasians and from .60 to .78 for their Caucasian counterparts in the same study of CDC Directors 57

Studies involving non-U.S. populations have also found that internal reliabilities are quite robust. For example, Cronbach alphas ranging from:

- .70 to .82 (Self) and .81 to .91 (Observers) for Australian bank managers 58
- .89 to .93 for employees from a large Australian financial institution 59
- .82 to .93 for therapeutic radiographers from Hong Kong 60
- .88 to .93 for Lebanese managers 61
- .82 to .87 for managerial personnel from Lebanese hotels 62
- .77 to .87 (Self) and .90 to .92 (Observers) for Philippine school heads 63
- .73 to .82 for head nurses and from .86 to .95 for staff nurses in Thailand 64
- .94 to .97 for lending officers from Thai commercial banks 65

Internal reliabilities have been reported as strong by researchers using non-English language versions of the LPI®. For instance, internal reliability for a Spanish-language version of the LPI with Mexican respondents, ranged from .81 to .8966. Another study reported good to strong internal reliability levels for a Chinese-language version of the LPI.67 Reliabilities found with an Arabic-language version, used with Jordanian school teachers, ranged from .77 to .80.68

Table 3, using responses from the Kouzes Posner normative database, shows that the language which respondents use to complete the LPI makes negligible difference in the internal reliability of the leadership practices.

<table>
<thead>
<tr>
<th>LANGUAGE</th>
<th>MODEL</th>
<th>LEADERSHIP PRACTICE</th>
<th>LEADERSHIP PRACTICE</th>
<th>LEADERSHIP PRACTICE</th>
<th>LEADERSHIP PRACTICE</th>
<th>LEADERSHIP PRACTICE</th>
<th>LEADERSHIP PRACTICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>.849</td>
<td>.918</td>
<td>.853</td>
<td>.866</td>
<td>.918</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arabic</td>
<td>.845</td>
<td>.904</td>
<td>.879</td>
<td>.869</td>
<td>.902</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazilian Portuguese</td>
<td>.824</td>
<td>.864</td>
<td>.849</td>
<td>.850</td>
<td>.876</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mongolian</td>
<td>.909</td>
<td>.926</td>
<td>.885</td>
<td>.899</td>
<td>.928</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simplified Chinese</td>
<td>.888</td>
<td>.940</td>
<td>.900</td>
<td>.907</td>
<td>.924</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spanish</td>
<td>.866</td>
<td>.914</td>
<td>.857</td>
<td>.869</td>
<td>.924</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
One researcher, who translated the LPI into Mongolian for use in a study of the leadership practices of higher education leaders, reflecting the sentiments of many, concluded: “The response options on the LPI are fairly straightforward and there are no statements that directly reflect American cultural values that could potentially confuse respondents from other nations.”

Test-retest reliability for the five leadership practices has been consistently strong, generally at the .90 level and above. In a study involving school administrators, test-retest reliabilities were reported to be .86 for superintendents and .79 for school principals. A study of healthcare managers found that the reliabilities of the LPI did not vary systematically over a 15-month period. Test-retest reliabilities for the Student LPI, over a ten-week interval, were statistically significant. In general, scores on the LPI have been relatively stable over time. Comparing LPI scores every two years, for example, from participants in The Leadership Challenge Workshop since 1987 reveals considerable consistency across the five leadership practices for each time-period comparison.

INDIVIDUAL DIFFERENCES

Another consideration for examining the reliability of any instrument is to examine how it might vary as a result of individual and/or organizational differences. The lack of systematic variations would indicate that the instrument is quite robust and would be safe (reliable) to apply across various sample population dimensions. All in all, LPI scores have been found to be independent of various demographic characteristics (e.g., age, marital status, years of experience, educational level) and organizational features (e.g., size, functional area, length of service, line versus staff position).

This independence from demographic and organizational factors extends across a wide variety of settings, as suggested by research with:

- school superintendents
- school principals
- school administrators and teachers
- health care administrators
- nurses
- VHA Medical Center nurse executives
- nursing education leaders
- physicians
- field directors in a pharmaceutical company
- female executives in banking and higher education
- female managers in local government
- church pastors of large congregations
- higher education administrators
- scientific research administrators in colleges/universities
- university faculty
- college presidents of private universities
- U.S. Air Force Nurse Corps Captains
- active duty and civil service Air Force employees
- law enforcement officers
- prison wardens
- hotel managers

- business officials from public schools
- Hong Kong staff nurses
- elected public officials in Guam
- pre-service school librarians
- family support center directors
- R&D scientists
- female managers with or without children
- sales personnel
- state employees

Furthermore, leadership practices did not vary across different geographical settings (i.e., rural, urban, and suburban school districts) for school principals or community college academic guidance counselors, or female community college presidents. Neither city population nor number of sworn officers influenced the level of leadership practices for police chiefs. Multiple regression analyses revealed that age, educational level, or work experience had no significant influence on the leadership practices of either male or female Thai managers. No differences were found when comparing the leadership behaviors of those with or without physical disabilities. With a population of college students, the leadership practices (using the student version of the LPI) have not been found to be systematically related to gender, race, age, gender role orientation, work experience, or year in school.

SELF AND OBSERVER COMPARISONS

As the sample size increases, the chance of finding statistically significant differences between groups also increases, even if these differences are not for any one individual respondent, particularly meaningful, practical, or “significant.” This is true for the LPI, where statistically significant differences (p < .001) are found between the average scores of leaders and their observers (All, Managers, Direct Reports, Co-Workers, and Others) on all five leadership practices (see Table 1), but the effect size is rather small.

The average scores from All Observers are higher than those provided by leaders; and the variation in scores (standard deviation), with the exception of Managers, is also greater among Observers than among Self scores. The following means plots provide a picture of the empirical data (Table 1, page 4) revealing similar relationships in the scores provided by the leaders’ constituents (Managers, Co-Workers, Direct Report, Others) versus those provided by the leaders themselves, with the exception of Enable Others to Act. The greatest differences are in the “Others” category — which is not surprising since this category represents the most disparate group of observers in relation to the leader (that is, people who are not in an organizational relationship with the leader, such as their manager, direct reports, or coworkers/colleagues).

1 Given the very large sample sizes, “effect size” is an important concept because it represents a quantitative measure of the strength of a relationship. A small effect size means that the correlation coefficient between the independent variable (respondent category) and the dependent variables (five leadership practices) is below .10, or that the dependent variables are not correlated with the independent variable. From a practical perspective this indicates that responses about how frequently people are reported to engage in each of the five leadership practices does not vary very much as a result of the independent variable. In this case whether the respondent is a leader or an observer.
In any specific study, however, comparisons between Self and Observer reports are typically subjected to empirical scrutiny. In some cases Self scores are found to be higher, and in some the Self scores are lower, than Observer scores. In other instances no significant differences between Self and Observer responses are found. Using a sample of leaders in rehabilitation services, no statistically significant correlations were found between the frequency of leadership behaviors reported by the leaders and their constituents, which led the author to conclude that:

...the leader’s view of their own leadership does not affect perceptions by observers in this study either negatively or positively. In other words, it appears how the leaders of the current study score or view them is not related to how the observers of this study view these leaders on the five practices.

In an empirical study involving over 1,500 respondents, representing leaders, their managers, coworkers, and direct reports, relative “invariance” was found across the raters,
which means that the key behaviors of leaders are conceptualized similarly at different levels of the organization. In other words:

raters from different sources do not necessarily view leadership performance differently. These findings should be good news to consultants, educators, and others that frequently use ratings from ... different organizational constituents in the service of leadership development.

**GENDER (MALE AND FEMALE) COMPARISONS**

Statistically, the average scores of female leaders are significantly (p < .001) higher than those from their male counterparts on all five leadership practices, although the effect size\(^2\) is rather small (as was also the case for comparisons between Self and Observer responses). Gender differences have varied with population samples. For example, school principals. The LPI\(^5\) scores of female elementary school principals in one study were reported as higher than their male counterparts,\(^{116}\) while a study of high school principals from public and independent schools found no gender differences,\(^ {117}\) and in another study involving high school principals females reported engaging more than males in the leadership practices of Inspire, Challenge, and Encourage, but not Model and Enable.\(^ {118}\) Female university professors reported engaging in Encourage more than their male counterparts, while the two groups did not differ on the remaining four leadership practices.\(^ {119}\) New female student personnel administrators reported engaging less frequently than their male counterparts in all five leadership practices,\(^ {120}\) while no gender differences were found when chief student affairs officers were studied.\(^ {121}\) Among public school building-level administrators, females reported that they engaged in all five leadership practices more frequently than males reported doing so;\(^ {122}\) another study involving high school principals found gender differences for Model and Inspire, with females significantly higher than males.\(^ {123}\) Gender differences were found for Thai managers, with males reporting significantly higher scores than females on Model, Inspire, and Enable.\(^ {124}\)

However, in most studies no gender differences have been reported. For example, researchers have reported finding no differences between males and females across a variety of professional settings:

- public health agency directors\(^ {125}\)
- naval health clinic managers\(^ {126}\)
- chief hospital executives\(^ {127}\)
- physicians\(^ {128}\)
- public sector managers\(^ {129}\)
- NASA employees\(^ {130}\) and scientists\(^ {131}\)
- U.S. Army government employees\(^ {132}\)
- public officials in Guam\(^ {133}\)
- nonprofit board members\(^ {134}\)
- black belt martial artists\(^ {135}\)
- pharmaceutical company medical liaisons\(^ {136}\)
- community college employees or faculty\(^ {137}\)
- fraternity and sorority chapter presidents\(^ {138}\)
- graduate students pursuing administrative licensure\(^ {139}\)
- seminary students\(^ {140}\)
- school teachers\(^ {141}\)
- school principals\(^ {142}\)
- mentoring experiences of school principals\(^ {143}\)
- mentoring experiences of women in the U.S. Navy\(^ {144}\)
- school superintendents\(^ {145}\)
- college presidents\(^ {146}\)
- academic deans\(^ {147}\)
- community college presidents\(^ {148}\)
- academic guidance counselors\(^ {149}\)
- collegiate coaches\(^ {150}\)
- corporate directors\(^ {151}\)
- managers from a large national discount retail chain\(^ {152}\)
- CEOs of national sports organizations\(^ {153}\)
- cross-section of employees\(^ {154}\)
- nurse executives\(^ {155}\)
- Mexican managers\(^ {156}\)
- Australian managers\(^ {157}\)
- Swiss managers\(^ {158}\)

Looking further into possible gender differences, we examined the extent to which the constituents’ gender interacted with the leaders’ gender. This study took place within a nationwide retail organization. No differences were found for Inspire, Enable, or Encourage. However, female constituents reported their managers, whether male or female, to engage in more Model and Challenge behaviors than did male constituents. Female constituents also reported their male managers engaging in Model and Challenge more than did male constituents of female managers. Same-gender dyads were compared with mixed-gender dyads and statistically significant differences were found for only one leadership practice: Constituents of the same gender as their manager reported more Inspire behavior than did mixed-gender dyads. A study involving government managers revealed no significant differences across all possible gender-based dyads of managers and direct reports.\(^ {163}\)

**PUBLIC (GOVERNMENT/MILITARY) AND PRIVATE (BUSINESS) COMPARISONS**

Scores on the LPI for respondents working in the public sector (local, state, and federal government and military service) were compared with private sector respondents
(employed in aerospace, automobiles, banking/financial services, manufacturing, pharmaceuticals, retailing, and telecommunications). For leaders, no statistically significant differences were found for Model, while the scores for public sector leaders were significantly higher on Enable and Encourage and significantly lower on Inspire and Challenge than their private sector counterparts. However, analyzing responses from Observers revealed statistically higher mean scores for public sector leaders than for private sector leaders on all five leadership practices. Effect sizes \(^3\) were small.

Research comparing healthcare leaders employed in public or private sector settings found no differences between the two groups, as was also the case for a study comparing the top staff of human service organizations (non-profit) with a random selection of business managers. \(^4\) No statistically significant results emerged from a study investigating the organizational performance of non-profit organizations between 2006-2008 and 2009-2010 with the five leadership practices. \(^5\) Studying elementary school principals, one researcher asserted that The Five Practices framework effectively filled the gap in "aligning effective school principal practices with a validated research-based business framework." \(^6\) Another, in comparing leadership practices in the public, private and nonprofit sectors, concluded:

\[
\text{There appear to be no significant differences in leadership traits as practiced across the three organizational types...and I have come to realize that the practice of leadership involves changes in context, not the actual practice.}^7
\]

**FUNCTIONAL DISCIPLINE COMPARISONS**

LPI\(^8\) scores across eleven functional areas (construction/real estate, engineering, finance/treasury, human resources, MIS/IT, management, manufacturing, marketing, operations, research and development, and sales) were compared. ANOVA (analysis of variance) showed statistically significant differences on all five leadership practices on the basis of functional discipline, and post hoc analysis revealed that generally all of the functions differed from each other on each leadership practice. The following means plots, however, reveal fairly similar patterns among the disciplines (in terms of the most and least frequent use of the leadership practices from one functional discipline to the next). At this point we have no conceptual basis on which to infer that any of these differences are meaningful from an individual or organizational basis. We do know, as discussed in a later section that regardless of the differences across functions, that the differences within functions are meaningful. In other words, while people in the Engineering function, on average, engage less frequently in The Five Practices than those in Sales, within both functions those people who use The Five Practices most often are more effective compared with their counterparts within their function.

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\(^3\) Effect size is a quantitative measure of the strength of a relationship and a small effect size means that the impact of working in the public or private sector does not have very much influence on the responses to how frequently people report themselves or others engaging in the five leadership practices.
Information about ethnicity is only collected for respondents within the United States. Nearly three-fourths of respondents indicate their ethnicity as White/Caucasian (N=952,910). Asian and Pacific Islanders are the next most frequent category (N=109,650), followed by Black/African American (N=76,670), Hispanic/Latino (N=62,146), Mixed Race (N=39,109), and Native American (N=6,935). Comparing the responses of Caucasian leaders with those of Leaders of Color (all other categories combined) revealed statistically significant differences, with the latter reporting more frequent use of the five leadership practices than the former, although effect size was small. The results were similar from the perspective of observers, although the leadership practice of Challenge was not statistically different between the two groups.

Comparisons between non-Caucasian leaders revealed statistically significant differences between the five groups, as shown in the following means plots. Most of the differences were between Asian/Pacific Islanders and their Black/African American and Hispanic/Latino counterparts. This was true for both leaders and observers.

Other researchers have investigated the impact of ethnicity on leadership behavior. For example, in a study involving executive directors of community development organizations, LPI® scores for Caucasians directors were compared with those Directors of Color (Black, Hispanic, and Asian).169 The two groups did not differ on Challenge, Enable, or Encourage. Directors of Color reported significantly higher Model and Inspire scores than their Caucasian counterparts. However, assessments provided by their constituents revealed no systematic differences between the leadership practices.
practices of managers based upon their ethnic background. (Re-examination of the data by respondent gender also made no difference in the pattern of results).

African-American female community college presidents were not found to differ in their use of Model, Inspire, Challenge, or Enable compared with their Caucasian counterparts.170 Faculty at a historically black university showed significant differences by ethnicity (African-American, Asian, and Caucasian) in their perceptions of their department chairs’ predominant leadership practice.171 Two separate studies comparing African-American and Caucasian female leaders revealed no significant main or interaction effects on leadership practices by ethnicity.172 Another study reported that women of color in executive positions within higher education exhibited all five leadership practices at a higher level than that reported in the Kouzes Posner normative database.173

Hispanic school principals did not rate themselves significantly different in leadership practices than non-Hispanic principals.174 Another study, involving emancipated foster care youth found no differences in how frequently they reported their case workers using the five leadership practices on the basis of ethnicity.175 LPI® scores were also not found to be statistically different in an investigation of Native American and non-Native American secondary school administrators.176 LPI scores did not vary between Caucasian and non-Caucasian seminar students.177 In addition, no differences in The Five Practices were found among academic deans based upon their ethnicity.178

To date, studies by ethnic background have generally been restricted to U.S. sample populations, and comparisons by ethnicity show mixed results. As with differences found between functional disciplines, these are mostly descriptive across the sample populations rather than prescriptive. From the latter perspective, studies consistently show that greater use of The Five Practices results in higher levels of effectiveness irrespective of the leader’s or observer’s ethnic background.

CULTURAL (NATIONALITY) COMPARISONS

Seventy-five percent of the respondents are from the United States. Comparisons between U.S. respondents and those from the rest of the world (labeled “international”) showed that U.S. leaders report statistically significant greater use of all five leadership practices than do international leaders, although effect size5 was small. The results are similar from the perspective of observers.

The impact of culture or nationality on leadership practices has been investigated by other scholars. For example: U.S. and European managers, U.S. and Pacific Rim managers, U.S. and Australian managers, U.S. and Mexican managers, and U.S. and Israeli managers. Few differences were found

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5 Effect size is a quantitative measure of the strength of a relationship and a small effect size means that how frequently people report themselves or others engaging in the five leadership practices are not influenced very much by whether respondents are from the United States or outside of the U.S. (international).
between U.S. and United Kingdom managers working for the same multinational chemical company. Enable was rated most frequently by managers as well as their constituents from both countries. The same consistent pattern was observed for Inspire and Challenge. Within one large high technology firm, no significant differences were found between U.S. managers and their counterparts in England, the Netherlands, or Germany. This was true for both LPI®-Self and LPI-Observer scores. A study involving American and Swiss managers found no differences on the leadership practices of Model and Enable; and American managers reported more frequent use of Inspire, Challenge, and Encourage than their Swiss counterparts. Managers from small-sized factories in four Pacific Rim countries (Korea, Philippines, Taiwan, and Malaysia) completed the LPI as part of a multinational semiconductor company’s management development program. LPI-Self scores were significantly higher than those reported by their constituents for all leadership practices, with the exception of Encourage. The rank order for the LPI-Self scores were the same for the Pacific Rim managers as had been found for their U.S. counterparts. This same pattern was true for LPI-Observer scores. Staff nurses in the Northern Region of Thailand reported significantly more job satisfaction and organizational commitment to the extent that their head nurses engaged in each of the five leadership practices. Comparisons of the LPI scores from MBA students in the U.S., Nigeria, and Slovenia were very similar.

Middle-level Australian managers were matched with comparable U.S. managers, and no statistically significant differences between the two groups were found for any of the five leadership practices. While the LPI scores of Mexican managers were, on average, lower than their U.S. counterparts, there were no differences between the two groups in the rank (relative) order of the leadership practices.

Several studies involving U.S. and Israeli managers have found that nationality was not significantly related with any leadership practice, nor did nationality mediate the relationship between leadership practices and employee commitment levels. The average score for all five leadership practices increased over time as a result of a leadership development program involving nurse leaders in a Swiss hospital, who completed the LPI in German. The Five Practices framework was also found to be quite descriptive of the leadership practices of head nurses from five hospitals in Finland. Researchers comparing the impact of managers’ leadership practices on staff nurses in the U.S. and China reported that the LPI was “easily used across boundaries” and the Chinese-language version of the LPI was labeled “a cultural appropriate instrument.” As concluded by one scholar:

transformational leadership may be recognized by individuals at all levels of the organization because of its universality — the fact that regardless of an individual’s station or culture, conceptualizations of transformational leadership will be similar.

Surely sensitivity to cultural differences and various nuances associated with nationality or gender, function, ethnicity, industry sector, and the like are important and should neither be ignored or under-appreciated. It is crucial to understand mindsets, attitudes, behaviors and skills particular to various parts of the world which may pose unique challenges. In Making Extraordinary Things Happen in Asia: Applying The Five Practices of Exemplary Leadership® as well as Extraordinary Leadership in Australia and New Zealand: The Five Practices That Create Great Workplaces we document with case studies, interviews, and empirical data specific to those regions that leadership makes a difference and how The Five Practices apply.

In this final section we looked at demographic and organizational factors that differentiate between respondents. Although because of the large sample sizes involved statistical significance is found, the practical significance of those differences is generally negligible (as evident by small effect sizes). Obviously everyone in an organization or around the world doesn’t act exactly the same; the critical issue is whether or not such differences have any systematic bearing on the effectiveness of leaders or how they impact employee engagement levels and productivity. This is a question of validity, and this can be examined in psychometric terms; as well as in practical terms by asking the question “what difference do the results make?” We’ll focus more extensively on this issue in reviewing some of our most current research investigations.

What makes an instrument like the LPI valid is when we can be reasonably certain that it truly measures what it purports to measure and, accordingly, whether its scores have meaning or utility for a respondent. Like reliability, validity is determined in a number of ways. The most common assessment of validity is called face validity, which considers whether, on the basis of subjective evaluation, an instrument appears to measure what it intends to be measuring. Given that the items on the LPI are related to the qualitative findings from interviews with leaders and echo the comments that workshop and seminar participants generally make about their own or others’ personal-best leadership experiences, respondents have found the LPI to have excellent face validity.

Validity is also determined empirically (objectively). Factor analysis is used to determine the extent to which the instrument items measure common or different content areas. The results from various analyses reveal that the LPI contains five factors, the items within each factor corresponding more among themselves than they do with the other factors. Georgia Tech Professor David Herold and his colleagues, using data primarily from corporate respondents, performed a confirmatory factor analysis using LISREL VII.
analyzing a covariance matrix prepared from the raw data by PRELIS. Their conclusion:

Estimating a correlated factors model corresponding to the oblique factor rotation, modified to reflect the inter-correlations among the error items for the LPI items that had correlations with other items exceeding .50, resulted in a confirmatory model with acceptable fit (Chi-Square = 399.9, d.f. = 363, p < .09). In addition, all of the hypothesized structural coefficients linking the observed variables to the five factors were highly significant with all t values exceeding 7.0, suggesting that when modeled appropriately, the LISREL estimates confirm the LPI factor Model.

Using responses from front-line and middle managers from a community college, another researcher ran a confirmatory factor analysis on the LPI7, which yielded five interpretable factors, consistent with Kouzes and Posner’s five factors. The a priori hypothesis had five dimensions and the scree plot confirmed the five dimensions/factors were correct. The five factors were rotated using a Varimax rotation. The rotated solution yielded the following five factors: Model the Way, Inspire a Shared Vision, Challenge the Process, Enable Others to Act, and Encourage the Heart, which accounted for 90% of the item variance.

Applying a similar methodological approach (LISREL), with a sample of U.S. and Canadian community activists, the analysis confirmed the structural integrity of the LPI framework. A structured interview protocol within a school setting reported that participants validated 81% of the salient principal scores as actual patterns of behavior in their experience. The five factor structure was essentially replicated in a study involving school administrators and teachers, while it explained over 72% of the variance in a study of chief faculty officers in Thailand.

In still another cross-cultural study, the LPI was administered to MBA students (mostly line and middle managers) in six countries from five continents: U.S., India, Nigeria, South Korea, Argentina, and Slovenia. The first three were administered in English and the latter three in their native languages. The results showed a high degree of “structural equivalence” which means that it was measuring the same construct across different culture settings. As the authors summarize:

Results of the multi group confirmatory factor analysis (CFA) performed on the sample showed that the five factor structure emerged in all nations studied and that most of the items that were supposed to load on a particular factor did load on that factor. Out of 180 loadings (6 groups x 30 items, 175 loadings were significantly different from 0. Furthermore, most of the factor loadings (for 21 out of the 30 items) were equal (showing no statistically significant differences) across cultures studied.

Returning to qualitative research involving pastoral staff, where “the researcher anticipated that the data from the case studies might not neatly fit in the categories proposed by Kouzes and Posner, that was not the case. The five major categories were clear yet broad enough to serve in the organizing and interpreting of the data. This conclusion was similar to that reached by researchers who found that “the practices and behaviors previously identified for persons in business organizations (as represented on the LPI) were mirrored by leaders working in community groups.”

The question of whether the LPI scores are significantly related to other critical behavioral (individual and organizational) performance measures is probably the most important practical matter to participants (leaders and their organizations). This is often referred to as predictive validity, and studies have shown that leadership scores are consistently associated with important aspects of managerial and organizational effectiveness such as workforce performance, team cohesiveness, commitment, satisfaction, and credibility.

For example, utilizing only the responses from the LPI-Observer in 2002 we examined the relationship between leaders’ effectiveness and their leadership practices (as measured by the LPI). By including only the responses from “other people” about their managers, we were using relatively independent assessments, thereby minimizing potential self-report bias. Regression analysis was performed, with leader effectiveness as the dependent variable and the five leadership practices as the independent variables. The regression equation was highly significant (F = 318.88, p < .0001). The leadership practices explained over 55% (adjusted R2 = .756) of the variance around constituents’ assessments of their leaders’ effectiveness.

The current online version of the LPI 360 provides respondents with an opportunity to voluntarily provide demographic information and also respond to ten statements about various workplace attitudes and sentiments. These statements are measured on a five-point Likert scale, with these anchors: “1” Strongly Disagree, “2” Disagree, “3” Neither Agree nor Disagree, “4” Agree, and “5” Strongly Agree. The statements are:

1. My work group has a strong sense of team spirit.
2. I am proud to tell others that I work for this organization.
3. I am committed to this organization’s success.
4. I would work harder and for longer hours if the job demanded it.
5. I am highly productive in my job.

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6 LISREL is an acronym for linear structural relations and refers to a statistical methodology for structural equation modeling and PRELIS is the program for manipulating or formatting data for the analysis.

7 A five-point scale was used in this study, while a ten-point scale is used in the current (online) instrument.
6. I am clear about what is expected of me in my job.
7. I feel that my organization values my work.
8. I am effective in meeting the demands of my job.
9. Around my workplace, people seem to trust management.
10. I feel like I am making a difference in this organization.

Combining responses to these ten statements creates a “positive workplace attitude” scale or what many scholars and practitioners have referred to as engagement. Cronbach’s Alpha (a measure of internal reliability) for this scale is .88.203 This allows for the testing of the hypothesis: Do the leadership behaviors of leaders explain the engagement levels of their constituents?

The most direct way to study this question is to look at how “direct reports” describe the leadership practices of their leaders, and to examine the extent that drives (“explains”) their levels of engagement.8 Multiple regression analysis, with engagement as the dependent variable, and the leadership practices as the independent variables found that The Five Practices of Exemplary Leadership6 accounted for 37.4% of the variance in the levels of engagement of direct reports (R² = .374, F = 34248.18, p < .0001).

Regression analysis was also used to examine whether or not variances in engagement levels of direct reports could be accounted for by possible individual differences across respondents. To test this hypothesis, the following nine variables were entered into the regression equation as independent variables, with engagement as the dependent variable:

1. Age
2. Educational level
3. Gender
4. Functional area
5. Hierarchical level
6. Industry classification
7. Length of time with company
8. Nationality (country of origin)
9. Size of organization (number of employees)

The amount of explained variance in direct reports’ levels of engagement, with all nine variables entered into the equation, was 0.3%. Stepwise regression analysis revealed that country of origin, length of time with the company, and functional area each accounted for 0.1% of the variance and the contribution of the remaining six variables was zero.

In sum, how frequently people report that their leaders engage in The Five Practices of Exemplary Leadership is directly related to their level of engagement. And this relationship is not affected by characteristics of the respondents. In other words, demographic factors about direct reports do not illuminate why they are or are not engaged in the workplace; but knowing how they see their leader behaving provides a substantial explanation for their levels of engagement.

Respondents to the LPI 360 Online can also choose to answer a question about the overall effectiveness of their leader, using the same five-point Likert scale described previously. The direct reports who “strongly agree” that their leader is effective can be compared with direct reports who do not strongly agree that their leader is effective overall in terms of how frequently each group observes their leaders using The Five Practices. This comparison reveals that the leaders who are reported as most effective by their direct reports are also seen as engaging significantly (p < .001) more often in the Five Practices than those who view their leader as less effective, as shown in Table 4.

### Table 4: Leader Effectiveness Rating by Direct Reports and Leadership Practices

<table>
<thead>
<tr>
<th>LEADER EFFECTIVENESS</th>
<th>MODEL</th>
<th>INSPIRE</th>
<th>CHALLENGE</th>
<th>ENABLE</th>
<th>ENCOURAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low/Moderate</td>
<td>4415</td>
<td>40.65</td>
<td>42.09</td>
<td>46.76</td>
<td>4318</td>
</tr>
<tr>
<td>Strong</td>
<td>5325</td>
<td>50.89</td>
<td>51.40</td>
<td>54.49</td>
<td>52.59</td>
</tr>
</tbody>
</table>

8 The sample size for this analysis was 286,962.

**FURTHER VALIDATION OF THE LPI**

Several meta-reviews of leadership development instruments have been conducted. The LPI is consistently rated among the best leadership instruments, regardless of the criteria. For example, in one assessment of 18 different leadership instruments, the LPI was the only one to receive the top score in psychometric soundness and ease of use.204 “There is good evidence to support the reliability and validity of the LPI,” concluded one reviewer of the LPI. Another explained: “The conceptual scheme on which the LPI is based is elegant and the test items on the LPI have excellent face validity as well as psychometric validity. Factor analyses and multiple regressions provide strong support for both the structural and concurrent validity of the LPI.”205

A large number of researchers have utilized the Leadership Practices Inventory® in their investigations of various leadership issues. Such independent efforts substantiate the utility and robustness of the LPI. Correlations with other sociological and psychological instruments further enhance confidence that the LPI measures what it is purported to measure and not some other phenomenon (construct validity). The LPI has been applied across many varied sample populations and in studies investigating leadership practices and:

- Motivation and commitment 206
- Work group performance 207
- Commitment, satisfaction and productivity 208
- Effectiveness of bank managers and their work groups 209
Globalization has many ramifications, not the least of which is the search for leadership concepts that are universally relevant and effective across various cultures, environments, settings, and populations. Common technological imperatives, worldwide industrial and supply chain logistics, boundary-less marketplaces and currencies, ubiquitous communication and social media platforms, among other factors, are serving to harmonize and homogenize management/leadership and organizational practices. Global managers, consequently, need universally valid leadership theories and principles that transcend cultures; even while some scholars claim that leadership differs around the world and that concepts developed in the United States, especially, may be limited in their applicability to other cultures. The assertion that the process of leadership is universal even while the particular application may be context specific (and appropriate) may be nearer the truth; as noted by some international scholars: “Culture does matter. But its impact is not as strong as is commonly thought.”

Actual global leaders echo this viewpoint. Here’s how Caroline Wang, formerly vice president and the highest ranking Asian female executive for IBM globally, with over 25 years of working experience in the United States and across Asia Pacific, and currently on the board of directors for three multinational companies in China, sums it up: “When it comes to leadership it is not about the leader’s personality, it is all about how that individual behaves as a leader.” Similarly, no matter where he is in the world, Rajeev Peshawaria, CEO of the ICLIF Leadership and Governance Centre, based in Kuala Lumpur, Malaysia says that his “leadership style never changes.” Like Wang, he maintains: “The assumption that people are motivated differently around the world — especially in Asia — and that leaders must adapt their behavior accordingly is wrong. Having led and managed people in eight countries across three continents, I have found the exact opposite to be true. Regardless of geographic location or culture, what drives people to the highest level of engagement is innately human and universal. Thus, great leadership looks the same wherever you are.”

Few would deny that context in any personal or organizational relationship is important. Scholars and practitioners have to be mindful of the context in which they are working.
but it may be that certain content and processes are essential, especially in connection with leadership, which transcends the particulars of context. Along these lines, we examined how national culture might impact both how leaders behave as well as their effectiveness as leaders.270

Healthcare leaders and their constituents in Ethiopia, India, Pakistan, and the Philippines were surveyed about their leadership behaviors and their effectiveness. Analyses both across and within countries from self and constituent perspectives were conducted. What we found was that although leadership practices varied across countries that within the countries their impact was the same. Within each country the more frequently leaders used these leadership practices the more effective they were viewed by their constituents, and the more favorable were their own workplace attitudes.

In another study we set out to test for evidence of any convergence among leadership expectations caused by the globalization of business practice.271 In particular, we predicted that relatively inexperienced constituents would hold expectations consistent with their cultural values, but that work experience would reduce these international differences. We used data from people in the United States and Singapore to examine the influence of both culture and globalization. The U.S. is the largest national economy in the world, typically the default category when discussing Western values, and the culture in which most theories of leadership were developed.272 Singapore offers a useful comparison case in which to examine the competing forces of local cultural values and global business practice, because of its unique similarities and differences with the U.S. Like the U.S., Singapore has a fully developed, modern economy with all the institutions of modern business, significant international trade, and a high-level of per capita GDP. At the same time, there are important cultural differences between the two countries that might be expected to influence what behaviors people expect from leaders; specifically there are three dimensions where the U.S. and Singapore are most different: power distance, individualism-collectivism and uncertainty avoidance.273

We tested these predictions using four groups of people which contrasted work experience (based on age: 18-23 years old versus 28-33 years old) and national origin (United States versus Singapore). The results supported our hypotheses. The less experienced, younger groups had different expectations of their leaders, and those differences were consistent with the cultural values of their home nation. The two more experienced groups did not have different expectations. These findings extend our understanding of leadership in the global era, and have important implications. Taken together, they suggest that while there is an emerging global consensus about what behaviors peoples expect from leaders, it takes time for people to adopt those expectations. We believe that this perspective offers reconciliation between those studies claiming that culture powerfully influences leadership and those studies claiming that it does not. Both groups may be correct, and to integrate them we need to take account of the process and time period in which globalization acts. Our data suggest that leaders may need to be most culturally adaptable when dealing with young or inexperienced constituents. There appears to be relatively rapid convergence of expectations (i.e., approximately five years), but those formative years may represent an important leadership challenge.

Furthermore, while some studies suggest that people from different cultures expect different behaviors from their leaders, there is growing evidence of a homogenizing effect from global business practices. If organizational expectations are converging on a global standard, then people around the world should have similar expectations of their leaders; the same leader behaviors should increase people’s satisfaction levels with their leader, regardless of individual’s cultural backgrounds. In particular, we hypothesized that globalization has influenced business practices and norms such that people from around the globe will have similar expectations of their leaders. We tested this assertion in a large sample of followers, with representatives from all nine of the world’s cultural zones.274

The results were consistent with our expectations. Using The Five Practices of Exemplary Leadership® as predictors of peoples’ satisfaction with their leader, we found very similar results across the world. That is, in 98% of the cases, the effect of a given leadership behavior on constituent satisfaction was comparable, regardless of the individuals’ cultural background. These results are highly suggestive of a universal standard for good leadership. It would appear that people around the world have similar expectations about how leaders should behave, and therefore have similar evaluations of their leader’s effectiveness.

CONCLUSIONS

The Leadership Practices Inventory® has sound psychometric properties and The Five Practices of Exemplary Leadership framework makes both conceptual and empirical sense. Internal reliabilities for the five leadership practice scales (both the Self and Observer versions) are very good and are consistent over time. The underlying factor structure has been sustained across a variety of studies and settings, and support continues to be generated for the instrument’s construct and predictive validity. For the most part, findings are relatively consistent across people, gender, ethnicity, cultural backgrounds, and national boundaries, as well as across various organizational characteristics (e.g., function and industry), and opinions one reviewer: “the application of this measure is both practical and efficient.

We believe the LPI® is a strong measure based on its reliability and validity. Its psychometric properties compounded with its global traits suggest it is a measure we can utilize to compare groups across countries with an unbiased scale.275

BRINGING THE RIGOR OF RESEARCH TO THE ART OF LEADERSHIP
An independent reviewer for the *Mental Measurements Yearbook* reached similar conclusions:

The LPI® is one of the most extensively researched management development tools I have encountered. It is a model of sound research design from its initial development and refinement through subsequent concurrent validity studies. The instrument and instructions are easy to read and follow and the trainer’s guide is logical and clear. I highly recommend it as a developmental tool for new and experienced managers.276

Another testimonial for the robustness of the LPI comes from a scholar who was originally focused on identifying leadership skills in All-Star baseball players:

When work began on this thesis, I made an attempt to manipulate the LPI questions in order to construct questions that related more closely with baseball. However, as I played with the words, I kept coming back to the original phrase of each question. That is because if the reader looks closely at each question, modification is not necessary. Each of the thirty leadership inventory questions are so deftly phrased that they can be answered no matter from what experience the reader comes. It matters not if the respondent is part of a team of lawyers sitting in luxury office chairs in a conference room or part of a team of baseball players sitting on pine benches in a locker room. It matters not if the respondent is a lawyer or a mail clerk; an all-star center fielder or a bat boy. The questions are clear and succinct. Each question is appropriate no matter what the profession of the individual who is the subject of the review.277

Furthermore, in an assessment of The Royal College of Nursing Institute’s (London) Clinical Leadership Programme, the research team reported that among clinical leaders:

- 94% agree or strongly agreed that the LPI was “a useful tool for understanding my leadership development needs.”
- 89% agreed or strongly agreed that the LPI “was useful for developing my professional development plan.”
- 95% agreed or strongly agreed that “it was useful to have a measure of how others perceive my leadership capabilities.”
- 85% agreed or strongly agreed that the LPI “was able to show changes in my leadership capability over time.”278

The clinical leaders’ self score had the highest change in average scores on the LPI (Time 1 versus Time 2), followed by manager, coworkers, and direct reports. This result, they suggest “may be that clinical leaders become more aware of their increased knowledge and intention to utilize new leadership behaviours, before changes in leadership behaviour become apparent to others.”279

Our own studies, along with those from scores of other researchers, and comparisons with other leadership instruments, have all shown the LPI to be quite robust in assessing individuals’ leadership capabilities, and demonstrating that The Five Practices of Exemplary Leadership® do make a difference at the personal, interpersonal, small group, and organizational level.280 The LPI has proven quite capable of assessing individuals’ leadership behaviors and in providing feedback useful for developing and enhancing leadership capabilities. Overall, The Five Practices of Exemplary Leadership framework and the LPI contribute richly to an understanding of the leadership process and to the development and unleashing of leadership capabilities.

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3 A review of the LPI by the National Academic Advising Association concluded: “presents a valid, practical model of leadership. The ‘self’ and ‘observer’ forms of the LPI provide valuable information that students can use to examine their prior leadership experiences and compare their self-assessments with reliable feedback from others. This package provides everything
facilitators needs for a successful leadership development program in which students discover and value their own leadership opportunities and make action plans for their future leadership development. 1 NACADA Journal (Fall 1999):59.


5 Unless otherwise noted, all analyses reported have been conducted by the authors on all or appropriate portions of the Kouzes Posner normative database.

6 For example, the individual may not have had lunch that day, may be running behind on some important deadline, may be coming from an office celebration, just got off an exciting telephone conversation, may have had an argument, might have been distracted by an email while completing the instrument, and the like. Factors like these are considered "random" and may contribute to errors which makes the actual score higher or lower than their "true" or actual score (ability, behavior, etc.).


A.J. The Leadership Strategies of High School Principals in Relationship to Organizational Structure. Unpublished doctoral dissertation, University of Nebraska, July 2007. Dietitians who indicated a specialty, had more years of experience, and participated in professional organizations scored significantly more frequently in the five leadership practices than did their counterparts (Fardellone, D.N. Leadership Characteristics of Dietetic Professionals in Ohio. Unpublished master’s thesis, Ohio University, March 2008). Experience, measured by age, years as a RN, years with current unit, and years with current organization were all negatively correlated with the five leadership practices (Fardellone, C. Self-Perceived Leadership Behaviors of Clinical Ladder Nurses. Unpublished doctoral dissertation, Case Western Reserve University, May 2013).


78 For example, see: Mathew, L. An Examination of Transformational Leadership Among Graduating Baccalaureate Nursing Students and Practicing Nurses. Unpublished doctoral dissertation, University of Phoenix, March 2008; and, Francis, op. cit.


82 McBee, op. cit.

83 Ottinger, op. cit.


88 Solis, op. cit.; Afam, op. cit.

89 Hempowicz, op. cit.


Brazilian Portuguese (88), Bengali (6), Simplified Chinese (90), and Spanish (87).

Carless, op. cit.

Walsh, K.E. The Relationship Between Leadership Practices and a Medication Safety Regime. Unpublished doctoral dissertation, University of Texas Health Science Center at Houston, December 2003; and, Maloney, op. cit.


Marouch, op. cit.


Erickson, op. cit.


232 Brice, op. cit.


Sophie, op. cit.


267 Zagorsek, Jaklic, & Stough, op. cit.


273 Hofstede, op. cit.


279 Large, Macleod, Cunningham, & Kitson, op. cit., p. 60.

280 Leong, op. cit.