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**Normative Comparison and Reliability Analyses for the
Leadership Navigator® for Executives**
Technical Report # 8343



NORMATIVE COMPARISON AND RELIABILITY ANALYSES FOR THE LEADERSHIP NAVIGATOR® FOR EXECUTIVES

Background

The Leadership Navigator® for Executives survey is a 360 degree feedback tool designed to assess performance for employees above the middle-management level. In developing this survey, comprehensive coverage was ensured by consulting established models of leadership behavior and success. These other works included seminal work by Schein (1992), Bass (1985), Borman and Brush (1993), Hogan (1994), Lord and Maher (1994), Thornton and Byham (1982), and Zenger and Folkman (2003). Earlier studies, conducted in 2004 and 2005, demonstrated the reliability and validity of the twelve competency scales included in the survey (Robinson & Rose, 2004; Robinson & Rose, 2005).

The Executive survey relies on a two-factor approach to leadership, based on extensive leadership work developed out of The Ohio State Leadership studies. Two broad classes of competencies are covered: those related to managing and interacting with colleagues (Leading People) and skill areas related to typical initiatives and duties performed by senior leaders (Organizational Leadership). Initiating structure, or “Organizational Leadership”, focuses on getting tasks accomplished. Consideration behaviors or “Leading People” focuses on meeting people’s needs. Research has shown that both dimensions are important for effective leadership (Judge, Piccolo, & Ilies, 2004).

Table 1 provides an overview of each competency included in the Leadership Navigator® for Executives Survey, as well as which of the two broad dimensions it falls under.

Table 1: Leadership Navigator® for Executives Competency Model

| Organizational Leadership | Leading People |
|---------------------------|---------------------------|
| Industry Knowledge | Team Leadership |
| Strategic Management | Communication |
| Influence & Negotiating | Integrity |
| Mission, Vision & Values | Motivates Top Performance |
| Financial Management | Delegation |
| Decision Making | Developing Talent |

The current study was undertaken to:

- Discuss job-level norm comparisons
- Present the 2014 norms
- Reassess the reliability of the twelve competencies

Normative Comparisons

Procedure

Survey responses used for this study were collected from 2008 to 2014 and administered over the internet via 3D Group’s proprietary Survey Management System (SMS). Demographic data were collected from most participants and included full name, company, job title, and gender. The twelve competencies of the Leadership Navigator® for Executives Survey are measured using a 4-point likert-type “Meets Expectations” rating scale where 1-point is “Considerable Improvement Needed” and 4-point is “Strength: No Improvement Needed”.

2014 National Sample Participant Characteristics

The dataset included survey responses by raters for participants. “Participants” refer to executives who received feedback. “Raters” refer to those individuals who completed the surveys. The final dataset used to generate the 2014 Executive Survey Norms statistics included 3815 surveys rating 241 Executives. These surveys included 241 self-surveys, 376 boss surveys, 1326 direct report surveys, 1419 peer surveys, and 453 Other surveys (e.g., Other Bosses, External Vendors, etc). Seventy-two percent of the participants rated in the current norm sample were male and 28% rated were female. We obtained job title data for 88 of the participants. Thirty-four percent held Director-level positions, 40% held Executive-level positions (e.g., Vice President), and 26% held C-level positions (e.g., CEO, CFO).

The current norm sample included data from 40 companies spanning over 13 industries. The industries most widely represented by the current sample were Financial Services and Insurance (31%), Consulting (24%), and Manufacturing (15%) as illustrated in Table 2. It is important to note the wide range of industries represented and that no single industry was overrepresented in the sample.

Table 2. Industry Representation for 2014 National Norms Sample

| Industry | % of 2014 National Sample |
|--------------------------------|---------------------------|
| Financial Services & Insurance | 31% |
| Consulting | 24% |
| Manufacturing | 15% |
| NGO/Non-profit | 5% |
| Healthcare and Biotech | 4% |
| Real estate/ Construction | 4% |
| Retail | 4% |
| Technology & Software | 4% |
| Food & Beverage | 3% |
| Transportation | 3% |
| Energy & Utilities | 1% |
| Pharmaceuticals | 1% |
| Telecommunications | 1% |

Descriptive Statistics

The descriptive statistics for the Executive Survey Norm Sample can be found in Table 3. The range across competencies for each statistic follows: Minimum = 1.94 to 2.43, Maximum = 3.73 to 4.00, and Standard Deviation = .23 to .31.

Skewness provides a measure of the extent that a distribution of values deviates around the mean (i.e., lack of symmetry). A skewness value of zero represents perfect symmetry, and positive skewness values represent a greater number of smaller values, whereas negative skewness values represent a greater

number of larger values. A skewness between +1 and -1 is considered excellent for most psychometric purposes. The skewness statistics for 11 of the 12 competencies range from -0.71 to -0.35, and reflect an acceptable distribution skewed slightly with positive scores. The only exception is for the Integrity competency for which a skewness of -1.14 was found. While this still remains acceptable it does point out that most of the executives in our sample received very positive scores for this competency (which makes sense or they would likely not still be in positions of leadership).

Kurtosis is a measure of whether the data are peaked or flat relative to a normal distribution. A kurtosis value of zero indicates a normal distribution, and positive kurtosis values indicate a shape more peaked than normal, whereas negative kurtosis values indicate a shape more flat than normal. A kurtosis between +1 and -1 is considered excellent for most psychometric purposes. The kurtosis statistics for the current sample range from .44 to 2.45. While the kurtosis statistics for the competencies Integrity, Mission, Vision and Values, Communication, Team Leadership, Influence and Negotiating, and Decision Making are not ideal, the other six competencies were excellent. In practice, it's not uncommon to find kurtosis statistics similar to those presented here for two reasons 1) incumbent leaders tend to perform at similarly high-levels within a sample, and 2) using a 4-point "Meets Expectations" rating scale tends to reduce the variability found in ratings. For all competencies, skewness statistics were in the acceptable range and it is common to find that 360 degree feedback data is slightly skewed with positive scores.

Table 3. Descriptive Statistics for Executive Survey Norm Sample

| Competencies | Min. | Max. | Mean | Std. Deviation | Skewness | Kurtosis |
|---------------------------|------|------|------|----------------|----------|----------|
| Developing Talent | 2.26 | 3.89 | 3.10 | .27 | -.36 | .73 |
| Delegation | 2.03 | 3.73 | 3.10 | .27 | -.51 | .50 |
| Motivates Top Performance | 2.21 | 4.00 | 3.20 | .26 | -.42 | .92 |
| Communication | 2.04 | 3.92 | 3.24 | .27 | -.72 | 1.73 |
| Team Leadership | 1.94 | 4.00 | 3.17 | .29 | -.68 | 1.69 |
| Integrity | 2.13 | 4.00 | 3.34 | .28 | -1.14 | 2.45 |
| Strategic Management | 2.43 | 4.00 | 3.25 | .23 | -.44 | .87 |
| Mission, Vision & Values | 1.94 | 4.00 | 3.29 | .28 | -.67 | 1.94 |
| Decision Making | 2.33 | 4.00 | 3.22 | .25 | -.63 | 1.36 |
| Industry Knowledge | 2.12 | 4.00 | 3.30 | .30 | -.62 | .44 |
| Financial Management | 2.07 | 4.00 | 3.29 | .31 | -.52 | .44 |
| Influencing & Negotiating | 2.07 | 3.83 | 3.16 | .27 | -.68 | 1.40 |

Job Level Comparison

When addressing the appropriateness of a comparison norm, one criterion by which to judge the quality of the norm is to understand the extent to which norms differ based on membership in key demographic groups (e.g., job level). Therefore, analyses were conducted to determine the extent to which Executive Survey competency scores differed between various job levels in our sample.

Job level was determined by reviewing the job title provided by participants. As mentioned earlier, we obtained job title data for 88 of the participants. Thirty-four percent held Director-level positions, 40% held Executive-level positions (e.g., Vice President), and 26% held C-level positions (e.g., CEO, CFO).

Results

The η^2 statistic was used to gauge the extent to which job level was responsible for differences in competency means. Commonly referred to as effect size, η^2 represents the proportion of variance in a distribution that is attributable to group membership. Thus, higher effect sizes indicate greater importance of group membership (i.e., that groups differ with regards to the attribute under consideration). An η^2 value greater than .15 is considered a large effect, meaning that over 15% of variability in scores can be attributed to group membership. An effect size around .10 is considered a moderate effect, meaning between about 10% of variability in scores can be attributed to group membership. An η^2 value between around .05 is considered a weak effect (Jaccard & Becker, 1997). In this case that would indicate there is a small difference between groups on that competency.

Table 4 displays the competency means for each job level (C-level, Executive, and Director-level) and the effect size attributed to job level for each competency. As the table indicates, job level explained between 3% and 10% of the variance in scores. Seven competencies demonstrated medium sized effects: Developing Talent, Delegation, Communication, Strategic Management, Mission, Vision & Values, Industry Knowledge, and Financial Management. To further examine if these job level differences were significantly different ($p < .05$ level) a one-way ANOVA was conducted and post hoc analyses examined to understand where those group differences occurred. The analysis revealed that for all seven of these competencies there were statistically significant group differences and post hoc group comparisons highlighted that for each of these seven competencies the differences were between the Executive group and the Director-level group (Executives received significantly higher ratings than Directors).

A review of the means presented in Table 4 depicts a pattern where the Executive group received the highest ratings, followed by the C-level group, and the Director-level group received the lowest ratings across all competencies. For the following seven competencies the difference between the Executive-level ratings and the Director-level ratings were significant: Developing Talent, Delegation, Communication, Strategic Management, Mission, Vision & Values, Industry Knowledge, and Financial Management. This is not a total surprise as the survey content is designed specifically for an Executive audience and, while still well suited, could be a “stretch” for some Directors and upper-level managers. While the survey content is still certainly valuable to C-level roles in an overall development context, it is likely that a small number of specific survey items are less relevant to a CEO than to a Vice President. This would again explain why Executives in our sample tended to receive the highest ratings overall.

No effect sizes were large and the group differences we found are deemed appropriate given the content of the Executive-level survey.

Table 4. Mean Differences and Effect Sizes for Job Level Across Competencies

| Competency | Job Level | Mean | Effect Size | Significance |
|---------------------------|-----------|------|-------------|--------------|
| Developing Talent | C-level | 3.10 | .072 | .042 |
| | Executive | 3.23 | | |
| | Director | 3.08 | | |
| Delegation | C-level | 3.07 | .098 | .012 |
| | Executive | 3.23 | | |
| | Director | 3.03 | | |
| Motivates Top Performance | C-level | 3.25 | .066 | .054 |
| | Executive | 3.31 | | |
| | Director | 3.17 | | |
| Communication | C-level | 3.23 | .081 | .027 |
| | Executive | 3.38 | | |
| | Director | 3.20 | | |
| Team Leadership | C-level | 3.20 | .032 | .245 |
| | Executive | 3.27 | | |
| | Director | 3.14 | | |
| Integrity | C-level | 3.32 | .054 | .094 |
| | Executive | 3.44 | | |
| | Director | 3.30 | | |
| Strategic Management | C-level | 3.33 | .102 | .010 |
| | Executive | 3.36 | | |
| | Director | 3.20 | | |
| Mission, Vision & Values | C-level | 3.45 | .104 | .009 |
| | Executive | 3.40 | | |
| | Director | 3.23 | | |
| Decision Making | C-level | 3.24 | .059 | .072 |
| | Executive | 3.33 | | |
| | Director | 3.18 | | |
| Industry Knowledge | C-level | 3.39 | .091 | .017 |
| | Executive | 3.41 | | |
| | Director | 3.23 | | |
| Financial Management | C-level | 3.40 | .101 | .011 |
| | Executive | 3.43 | | |
| | Director | 3.23 | | |
| Influencing & Negotiating | C-level | 3.20 | .043 | .151 |
| | Executive | 3.29 | | |
| | Director | 3.15 | | |

Leadership Navigator® for Executives 2014 National Norms

Norms, or average ratings for participating leaders, provide a useful reference point for individuals processing their feedback reports. Analysis of responses began by computing the mean (average) and standard deviation of ratings for each survey item (survey question) across all raters (excluding self ratings) for a particular executive. This executive mean was then used to calculate the 2014 National Norm item mean for each survey item by taking the average of all Executives' means for that item. The 2014 National Norm competency means were calculated by averaging all items within each competency for each Executive. The Executives' competency means were then averaged to identify the overall competency norms. In addition, 20th and 90th percentile scores were computed for use as helpful points

of reference to be included in 3D Group's final 360 reports. The percentile score results are not presented in this report. Table 5 contains the Normative averages for each Executive Competency for 2014.

Table 5. 2014 Normative Averages for Executive Competencies

| Competency | 2014 Norm |
|--------------------------------------|------------------|
| Developing Talent | 3.10 |
| Delegation | 3.10 |
| Motivates Top Performance | 3.20 |
| Communication | 3.24 |
| Team Leadership | 3.17 |
| Integrity | 3.34 |
| Strategic Management | 3.25 |
| Mission, Vision & Values | 3.29 |
| Decision Making | 3.22 |
| Industry Knowledge | 3.30 |
| Financial Management | 3.29 |
| Influencing & Negotiating | 3.16 |

Reliability Analysis of Competency Scales

Reliability refers to the consistency of measurement of an assessment. Reliability can be described using the analogy of the clock. A clock is reliable to the extent that it maintains time. Thus, a clock may be two hours fast (not valid) but if it is always two hours fast, it is reliable. If the clock is sometimes two hours fast, sometimes 10 minutes behind, and occasionally an hour slow, it is not reliable or valid (and not much use for telling time).

In most circumstances, competency scales comprised of several individual behavior items are more reliable than single items. Competency ratings provide an indication of the leader's level of performance on a group of related, yet multi-faceted skills. For example, for a leader to understand his or her skill at communicating with colleagues, it is necessary to understand perceptions of speaking clearly and listening attentively, among other behaviors. Without knowing the nuances of communication, it is difficult for a leader to improve this skill. Therefore, it is necessary to collect ratings on each individual area of the communication competency in order to understand where specific skill gaps exist.

Reliability analyses of the ratings for this study were conducted using Cronbach's Alpha estimate of internal consistency. This estimate provides an index of the average inter-item correlation for the items of a scale. It is the most widely used index of reliability for assessment tools. Cronbach's Alpha estimates range from 0 to 1.0, with an estimate of at least .70 indicating acceptable levels of reliability for this type of assessment. Therefore, when the Alpha estimate is higher than .70, items within a scale are consistent with one another and are likely tapping into a common workplace characteristic. Reliability estimates are displayed along the diagonal in Table 6 below.

Table 6. Cronbach's Reliability Estimates and Competency Intercorrelations for 2014 Norms

| Competency | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|-------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 1. Developing Talent | .82 | | | | | | | | | | | |
| 2. Delegation | 0.76 | .85 | | | | | | | | | | |
| 3. Motivates Top Performance | 0.79 | 0.70 | .79 | | | | | | | | | |
| 4. Communication | 0.71 | 0.72 | 0.74 | .80 | | | | | | | | |
| 5. Team Leadership | 0.72 | 0.76 | 0.78 | 0.82 | .84 | | | | | | | |
| 6. Integrity | 0.63 | 0.70 | 0.65 | 0.75 | 0.83 | .85 | | | | | | |
| 7. Strategic Management | 0.75 | 0.71 | 0.76 | 0.76 | 0.75 | 0.69 | .82 | | | | | |
| 8. Mission, Vision & Values | 0.63 | 0.53 | 0.74 | 0.65 | 0.69 | 0.55 | 0.82 | .88 | | | | |
| 9. Decision Making | 0.71 | 0.73 | 0.75 | 0.77 | 0.79 | 0.79 | 0.81 | 0.63 | .82 | | | |
| 10. Industry Knowledge | 0.44 | 0.33 | 0.45 | 0.39 | 0.35 | 0.31 | 0.59 | 0.46 | 0.49 | .87 | | |
| 11. Financial Management | 0.48 | 0.49 | 0.48 | 0.49 | 0.43 | 0.48 | 0.64 | 0.51 | 0.71 | 0.51 | .89 | |
| 12. Influencing & Negotiating | 0.68 | 0.71 | 0.72 | 0.86 | 0.86 | 0.79 | 0.80 | 0.66 | 0.86 | 0.48 | 0.57 | .84 |

Note: N=241. Values along the diagonal, in **bold italics**, represent Cronbach's Alpha for the 2014 norms. Correlations below the diagonal, represent the intercorrelations for the current study. All correlations were significant ($p < .01$).

As evidenced by Cronbach's Alpha for each competency, reliabilities were found to be within acceptable levels, as found in the two previous studies, ranging from .79 to .89 (Robinson & Rose, 2004; Robinson & Rose, 2005). Finally an examination of the competency intercorrelations reveals acceptable strengths of relationships between competencies. Because all competencies are measuring Executive performance we would expect moderate relationships between competencies, though relationships exceeding .90 would be worrisome. Competency intercorrelations ranged from .31 to .86, with the average correlation being .65. All correlations were statistically significant ($p < .01$). Overall, the 2014 National Norms for Executives survey exceeded acceptable reliability levels.

References

- Bass, B. M. (1985). *Leadership and Performance Beyond Expectations*. New York: Free Press.
- Borman, W. C., & Brush, D. H. (1993). More Progress Toward a Taxonomy of Managerial Performance Requirements. *Human Performance*, 6, 1–21.
- Hogan, R., Curphy, G. J., & Hogan, J. (1994). What We Know about Leadership: Effectiveness and Personality. *American Psychologist*, 49, 493–504.
- Lord, R. G., & Maher, K. J. (1994). *Leadership and Information Processing: Linking Perceptions and Performance*. London: Routledge.
- Jaccard, J. & Becker, M.A. (1997). *Statistics for the Behavioral Sciences*. Pacific Grove, CA: Brooks/Cole Publishing Company.
- Judge, T.A., Piccolo, R.F., & Ilies, R. (2004). The Forgotten Ones? The Validity of Consideration and Initiating Structure in Leadership Research. *Journal of Applied Psychology*, 89, 36 - 51.
- Robinson, G.N. & Rose, D.S. (2004). Development and Content Validation of the Leadership Navigator for Executives. 3D Group Technical Report #8269. Berkeley, CA: Data Driven Decisions, Inc.
- Robinson, G.N. & Rose, D.S. (2005). Reliability and Construct Validity of a 360 Assessment Survey for Executives. 3D Group Technical Report #8302. Berkeley, CA: Data Driven Decisions, Inc.
- Schein, E.H. (1992). *Organizational Culture and Leadership*. (2nd ed.) San Francisco: Jossey-Bass.
- Thornton, G. C., III, & Byham, W. C. (1982). *Assessment Centers and Managerial Performance*. San Diego: Academic Press.
- Zenger, J. H., & Folkman, J. (2003). *The Extraordinary Leader: Turning Good Managers into Great Leaders*. New York: McGraw-Hill Trade.

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