Construction Superintendents need Leadership

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Abstract
This paper presents a method of profiling the leadership skills of construction field superintendents and relating these skills to the success of their project. The leadership competencies of 43 superintendents were assessed utilizing a self-evaluation “Field Construction Superintendent Questionnaire” (FCSQ) complemented by a “Project Manager Questionnaire” (PMQ) that provided an independent performance evaluation from the superintendent’s project manager.

Analysis of the data collected from the FCSQ and the PMQ shows significant correlation between the leadership competency levels and the job performance levels of the Field Construction Superintendents. The data collected allowed to assess the importance and need of leadership as well as management skills for superintendents. Not surprisingly, the effectiveness of management skills dominates the job performance of a construction superintendent but it is the degree of applied leadership skills that make the difference between average and exceptional performance (Great Superintendents). Participants were ranked based on their leadership scores. Interviews conducted with the participants’ company executives found a 90 percent accuracy rate in the ranking when compared to performance and profits generated by the participants.

Keywords
Leadership, Management, Profiling of Skills, Construction Superintendents

1. Introduction
To achieve better than average success in the construction industry, Field Construction Superintendents need to possess effective management and leadership competencies. According to Post (1998), improved leadership competency is clearly needed at this level as studies indicate that barely 70 percent of building owners were fully satisfied with the performance of their construction project.

Construction companies face an increasing need to formalize not only their safe-work environment efforts, but also to rapidly and continuously improve their field
productivity. Until recently, ongoing field productivity improvement efforts have been focused on the operational side of the business, where 85 to 95 percent of the dollars are spent (Abberger, McComb, & Spragins (1997)). Substantial research funds are spent on the development of new building materials, software, automated management processes, and concepts designed to improve the construction industry’s ability to estimate, plan, schedule, and manage operations. Comparatively, leadership at the construction site has received little attention thus scant research exists on leadership competencies and development of construction project managers and engineers. However, it is becoming increasingly apparent that all participants in this industry must spotlight the leadership and management development of their superintendents and foremen with an emphasis on creating more robust, effective competencies.

For the purpose of this study, the Field Construction Superintendents were defined as the overseer of the daily activities at a construction site and called superintendents (Adams, (2007)).

Superintendents enter the field for numerous reasons and with widely diverse abilities and skills. In addition, the shrinking labor pool is driving the construction industry to hire workers from less traditional labor pools, including women and minorities, creating the need for additional employee training - not only in technical skills, gender and diversity sensitivity - but also in leadership and management skills. This training is, all too often, only rudimentary or non-existing (Abberger, McComb, & Spragins (1997)). Leadership studies at universities have rarely focused on the leadership role of construction site managers. They have not been assessed as the leaders of their site teams, nor have they been assessed on their wide range of managerial styles which are adopted on the job site and are crucial to successful projects.

Over the past five decades, the interest in understanding the essence of leadership has continuously grown and taken many directions. Recently, the leadership in construction has attracted attention, recognizing a definitive need and dearth of data. Research conducted by Adams (2007) examined the role that the presence or absence of leadership skills plays in the job performance of field construction superintendents. Also examined were the influences that drive the development of their leadership competencies. Obviously, his research is based on the assumption that leadership behaviours can be taught and learned and that they are not endowed only to exceptional individuals at birth.

There are many types of superintendents. Their job titles and responsibilities vary significantly from one company to another; they even differ within the same company by project size. Confusion concerning the role of the superintendent is common as there are no uniform rules or definitions which apply to all construction firms, construction projects, or supervisory positions.

The objective of the research was to test the hypothesis that the leadership competency level of a superintendent significantly influences his/her job performance. The selected approach was to first understand the role that leadership plays in the job performance of superintendents, second to identify potential causal influences that affect a Total Average Leadership Score (TALS), and finally relate everything to project results and financial success.
2. Research Objective and Methodology

The research process was preconditioned on the development of a questionnaire that would effectively profile a superintendent’s management and leadership competencies and determine how leadership affects his or her job performance. The objective was to obtain sufficient data that would allow ranking the leadership levels of superintendents and identify a possible relationship between leadership levels and job performance levels. An extensive literature review identified all the concepts, ideas, theories, instruments, tools, and practices that could possibly be related to leadership in the construction industry. Too many promising constructs were included in an initial draft of the questionnaire resulting in an expansive, lengthy and time-consuming survey document. This first iteration was quickly deemed impractical for the construction industry due to its length; it demanded a quick grasp of many complex concepts, and would require too much time to answer. Furthermore, to safeguard against self-bias, inaccurate, inflated, and closed-minded responses, it was decided to develop two questionnaires, one aimed at the superintendent and one at the supervisor of the superintendent (i.e. the project manager). It was the combined use of the Field Construction Superintendent Questionnaire (FCSQ), and the Project Manager Questionnaire (PMQ) that assured sufficiently accurate and valid leadership data on the performance of the individual serving as superintendent as well as on the overall project success and customer satisfaction.

Each of the two questionnaires shared a list of sixteen leadership competencies (as defined by Zenger & Folkman (2002) - see Table 1) and seven job performance questions (developed by the authors - see Table 2). The FCSQ also contained twelve job experience and educational questions reproduced from by Skipper & Bell (2006), as well as six questions on the amount of time the superintendent spends in leadership and management roles based on Kotter (1990) (see Table 3).

The participants were asked to rank the competencies on a horizontal Likert scale from 1 to 10. At the two ends of the Likert scale the questionnaire presented a clear description of the behavior representing the indicated performance for the specific characteristic (poor at one end and superior at the other).

For instance, selecting 1 on the Likert scale for leadership competency #5 (see Table 1) “Practicing self-development” was described as: “Seems unconcerned about any kind of self-development. Is content with current skills and abilities. Fears that others might perceive their development of new skills as a sign of incompetence or weakness.” At the high end of the Likert scale (10), competency #5 was described as: “Makes constructive efforts to change and improve based on feedback from others. Seeks feedback from others to improve and develop themselves. Constantly looks for development opportunities. They are excited to learn.”

<table>
<thead>
<tr>
<th>Leadership Competencies</th>
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<tbody>
<tr>
<td>1. Displayer of high integrity and honesty</td>
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<tr>
<td>2. Technical and professional expert</td>
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<tr>
<td>3. Problem solver and issue analyzer</td>
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<td>4. Innovator</td>
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<tr>
<td>5. Self-developer</td>
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<tr>
<td>6. Focused on results</td>
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</tbody>
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7. Establisher of stretch goals
8. Leader responsible for outcomes/initiatives
9. Powerful and prolific communicator
10. Inspiration and motivator for others to be high performers
11. Relationship builder
12. Developer of others
13. Collaborator and team worker
14. Developer of strategic perspectives
15. Champion of change
16. Connector of internal groups with outside world

Table 1: Leadership Competencies

<table>
<thead>
<tr>
<th>Job Performance Factors</th>
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<tbody>
<tr>
<td>1. Quality</td>
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<tr>
<td>2. Safety</td>
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<tr>
<td>3. On Time</td>
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<tr>
<td>4. On Budget</td>
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<tr>
<td>5. Retention</td>
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<td>6. Interpersonal Skills</td>
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<td>7. Technical Skills</td>
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</tbody>
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Table 2: Job Performance Factors

<table>
<thead>
<tr>
<th>Leadership</th>
<th>Management</th>
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<tr>
<td>1. Aligning people</td>
<td>1. Controlling and problem solving</td>
</tr>
<tr>
<td>2. Establishing direction</td>
<td>2. Planning and budgeting</td>
</tr>
<tr>
<td>3. Motivating and inspiring</td>
<td>3. Organizing and staffing</td>
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Table 3: Leadership and management roles

The Project Manager Questionnaire (PMQ) contained the same leadership competencies and job performance questions as the FCSQ with three additional impact questions:
1. In the overall results of the construction project, how well are the services you received from the field superintendent meeting your expectations?
2. In the overall results of the construction project, how likely are you to recommend this field superintendent to others?
3. In the overall results of the construction project, would you want to work with this field superintendent again on another project?

The subjects of this study were superintendents and project managers from established and successful construction companies that conduct business across the American Southwest (Arizona and Nevada area). Comprehensive data was obtained regarding 43 superintendents from four construction companies who agreed to participate in the study. The number of employees and the annual construction revenue of the participating companies vary significantly. Each data point in this study consisted of the combined input from both the superintendent and his/her project manager. The scores for both responses for each of the participants were combined and averaged for every question common to both questionnaires.

The data were then analyzed as follows:
1. Data from the 16 leadership competency questions were totaled, combined, averaged, and then converted into percentages. The resulting percentage scores from the 16 leadership competency questions were labeled as “Leadership Competency Level” (LCL).

2. Data from the seven job performance factors were totaled, combined, averaged, and then converted into percentages. The resulting percentage scores from the seven job performance factors were labeled as “Job Performance Level” (JPL).

3. Data from the three impact questions, unique to the PMQ, were totaled and converted into percentages. The resulting impact questions were labeled “Impact Level” (IL).

4. The raw scores from the combined and averaged 16 leadership competency questions, the combined and averaged seven job performance questions, and the three impact questions were totaled and then divided by the total possible points of 260. These scores were then converted into percentages. The resulting scores were labeled “Total Averaged Leadership Score” (TALS).

5. The data were grouped according by companies and by “Great Superintendents” (GS). The Great Superintendents possessed TALS of 90 percent or higher; only eight out of the 43 qualified.

The findings were validated by comparing the superintendent’s leadership ranking in the study to the participating companies’ executive own internal and independent ranking of the individual.

### 3. Data, Findings, and Interpretation

The findings of this study are based on the results of the FCSQ-PMQ and unequivocally support the hypothesis that the leadership competency level (LCL) of a superintendent significantly influences his/her job performance level (JPL). Plots of the data of all the participating 43 superintendents (see Figure 1) reveal an R-squared value of 0.6875 suggesting that the trend line is significant. The hypothesis is supported by the fact that the two variables, LCL and JPL, yield a Pearson correlation value of 0.829 and a p-value of 0.000, which is less than alpha level of 0.05.

The data appears to indicate that the age and job experience of the superintendents is correlated with TALS, but more data is needed to confirm this conclusion. The data also indicate that the FCSQ is either ineffective in assessing the time each superintendent spends in leadership or management roles or that the superintendent lacks the understanding to differentiate between leadership and management.
The data show that every “Great Superintendent” as well as every participating company identified “Develops Strategic Perspective” as one of their top three leadership weaknesses. This competency was defined as: (1.) knows how work relates to the organization’s business strategy (line-of-sight connection), (2.) translates the organization’s vision and objectives into challenging and meaningful goals for others, and (3.) takes the long view, can be trusted to balance short-term and long-term needs of the organization. This weakness clearly indicates that all the superintendents act more like managers than leaders.

Three of the four fully participating companies list on-time projects as another one of their top weakness. However, the data on the eight “Great Superintendents” (GS) only show “retention” as a relative weakness, although even this job performance factor of theirs is significantly higher than the average. Retention was defined as keeping personnel from departing the organization and as such a low retention may be good or bad. If the GS is moving people up the career ladder to a better fit in the company, or if they are getting rid of ineffective people, the low retention rates may be serving the company well. On the other hand, if the GS is unable to retain his followers for other reasons, a low retention rate may be detrimental.

The data strongly concur with earlier findings by other researchers, indicating that most superintendents learn their leadership through job experience and that top performers have mentors. It confirms the importance of mentorship in leadership development along with the fact that most construction superintendents have acquired their leadership skills through job experience and by observing their leaders. The differences between leadership and management are highlighted by the data. It is very apparent that a balanced blend of leadership and management skills are a key characteristic of every one of the eight “Great Superintendents.” The research also indicates that the amount of time that the superintendent spends in a leadership role is less than the amount of time project managers or the company executives spend in leadership roles.

Furthermore, the data support the unsurprising fact that superintendents’ increased-educational levels do not directly relate to superior leadership, which
leads to the conclusion that there is a critical need for leadership training in the
construction industry.

The responses also reveal that college courses in construction related subjects are
presently inaccessible to the average superintendent, who works an average of 53
hours per week. The average superintendent’s long work hours and lack of free
time may explain why the average number of college courses taken in the past five
years is nearly zero. The rigor of university construction management courses may
also be intimidating to the already over-extended superintendent, since most
superintendents have started college but few have ascertained university degrees.
Perhaps the higher education classes are not being taught at the level necessary for
the average superintendent to comfortably and effectively learn, given the indirect
finding that their communication skills are significantly underdeveloped. There
appears to be a need to build-up their communication-skill level prior to recruiting
them to enroll in university construction courses and programs. Since education
generally improves the quality of life in other industries, perhaps an analysis of how
the university and the construction industry could collaborate in creating
innovative, leadership-building programs for the majority of superintendents that
have so far not recognized the need or found the opportunities to develop and
improve their leadership skills.

4. Conclusions

The collected data support the hypothesis that the Leadership Competency Level of
the superintendent has a major influence on his/her Job Performance Level. They
clearly indicate whether the study participants possess management or leadership
tendencies, and the degree to which they possess leadership competencies. The
individual leadership-competency levels can be related to Job Performance Levels,
thereby surfacing a clear relationship between them. The eight “Great
Superintendents” (GS) very significantly outperform the average on all leadership
elements.

The FCSQ-PMQ also provides detailed data regarding specific areas of leadership
and job performance in which superintendents have some deficiencies. The FCSQ-
PMQ can be utilized by the construction industry’s executives in comparing their
superintendents’ Total Average Leadership Score (TALS), LCL and JPL scores with
the scores of the “Great Superintendents” or a benchmark group. The resulting gap
analysis can then be used to design individual mentorship plans for each
superintendent to improve his/her leadership, which should, within a relatively
short time, impact the companies’ bottom line.

Certain characteristics of leadership enhance the chances for success in working
with diverse project teams. An open style of management increases trust. A good
sense of humor can diffuse potential misunderstandings. A sincere interest by the
superintendent in his staff as individuals goes a long way toward creating good
morale. A good communication style is exceedingly important.

Awareness of social and cultural factors are widely considered today as critical to
effective construction project performance and pivotal in achieving successful
construction projects outcomes. Many field teams have members whose first
language is not that of the dominant group. An understanding of the differences in
world view between groups is essential in promoting understanding among team
members. The same event can be interpreted differently by various individuals
depending on their origin and what they have been conditioned to believe. Understanding and avoiding stereotypes prevent self-fulfilling prophesies.

Interviews conducted with three of the participants’ company executives, covering almost 90% of the participating superintendents, found that, for those companies, the FCSQ-PMQ has a 90 percent accuracy rate in ranking the superintendents compared to their internal ranking based on performance and to the profits generated by the projects they managed. These interviews also found that the construction industry executives appreciate comparative studies of this kind that provide data regarding their company’s workforce in relation to other companies.

5. References


Adams, Dan (2007) - Leadership Profile of the Superintendent, Theses presented in Partial fulfillment of the requirements for the Degree Master of Science, Arizona State University


