Managerial Competencies of Female and Male Construction Managers

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Abstract: Women hold relatively few project management positions in the construction industry. Most studies conclude that women's exclusion from the industry is mostly due to the industry's male-dominated culture, but no study ever attempted to find out whether women are excluded from project management positions in construction because they are deficient in managerial competencies. This study evaluates the managerial competencies of female project managers by administering a competency assessment test and comparing the results with the managerial competencies of male project managers. The management development questionnaire was used, where competency is defined by subjective comparison. All respondents occupied project management positions and were assessed in 20 different competencies. The study concluded that female project managers do not differ much from male project managers in terms of their managerial behaviors but perform better in "sensitivity," "costumer focus," and "authority and presence."

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Introduction

Women are underrepresented in the construction industry (Dainty et al. 2000; Commission on the Advancement of Women and Minorities in Science, Engineering and Technology Development 2001; Fielden et al. 2001; Galloway 2004; Yates 2001; Scott and Boles 1996; Byrne et al. 2005; Gale 1994; Toohey and Whittaker 1993). According to the most recent research conducted by the U.S. Bureau of Statistics (U.S. Department of Labor 2007), women constitute only 9.6% of the workforce in the construction industry, while the proportion of women in the overall national workforce is 46%. Among women who are part of the construction industry, few of them occupy project management positions. There are many reasons that prevent professional women from entering the industry even though some researchers [e.g., Khazanet (1996)] recognize the need for more female participation in the construction activity. Women are generally misled about the construction industry (Dainty et al. 2000; Arslan and Kivrak 2004; Scott and Boles 1996), face an informal recruitment process that works to men's advantage (Kehinde and Okoli 2004; Dainty and Lingard 2006; Dainty et al. 2002), and are discriminated against in the heavily male-dominated industry (Yates 2001; Dainty et al. 2000; Kehinde and Okoli 2004; Fielden et al. 2001; Lingard 2007). Much of the literature that investigates the reasons that prevent women from occupying construction management positions is based on studies conducted overseas and there is no evidence that the same reasons are valid in the United States too. But the literature demonstrates the universal nature of the problem.

None of the research studies published so far investigated whether women were excluded from project management positions in construction because they are less competent than male project managers. Is the managerial competence of female project managers at par with male project managers? The study presented in this paper tries to answer this question by measuring and comparing the level of managerial competency of women and men in construction. The next section discusses the methodology of the study after which the findings of the survey are presented and discussed. The conclusion of the study is presented in the last section.

Methodology of the Study

The management development questionnaire (MDQ) is a personal assessment instrument that is used to identify the strengths of chief executive officers, owners, presidents, executives, and managers. It makes use of the concepts developed by Boyatzis (1982), Schroder (1989), and McClelland (1973). It was designed to assess the managerial behavior of a single individual relative to 20 different competencies across five broad domains, namely managing change, planning and organizing, interpersonal skills, result orientation, and leadership (see Table 1). The competencies are self-explanatory. According to Cameron and The Test Agency (1997) MDQ's reliability and validity are not in question. In this study, MDQ is used for the first time as a tool to collect information about the managerial behaviors of a group of people as opposed to a single individual.

The contact information of the potential participants was collected from the Internet at random (www.salesgenie.com). The survey was emailed three times to the attention of 1,400 female and male project managers employed by private construction companies in the United States. As expected, the response rate was quite low, mainly because of the length of the questionnaire

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Table 1. Average STEN Scores and *p*-Values for Managerial Competencies

Global competencies	Competencies	STEN scores		*p*-value
		Women	Men	
Managing change	Initiative	5.71	5.16	0.236
	Risk taking	4.61	4.74	0.845
	Innovation	5.65	5.13	0.442
	Flexibility and adaptability	4.23	3.32	0.159
Planning and organizing	Analytical thinking	5.32	4.94	0.530
	Decision making	4.90	4.65	0.548
	Planning	4.94	4.81	0.648
	Quality focus	5.35	5.06	0.420
Interpersonal skills	Oral communication	5.52	5.39	0.484
	Sensitivity	4.87	3.52	0.019[a]
	Relationships	5.10	5.00	0.866
	Teamwork	4.58	3.61	0.096
Result orientation	Achievement	4.61	5.19	0.094
	Costumer focus	4.23	3.23	0.015[a]
	Business awareness	5.52	5.48	0.900
	Learning orientation	5.61	4.94	0.117
Leadership	Authority and presence	6.16	5.03	0.004[a]
	Motivating others	4.90	4.71	0.743
	Developing people	4.39	3.90	0.311
	Resilience	3.77	3.84	0.82

[a]Statistically significant at 0.05.

that included 160 questions. A total of 63 questionnaires were returned and used in the analysis, including questionnaires from 32 men and 31 women, all occupying project management positions in their organization.

Every competency was measured by eight statements rated across five possible responses: strongly agree, agree, neutral, disagree, and strongly disagree. Respondents' answers were converted to a five-point scale, where 1 represents strongly disagree and 5 strongly agree. The total score for a competency is the sum of eight scores obtained in response to the eight statements that define that competency. So, the score of a competency varies between 8 and 40. The next step is converting these scores to a Standard Ten (STEN) scale which is used to rate participants' responses on a 1–10 range, based on a proprietary scale developed by HRD Press, Inc. for each and every competency. The STEN scores were calibrated by HRD Press, Inc. for each and every competency separately by considering all respondents in all industries. According to Cameron and The Test Agency (1997), the STEN scores are statistically reliable and valid. For all 63 participants and for all 20 competencies, STEN scores were calculated separately, i.e., a total of 1,260 STEN scores were found. Then their mean values were used in the analysis.

Results and Discussion

Because the data are not normally distributed, the Mann-Whitney U test was conducted to determine whether the differences between female and male respondents' STEN scores in each competency are statistically significant or not. The significance level of the analysis was set at a *p*-value of 0.05. Statistical Package for Social Sciences was used to conduct the analysis.

As seen in Table 1, the differences are not significant in most competencies. However, women ranked higher in 17 competencies (three of which are statistically significant at 0.05). Men ranked higher in only three competencies, namely resilience, achievement, and risk taking (none statistically significant). The results of the Mann-Whitney U test also revealed that the performance of women and men do not significantly differ in the five global competencies, i.e., managing change, planning and organizing, interpersonal skills, result orientation, and leadership. The study of Powell (1990) study supports this finding.

Managing Change

The only competency where men scored higher was "risk taking," but no statistical difference was observed (p-value=0.845). This finding is supported by the study of Johnson and Powell (1994) that explored risk propensity differences between genders who have undergone formal managerial education, and that found that both genders have the same level of tendency to risk.

The differences in "flexibility and adaptability" (p-value =0.159), "initiative" (p-value=0.236), and "innovation" (p-value=0.442) were not significant, even though women scored slightly higher in all three competencies.

Planning and Organizing

Although women ranked higher than men in all four competencies of "analytical thinking ," "decision making," "planning," and "quality focus," none of the differences were statistically significant. Johnson and Powell (1994) also found that women and men do not differ in decision making if they come from a managerial background.

Interpersonal Skills

Except for "sensitivity" (p-value=0.019), there was no significant difference between the genders for this global competency

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(p-value=0.486) or its other constituent competencies, i.e., "oral communication," "relationships," and "teamwork."

Sensitivity (p-value=0.019) is defined as listening to other people, involve them in decisions, and being more democratic. The result is consistent with the nature of women, because they see others as equals, whereas men tend to be more autocratic (Lawless 2001).

As per Table 1, women and men do not differ in the "oral communication" competency, but the literature is not consistent in this matter. The study of Lawless (2001) states that women have developed verbal abilities from their early ages and have better communication skills compared to men. In contrast to Lawless (2001), Penley et al. (1991) measured communication skills for both female and male managers and observed that women tend to have poorer communication skills than men.

Result Orientation

Males who participated in the survey provided significantly lower costumer focus orientation than females (p-value=0.015). Men's costumer focus competency was also the lowest among all scores (3.23). This is a weakness of men that can be improved. On the other hand, men ranked higher than women in the "achievement" competency, but the difference was not significant. Women scored slightly higher than men (differences not statistically significant) in the STEN-scores for "business awareness." It was not surprising that women are slightly more aware of the business aspects of the work because women are mostly directed to office-based positions while men experience site work.

Leadership

"Authority and presence" was found to be the most marked disparity between male and female project managers in the construction industry (p-value=0.004). This finding contradicts most of the studies quoted in the literature. For example, the survey by Giritli and Topcu-Oraz (2004) of 43 participants in the Turkish construction industry states the opposite. Of the six leadership styles investigated in the study of Giritli and Topcu-Oraz (2004) study (coercive, authoritative, affiliative, democratic, pacesetting, and coaching), the democratic style was more used by women than men, whereas both genders seemed to be using the remaining leadership styles equally. Lawless (2001) also states that women see others as equals whereas men emphasize order and obedience (autocratic behavior). In contrast to the claims of Lawless (2001) and Giritli and Topcu-Oraz (2004), our results for authority and presence indicate that women perform better than men in this category. This can be explained by the fact that women have to be more autocratic in order to be accepted by men in the industry. In other words, because of the male-dominated culture in the industry, and because taking orders from women is not common, women start the race one step behind, and therefore have to compensate by being more self-confident, charismatic, and autocratic than usual. Indeed, according to the National Academy of Sciences (1994), women who succeed in engineering are self-confident and have specific targets in addition to possessing other skills.

"Resilience" is coping with stress effectively. The p-value was found to be 0.820 which represents equality between women and men. The study of Loosemore and Waters (2004) that investigated the stress levels of women and men in the construction industry, found equally that the differences were not significant.

Conclusions

One of the greatest challenges facing female project managers is their acceptance to the construction industry by their male counterparts. The construction industry is one of the most male-dominated industries. Women are underrepresented in the industry due to its ingrained culture, unique nature, working conditions, and project-based setup. The objective of this research was to find out if disparities exist between women and men in terms of managerial behaviors.

Based on the survey results and the statistical analysis conducted, women and men appear to have the same level of strength in managerial competencies. Women are as competent as men for holding project management positions in construction companies. Furthermore, women scored significantly higher in three competencies: sensitivity, costumer focus, and authority and presence. In order to increase the number of women in the industry, one should improve the industry image, its working conditions, and working hours, rather than women's managerial abilities.

The results of this research are limited to the population surveyed. The study conducted encompasses a relatively small portion of the U.S. construction industry (63 participants). Further comprehensive research is required to take this study one step further by reaching more participants. Some control factors may be needed such as company type, company size, type of project undertaken, geographical location, and level of managerial position. It should also be stated that the MDQ measures self-reported opinions of one's own behavior/competence, whereas the perceptions of their boss or coworkers may be equally important. The study might have benefited from additional ratings of the respondents by their bosses or coworkers. But the difficulties in collecting additional data of this kind are immense. While this avenue was not pursued in this study, it can be explored in future work.

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