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BARRIERS IT EMPLOYEES FACE - A GENDER PERSPECTIVE

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Abstract

This study reports the findings of 6 focus groups conducted with male and female managers working in information technology (IT) at three different companies. The views the managers shared regarding the barriers that men who work in IT face that their female counterparts do not are presented. The themes which emerged in the analysis are viewed through the lens of gender schema theory. In this study, the concept of family responsibilities was raised only by the females and it was only evoked as a cause concept. In contrast, the concept of gender discrimination was evoked as only an effect concept, but it was discussed by both the men and the women. The issue of opposite gender interaction was raised by both males and females with the females often resorting to gender isolation as an approach to avoid inappropriate or uncomfortable interactions.

Keywords: IT managers, gender schema, barriers, causal mapping

Introduction

On February 21, 2007, Frances E. Allen of IBM Research Center was awarded the 2006 A. M. Turing Award, one of the most prestigious prizes in computing (Maney, 2007). The Turing Award was initially presented in 1966 and named after a British mathematician (ACM Bulletin Service, 2007), and Fran is the first and **only** woman to ever receive this honor.

The engineering and technology fields are often stereotyped as male (Joshi and Schmidt, 2006; Newton, 2001). The Report of the Congressional Commission on the Advancement of Women and Minorities in Science, Engineering and Technology Development (CAWMSET, 2000, p. 4) claims "The Commission recognizes that gender stereotypes are still pervasive in professional life. For women these problems are manifested in inadequate work and family life accommodation, unequal pay scales and advancement."

In order to identify and understand the gender stereotypes experienced by employees working in the IT field, we explore the differences in the responses of male and female IT managers and identify the cause and effect themes evoked from each gender. We report on the results to the question we asked to both male and female

managers, "What barriers do men who work in IT face that women do not." In summary, the purpose of this study is to determine the similarities and differences in the perceptions of what barriers male IT managers face from a gendered perspective. Since IT managers influence the working lives of the subordinates it is vital to better understand their gender stereotypes. The stereotypes IT managers hold may be at the base of some of the issues identified in the CAWMSET (2000) report.

In the next section, some potential barriers that IT employees face will be presented as well as the foundation of gender schema theory. The method of data collection and the analysis and results will also be presented.

Barriers IT Employees Face

For many potential employees, the first barrier faced involves entry into the IT field. In 2003, the Blue Ribbon Panel (ITAA, 2003) reported a lack of strong corporate commitment, limited networking opportunities

¹ We also asked the participants, "What barriers do women who work in IT face that men do not," however, the analysis of those data are currently ongoing and are not reported in this paper.

and role models, and the unattractiveness of the IT work environment as three of the five reasons for possible barriers to entry into the IT workforce. They also reported that gender-related stereotypes may limit the hiring and advancement opportunities for women as well as concern over the lack of information about the field and academic requirements needed by high school students interested in the field. Although these are possible barriers to entry, some remain potential barriers facing actual IT employees, including managers.

Beyond the barriers to entry and generic descriptions of the challenges of the IT working environment (e.g., long hours, stress), most other studies focusing on barriers have focused on the barriers facing female IT employees. Despite reported inroads of female professionals in traditionally male-dominated career fields (e.g., accounting, medicine, veterinary medicine), the retention and advancement of women in IT jobs continue to present problems for their employers. The 2003 Information Technology Association of America Blue Ribbon Panel on Information Technology Diversity (ITAA, 2003) report indicated that the percentage of women in the IT workforce was only 34.9% in 2002 as compared with 41% in 1996.

Truman and Baroudi (1994) found that women in IT are vulnerable to gender discrimination: filling fewer management positions and receiving lower salaries than men even when controlling for job level, work experience, and age (Igbaria and Chidambaram, 1997). Additionally, women working in IT are seen as having less favorable chances of promotion than men (Igbaria & Baroudi, 1995). Ahuja (2002) theorized the barriers women in IT face include the prevailing occupational culture (e.g., long hours), problematic institutional structures (e.g., travel expectations, flat organizational charts), the lack of role models, social expectations (e.g., anxiety and inadequate self-efficacy), and work-family conflicts. Other barriers are structural: segmented internal labor markets, lack of challenging job assignments, and lack of mentoring opportunities (Ahuja, 2002; Goodman, Fields, & Blum, 2003; McBrier, 2003). Ahuja called for further research to investigate these barriers.

To date, no one has focused specifically on identifying whether or not male IT employees face the same or unique barriers. The current study focuses specifically on the workplace barriers male and female IT managers perceive currently employed male IT employees' face.

Gender Schemas

Cognitive processes have been identified as contributing to overt and subtle discriminatory practices that occur in many organizations. A schema (Barlett, 1932) can be thought of as a representation of a person's knowledge that includes domain-specific concepts and the relations among those concepts which is used to understand and interpret new information (Dorsey, Campbell, Foster and Miles, 1999; Johnson-Laird, 1983). Schemas are cognitive heuristics that allow individuals to process and organize information, thus avoiding the need

for exhaustive processing of new information (Fiske & Taylor, 1991).

Gender schemas have been widely discussed in the literature (Lemons, 2003; Olsen & Walker, 2003; Bem 1983; 1993). Gender schema theory stipulates that gender is a major component around which individuals organize information (Martin & Halverson, 1981). Gender schema theory can be thought of as a lens through which individuals perceive processes and evaluate incoming information (Bem, 1983). Accordingly, both men and women compare themselves and others to different standards depending on gender (Major, 1987).

Applied to workplace settings, such gender schemas can have adverse effects on women because women are often seen as less competent than their male counterparts or they may not be trusted to assume leadership positions, even when they possess equivalent education and work experience. In fact, Schein in a recent overview of research investigating women in management positions cited a 2004 ILO study that corroborated another worldwide study by Berthoin and Izraeli (1993, p. 63) from a decade earlier, in which the authors concluded that "probably the single most important hurdle for women in management in all industrialized countries is the persistent stereotype that associates management with being male."

What complicates the issue is that male and female managers do not acknowledge the existence of these barriers in the same way. Schein (2007, p.12) summarized comparative research findings:

Surveys of executive men and women bear out that women see the negative impact of gender stereotyping on their careers, but men, for the most part, do not. Women senior level executives in the USA (Catalyst, 1996, 2004), Canada (Catalyst, 1997), the UK (Catalyst/Opportunity Now, 2000) and in major corporations in 20 European countries (Catalyst, 2002a, b) all agree that gender stereotyping is a major barrier to women's progress in management. On the other hand, male CEOs in the USA (Catalyst, 1996) and Canada (Catalyst, 1997), and male senior level executives in the USA (Catalyst, 2004) and in major corporations in 20 European countries (Catalyst, 2002a, b) do not see stereotyping as a significant barrier to women's advancement [emphasis added].

The implications are obvious: if organizations are serious about retaining employees, promoting women, and having equal treatment for both male and female managers, efforts must be undertaken to raise the schemas (cognitive structures) which may subtly influence management's actions to a level of awareness that they become actionable. This study ultimately seeks to identify these cognitive structures. The methodology and results are presented in the next sections.

Methodology

Sample Selection

Focus groups have high face validity, can capture real-life data, are flexible, can provide speedy results, and are inexpensive to conduct (Babbie, 1995). Because of these advantages, we conducted six focus groups with managers working in IT at the headquarters of three different companies located in different geographic regions. Admittedly, this is a convenience sample. The use of a convenience sample is acceptable in qualitative research because the goal is depth of understanding around a specific phenomenon and not generalizability (Armstrong, 2005). It is through this interplay of individual and group discourse in the focus groups that we can capture much of the causal aspects of the managers' cognitions. This method provided us with rich data that can be systematically analyzed using a qualitative technique, causal mapping.²

Since cognitive structures are held within the mind, to understand cognitive structures we explicate and study the cognitive representations of the individuals that appear in the statements they make. Therefore, our task was to elicit the relevant concepts from what managers said regarding the workplace barriers IT employees face and cast these concepts into appropriate structural representations.

There were a total of 45 IT managers that participated. Eight male managers and 9 female managers participated from Company A (a trucking company); 8 men and 5 women participated from Company B (a food manufacturer); and 8 men and 7 women participated from Company C (a beverage distributor). Male researchers conducted the male focus groups and female researchers conducted the female focus groups in order to reduce any bias or hesitancy on the part of the participants that might occur if the opposite gender were present. The protocol for the focus groups appears in Appendix A.

For this study, we used a multi-step process previously described in the literature (Armstrong, 2005; Narayanan and Fahey, 1990) to access the causal reasoning processes of the IT managers. In the first step, we selected a source for the data and gathered the narratives. As previously discussed, the method used to gather the narratives was interviews with six focus groups. The focus groups were held in workplace conference rooms at the three geographically dispersed companies. In each focus group, an audiotape of the discussion was made to allow for verbatim transcription of the session.

From the six transcriptions, we identified the causal statements. In a group setting, the flow of discussion changes between the participants, with one initial comment or thought being elaborated upon or continued by a different participant. Because of this group conversational dynamic, and as suggested by

Axelrod (1976), we coded both the explicit and implicit causal statements so that we did not miss any key points of discussion. The key words used in identifying explicit causal statements are "if....then...," "because," and "so." For example, the sentence, "If you're a man, then you face challenges interacting with women in IT" was coded as an In discussing implicit causal explicit statement. statements Axelrod (p. 293) states, "Some relationships are implicit in the phrase, sentence, or group of sentences. These cases are those in which the phrase, sentence, or sentences do not constitute relationships in a grammatical, structural sense." For example, the sentence, "Unless you knew somebody that could get you in the door, you couldn't get into it [a government position]" was coded as an implicit statement.

The research team systematically examined each of the manuscripts to identify the causal statements. If there were disagreements among the researchers identification of the statements, discrepancies were resolved through discussion leading to a 100% level of agreement on all of the causal statements. Taking each individual causal statement, the researchers separated the 'effects' and 'causes'. The phrase, "If I had the time to spend that a lot of men have to spend" was coded as the cause and the phrase "then I could do more work" was coded as the effect. Once the causal statements were identified and separated, then the researchers individually developed a coding scheme (using content analysis). In the coding process, words that are frequently mentioned in the statements are grouped together (Narayanan and Fahey, 1990), and a word or word group is created to summarize the meaning of the phrase. The researchers came together with their individual concept labels to discuss and resolve discrepancies to 100% agreement on the labels. For example, the cause statement, "If I had the time to spend that a lot of men have to spend" was coded as Time and the effect statement, "then I could do more work" was coded as Career.

Results

The emerging themes or concepts of the "cause" statements are presented in Table 1. The first column shows the frequency with which that concept occurred. Four broad cause concepts emerged from the analysis: family responsibilities, gender issues (including composition, equality, and isolation), male/female dominated industry, and opposite gender interaction. Of these cause themes, two of them were causes **only**: gender equality and male/female dominated industry.

Gender equality refers to the ability of men and women to perform equally on the job. One woman stated, "If it is perceived that you are an equally qualified candidate, then you just have to watch your performance." Another woman stated, "If a woman and man are producing equally, then this will result in the woman getting the promotion and not the man." Notice that in both of these statements, the equality is in the cause portion of the statement and not the effect.

² For a complete discussion of the details of the method see Riemenschneider et al., 2006 or Armstrong et al., 2007.

The other theme that was cause only was the male/female dominated industry theme. Several comments were made regarding the male dominance in the IT industry. One male manager commented, "Male challenges are not different because this [IT] is a male dominated industry." Another man said, "This company tends to be more male dominated anyway." Additional comments were made regarding industries that were female dominated, such as nursing or fashion merchandising. One woman said, "If it was, you know, a nursing industry or something, then they [men] would face harder challenges," while a man stated, "If in another industry, like fashion, then it would be different."

There were several themes that emerged as both causes and effects. The first theme is family responsibilities. It is interesting and insightful to note that only the females discussed the family responsibilities; this theme was not mentioned by the male managers. Two example statements given by different women illustrate this theme, "When a man stays home, it's like "Wow, what a great father!" and "Every time I tell somebody I have to do something like that [referring to taking children to the doctor], I feel like I have these frowny eyebrows looking at me." Both of these are examples where family responsibilities emerged in the cause portion of the statement. Additionally, these statements illustrate the social contradiction that the men are getting credit and applauded for their family responsibilities while the women are not being viewed in a positive way. An example illustrating family responsibilities as the theme in both the cause and effect is, "Men have more of a role at home than they did 30 years ago, so for the men to have to rush out of here to take a child to a baseball game or something...."

The second theme is opposite gender interaction, which is defined as an individual having to interact, communicate, or "deal with" an individual of another gender. In an example of opposite gender interactions one female manager commented, "Men might have a little tougher time watching their p's and q's over things that have anything to do with the fact that the person they're working with is female so I think that could pose one challenge." The opposite gender interactions is in the cause of the previous statement, yet in the effect of the following, "There are too many situations, innuendos, and you all know I've been subject to a heck of a lot of them because I have a vendor who comes in quarterly, I will not do it [take him to lunch alone]". Another participant commented, "I think they face challenges interacting with women in IT so I don't think they face other challenges at work."

The themes gender, gender composition, and gender isolation also appeared in both the cause and effect portions of the statements. The gender theme was used when the manager mentioned the word "gender." From the cause statements, one male manager commented, "If there's gender involved, then you can't talk to your employees the way you used to." Gender composition refers to discussions of the percentage of men and women in the IT department. One male manager commented, "If you look at the mix of our, maybe the positions that we have here at XXXXXXX IT, then it's different between

men and women." Another male stated, "If there's more men and there's more women in certain positions, then they have different challenges." Gender isolation, defined as being the only female in the group, was mentioned by the females only. Statements by the female managers included, "I don't want to be the only female, so I'm going to stay behind" and "I'm in a group where I'm the only female so a lot of times there are lunches and outings and, you know, you want to be with your group, you want to be a team, but at the same time it's like you're the only female so its kind of strange."

Three unique themes emerged only from the effect portion of the statements. These themes were gender discrimination, differences-yes, and differencesno. Gender discrimination is defined as unequal or unfair treatment with regard to advancement based on gender. One male stated, "Companies need to reflect the communities that they're serving so it's affecting all of us negatively from a career point of view," while another male said, "If a woman and a man are producing equally, then [it] will result in the woman getting the promotion and not the man." The differences-yes construct is defined as statements that convey that males and females in IT do face different challenges; and the differences-no construct is defined as statements that convey that males and females in IT do not face different challenges. Two comments from different male managers illustrate the differences-yes theme, "We have the most challenging opportunities thrown at us because we are men" and "I think we're asked to deliver a whole lot more than the women because we are men." A comment from a female illustrates the differences-no theme, "If you're a man, then [I] don't think they face other challenges in IT," while one of the males said, "If it's business, then I don't see any difference between a female worker and a male worker."

Discussion

The data presented here is the first step in developing detailed causal maps that may be used to compare the shared cognitions regarding males' and females' gender schemas regarding the barriers men in IT face that women do not face.

Interestingly, one of the themes raised (only by the women) was the idea of family responsibilities. In addition, this theme was only evoked as a cause statement. Thus family responsibilities cause outcomes such as disapproval and guilt for the women, but positive outcomes for the men. Previous research may help to explain these outcomes, because Eddleston, Baldridge, and Veiga (2004, p. 378) found that, "having children at home and an employed spouse had a significant impact on women's career success, but not men's. Specifically we found that unlike their male counterparts, women managers are likely to have their career progress impeded if they have children at home." In addition, for men, children appear to positively influence their career choices to help them fulfill their role as provider, whereas women with children appear to negatively influence their career choices in that they are less likely to pursue their

careers due to the demands of child rearing (Blau et al, 1998; Powell and Mainiero, 1992).

Another interesting finding was with regard to the concept of gender discrimination. This concept was evoked from both the men and the women, but only mentioned as an effect concept. This means that there were no outcomes associated with gender discrimination, that it was in fact the outcome of other events. Also, the gender discrimination in this case was reverse discrimination. All of the phrases evoked were with regard to the "white male" being discriminated against. Analyzing the cause concepts, we discovered that the gender discrimination was a result of diversity and gender equality. So both the men and women share the construction that the pursuit of diversity and gender equality causes discrimination (both gender and racial).

Lastly, it seems interesting that the men and women would raise the issue of opposite gender interaction and gender isolation. While both the men and women discussed the difficulties of interacting with the opposite sex, it was predominately the women who expressed concerns regarding perceptions of impropriety with regard to cross-gender interaction. In many instances the women preferred to isolate themselves (gender isolation) rather than risk a possibly uncomfortable or inappropriate interaction.

Limitations and Future Research

As with any qualitative study, these results are not intended to be generalizable to all men and women in IT. Future researchers may use these findings to develop a quantitative study that will expand the sample and possibly result in more generalizable findings. One of the limitations of this study is the small sample size; however, with qualitative research a more in-depth analysis of a smaller number of participants is acceptable. strength of this study is the collection of data from multiple companies in different states. While this begins to address the issue of external validity, further research is needed with a truly generalizable sample to validate the concepts and relationships between the concepts reported here. Future research will continue the data analysis process to develop revealed causal maps for the male and female managers. Additionally, we will analyze the data collected by company to determine if there are any industry specific idiosyncrasies or if the themes identified are generalizable across all three organizations. We will also be able to see what issues come to the forefront no matter where the company is located geographically. Another potential limitation is that the study participants volunteered to participate, so there may have been bias. Although this is an acknowledged limitation, the importance of the subject and the relative lack of research showing complex concept relations in this case outweigh these potential biases.

The concepts reported here emerged during the interaction of multiple men and women within a focus group setting. Limitations of this method include the potential for sample bias due to potential group pressure

and the role of dominant speakers on the content discussed by a group. The researchers recognized this limitation and attempted to draw out those participants who were reticent to speak. The method also provided us with rich data that could be systematically analyzed using an innovative methodology such as causal mapping.

Conclusion

In this study of male and female IT managers, the concept of family responsibilities was raised only by the females and it was only evoked as a cause statement. In contrast, the concept of gender discrimination was evoked as only an effect concept, but it was discussed by both the men and the women. The issue of opposite gender interaction was raised by both males and females with the females often resorting to gender isolation as an approach to avoid inappropriate or uncomfortable interactions. Organizations could benefit from offering training programs for male and female managers to help them improve communication, improve gender interaction, and address these differences in male and female schemas.

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Note: Tables and Appendix are available from first author upon request.