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**Evaluation of “Career Progression in a
Fortune 500 Company:
Examination of the *Glass Ceiling*”**

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Before I start to discuss my evaluation of the research paper I chose, I think it is important to discuss why I chose this study to evaluate. The study focuses on the barriers to career progress for women and minorities. This is very important to me because I am considered a minority, (Saudi Arabian). However, this is not why I chose this paper. I chose this paper because the topic is a very serious one. Research done on this topic should be done in a matter that is beyond reproach, so that the weaknesses of the research cannot be used to impede progress in this area. It is with these thoughts I chose the following research paper to evaluate.

“Career progression in a fortune 500 company: Examination of the glass ceiling” is a attempt by the authors, Howard Tokunaga and Tracy Graham, to review recent empirical research published on career progression of women and minorities in different industries, and then to investigate the possible existence and explanation of the glass ceiling in a large sample of engineers in a fortune 500 manufacturing corporation in the computer industry. The study notes that women and minorities will make up an increasing proportion of the incoming workforce. It also notes that in a federal study of 94 fortune 1000 companies only 16.9% and 9% of management positions were held by women and minorities respectively.

There are three main categories of theoretical explanations of the glass ceiling phenomenon: human capital theory, organizational or systematic barriers to career progress, and individual differences approach. These theoretical explanations attempt to address two main issues, to determine whether gender or racial differences in career progression do in fact exist, and whether the above differences in career progression can be explained by the theoretical explanations. The authors point out that much of the original research was based on anecdotal or case-study approaches. The new research has moved away from this approach to well designed applied research approach. To this end, the authors offer their own study.

The authors studied one division of one Fortune 500 corporation to examine the career progress of different gender and ethnic groups for differences. The authors formulated two hypothesis: 1) After controlling for level of education and initial hierarchical level of entry into the company, the career progress of female engineers will be less than that of male engineers. 2)

After controlling for level of education and initial hierarchical level of entry into the company, the career progress of minority engineers will be less than that of white engineers.

The methodology used by the authors to answer the glass ceiling question is as follows. A sample of 2508 employees in a technical division of a Fortune 500 company in the computer industry was used. The sample consisted of employees who had entered the company during 1978-1991 after earning a college degree within the previous three years. The sample was divided into two categories, Level One who held a bachelors degree, and Level Two who held a masters degree. Within each level information was gathered on the following information: Sex (male, female), Ethnicity (white, Asian, minority), Marital Status (single, married), and Citizenship Status (U.S. citizen, Non-U.S. citizen). The information collected for each employee was taken from the company's computerized personnel records. To help correct for work related factors, work experience before entering the company, length of service, and job performance statistics were also collected. Finally, to compare the data, the number of promotions received since entering the organization was recorded. To determine the answers to the hypotheses posed, the data was analyzed using multiple regression and chi square statistics.

After data analysis the authors found the following results for hypothesis one: For level one employees, it was determined that the career progress for male engineers was not equal to that of female engineers. Female's had fewer promotions than males. For level two employees, the difference in career progression between females and males approached statistical significance, again males received more promotions. The results of the second hypothesis are similar to the first. Analysis found that for level one employees there were differences in the progression rates for the three groups. For level two, Asian and minorities received fewer promotions than did white employees.

The findings lead the authors to conclude that "The above analyses support the existence of a glass ceiling for female and minority engineers at both level one and level two." This is a very strong, and serious indictment on the corporation in question. It is still more serious because it can then be used as another brick in the wall that some people are building against business on this issue. This wall would then be used as a means of enacting legislation on an already over legislated business community. Given this, and before I discuss the merits of

this particular research paper, I will discuss the similarities and differences with other papers on the subject, as well as the contributions this paper has given to the literature.

As stated earlier, this paper is another brick in a wall of research on this subject. From my reading, I was astonished to find a wealth of information on the glass ceiling. There is a “Glass Ceiling Commission”, specific Glass Ceiling Laws [2] and research on the effects of the glass ceiling on practically every minority and women’s group. The research on this subject is overwhelming. The Tokunaga-Graham study adds to the literature by attempting to be scientific. Most of the studies I reviewed were case studies, where this study is more scientific. As far as similarities and differences between this study and the body of work available on the subject, most of the studies were case studies relying on the opinions of self selected participants. This study used a more objective approach, it used only computer records, which don’t have opinions or biases. Another striking difference between this study and the greater body is how they perceive the glass ceiling. From my review of other papers on this topic, I would define the glass ceiling as the barriers existing for minorities and women in career progression from middle management to upper management [2,3]. The current study, however, believes that “the glass ceiling is not a place, but rather a process and perspective that effects employees throughout their careers.” [1] This is clearly a departure from the generally excepted definition. The similarities between this study and the other studies are many. They all start with the assumption that there is a glass ceiling, then try to prove its existence. For the most part the studies are conducted by women or minorities.[2,4,5,6,8] They all use small samples, (one department of one corporation), and they all come to the conclusion that a glass ceiling exists. It’s because of these similarities that this paper is important. If through analysis doubt can be shed on this research study, because of its similarities, doubt may be shed on the entire wall of studies in this area. When this study strayed from the case-study approach to a scientific approach, it opened the door for analysis of the methods and concepts used, as well as, the conclusions gleamed from the research. A solid scientific research paper should hold up to analysis and criticism. To this end, I will examine the strengths and weaknesses of the concepts, methodology and results.

The strengths of the paper are many. The biggest strength of the paper has to be the attempt to move away from very subjective case study methodology to objective scientific methodology. This over comes many of the criticisms of the previous studies. The study is also very clear, their objectives and goals were clear and their and their conclusions well stated. The actual statistics were clear and for the most part well thought out and presented. The authors were also very complete in their review of existing literature on the subject. Like the strengths, the weaknesses are many. In order to better illustrate my analysis of the weaknesses, I will be concerned with three areas, concepts, methodology and results.

The first area of weakness in the study was in the concepts. First, it should be noted that the authors are not neutral observers, Graham a women and Tokunaga a minority. This leaves the door open for bias in all aspects of the study. The second problem stems from the fact that the study changed the generally accepted definition of the glass ceiling phenomenon by focusing on low level management instead of the high level management the term was intended to reflect. In my opinion, after much research, this new definition does not reflect the true definition of the term glass ceiling and should not be included in this body of research. The second area of weakness stems from the methodology used. The first problem with methodology is seen in a rather small sample. It should be noted that this study focused on one division in one company. The problem here is that even if the hypothesis is correct, you can only apply the results to that one division of that one company. You can not infer the results to any other part of the corporation or industry. The final problem with methodology is that the authors found that the Asian community, which are included in the minority umbrella, were over represented in this division of this corporation. Instead of accepting this fact, the authors decided to take Asians out of the minority umbrella and make a separate category. This is a very serious problem because the authors then make the assertion that both minorities and Asians experience barriers to career progress. This leads to the final area of weakness which is results. The results given by the author are that the glass ceiling exists for both levels of employees for both hypothesis. Given all of my arguments so far, It is clear that there matters that the author needs to address. There is also a problem with the chi square scores given by

the authors, none of the results are *statistically significant*, and only one approaches statistical significance. Again, this leads us to wonder about the validity of the study.

This study attempted to be scientific and the effort should be commended. Even with the obvious problems the subject is still viable and important. Because of this, further research still needs to be done. To this end, I will give suggestions on research to be done in the future. First, the research must be done with the most advanced scientific and statistical data gathering and analysis available. Second the study should be conducted by either neutral observers or observers that represent both areas of bias, (White male and minority female etc.) Finally, the research should be conducted on a large scale with a large sample, consisting of many divisions in many companies. Specific research that should be pursued is whether there are specific industries that pose greater barriers to career progress for women and minorities. I would also like to see a study that focuses on the relationship between educational rank in college with career progress. Finally, I would be interested in research that showed what if any trend in promotions has occurred over the last fifty-plus years.

Regardless of the exact topics of research done in the future, the most important aspect of the research is that it is scientific, and that it continues.

References

- [1] H. Tokunaga, T. Graham, "Career Progression in a Fortune 500 Company: Examination of the "Glass Ceiling"", *IEEE Transactions on Engineering Management*, vol.43, no.3, pp262-272, 1996.

- [2] A.C. Snell, "Glass Ceiling Red Flags", *Bickerstaff, Heath, Smiley, Pollan, Kever, & McDaniel, L.L.P.*, 1996.
- [3] DataLine, "The Glass Ceiling Initiative Report: A Closer Look", *DataLine*, vol. 1, no. 2, 1991
- [4] V. McLean, "Companies Breaking the Glass Ceiling", *Women's Connection Online*, 1995.
- [5] S. Pipes, "Glass Ceiling? So What?", *Chief Executive Magazine*, April, 1996.
- [6] M. Hittleman, "Glass Ceiling opens only to jobs already held by women, study finds", *Cornell Chronicle*, 1996.
- [7] DataLine, "Misleading Statistics – Women Rising in Management – Sort of.", *DataLine*, vol. 1, no. 9, 1992.
- [8] L. Shaw, D. Champlin, H. Hartmann, R. Spalter-Roth, "The Impact of the Glass Ceiling and Structural Change on Minorities and Women", *Cornell University*, Dec. 15, 1993.