



From the Technical Desks Below: Chinese Canadian Engineers' Views and Experiences of the Glass Ceiling

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Introduction

- Overt racism less now in Canadian institutions & organizations.
- Subtle cultural racism still exists & contribute to systemic racism.
- Race & ethnicity determine to some extent income and representation in managerial & professional ranks (Satzewich & Li, 1987; Li, 1988).
- Can be difficult for people of colour to achieve promotions and salary levels on par with others:
-----> the notion of the "glass ceiling" .



Introduction Con't

Definition of the Glass Ceiling

- Adopted U.S. Department of Labor's definition (1991).
- Defined as "...the *artificial barriers* based on attitudinal and organizational bias that prevent qualified individuals from advancing upward in their organization into management level positions."



Research Questions

Background to Research Questions

- Ran multiple regression analyses on 1996 Canadian Census.
- Factors affecting wages & salaries of scientists & engineers.
- $Y' = a_1 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4$



Research Questions (cont'd)

Unstandardized Regression Results for Wages & Salaries

<u>Independent Variables</u>	<u>Regression-1</u>	<u>Regression-2</u>
Intercept	-7536.58	-7494.16
Age	585.83*	580.50*
Gender	-7041.83*	-7341.60*
Education	3096.14*	3124.10*
Visible Minority	-4526.93*	-----
Chinese	-----	-3177.46*

* $p < 0.001$



Research Questions (Cont'd)

- What are Chinese engineers' perceptions and experiences of the glass ceiling?
- What are Chinese engineers' perceptions and experiences of the artificial barriers that prevent them from moving upward into management positions?
- What are the various factors that may correlate with these perceptions and experiences?



Literature Review: U.S. Literature

- Significant on Asian Americans and “glass ceiling”- Joyce Tang & Debra Woo published articles & books.

- Debra Woo (2000) discusses artificial barriers as:
 1. Dual ladder;
 2. Lack of mentoring;
 3. Lack of management training and access to critical developmental assignments;
 4. Biased performance evaluations;
 5. Cultural differences; and
 6. The existence of “old boys’ networks”

- Woo also points out that artificial barriers may transform into real barriers later.



U.S. Literature (cont'd)

- Tomkiewicz, Brenner & Adeyemi-Bello
- **“The Impact of Perceptions and Stereotypes on the Managerial Mobility of African Americans”**
published in *The Journal of Social Psychology* (1998)
 - Relationship between racial stereotypes and required personal characteristics for management positions.
 - Results supported the notion that to think “manager” means to think “white” thus the low numbers of blacks in management is due in part to racial stereotypes.



Literature Review: Canadian Literature

- Scant literature - Monica Boyd research report entitled "**Matching Worker to Work: The Case of Asian Immigrant Engineers in Canada**" (2000).
 - Asian-born engineers (China, Hong Kong, Philippines & India) are less likely to be in managerial engineering occupations and are more likely to be employed in technical engineering occupations when compared to native born engineers.
 - Postulates that this may be evidence of a glass ceiling in the Canadian engineering profession for those who are Asian-born.



Methodology

Mail-Out Survey and In-Depth Interviews.

- Sampling Frame
 - U. of C. Alumni Association - list of names and addresses for all engineering graduates from 1980 to 1992.
 - list of Chinese graduates created using surnames as identification.
 - cross-checked visually with graduation pictures in yearbook-Tallysticks.
 - created a sampling frame of 379 Chinese engineering graduates from the University of Calgary from 1980 to 1992.



Methodology Cont'd

- Mail-Out Survey
 - Questionnaires sent out with self-addressed stamped envelopes & a small token gift of \$5 put in a red “lucky money” envelope.
 - A total of 172 completed and 20 uncompleted questionnaires returned.
 - yielded a response rate of 48% from 359 eligible possible respondents.
- In-depth Face to Face Interviews
 - 67 Chinese engineers volunteered to be interviewed.
 - In-depth interviews conducted with 23 .
 - 1-2 hours.



Demographic Background

- 44% between the ages of 40 - 44; and 81% between ages of 35 – 49.
- 75% foreign born but nearly half came relatively young receiving high school and post-secondary education in Canada.
- 20% of respondents women.
- 29% electrical engineering; 24% civil engineering; 21% chemical; 17% mechanical; 4% survey engineering; 2% geomatics.

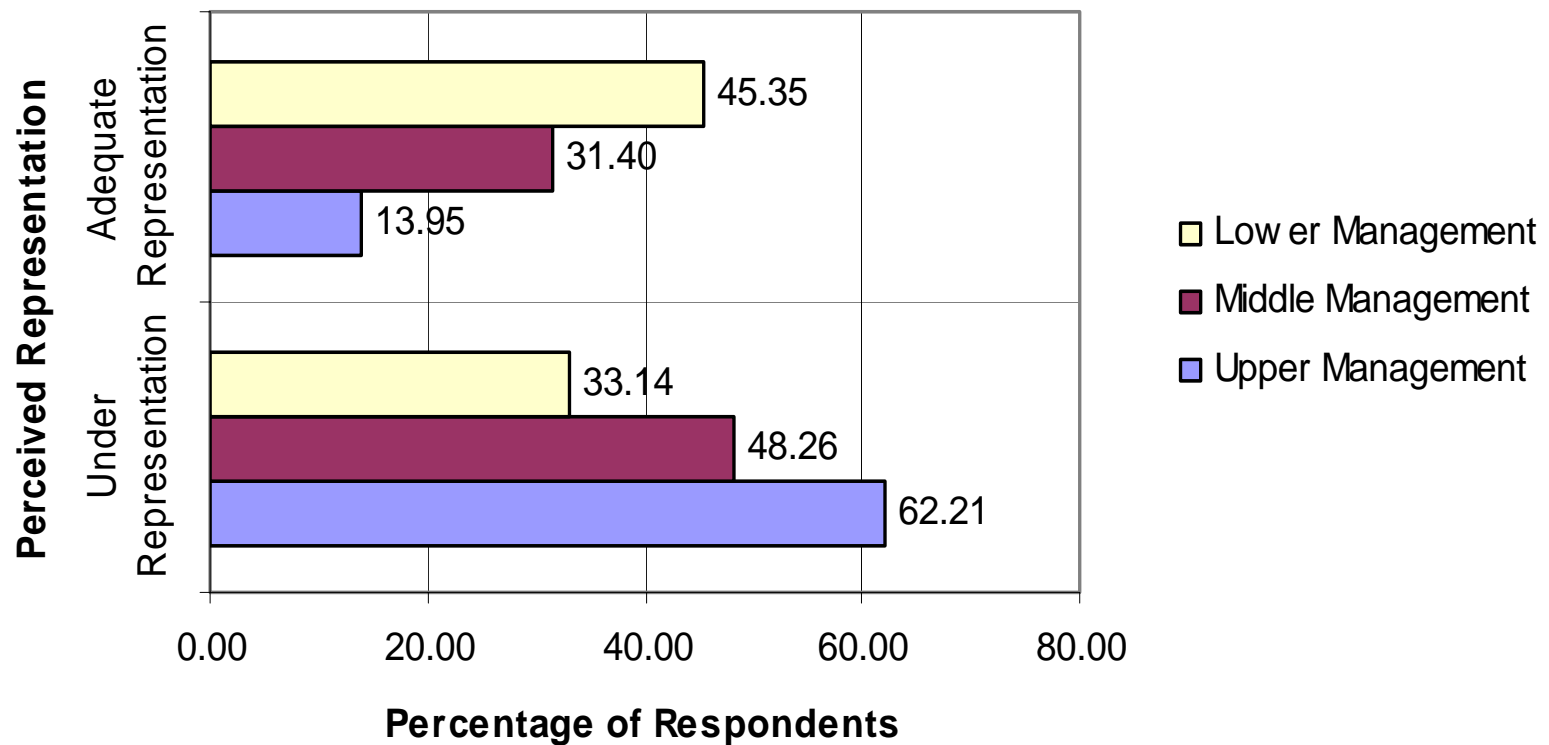


Perceptions and Experiences

- Contextual Definition of Glass Ceiling
- 4 Dimensions
 1. Perception of Chinese representation in managerial positions.
 2. Knowledge and experiences of the 'glass ceiling'.
 3. Perceived obstacles in their career advancement.
 4. Chinese culture as special barrier.

1. Perception of Managerial Representation

Perceived Representation of Chinese in Management Positions



2a. Knowledge and Experiences:
Perception of Advancement
Opportunities

Table 1. Advancement Opportunities Are Limited Because of Their Race

	Frequency	Percent	Cumulative Percent
Yes	19	13.0	13.0
Maybe	31	21.2	34.2
No	90	61.6	95.8
No Response	6	4.1	100.0
Total	146	100.0	



2b. Knowledge and Experiences:
Promotions and Race

Table 2. Denied a Promotion Because of Race

	Frequency	Percent	Cumulative Percent
Yes	13	7.9	7.9
Maybe	21	12.8	20.7
No	96	58.5	79.2
Don't Know	28	17.1	96.3
No Response	6	3.6	100.00
Total	164	100.0	



3. Perceived Obstacles

- Lack of Social Capital
 - Network Circles
 - Cultural Difference
- Human Capital
 - Interpersonal Interaction Styles
 - Written and Verbal Communication Skills
 - Leadership Ability



4. Chinese Culture as Special Barrier

- Over 50% of participants perceive being Chinese to be a handicap to upward mobility in the corporate world.



Conclusion

- The glass ceiling exists for many Chinese engineers.
- The higher the level of management the greater the perception of under-representation of Chinese.
- One-third of Chinese engineers feel that opportunities for advancement may be limited because of their race.



Conclusion (cont'd)

- 21 % felt that they have been denied a promotion into management positions because of their race.
- This figure is almost identical to a finding from the ***Ethnic Diversity Survey*** conducted in 2002.
 - 20 % of visible minorities in Canada reported that they had “sometimes” or “often” experienced discrimination or unfair treatment because of their ethnicity, culture, and race (Chinese figure is 18%).
 - and that the discrimination or unfair treatment was most likely to occur in the workplace.