Reality or Illusion: IT Women Professional Stuck within Four Walls or Lifted Up with Rope

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Abstract

Purpose- The paper aims to generate the different types of barriers that exist in the technology environment for the promotion of women employees. The primary goal is to identify the most prominent barriers affecting them to a larger extent. The study will suggest suitable measures to improve the situation in this domain.

Methodology -The researcher collected the responses from the target set of 350 employees in the Information and Technology industry. Primary data were collected through a questionnaire that was emailed to respondents and data were analyzed through Structured Equation Modeling analysis to find the most prominent barriers precluding the women from holding managerial positions.

Finding- The findings of the study suggest that barriers existing at different levels could be reduced to a larger extent through the suitable framing of the appropriate policies and measures in the organization. These conflicting factors are in the form of family responsibilities, demanding organizational roles, and lack of proper policies. Out of different dimensions like organizational, personal, and societal barriers. Society barriers do not seem relevant in the IT sector as compared to personal and organizational barriers

Research Implications – Limited studies have been conducted on gender diversity barriers in developing economies like India. This study tries to fill this important gap in the literature by examining the relationship between barriers and gender diversity in the technology sector.

Practical Implications- Retaining and advancing women managers in the technology industry seem to be challenging. This research addresses the barriers that act as challenges in promoting gender diversity and creating policies for an equitable environment.

Keywords Barriers, High technology, inequalities, policies, Promotion, Structured Equation Modeling.

Paper type Research paper

1.Introduction

The growth of women in the corporate world leads to the development of higher ratios of women in the technology sector. Women had less chance to get jobs at top-level management (Terjesen, 2008). As compared to five men only two women had been promoted at a higher level of position, and the wide gap has been observed. Studies show that although gender parity fosters innovation and improves problem-solving abilities, it also reduces hiring expenses and increases employee retention (Ostergaard.et al., 2011). Although women have been slowly trying to narrow this gap, it seems difficult to attain the level of equality in organizations. At the entry level equal proportion of men and women leads to a reduction in the gap by a few percentages, but at the top level, some more time will be required to narrow this gap in the next few years. In most cases, the level of difficulty increases, and the women employees enter into other hierarchical positions (Rajesh & Ekambaram ,2019). Even if they were able to reach the upper level, they moved towards the low-ranking position only 7% of women were able to climb this ladder (Byron, 2016). Less than 10% of the women had been able to reach the higher-level position. The maximum percentage of women was seen at the highest level more than 45%, but the percentage of women in other executive positions was less than 15%. In terms of work and career advancement, women continue to experience discrimination, disempowerment, and exclusion (Gabriel Eweje.,2021). Leaders at the top level believed that holding such a position leads to additional responsibilities for females (Singh et al., 2008). A Few more reasons like males with more career-oriented as compared to females in the technology sector, few female mentors and not having sufficient ability as compared to males, working for a longer period, and family restrictions have been seen as a few basic factors restricted the entry at a senior level position (Dainty, 2000)

2.Theory and Hypothesis:

Variation in Barriers with respect to Gender Employees

According to Social Role theory, stereotypes related with the society hold the significant role in the career of women employees. In the biased work environment of promotion, the growth ladder seems to be unbreakable. For instance, part time working women, maturity leave and reallocating to the new location due to spouse working conditions. During their peak career duration, the female employees scaled down the ladder with growth of children more attention and mid- way career break (Bhattacharya., 2018). Furthermore, the males seem to be raised at escalated rate. The perception towards organizational and personal barriers may differ significantly with respect to gender. In the support of this, the following hypothesis has been tested.

$H_{0(a)}$: Gender did not affect the employees' perception towards organizational and personal barriers.
$H_{1(a)}$: Gender significantly affected the employees' perception towards organizational and personal barriers.

Variation in Barriers with respect to Marital Status of Employees

The emergence of the glass ceiling theory took place in corporate America where women employees reach up to a certain level in the organization. This theory stressed the minority and women were influenced by the barriers in their careers. This exhibited ceiling obstructed the growth rate at higher levels (Lathabhavan., 2017). Moreover, it is exhibited in the different types that intercept their roles that revolve around insufficient mentoring, stereotypes, and limited networks with the key policymakers (Rutherford, 2019). Married females were more occupied with the childcare responsibilities that affected their careers. Married females were largely influenced by the glass ceiling effect as compared to unmarried female employees (Cotter, David 2001). Women employees with married marital status with more family responsibilities were less likely to hold the position at the managerial level position Marital status is also expected to affect the perception of employees towards organizational and personal barriers because marriage comes with lots of responsibilities and division of time. Before marriage, one can dedicate more time to the workplace whereas after marriage one has to devote time to home and the responsibilities associated with it. Therefore, the following hypothesis was formulated and tested empirically –

$H_{0(b)}$: *marital status did not affect the employees' perception of personal and organizational barriers.*
$H_{1(b)}$: *marital status significantly affected the employees' perception of personal and organizational barriers.*

Variation in Barriers concerning Position in the Organization

The variation was observed among the women employees' holding positions at different levels while more women employees were lying mostly in lower-level positions (Adhikary, Jyoti Regmi, (2016). The proportion of the women employees had been found differently at different levels. It identified that knowledge, skill, education, and work experience had been the strongest elements in advancing women employees at top top-level managerial positions. The result of the study concluded that women working at managerial level positions perceived more individual-related barriers while women employees at the executive level position perceived more organization-related barriers (Saifuddin, 2019). The position in the organization is also expected to affect the perception of employees towards organizational and personal barriers. In the study, the employees at managerial and non-managerial levels were included. As one goes up the ladder, their perception of organizational and personal barriers is also expected to change. In support of this, the following hypothesis was formulated and tested using t-test–

$H_{o(c)}$: *level in the organization did not affect the employees' perception towards personal and organizational barriers.*
$H_{1(c)}$: *level in the organization significantly affected the employees' perception towards personal and organizational barriers.*

3. Methodology

In India, women are underrepresented in the high-tech sector. The segments of this sector include software development, consultancy, and information technology services. All interviewees were from Chandigarh- a tech hub for national and international companies. An electronic questionnaire was developed and distributed to all prospective respondents. A five-point Likert-type scale from"

strongly disagree" and "strongly agree" was used. The questionnaire consists of 12 closed-ended questions. The researcher looked into three barriers- firstly, demographic variables like Gender, Martial Status, and level in the organization were studied, and in the second part barriers like personal, societal, and organizational barriers were studied. To prospect deeper into the barrier, questions like, "Women had been considered having fewer leadership qualities", "Women has been imagined having lack of technical job-related skills", "Women are perceived to be less committed to workplace", "Lack of promotional opportunities for women employees in company. In this study, primary data from 350 IT professionals was collected personally using a structured questionnaire. Once the data was collected, it was prepared for analysis. The data preparation involved coding data as per the code sheet prepared at the time of questionnaire development. Once the data was coded, it was screened and then entered into SPSS 16 version for analysis.

3.1 Respondents' profile

Age wise, majority of the respondents were between 18 to 35 years, followed by 36 to 45 years. Also, both male and female respondents were present in almost equal proportion in the study. Education wise, majority of the respondents were post-graduates like M.Tech/MCA (n=120, 34.3%), followed by Technical certifications holders like BE/B.tech (n=105, 30%). 25.4% were graduates and 10.3% . were diploma holders. Barriers faced by women employees holding top level management positions namely: personal barriers, organizational and societal barriers. Societal barrier had very low factor loading which show that societal barrier been as irrelevant barrier in the IT sector as women employees had been equal committed at the workplace and holds the positions at the different levels the findings had been in line with the previous research (Kiaye and Singh , (2013). Total 350 people filled the questionnaire that includes 200 male and 150 female employees.

Table 1
Reliability statistics of barriers

Barriers/constructs	AVE	Composite Reliability	Cronbachs Alpha
Organizational Barriers	0.5181	0.7600	0.7286
Personal barriers	0.6458	0.8447	0.7332

Table 2
Discriminant validity of constructs

	Organizational Barriers	Personal barriers
Organizational Barriers	0.72	
Personal barriers	-0.342	0.804

Table 3

Summary of measurements of barriers withholding women from holding managerial position

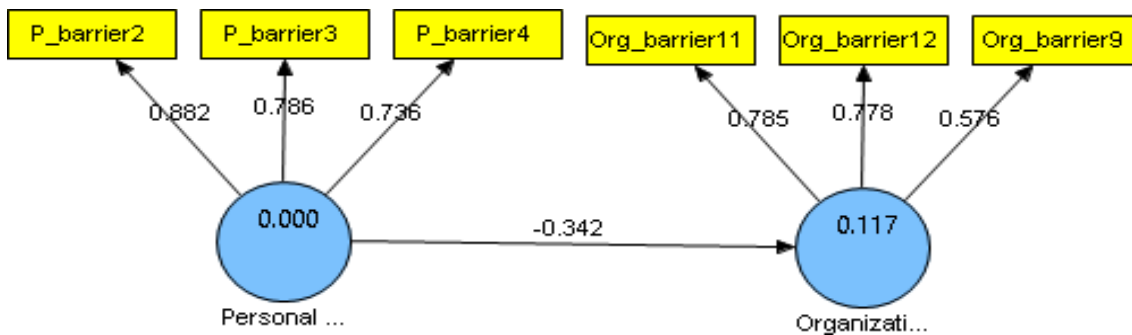| Barrier	Original Statements	Removed	Retained statements
Personal barrier	4	1	3
Organizational barrier	5	2	3
Societal barrier	3	3	0

Figure 1

Figure 1 exhibits the factor loadings of measurement model of barriers that preclude women employees from holding managerial position.

Table 4

Factor loadings of measurement model of barriers

	Organizational Barriers	Personal barriers
Org_barrier11	0.7854	-0.248
Org_barrier12	0.7784	-0.2841
Org_barrier9	0.5758	-0.197
P_barrier2	-0.3538	0.8823
P_barrier3	-0.228	0.7858
P_barrier4	-0.2075	0.7358

Table 5

Differences in perception towards barriers with respect to gender

Gender	Gender	N	Mean	Std. Deviation	Std. Error Mean	t	Sig
Organizational Barrier	Male	200	2.95	.869	.0615	10.96	.000
	Female	150	2.03	.701	.0572		
Personal Barrier	Male	200	2.05	.689	.0488	- 18.51	.000
	Female	150	3.69	.907	.07413		

Table 7

Differences in perception towards barriers with respect to marital status

Barriers	Marital Status	N	Mean	Std. Deviation	Std. Error Mean	t	Sig.
Organizational Barrier	Married	157	2.48	0.87	0.07	- 1.265	.211
	Unmarried	193	2.61	0.96	0.07		
Personal Barrier	Married	157	2.74	1.09	0.09	- 0.11	.913
	Unmarried	193	2.76	1.17	0.08		

Table 8

Differences in perception towards barriers with respect to level in the organization

Barriers	Level in the organization	N	Mean	Std. Deviation	Std. Error Mean	T	Sig.
Organizational Barriers	Managerial	223	2.62	0.92	0.06	1.713	.088
	Non-managerial	127	2.44	0.91	0.08		
Personal Barriers	Managerial	223	2.63	1.14	0.08	- 2.74	.006
	Non-managerial	127	2.97	1.09	0.10		

Data Analysis

The most popular measure of reliability of construct are Construct Reliability (also known as composite reliability CR) and Cronbach's alpha. The desired level of Construct Reliability (CR) and Cronbach alpha is minimum of 0.7. Confirmatory factor analysis was used to establish the one-dimensionalityof the measurements. Also, confirmatory factor analysis technique is used to establish the reliability and validity of the constructs (Fornell, 1981) Partial least square (PLS) technique was used for confirmatory factor analysis. The PLS based CFA technique that societal barrier was not relevant in IT sector as all of the measurement items of societal barriers obtained a very low factor loadings with the construct of societal barrier to and significant level of cross loadings with other two constructs. The variables of demographic and socioeconomic profile are gender, marital status, age, education. Other variables included in the study are relevant to their workplace like their work experience and proportion of male and female employees in their organization. T-test and one way anova have been used to test the hypothesis. But before testing the hypothesis, the assumptions of t-test and anova were examined. As it can be seenthat male did not perceive organizational barrier to be high or rather, they wereneutral towards organizational barriers (2.95, SD= .869) whereas the female perceived organizational barrier to be significantly low (2.03, SD =.701). The perception of male and female towards organizational barriers was significantly different as t =10.96, p<.01, was highly significant, suggesting that female perceived organizationalbarrier to be less important in withholding them from occupying managerial position. Women considered personal barriers exist in IT companies as they had been considered to lack of leadership skills and lack of other skills similar results had been taken out from the previous research (Jackson, 2001). The perception of married and unmarried employees towards organizational barriers was not significantly different as t-test = (-) 1.265, p = .211 was insignificant, suggesting that married and unmarried employees perceived organizational barriers to be same and not very prominent. Also, the perception of married and unmarried employees towards personal barriers was 2.74 (SD = 1.09) and 2.76 (SD = 1.17) respectively. The perception of married and unmarried employees towards personal barriers was same as t-test was highly insignificant (t = - 0.11, p = .913). The perception of employees at managerial and non-managerial level towards organizational barriers was 2.62 (SD = 0.92) and 2.44 (SD = 0.91) respectively. The employee's perception at managerial andnon-managerial level towards organizational barriers was same as t-test was insignificant (t = 1.73, p=.088). But the employees at managerial level had an average perceived personal barrier level of 2.63 (SD = 1.14) whereas at non-managerial levelit was 2.97 (SD = 1.09) and they were significantly different from each other as t-test was highly significant (t = - 2.74, p = .006).

4. Discussion

Males perceived the personal barrier to be significantly less responsible for preventing female from occupying managerial positions, whereas the females perceived the personal barrier to be more important, suggesting that females perceived the personal barrier to be an important reason for not occupying managerial positions. The results of the t-test were found to be highly significant suggesting that males and females were significantly different in their perception towards personal barriers. Whereas males perceived that females are not holding managerial position because of personal barriers. Therefore $H_{0(a)}$ may be rejected in favor of $H_{1(a)}$. As it can be seen that the average perception of married employees towards organizational barriers was 2.48 (SD = 0.87) whereas of unmarried employees was 2.61 (SD = 0.96). The perception of married and unmarried employees towards organizational barriers was not significantly different, suggesting that married and unmarried employees perceived organizational barriers to be same and not very prominent. The perception of married and unmarried employees towards personal barriers was same as t-test was highly insignificant. The overall personal barriers were found to be poor among married and unmarried employees. Therefore, $H_{0(b)}$ may not be rejected. The employee's perception at managerial and non-managerial levels towards organizational barriers was same as t-test was insignificant. But the employees at managerial level had an average perceived personal barrier level , whereas at non-managerial level , they were significantly different from each other as t-test was highly significant. Although the level of perceived personal barriers was low but two groups were significantly different.

5. Theoretical and Practical Implications

According to the current study, women still face obstacles in the form of biased corporate practices, negative work environments, discrimination based on gender, and unequal treatment, despite making up the majority of the labor force and expecting better treatment standards than in the past. These barriers prevent women from rising to senior management positions. As a result, companies should replace their gender-based promotion system with one that is performance-based to achieve equity in the workplace. Furthermore, it is imperative to initiate a range of programs to promote equitable corporate practices. These include educating both genders on the evolving nature of work and the advantages and disadvantages of terminating long-term employment, as well as training and advancement initiatives. Additionally, regulatory solutions like networking and mentoring can be implemented to mitigate the issue of the glass ceiling in the workplace and enhance the work engagement of female managers. Furthermore, a supportive work environment that fosters partnership between men and women is required to boost positive understanding between the sexes and optimize the benefits of teamwork to overcome the stereotypes about women that lead to unequal treatment. Additionally, programs promoting "gender awareness" should be handled delicately, and participants should be inspired to learn from the candid exchange of ideas that will help to moderately

alter male employees' attitudes towards women's careers and create a supportive work environment for us.

6. Limitations

In this study , data collected provided rich examples of experiences about the hindrances that women continue to face in the technology industry. As a result of this, the author believes this topic could be investigated in greater depth. The study can be expanded in other sectors and advocate the procedures and policies in this sector. The findings of the study cannot be generalized because women are specifically selected from technology. We propose that future research quantify the results of the current study by using a larger scale sample. Future research is also necessary to examine the other aspects of workforce diversity. It is significant to highlight that the findings may not be as broadly applicable to the Indian population as possible, even if the study's sample size of 350 people of Chandigarh was sufficient and complied with all standards. This restriction results from the samples only being taken from one state, Chandigarh , and not representing the diversity and variances found throughout India. Therefore, in the lack of mediating factors, the research's accuracy and dependability may decline. This study may run into problems with personal bias and subjective self-assessments since participants may change their answers to highlight their perceptions. They could give false information in order to hide their own shortcomings from others while they are still learning. Consequently, the population's consistency in the research might be compromised.

7. Conclusion

The ways that we do business, interact, and exchange information and knowledge are all being altered by advances in computer science and engineering. In the information age economy, nearly every job requires a rising level of IT proficiency. Women may not be motivated to fill the requirement for highly qualified IT professionals and managers if advancements in information technology continue to represent the goals and viewpoints of males while excluding those of women. This research aims to expand understanding related to the barriers faced by women employees while holding top-level positions. Past research has stated the limited number of women professionals in the technology sector, furthermore, the percentage of women in senior roles within the technology sector is fewer. This research explores the forms of barriers behind this inequity by adding more empirical evidence. Perceptions of both genders are significantly different, male employees considered organizational barriers as less significant. Personal barriers in the form of deficient decision skills and less leadership skills were considered more prominent for women employees. More research should investigate strategies women can use to overcome these barriers.

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