STEREOTYPE THREAT IN INDIA: GENDER AND LEADERSHIP CHOICES

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Stereotype threat is a psychosocial dilemma experienced by members of a negatively stereotyped group in situations where they fear they may confirm the stereotype. This study examined the phenomenon in India, thereby extending previous research to another culture. In addition, with participation by students preparing to be professionals, the results are applicable to organizational settings. Ninety graduate students from a professional training institute viewed common Indian advertisements under three conditions: gender stereotypic (women depicted as homemakers), counter stereotypic (women represented as professionally employed individuals) and neutral (no reference to any gender identity). It was hypothesized that females in the stereotypic condition would be susceptible to stereotype threat effect and thus opt for problem solver over leadership role on a subsequent task, while females in the counter stereotypic condition were expected to choose leadership roles. ANOVA was employed to test for differences across the three conditions. The study also hypothesized mediation of the stereotype threat performance deficits by self-efficacy, evaluation apprehension, anxiety, role conflict, stereotype activation, father's and mother's education levels. Hierarchical multiple regression procedures as recommended by Baron and Kenny (1986) were conducted for mediational analysis.

Data analysis provided partial support for the two hypotheses. In support of the stereotype threat theory, condition emerged as a significant variable influencing selection of role choice. In line with previous research, no evidence for mediation by any of the variables studied as potential mediators was found. However role conflict and evaluation apprehension may have functioned as suppressor variables that enhanced the variance in the condition-role choice relationship. The results of the study and their implications, in context of the Indian scenario, are discussed. Certain limitations are identified and suggestions made for future research.

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CHAPTER 1

INTRODUCTION

Since its inception almost a decade ago, the theory of stereotype threat has received attention from both academic research as well as the popular press. Stereotype threat studies have been reported in more than hundred articles and dissertations (Steele & Aronson, 2004). Sackett, Hardison and Cullen, 2004 noted that the PBS program in its show *Frontline* broadcast a one-hour special 'Secrets of SAT' that featured the stereotype threat research. The impact of this research has been noted. Fiske (2003) observed it may become a classic in psychology due to its potential of impact. Sackett (2003) observed that two-thirds of a sample of recent texts addressed the theory. These effects are impressive feats for a theory introduced barely a decade ago.

Stereotype threat offers an explanation for part of the performance decrements seen in minority, often negatively stereotyped groups. According to Aronson, Quinn and Spencer (1998) stereotype threat is the discomfort experienced by the members of the negatively stereotyped group in situations when they see themselves at risk of confirming that negative perception. This apprehension elicits itself in deficits in performance and associated behavior. Antecedents to the theory are found in literature on tokenism that refers to the debilitating effect of being a sole member of a social category in any situation. For example, in an early study, Katz (1963) found that black students performed better on a task when they were informed that their performance would be compared to African Americans than when told the comparison would be to white students.

Stereotype threat has attracted the attention of Industrial/Organizational (I/O) psychologists for its apparent link to performance and its connotations for such practices as selection, performance appraisal and other situations in which minority status and stereotype perceptions interact. Stereotype threat related topics are routinely featured at Society for Industrial and Organizational Psychology (SIOP) conferences. In the context of modern organizations which have a mix of ethnic and hitherto marginalized groups, stereotype threat has a topical appeal. However, the I/O research in the field has had mixed results.

Stereotyping, prejudice and discrimination are not new to I/O psychology because of their impact on goals of the Equal Employment Opportunity Commission (EEOC) and the larger issue of minority employment. I/O psychology has also traditionally drawn from social psychology for pertinent areas that reflect human interactions in work settings. Stereotype threat is one such area. Though research in the field has thus far focused on western contexts, the concept is also relevant to other cultures like the Asian societies. India, for instance, is a country distinguished by diversity in social and cultural spheres, chief of which are caste and gender. Such multiplicity of cultures has bred several stereotypes about groups. If the hypothesis of stereotype threat stands true, then these images can potentially hamper the progress of individuals in different fields that they have not hitherto ventured into. The proposed study attempts to explore this research question and find evidence for the hypothesis of stereotype threat in an Indian context.

CHAPTER 2

LITERATURE REVIEW

Theory

The concept of stereotype threat was proposed by Steele and Aronson in 1995. This theory holds that performance decrements observed in negatively stereotyped groups can be explained as the fear of confirming a negative stereotype that a member of the target group experiences. This apprehension leads to anxiety that results in a compromised performance level. For instance, an aging professor trying to recall a number sequence in a class or a male employee talking to a female colleague about pay equity, are both susceptible to experiencing stereotype threat. According to Steele, Spencer and Aronson (2002), when a negative stereotype about a group becomes personally relevant to a group member such that interpretation of one's behavior becomes dependent on it, then stereotype threat is the resulting feeling when that person fears inadvertently confirming that stereotype.

Implicit in the theory of stereotype threat was the premise concerning the awareness of the prevalent unconstructive stereotypes about groups by the members of that group. Any occasion that can potentially put a negative stereotype to test was hypothesized to induce performance decrements among individuals. The awareness generated the situational threat when the target group member felt vulnerable and at a risk of confirming a negative stereotype about his group. Steele and Aronson (1995) employed this hypothesis conducting their first studies on stereotype threat.

The self threat that the negative stereotype (about poor intellectual ability) apparently posed for African Americans (the target group) was hypothesized to disrupt

task performance in conditions when the devaluing stereotype applied. Black students' performance was the worst when the task was described as one of intellectual ability and thus activated a stereotype consciousness. The neutral (no stereotype threat) condition, the same task was described as a lab problem solving task unconnected with academic ability. In this condition, blacks performed almost at par with whites (after adjustment for SAT). Thus the way the task was described was a factor that determined whether stereotypes were activated. Further, compared to those in the neutral condition, blacks in the stereotype threat condition showed greater cognitive activation of stereotypes, concerns about their ability, and showed a greater reluctance to have racial identity linked to their performance. Almost 75% of black participants in the diagnostic (stereotype threat) condition refused to list their race on the questionnaire in contrast to all the participants in the other condition.

The findings of this first study suggested the role that external factors like task description, played in the performance of individuals. Thus initial evidence was found for how activation and consciousness of prevalent negative stereotypes can handicap performance. It was noteworthy that race consciousness could enhance feelings of incompetence and trigger a propensity to distance oneself from the source of those stereotypes i.e., race.

According to Steele (1997) a factor in determining the impact of stereotype threat related performance decrement was the nature of domain being tested upon. A domain was the field for which the negative stereotype holds. For instance, in the study discussed above, the domain was intellectual performance concerning African Americans. Stereotype threat was hypothesized to have greater effects on the

individuals who identify with the domain being tested. By identification it was meant that, for the individual, doing well in that domain personally mattered and was crucial for his self esteem. As identification increased, the individual felt more invested in the process and experienced greater psychological pressure of stereotyping. This resulted in larger decrements in performance. The subjects in Steele and Aronson's (1995) study were students in an elite college. This significant fact ensured domain identification towards academic pursuits among the African Americans in the study. Stigmatized students that identified with school performance encountered a predicament when faced with a situation that tested their intellectual ability (a domain they valued) while at the same time, the internalized negative expectancies associated with the group interfered with their performance.

Domain disidentification occurred when individuals ceased to care about a domain and thus sought to decrease its impact to their sense of self (Steele et al. 2002). For example, Major, Spencer, Schamader, Wolfe and Crocker (1998) found evidence of disidentification of African American students at intelligence tasks when their levels of self esteem were not affected either by low performance on the task or by negative feedback. Disidentification involved defining and re defining the self concept such that the threatened domain did not play a role in self-evaluation. For example, a woman taking a math test may adjust to the situation by dissociating her interpretation of self-worth from her performance on that test.

The findings of the Steele and Aronson study discussed above led to the development of the theory of stereotype threat and initiated research in this field to test for various hypotheses that could help understand the concept better.

Previous Research

Studies on stereotype threat have been conducted in differing contexts to replicate findings and test the generalizability. A majority of these were in lab settings using social or academic contexts. Typically, in the experimental condition, subjects who identified with the domain were placed in a situation where that domain was to be explicitly tested. The relevant group identity (e.g., race or gender) was then primed for stereotype activation (through instructions or by asking for race or gender prior to the task) or implied (to increase mundane realism). The latter procedure assumed that awareness of the stereotype will itself be activated in the testing situation. In the control condition neither was the task presented as a test, nor was the stereotype primed. Then a comparison was made on the task performance. Across studies, variations have been made in the domain tested, nature of manipulations and instructions employed, the data collection method, instruments used to assess performance and the mechanisms (like mediators of the stereotype threat effect) studied. These aspects are elaborated in subsequent sections.

Much of the research has addressed gender and race stereotypes. These studies have examined a broad range of issues within the ambit of stereotype threat. For instance, race centered research has focused on intellectual performance (E.g., Osborne, 2001; MacFarland, Lev-Arey & Ziegert, 2003), impact of the race of interviewer on responses by African Americans (Davis & Silver, 2003), high blood pressure in African Americans (Blascovich, Spencer, Quinn & Steele, 2001), white men and math (Aronson, Lustina, Good, Keough, Steele, & Brown, 1999) and white men and racism (Frantz, Cuddy, Burnett, Ray & Hart, 2005). In all these studies, findings have

indicated evidence of performance decrements in the condition marked by stereotype activation.

Gender focused research has also touched upon diverse issues. Spencer, Steele and Quinn (1999) conducted a series of studies to test for stereotype threat among women in mathematical domain. They noted that although gender differences were pronounced in advanced mathematical courses, males did not outperform females in computational ability or understanding of concepts, suggesting this difference may possibly be a function of stereotype threat. A difficult math test exposed women to a situation where they were more likely to feel the pressure of confirming a negative group image. An easy test posed no such challenge. The results confirmed the hypothesis. A significant interaction was observed between sex and the condition (marked by how the test was characterized to the subjects), $F(1, 50) = 4.18, p < .05$. The results showed the underperformance of women subjects in the stereotype threat condition (difficult math test) when compared to women in the neutral condition and men in both the conditions. These findings were supported by the Brown and Josephs (1999) study.

Findings have also provided assistance on mechanisms that can possibly reduce the dysfunctional impact of stereotype threat. In both (Spencer et. al., 1999 and Brown and Josephs, 1999) studies above, differences in performance were eliminated when the test was presented as having shown no gender differences. This finding has an important implication for the issue of face validity of selection tests and how performance on these tests can be enhanced if the test takers perceive them as being race/gender fair. In another study, Shih, Pittinsky and Ambady (1999) showed that

priming of positive stereotypes can offset the depressing mechanisms triggered by negative stereotypes.

Some contemporary issues addressed by research attended to the impact of double minority status. Certain groups are debilitated on account of being targets of several discouraging stereotypes. For instance, In India gender and caste can coalesce to give rise to an array of negative stereotypes ranging from poor ability (a supposed caste specific attribute) to poor mathematical or leadership ability (gender based). Membership in two adversely viewed groups was referred to as a double – minority status by Gonazales, Blanton and Williams (2002). They conducted a study on sample of latino and white men and women to examine the interplay of different identities on a task of mathematical and spatial ability. The research findings provided evidence for depressed performance of latinos and women in the stereotype threat groups. On the issue of double minority status, the results displayed that latinos exhibited a statistically significant gender-based stereotype threat, $F(1, 111) = 17.48, p < .001$, whereas white women elicited no such sensitivity to gender stereotypes. This is an interesting result that has not being elaborated in subsequent research.

The effect of socio economic status on performance was studied by Croizet & Claire (1998). The authors presented the contention that students from poor socio-economic status (SES) often face the reputation of being low in intellectual spheres. Results found that when the task was presented as one of intellectual ability (stereotype condition) target students (low SES) performed worse ($M = 8.94$) than low SES students in non-stereotype threat (when no mention was made of the nature of the task) condition ($M = 11.44$). Such findings bear a topical appeal to many areas of study

across cultures because individuals from different economic strata and social identities are venturing out and attempting tasks at perceived to be at disharmony with images of their group.

The issue of female performance in a male dominated environment was explored by Sekaquaptewa and Thompson (2002). The task involved expertise at a math task in a public performance. It was found that women in solo-status (being the only woman in an otherwise all males group), $F(1, 153) = 7.56, p < .01$ and stereotype threat condition, $F(1, 153) = 8.67, p < .01$, showed significant performance decrements over women in non - solo and no - stereotype threat condition. A no - stereotype threat condition was marked by explicitly informing participants that no gender differences have been observed on the math material employed. According to authors the findings are crucial as they manifest the harmful effects of perceptions of a public evaluation by members of the opposite task even though gender stereotypes may be irrelevant to that task. The situation is again marked by activation of images of women as poor communicators and lower performance expectancies among women. Evidence of partial mediation by expectancy on solo status was found.

Thus studies in stereotype threat are aimed at understanding the concept in diverse scenarios. Several studies that are relevant to I/O psychology are discussed in the next section.

I/O Psychology and Stereotype Threat

Different aspects of performance are a core of I/O psychology. Performance is crucial at both recruitment and selection level when the aim of an organization is to hire competent applicants; and in post-entry stage in diverse aspects of organizational work.

Stereotype threat can come into play in any of these facets. The personnel selection scenario – that bears a close approximation to the testing situation – stereotyped individual is likely to feel the anxiety of vindicating an unconstructive group image; a type similar to the one witnessed in experimental studies in stereotype threat literature. Interviews, for instance, are a common tool used for assessment and selection. These are also situations in which stereotypes can potentially come into play either at evaluation level (as for gender stereotypes, Agars, 2004) or as a handicapping mechanism experienced by the minority interviewee inadvertently experiencing stereotype threat. In a more general organizational context examples involving communication, special skills like leadership or mundane instances of physical conduct can place minority group members in a situation that compromises performance.

Anecdotal evidence of stereotype threat in work settings has initiated a growing body of research concentrating on studying this phenomenon in work-associated settings. Most of the I/O specific studies so far have adopted the paradigm used in the early studies involving a control and an experimental group which was marked by activation of negative group stereotypes. The effect on performance at a task was then studied.

Threat and selection. The journal *Human Performance* devoted its 2003 issue (16(3)) to stereotype threat in personnel selection contexts. These studies were experimental. The participants were motivated to perform well as they would be when selection has associated economic stakes (i.e. job acquisition). The participants were placed in the role of a candidate for a job and/or offered a financial incentive for excelling at the task. Nguyen, O'Neal and Ryan (2003) simulated a personnel selection

testing scenario. They explored stereotype threat and cognitive aspects like test related strategies among black and white students.

The results did not yield the classic threat effect marked by downward performance trend of the stereotyped group. MANCOVA analyses on test performance yielded neither a main effect of stereotype threat ($F(3,157) = .86, p > .05$) nor an interaction between race and stereotype threat ($F(3,157) = .50, p > .05$). While suggesting possible reasons for this observation, the authors opined that low level of domain identification, ineffective threat manipulation or the design of the experiment (presence of incentives in a job-seeking context) could have affected performance. The last factor was significant as it suggested that differentials observed in academic contexts cannot be generalized to selection settings where the stakes are more. Also important was the finding from this study that for the quantitative section, blacks who reported using different test-taking strategies like time management performed better in stereotype threat condition over blacks and also over whites (holding ability stable) in this condition. This could be a possible offsetting factor of stereotype threat effects in testing situations.

Also in context of selection, the study by McFarland, Lev-Arey, and Ziegert (2003) demonstrated that threat towards one measure can affect performance on another measure with which no insidious group stereotypes are associated. This study tested two hypotheses. First, whether threat would arise for test in a motivational context with consequences linked to test performance and second, whether threat elicited on a test would generalize to a different measure. It was found that though the threat itself did not result in decrement in performance (condition $F(1,225) = .71, p >$

.05), however when individual differences in domain identity and racial identity were considered, a relationship between threat and test performance was seen. Black students in the treat condition who had disidentified themselves from their race performed better than blacks who reported a high racial identity.

A critical finding from the same study was that those in threat conditions performed better than those in control condition on the personality based measure. A multivariate analysis of variance on personality scale yielded a significant $F = 2.77$, $p < .05$ for condition. The results brought forth the role of face validity perceptions of personality tests and how by describing tests as personality based, threat effects may be reduced. Findings on the face validity perceptions were replicated by another study in the issue (Ployhart, Ziegert & McFarland, 2003). These findings underlined the importance of constructing tests that are face valid and considered relevant to the job description.

While commenting on the results reported by the special issue of *Human Performance* discussed above, Steele and Davies (2003) noted that these studies were flawed. They posited that the studies suffered from a design flaw because there was an absence of a true control group i.e. even in the control conditions the task was presented as a “test” which undermined the capacity of the condition to be threat-free. Thus had there been a true control group, it may be speculated that the results could have been different in terms of observation of the classic stereotype threat effect.

Threat and organizational dynamics. Initial research had linked solo status in a task to performance decrements (Sekaquaptewa and Thompson, 2002). Extending the

concept to workplace, Roberson, Deitch, Brief, and Block (2003) sought to link stereotype threat with solo-status at work and feedback seeking strategies.

Feedback seeking in organizations is crucial for performance management. While feedback may be sought directly from supervisors or peers, for members of minority group in organizations, according to authors, feedback seeking may get entwined with “self-presentational concerns” (page 179) originating from stereotype threat. Thus feedback seeking is indirect and gets associated with covert observation of environmental cues and behaviors to suggest how performance is being assessed. The authors surveyed a sample of African American professionals ($N = 166$). The results found correlation between solo status at work and perceptions of stereotype threat ($p < .05$). A multiple regression analysis showed that stereotype threat related significantly to feedback monitoring ($\beta = .22, p < .01$) and feedback discounting ($\beta = .32, p < .001$). Performance discounting seeks to attribute negative feedback to extraneous factors like prejudice rather than a flaw in the performance. The findings implied that minorities in workplace were more likely to employ informal mechanisms of monitoring there performance. This is a challenge for modern diverse organizations that aim to be inclusive. Not only does this mechanism rob the minority members of robust advice on performance but also raises concerns on issues as organizational commitment.

Leadership as a key aspect of organizational dynamics has been studied in gender context and discussed in the section below.

Threat and gender. Female professionals at workplace often have to deal with situations that impede performance. The source of these can be societal stereotypes that have found there way to work environments. Earlier studies in stereotype threat and

gender have exposed a relationship between the two in domains like mathematical ability. Stereotype threat emanating from gender identities in workplace is recently being explored in research with encouraging results for stereotype threat hypothesis.

Bergeron, Block and Echtenkamp (2006) tested for impact of threat on performance of women managers. The authors begin by discussing different theories that seek to explain the negligible number of senior women managers. The “difference” theories claim that intrinsic differences in abilities between genders are the cause of this situation. While the “pipeline” theory blames this on the absence of adequate supply of proficient women at these levels, another group of theorists see systematic organizational discrimination as the cause of absence of women managers. The last group of theories brings to the center stage issues as stereotyping and bias that handicap growth of women in organizations. Stereotype threat falls in this group.

The study simulated a work environment in which the subjects performed an in-basket task in a stereotypically masculine and feminine sex oriented condition. The masculine and feminine situations were generated by use of relevant adjectives (aggressive, no-nonsense etc. for masculine and understanding, helpful, emotional etc. for feminine condition) to describe the hypothetical predecessor of the subject at the task. A main effect for gender was found on the measure of stereotype threat such that women managers ($M = 26.22$) experienced significantly more stereotype threat than men ($M = 20.60$). A significant interaction was observed between gender and sex role typed position on the quantity of task performance. Women underperformed in masculine sex typed condition ($M = 14.54$) over feminine sex typed condition ($M = 17.02$). In a related finding Kray, Galinsky and Thompson (2002) reported that women

outperformed men when stereotypically feminine traits were linked with success at a task. The results are self-explanatory in being a mirror to a recognizable scenario and its effects on women employees in a minority situation.

The feminine and masculine roles are also reinforced through advertisement media that targets a particular group by emphasizing the stereotypic image of the values that are apparently dear to that group. For instance, media campaigns can convey images of female and male roles that reinforce stereotypes about females being poor in quantitative skills. This can affect the career choices and aspirations of individuals as manifest in the findings of the studies below.

Davies, Spencer, Quinn and Gerhardstein (2002) reviewed literature that suggested a clear trend towards women, otherwise skilled in high school mathematics, abdicate majors that involved high levels of math. This trend generalized to workplace that witness fewer females in quantitative fields like engineering. The authors sought to link the impact of cultural gender stereotypes – as transmitted through media – on the choices of females. They studied the effect of different commercials which are female stereotypic (e.g., those that show the excitement of a girl over a new acne product), counter stereotypic (e.g., a woman being shown talking about automotive engineering) or neutral (with no reference to gender priming) on women's performance on a short term task like an aptitude test and on long term goals like career choice.

The sample consisted of undergraduate men and women registered in a second semester of calculus course. It was found that exposure to stereotypic commercials led to a decreased interest among the women participants in educational/vocational areas that were in quantitative domains ($M = 1.89$) in which they were negatively stereotyped,

to increased preference for verbal domain associated fields ($M = 3.45$). The study elicited the possible restraining impact of stereotype threat on women's choice of profession. It also accentuated Steele's (1997) point about the poignancy of stereotype threat dilemma in that its debilitating effect is more pronounced on those who are domain identified.

A subsequent study by Davies, Spencer and Steele (2005) expanded the findings above to study the impact of such commercials on the leadership aspirations of females. The design employed by the researchers was essentially the same as other stereotype threat studies, with manipulations to test leadership role preference. Results indicated a significant three-way interaction between gender, commercial type and role type with women in the gender stereotypic condition showing more preference for a problem solver role over the role of a leader ($F(1,110) = 10.66, p < .01$). An important finding involved the role of identity safety in reducing the impact of stereotype threat. Identity safety was established by informing the participants that in spite of the controversy about the alleged gender differences in leadership abilities, there is no research/scientific evidence to support this difference. The researchers found that with these simple instructions the expected effect of stereotype threat was alleviated and women in this condition displayed the same preference pattern as women in neutral condition.

Identity safe environments in organizations that are characterized by management policy propagating equality and faith in individual ability may positively impact diversity involvement. There is no further research on the dynamics of identity safety in organizational settings.

Leadership and stereotype threat is a subject that entreats further research for its potential implication in workplace. Von Hippel, Zouroudis and Abbas (2003) studied gender and organizational leadership. They found that women participants performed better on a task of transformational task where women were described as having an advantage, as against a task of transactional leadership. The detailed results of this study are yet to be published.

As is evident studies in stereotype threat that directly address the issue in organizational context are few. Research involving more contexts that witness an interface of minority identity with performance can contribute both towards understanding of stereotype threat as well as effective functioning of a modern diverse organization. Further research should move beyond western contexts and test the theory in different cultures. This will not only provide evidence or otherwise on the validity of stereotype threat but also sensitize other cultures and organizations to the debilitating effects of stereotypes. The proposed research is meant to be a step in this direction. It draws from these findings, so as to demonstrate these dynamics in a different culture.

Possible Mediators

Stereotype threat has also addressed possible mediators that affect stereotype threat and performance deficits. One benefit of studying mediators is that the results may suggest ways to mitigate the effects of stereotype threat. A mediator is a variable that arbitrates the relationship between the independent and the dependent variables. According to Baron and Kenny (1986) , four conditions should be met for evidence of mediation – (1) the independent variable of interest must be significantly related to the

proposed mediators, (2) the mediators must be significantly related with the dependent variable, (3) the independent variable should account for significant variance in the dependent variable, and (4) the effect of the independent variable on the dependent variable should be significantly reduced after inclusion of mediators in predictive models. Studies dealing with various hypothesized mechanisms (stereotype activation, anxiety, self efficacy, performance expectancy, and evaluation apprehension) are discussed.

Stereotype activation. Initial evidence that stereotype activation may be a crucial factor in the theory of stereotype threat was present in the early study by Steele and Aronson (1995). They compared the level of stereotype activation in various conditions and found that subjects in the stereotype threat condition displayed a higher degree of stereotype activation when compared to non-stereotyped groups or stereotyped subjects in the non-diagnostic condition. However few studies have been conducted that tested for mediation of the degree of activation. Smith (2004), in his review of the mediators reported a study by Leyens, Desert, Croizet and Darcis (2000) that yielded no evidence of mediation by stereotype endorsement in threat situations. Recently, Davies et al. (2005) found evidence of mediation of stereotype activation. They found that when the level of stereotype activation was controlled for, the effect of the independent variable on the dependent variable dropped significantly (from $\beta = -.49, p < .01$ to $\beta = -.29, p > .05$).

Anxiety. Ambiguous results were reported by studies that tested for anxiety as a mediator. Steele & Aronson (1995) employed the state-trait anxiety instrument (STAI) employed to measure anxiety among individuals in their study. Participants across race

and stereotype manipulation conditions reported the same degree of anxiety and disruptive thoughts while taking the test. Similar indefinite results were reported by some other studies (Gonzales et al., 2002, Keller & Dauenheimer, 2003).

Two major studies that provided evidence of partial mediation of anxiety were by Spencer et al. (1999, Study 3) and Osborne (2001). Spencer and colleagues found that when the test was presented as gender fair, the women participants showed less anxiety but no evidence of mediation was reported. Osborne (2001) found evidence that students of different races reported different levels of anxiety. Overall the results showed that up to 23% of the variance in achievement scores can be attributed to racial differences with up to 41% of these effects explained by differences in anxiety levels. In contrast, Stone et al. (1999) failed to find evidence for anxiety as a mediator.

Bosson, Haymovitz and Pinel (2004) noted that one reason for the mixed evidence on anxiety mediation may lie in the misplaced emphasis on self reported anxiety tests. Their study tested stereotype threat among gay and heterosexual men in the task involving childcare skills. The study employed both self-reported measures of anxiety as well as non verbal anxiety (observable). For the latter judges were employed to consider and code instances of discomfort and anxiety among target subjects. Results indicated that threatened individuals reported the same level of anxiety as the non-stereotype threat condition individuals. However when non-verbal anxiety scores were regressed onto sexual orientation, stereotype threat condition and the interaction term, the interaction was significant ($\beta = .63, p < .01$). Evidence of mediation by non-verbal anxiety using the Sobel model was reported when the relationship between the

predictor and dependent variable was reduced to non-significance when mediator was included in the regression model ($z = 2.27, p = .02$).

Thus observable anxiety may provide insights into stereotype threat associated outcomes. The issue that one has to address is the reliability of the measures and techniques employed in coding the observable cues of anxiety.

Evaluation apprehension. Another possibility is that stereotype threat negatively impacts performance by generating apprehension in an individual about how performance will be evaluated by others. Few studies (Spencer et al., 1999, Study 3 and Steele & Aronson, 1995, Study 4) have tested this hypothesis and found no evidence of mediation. Though Spencer et al. found evidence of a significant relationship between evaluation apprehension and performance, no evidence of mediation was found.

Performance expectancy. A possible mediator addressed in stereotype threat literature is the role of performance expectancy on the individual. It was hypothesized that a stereotyped person's expectation of own performance on the task suffered such that he no longer expected himself to perform well. This lowered anticipation led to less effort and a reduced output on the task. In early study that did not test for mediation, Stangor, Carr and Kiang (1998) studied women's expectations for their performance on a task involving spatial abilities. Results found a significant relationship between lowered performance expectancies, positive feedback on a previous task and perceptions of being solo (thus stereotype threat prone) on a future task.

Keller & Dauenheimer 2003 found no relationship between perceived performance of threatened individuals and stereotype threat. Kray, Galinsky and

Thompson (2002) tested negotiation skills of females and various conditions such as gender neutral and 'female positive' (where female stereotypic traits were associated with good negotiation skills). The study found a significant relationship of pre-negotiation performance expectancies (aspirations) for males but not for females ($r = .26$) in the gender neutral condition; while in the female positive condition, the trend was reversed. In a preceding study Kray, Thompson and Galinsky (2001) tested for mediation by pre-task expectancy between stereotype threat condition and the actual performance. No evidence of mediation was found.

Other mediators. McKay, Doverspike, Bowen-Hilton, and McKay (2003) found evidence of mediation by father's education level on the intellectual performance of students. Brown and Pinel (2002) found that women high on stigma consciousness about their groups low mathematical abilities, performed worse on a math test than women low on stigma consciousness. Spencer et al. (1999) tested for self efficacy as a possible mediator and found no evidence of the same.

Research on mediators of stereotype threat effect has failed to present any conclusive evidence. Till such time that the field is attracting research it is premature to dismiss any of the potential mediators. Another approach may be to analyze the potential of a multiple mediator model suggested by Smith (2004). The model seeks to link the research in the area to the achievement goal literature and makes a case of an inter-play of various mediators.

Stereotype Threat in India

Research addressed so far was essentially conducted in western contexts. A rich testing ground for the stereotype threat lies in Asian societies. The findings need to be

replicated in these countries for generalizability. These are the cultures that have traditional roots and possess a socio-cultural pattern that is distinct from the western society. Given this structure, these cultures are also now adapting to the new era of modern organizations. The interplay of traditional and modern identities has opened an interesting perspective for I/O psychology and stereotype threat research. Traditional beliefs focus on primacy of identities such as gender and caste; while modern growth has opened arenas and options that contrast these beliefs. Such interactions can lead to psycho-social phenomena like the stereotype threat.

India, after China, is the fastest growing economy in the world. The proliferation of different types of organizations ranges from software, manufacturing, various service industries, to an extensive public sector. On the one hand, these organizations are based on competitive know how and deliberately play by the rules of modern organizations to be globally competitive. On the other hand, the inherent nature of the Indian social system is traditional and identities (e.g. gender and caste) still play central roles in defining career and personal choices.

Gender stereotypes typically associate women with her home maker role. Bharat's (2001) overview of the status of gender studies in India point towards the presence of sex stereotypes and the ways in which they impact occupational and personal choices of women. She reviewed nearly two decades of literature in the field and observed that the major areas of study are women and paid work, sex roles and stereotypes and, women and aging. She pointed out that though women were making forays into traditional male-dominated areas like engineering, management and marketing, there were non-work realities originating in the societal perceptions of her

reproductive and household roles that affect her professional choices. Interestingly, as a pointer of a conservative society, employed women were reported to be more conservative in their sex role perceptions and derived greater satisfaction from their traditionally defined sex roles in housekeeping. Bharat also observed that though for women in the management sector the visibility of senior women professionals had served as a positive stimulus, the barriers imposed by gender biased socialization hampered efforts to secure greater mobility and flexibility at work.

The observations above delineate a pattern of interaction between the traditional role perceptions, expectations and stereotypes on one hand, and the modern realities of a working woman. Such interactions pose a dilemma that leads to stereotype threat effects such that women will make choices that will seek to avoid such conflicts; or their performance will suffer in situations that test the stereotype. Thus gender and workplace in India is an area that needs more insightful studies. The working woman in is domain identified in terms of her work related aspirations; however she is also conscious of her traditional role based expectations. It will be interesting to see how she for instance, makes her professional leadership choices when she is primed with the societal stereotype that values her home maker role.

Stereotype threat as a phenomenon has not been studied extensively in the India. In fact only one study has been conducted in the area. A recent study in India was by Hoff and Pandey (2004) which forms a World Bank policy research paper. The authors studied the impact of publicly announcing the caste of the participants (junior high school students) on the performance of members in a traditional rural Indian village. The task involved maze solving games in various scenarios. It was found that

when caste was not announced there was no significant difference in the performance of 'high' and 'low' caste members. However the effect of publicly announcing the participant's caste had a debilitating effect on the performance of the low caste members (in the mixed tournament design M (high caste students) = 5.46, M (low caste students) = 4.75, $p = .007$). An announcement of a social identity (caste) triggers the historically imbibed mindset of a prejudiced social system.

CHAPTER 3

SUMMARY AND GOALS OF THE PRESENT STUDY

There is growing evidence that stereotype threat can impair performance of members of some groups at tasks that make them self conscious about adhering to a group image. As is evident from the literature in this field, studies are conducted to test for generalizability of these phenomenon and to understand what causes it.

The proposed study was a step in this direction. Firstly it tested for generalizability by studying stereotype threat in a new context – gender in India. The study focused on the women as the target of negative stereotypes and the latter's impact on their leadership choices. Secondly the study addressed the issue of the hypothesized mediators of the effect. These are anxiety, self-efficacy, evaluation apprehension, stereotype activation, role conflict, father's education and mother's education. Of these, all the mediators except role conflict and mother's education had been studied earlier with mixed results. The two additional mediators of this study were critical in context of Indian scenario. Many families in India are witnessing either the first or the second generation of working women. Thus a working woman is not yet fully adjusted to the balancing act of being a bread earner as well as a home manager. So a degree of role conflict can be expected to mediate stereotype threat and leadership choices. Mother's education can also play a role in influencing the outlook and degree of confidence of an individual. A better educated mother can be expected to provide a positive role model for her daughter in terms of her leadership predilections. Thus the proposed study aimed to build and expand upon the existing research.

The sample of professionally inclined students – on the verge of starting careers in organizations also provided a reference point for I/O psychology such that it was not far-fetched to generalize the results of this study to real-life settings. The preference they elicited in the study was a close approximation of the choices they could be expected to make in real life settings. The sample also ensured domain identification requirement as women students in a professional institute would sufficiently value leadership goals as they had chosen to pursue a career in an otherwise conservative social order. The study employed the methodology employed in the Davies et al. (2005) study discussed above. Thus the research also brought forth the crucial role that contemporary media plays in the career choices of individuals.

It was hypothesized that women exposed to gender stereotypic advertisements will opt for the role of a follower on a subsequent leadership task, to avoid the uncomfortable situation of confirming the negative stereotype that attributes poor leadership skills to women. However women in the counter stereotypic advertisements condition will face no such predicament as there would be no explicit priming of the typical societal image of an Indian girl as a home-maker. Rather the advertisements will disseminate an image of a modern working Indian woman who is venturing into hitherto male dominated areas. Thus women in the counter-stereotypic condition will show a higher propensity for leadership roles than women in the other two conditions. In the neutral condition, men and women were not expected to show any significant difference in their leadership predilections. The responses of the male subjects were not expected to show any significant difference across the three conditions as there was no

stereotype in the advertisements that was self-relevant to this group. Thus the two hypotheses for the present study were –

Hypothesis 1 – Women in the stereotype threat condition will opt for a problem solver rather than a leadership role whereas women in the counter stereotypic condition will opt for leadership roles.

Hypothesis 2- Anxiety, self-efficacy, evaluation apprehension, role conflict, stereotype activation and parent's education level will mediate stereotype threat and leadership choices.

CHAPTER 4

METHOD

Participants and Design

The study employed a 3 (advertisement type) x 2 (gender) factorial model. The independent variable was the advertisement type condition to which the subject was exposed. The dependent variable was the leadership role selected by the subject - leader or a problem solver.

The subjects of the study were 45 male and 45 female graduate students at a professional training institute in India – S.Bhagwan Singh Post Graduate Institute of Biomedical Sciences and Research, Dehradun, India. The subjects had volunteered for the study in response to the recruiting poster. All the respondents were unmarried belonging to the age group of 18 to 25 years. The five major areas of professional concentration of respondent students were microbiology, pharmacy, biotechnology, biochemistry and pathology.

Procedure

The study employed the basic methodology used in the Davies et al. (2002) and Davies et al. (2005) studies that tested the effect of gender stereotypic TV commercials on the subsequent task and leadership choices of undergraduate female students. In the current study subjects were randomly assigned to each of the three conditions such that there were equal numbers of male and female subjects in each condition. This was done to avoid any unintended effect of group composition. The subjects were then distributed the 'informed consent note' that also described the purported purpose of the study (Appendix A). The subjects were told that they would be shown a series of

advertisements on the screen and then be tested on long term memory based on the material in the advertisements. This camouflage ensured that the subjects paid attention to the advertisements. The experimenter then displayed the slide show that exposed the students to each advertisement for 20 seconds each. A copy of the print advertisements used for each condition is included in Appendix C.

The neutral condition exposed the subjects to advertisements that made no reference to any gender role or stereotype. The products and services advertised in the fourteen advertisements used in the neutral condition consisted of electronic goods, household use goods, eating items, automobile, etc. They made no gender references and did not depict human pictures. The gender stereotypic (stereotype threat) condition – in addition to the advertisements in the neutral condition – also exposed the students to seven gender stereotypic advertisements. These were common Indian advertisements that reinforced the classic Indian female stereotype of a woman who is beautiful, married and a caretaker of the family. For instance an advertisement comprised of a mother and daughter apparently happy at the prospect of finding a suitable groom for the daughter on an online service that arranges marriages. None of the stereotypic material however made any reference to gender differences in leadership ability. The counter-stereotypic condition presented both the neutral advertisements as well as seven advertisements that contradicted the common female gender stereotypes in India. For instance, this condition included advertisements that showed a computer-savvy woman and a professional female tennis player – a novel phenomenon in India.

Since the study was presented as a memory test, after watching the advertisements, the subjects were informed that approximately 20 minutes needed to elapse before they could be tested for long-term memory. During this period, if they wished, they could participate in another study ostensibly conducted by another experimenter on the effectiveness of various leadership strategies. Students were then given the leadership task description and informed that after filling this task they would meet the other group of participants down the hall. This deception was used in earlier studies to control for any unanticipated effect that may arise from perceptions of group composition. Then the subjects were asked to fill the leadership role preference scale, the other scales (for mediators) and the demographic information form.

After this, all the participants met in a room and informed that the study was over and debriefed. The debriefing explained the real purpose of the study. A brief description of the stereotype threat concept was provided to the participants. It was explained that the experiment was not evaluating memory but was rather studying leadership as impacted by this phenomenon.

Pre-testing

To test whether there are any gender differences on leadership choices among professional students in the absence of a advertisement type manipulation, a pre-test was done on 20 male and 20 female students using the leadership material. A *t*-test was conducted to determine whether there was any significant difference between the genders on their leadership aspirations. The purpose was to display that sans the stereotype priming, women display similar aspirations towards leadership as men.

Further, to test the other instruments (stimuli advertisements and the mediators scale) for validity in Indian scenario, 5 males and 5 females were asked to respond to each of the items to analyze their understanding of the item. Any item that was found to convey a meaning other than the one intended would be removed in case at least three respondents reported differing meanings.

Measures

The study employed several instruments to measure leadership choice (dependent variable), and mediators (parent's education, anxiety, self efficacy, evaluation apprehension, male and female stereotype activation and role conflict). The measures employed in the study are in Appendix B.

The participants were asked to report their age, gender, marital status, course affiliation at the professional institute, class twelve grades, and parent's education. This formed part of the demographic information collected.

The leadership measure provided the description of the task. After reading the description, the participants reported their interest in the assuming the leader or the problem solver role on a 6-point scale with end points labeled as *not at all interested* and *very strongly interested*. The task was described in the printed material: "We would appreciate your participation in a study being conducted on the effectiveness of various leadership strategies. You can either choose to be a leader or a problem solver, but there will only be one leader assigned per group. Both the problem solvers and the leader will be given a written description of a series of complex problems to be solved. The leader, however, will also be supplied with the answers to those problems. It's the leader's job to guide the problem solvers to the solutions without explicitly telling them

the answers. Previous research has demonstrated that the most effective leaders in these situations have the ability to facilitate cooperative interaction among the problem-solvers, which requires excellent interpersonal skills; whereas the most effective problem solvers are good team players and have excellent communication skills.” Score for the leader or problem solver role was the choice indicated on the scale of 1 to 6.

To test for anxiety, self efficacy and evaluation apprehension as mediators the scales used in Spencer et al. (1999) study were employed that measured these on a 6-point scale (from 1 = *strongly disagree* to 6 = *strongly agree*). These scales were short and easy to respond to. Self-efficacy was measured by four items (I am uncertain I have the knowledge to do well on this test; I am concerned about whether I have enough ability to do well on this test; I doubt I have the ability to do well on this test; I can handle the test). Spencer et al. reported an alpha of .88. Evaluation apprehension, original alpha of .82, was measured by five items (People will think I have less ability if I do not do well on this test; People will look down on me if I do not do well on this test; If I don't do well on this test, others may question my ability; If I do poorly on this test, people will look down on me; I feel self confident). Anxiety was also measured by five items (I am worried; I feel nervous; I am jittery; I feel indecisive; Taking the test could make me doubt my knowledge). The reported alpha for anxiety scale was .88.

Role-conflict was studied using the instrument developed specifically for this study. It consisted of ten items that addressed scenarios of conflict a working woman in India usually encountered while managing her professional and home duties. Like other scales the participants were asked to respond on a 6- point scale of agreement. The items of this measure were: I feel my professional duties (job) will conflict with my

household duties; At times I feel family and work do not go together; I feel that my professional status does not match with my status within my family; It is possible to find a balance between work and home; At times, an employed woman has to compromise household duties to concentrate on work; I feel that children's upbringing suffers if the mother is employed; I feel my job status will bring me decision-making power at home; In India expectations from women (cooking, managing home and children) are unaffected by whether a woman is working or not; In future, my provider (earner) role will always be secondary to my domestic role (as a home-maker).

For the measures of mediation, score for each item was the choice on the scale. Scores on set of items comprising one measure were aggregated to determine the score for that measure. Certain items were reverse scored so that increasing scores signified an increase in the given attribute. The reverse scored items were three items from the self efficacy scale (I am uncertain I have the knowledge to do well on this test, I am concerned about whether I have enough ability to do well on the test, I doubt I have the ability to do well on the test) and three items on the role conflict measure (It is possible to find a balance between work and home, husbands should be equal partners in raising children and managing home, my job status will increase my decision-making power at home).

Level of stereotype activation was tested on a 6-point (1 = *not at all like me* to 6 = *very much like me*) abbreviated version of Bem's Sex Role Inventory (BSRI) developed by Stern, Barak and Gould (1987). Ten items comprised of Feminine Trait Index (affectionate, loyal, tender, sensitive to others' needs, sympathetic, compassionate, eager to soothe hurt feelings, understanding, gentle, warm) and ten

comprised the Masculinity Trait Index (have leadership skills, willing to take a stand, ambitious, competitive, dominant, assertive, a strong personality, forceful, acts like a leader, aggressive). The scores for each index was computed by summing the ten scores on each index (lowest score = 10, highest = 60).

Statistical Analysis

To test for the stereotype threat effect a 3 (advertisement type) x 2 (gender) between subjects ANOVA was performed on leadership choices. An alpha level of .05 was used for all statistical tests.

For mediational analysis hierarchical multiple regressions were conducted. The study tested the following hypothesized mediators of the stereotype threat effect: anxiety, self-efficacy, evaluation apprehension, stereotype activation, role conflict, father's education and mother's education. The guidelines for mediational analysis developed by Baron and Kenny (1986) and employed in the subsequent studies for testing mediators in stereotype threat effect, were followed. According to this, four conditions should be met for evidence of mediation – the independent variable of interest (advertisement type) must be significantly related to the proposed mediators; the mediators must be significantly related with the dependent variable (i.e. the leadership choice); the independent variable should account for significant variance in the dependent variable, and the effect of the independent variable on the dependent variable should be significantly reduced after inclusion of mediators in predictive models.

Statistical analyses steps employed in the Spencer et al. (1999) and Osborne (2001) studies were used. Regression analyses were done to determine the impact of

the stereotype threat manipulation on the mediators. Hierarchical regression was used to examine whether (a) the mediators impact leadership choice, and (b) the relationship between the independent and the dependent variables reduced to non significance once the mediator was accounted for. According to the hypothesis the effect of advertisement type on leadership choice will get non significant when the mediators are included in the equation.

CHAPTER 5

ANALYSES AND RESULTS

Pre-testing

Prior to data collection, the instruments were pre-tested to establish the appropriateness of their use with an Indian sample. Five males and five females of the age 20-26 years were shown the print advertisements to test whether they communicated the intended theme. The purpose was to determine whether the ads were indeed communicating the neutral, gender stereotypic or modern (counter stereotypic) theme. These data were collected individually from the respondents to avoid conformity owing to group influence. The advertisements were shown one at a time. Each respondent was asked, “in context of women, is the message in this advertisement traditional, neutral or modern.” The respondent was asked to provide the response on a scale of 1 to 5 denoting traditional, through neutral to modern.

In the neutral condition category, 18 advertisements were shown to the respondents. If more than 3 respondents reported that the ad conveyed a traditional or a modern theme, the ad was discarded. On this basis, two ads were removed. Seven ads each were shown for the stereotypic and the counter stereotypic category respectively. There were no responses that necessitated removal of ads. This process helped in eliminating advertisements that were not transmitting the desired theme for the condition.

Pre-testing was also performed on the scales used. The measures used in the study were worded in English. Though English is taught in Indian schools both as a language and is also the medium of instruction, it was deemed appropriate to test the

measures in the Indian scenario to ensure that the meaning was correctly comprehensible. For pre-testing the measures the same sample of five males and five females was used. Each sentence was read out to the respondents who then reported their understanding of the sentence or phrase. If the meaning communicated (by more than three respondents) was found to vary from the intended meaning of the measure, then the sentence would have to be removed. On the basis of the responses, none of the statements from the measures was eliminated.

For the adjectives used in the stereotype activation scales, the respondents were asked to respond with the meaning of the words. For none of the words, were there more than 3 respondents that reported wrong meanings. Thus all the words in the BSRI were retained.

To pre-test the issue of gender differences in leadership aspirations, twenty male and twenty female students were randomly selected and administered the leadership instrument. These were students from the same institute from which subsequent data were collected. The results showed that in absence of the advertisement-type manipulation, there was no difference between genders on either leadership ($F(17) = 2.69$, ns) or problem solver role preference ($F(19) = 2.17$, ns). The mean value for leadership for males was 6.00 and for females it was 5.91 (scale range was 1 to 7). The means for problem solver role was 5.50 for males and 6.0 for females. Out of the sample of 20 each, 11 women opted for leadership role while 8 men preferred to be leaders. It was interesting to note that in absence of the manipulation, women outnumbered males, though not significantly, in their preference for leadership role on a task

Leadership Aspirations

Data were collected for the study from a sample of 45 male and female students respectively. Table 1 provides the correlations between the study variables for the sample. Though several significant positive as well as negative correlations were observed, no high correlations were seen between two variables thus signifying the distinct nature of each study variable. Table 2 shows the data mean, standard deviations and range. Table 3 gives a summary of the means on the problem solver and leader role choices across the three experimental conditions along with the proportion of participants that opted for leadership role. The mean values denote the score estimate on the leadership scale of 1 to 6 signifying the strength of desire of the subject to acquire a leader or a problem solver role. A perusal of Table 3 does not indicate a striking difference between males and females in means, however there is visible difference in the number of those opting for particular roles under each condition type.

A 3 (condition) X 2 (gender) ANOVA was performed on the data for leader and problem-solver choices respectively. For the leadership choice, ANOVA revealed a partial main effect of condition, $F(2, 84) = 2.39$, ns. No main effect was found for gender, $F(1, 84) = 1.64$, ns. The interaction between gender and condition was also not found to be significant, ns. For the problem solver choice, the main effect for condition approached significance, $F(2, 84) = 3.005$, $p = .055$. No main effect was found for gender, $F(1, 84) = 1.92$, ns. As with leadership, no interaction between gender and condition was seen. The results indicated that the advertisement type manipulation did impact the leadership choices of respondents. To further test for effect of gender, simple effects analyses were conducted, as discussed later.

Tukey post-hoc comparisons between the condition means did not reveal any difference between conditions for leadership preference. For the problem solver dependent variable, there was a marginal difference between these the stereotypic and counter stereotypic conditions at 1.40, $p = .087$. No two other conditions were significantly different from each other. This finding denoted that the manipulation impacted the dependent variable.

Two sets of ANOVAs were conducted on male and female data respectively¹. This analysis was performed to further study how males and females reacted differently to the different manipulations signified by each condition. Though the means of scores were not different between the two genders, an examination of Table 3 suggested a clear trend among them – as evidenced by the proportions – of being influenced by the condition. For females, condition emerged as the significant factor for both problem solver ($p = .02$) and leadership ($p = .05$) dependent variables. This is in line with the omnibus ANOVA results earlier where condition was found to have a main effect for all the respondents. For the males however condition did not emerge as significant for either of the two role choice variables – problem solver ($p = .82$) and leader ($p = .79$). The simple effects analysis provided a confirmation of the stereotype threat model.

Mediational Analysis

The study tested for the following mediators – parental education level, evaluation apprehension, self efficacy, anxiety, role conflict, feminine and masculine stereotype activation. This analysis was conducted only on women subjects – the

¹ Even though no significant interaction was observed between gender and condition, it was considered useful to conduct a simple effects analysis on the data considering the exploratory nature of study. Simple effects reflect both the interaction as well as capitalize on the main effect of a factor (condition). Such analyses ensure that all aspects of data are analyzed for inputs even in the absence of an interaction (Tybout, Sternthal, Keppel, Verducci, Meyers-Levy, Barnes, Maxwell, Allenby & Steenkamp, 2001).

hypothesized targets of stereotype threat effects. Further, only the neutral and the stereotypic conditions ($N = 30$) were used for the purpose. The counter stereotypic condition was not included for mediational analysis as in this situation the manipulation was aimed at offsetting the effects of stereotype activation that are the proposed stereotype threat consequences. Table 4 provides means of female subjects on the proposed mediators across the three conditions. Though the counter stereotypic condition was not included in the mediational analysis, a look at the means provided an estimate of the response of the female subjects as influenced by the manipulations. For instance the feminine trait index score - an indicator of the heightened feminine stereotype, and role conflict peaked in the stereotypic condition and were lowest in the counter stereotypic condition. Such well-demarcated pattern however was not seen for all variables.

As suggested by Baron and Kenny (1986), following analyses were performed. First, the condition and the outcome variable (leadership role choice) relationship was analyzed. Second, the mediator was treated as the criterion variable and the condition as the predictor variable, and the correlation observed for relationship between the two. In the third step, the mediator and role choice relationship were studied while controlling for condition. The final step determined the level of mediation. This was the amount of reduction in the effect of advertisement type on role choice when controlling for the proposed mediator. According to Kenny (2006), a reduction in significance indicates partial mediation and a reduction to nonsignificance indicates complete mediation. Steps 2 and 3 were crucial for mediational analyses as these imply a path from the initial variable (condition) to the outcome variable (role choice).

The above analyses were conducted using hierarchical regression. Two sets of regressions were conducted, one each for the two role choices (problem solver and leader) as dependent variable. In the first step, condition was entered as the variable. This step studied the relationship between the independent (condition) and the dependent (problem solver or leader) variables. In the second step the mediator was entered into the equation, one at a time. The variance accounted for by condition and the proposed mediator was derived. The change in the β value of the condition and role choice relationship supported mediation. The relationship between condition and the study mediator (as the dependent variable) in accordance with step 2 of the preceding paragraph was analyzed using ANOVA.

For the first set of mediational analyses, problem solver role choice was entered as the dependent variable in regression equations. Leader role choice was the dependent variable in the second set. For each set then the proposed mediators (anxiety, evaluation apprehension, role conflict, self efficacy, parental education level and stereotype activation) were studied in accordance with the methodology described above.

Mediation for problem solver role choice. Regression analysis provided evidence of a significant relationship between condition and problem solver role choice with $\beta = .428$, adjusted $R^2 = .15$, $p = .02$. This validated the first of the Baron and Kenny steps.

The first variable analyzed for mediation was anxiety. No evidence was found for a significant condition and anxiety relationship, $F(1, 28) = .39$, ns. The next step tested for the anxiety-problem solver relationship using regression. The additional variance accounted for by anxiety was not significant, adjusted $R^2 = .21$, ns. With additional

variance attributable to anxiety as mediator not being significant, the next step was not expected to provide evidence of mediation. When anxiety was controlled for in regression analysis, the condition and problem solver relationship did not reduce to nonsignificance, $\beta = .461$, $p = .01$. Thus anxiety did not emerge as a mediator of the stereotype threat effect for problem solver role choice.

For the next proposed mediator, evaluation apprehension, the condition-mediator ANOVA yielded a non-significant relationship with $F(1, 28) = 2.57$, ns. The variance explained by evaluation apprehension in problem solver role choice was also non-significant. With evaluation apprehension included, the regression equation yielded a reduced $\beta = .358$ (from $\beta = .428$), $p = .05$. Evaluation apprehension could have emerged as a mediator had there been a significant mediator-role choice relationship. No evidence of mediation was found.

Role conflict was the next analyzed variable for possible mediation. The condition-role conflict analysis provided a significant relationship with $F(1, 28) = 11.25$, $p = .002$. The additional variance accounted for by role conflict in the dependent variable as evinced in the regression analysis was not significant, $p = .14$. The final step determined actual mediation, if any. In the regression equation, with role conflict accounted for, the condition-problem solver role choice relationship was reduced to nonsignificance, $\beta = .265$, $p = .19$.

Though evaluation apprehension and role conflict did not emerge as mediators in the stereotype threat effect, they might be addressed as suppressor variables that impacted the condition and role choice relationship. With these two variables in the equation, condition emerged as a better predictor of role preference witnessed in the

female subjects. Both role conflict and evaluation apprehension had no correlation with the dependent variable, yet each variable increased the variance in problem solver role choice. A suppressor variable contributes by suppressing the variance that is irrelevant to prediction of dependent variable. This variable is important not for the value of the regression weight it carries but on account of its enhancement of the effect of the independent variable (Tabachnick & Fidell, 2001, p. 148). Role conflict also displayed a significant relationship with condition. This variable, in itself cannot be seen as a determinant of leadership choice among women. However, when included as a variable with condition, it does take care of error that would have attributed to condition being a poorer determinant of leadership choice.

For self efficacy, as for other mediators, first the condition-self efficacy correlation was determined and was not found to be significant, $F(1, 28) = .11$. Regression analyses yielded that the mediator-role choice relationship was also not significant. With these 2 conditions not being met there was no possibility of mediation by this variable. Thus with self efficacy controlled for in the regression equation, condition in fact emerged as a better predictor of problem solver role choice, $\beta = .44$, $p = .02$.

The other two variables studied were mother's and father's education level. It was hypothesized that these may influence the leadership aspirations of women by providing an environment at home that encourages initiative. The respondents were asked to provide details of their parents' education level, as part of the demographic details. For analysis, this data was coded into five education level categories viz. grade 12 or less was coded at 1, undergraduate was coded at 2, Masters or above coded at 3, professional degree coded at 4, and any other qualification not covered in the above

groups – that the respondent was asked to specify – was coded at 5. For the step comprising of condition-mediator relationship, no significant relationship was found either for mother's education, $F(1, 28) = .041$, or father's education, $F(1, 28) = .045$. Similarly either of the two failed to account for any variance in the dependent variable ($p = .59$ for mother's education and $p = .17$ for father's education). Thus no relationship was found between the proposed mediator on one side and the independent and the dependent variables on the other. In the last regression step, when controlling for the mediator, there was no significant change in the condition-problem solver role relationship, $\beta = .42$ (mother's education) and $\beta = .44$ (father's education). Thus, no evidence of mediation was found of either of the parent's education level.

Finally, two types of stereotype activation viz. feminine and masculine, were studied as mediators of the stereotype threat effect. These were measured using the Bem's Sex Role Inventory. Thus two sets scores termed as the feminine trait index (FTI) and the masculine trait index (MTI) were determined for each respondent. The mediator-condition relationship was not found to be significant for either of the two types of stereotype activations. Feminine stereotype activation did not account for any significant variance in problem solver role choice (adjusted $R^2 = .15$, $p = .32$). Masculine stereotype activation had a better relationship with the role choice, though it failed to approach significance (adjusted $R^2 = .22$, $p = .07$). MTI did have a partial independent effect on problem solver role choice. In the final step, no evidence for mediation was found as when stereotype activation was controlled for, condition actually became a better predictor of problem solver role ($p = .013$ for FTI and $p = .007$ for MTI). Absence

of masculine stereotype activation was seen as enhancing the association between the stimulus condition and the problem solver role choice.

Mediation for leader role choice. All the eight proposed mediators were next analyzed for mediation for leader role choice using the same statistical techniques employed for problem solver role. As for problem solver choice, condition accounted for significant variance in leader role choice, $\beta = -.410$, $p = .025$. This met the first step of the Baron and Kenny analyses for all mediators below.

For anxiety as a mediator, the condition-mediator correlation was not significant, $p = .54$. The anxiety and leader role choice relationship was found significant when condition was controlled for, $p = .04$. This provided evidence of relationship between the proposed mediator and the dependent variable. In the last step for testing mediation, when anxiety was entered into regression equation, condition became a better predictor of leadership, $\beta = -.451$, $p = .01$. Thus anxiety was not acting either as a mediator or as a suppressor. However it did have a main effect on leadership role choice among female respondents. Thus anxiety as a variable is contributing to a significant amount of variance in the leadership role choice.

The next study variable for mediational analysis was evaluation apprehension. The condition-mediator correlation was not significant at $F(1, 28) = 2.57$. Evaluation apprehension also did not explain any significant variance in the dependent variable. In the regression steps, when the mediator was entered in the equation, the value of condition as a predictor of leadership choice, dropped to $\beta = -.348$, $p = .06$. Thus, as for problem solver role choice, evaluation apprehension acted as a suppressor variable. It

appeared to be suppressing a degree of error variance in condition, thus improving the relationship between condition and leadership choice.

For role conflict as the next variable, the relationship between condition and role conflict was found to be significant, $F(1, 28) = 11.25, p = .002$. Role conflict accounted for a non-significant variance in leadership role. For evidence of mediation, when role conflict was entered in the regression equation, the relationship between condition and leadership choice, was reduced to non-significance with $\beta = -.253, p = .22$. Thus, role conflict for leadership role is behaving as a suppressor variable, as it did for problem solver role. Since no evidence of role conflict-dependent variable relationship was found, there is no mediation. However, like evaluation apprehension, role conflict is acting as a suppressor variable. It is improving the predictive power of condition by suppressing the error variance in condition, so much so that sans role conflict, condition seems to be a significant predictor of leadership role choice.

For self efficacy the condition-mediator relationship was not found to be significant. Self efficacy also did not add significantly to the variance of leadership choice ($p = .31$). In the regression equation, the condition-dependent variable relationship continued to remain significant, $\beta = -.421, p = .02$, when the mediator was entered into the equation. Self efficacy thus did not emerge as a mediator of the stereotype threat effect.

The findings for mother's and father's education level as proposed mediators were similar to the ones found for problem solver dependent variable, providing no evidence of mediation. No evidence of mediation was found when the mediator was entered into the regression equation as the beta for condition continued to hold a

significant relationship with the dependent variable, $\beta = -.407$, $p = .03$ for mother's education and $\beta = -.417$, $p = .02$ for father's education.

The last set of mediators analyzed for leader role choice as dependent variable was stereotype activation. On both the aspects of stereotype activation studied viz. feminine and masculine, there was no relationship between condition as independent and mediator as the dependent variable, $p = .20$ for feminine trait index (FTI) and $p = .33$ for masculine trait index (MTI). Though FTI did not add any significant variance to the leadership choice, MTI explained variance that was significant at $p = .06$. For evidence of mediation, when FTI was added into the equation, condition became a better predictor of leadership, $p = .02$, dispelling feminine stereotype activation as a mediator. Similarly, MTI's inclusion also improved condition's predictive power of leadership with $\beta = -.470$, $p = .01$. Though masculine stereotype activation did not act as a mediator, it almost had a main effect on the dependent variable. As for problem solver, the leadership role choice and condition's association is enhanced when masculine stereotype activation is absent.

CHAPTER 6

DISCUSSION

General Discussion

The theory of stereotype threat provides a supplementary explanation for performance deficits observed in members of a minority group in certain circumstances. The theory places negative stereotypes at the core of this phenomenon. Stereotype threat is the apprehension faced by the members of the negatively stereotyped group when they find themselves in situations that may confirm those debilitating stereotypes. This awareness is hypothesized to place a mental burden on individuals and results in underperformance at the task. Research on the subject has focused on testing the concept in different scenarios. Various groups – based on gender, race or ethnic origin – have been studied primarily in laboratory conditions.

The study was approached with a threefold goal. Firstly, the intent was to advance the understanding of the theory by evaluating it in a new culture – women in India - hence furthering the quest for generalizability of stereotype threat effect. With condition emerging as a potential factor, the results provided primary evidence of the applicability of this theory in a new social and cultural context. Secondly, the study focused on professional students and their leadership choices as impacted by stereotype threat. This provided an extension of the theory into workplace settings. According to the results, the leadership aspirations of female professional students were influenced by the media images that reinforced stereotypic messages. Thirdly, the study focused on variables proposed as mediators of the stereotype threat phenomenon. Among these was stereotype activation – as defined by masculinity and femininity

indexes, and role conflict. The latter was introduced as a new possible mediator relevant in Indian scenario where a working woman occupies a multitude of social roles. As has been the case with mediation studies in stereotype threat research, this study failed to provide evidence of mediation by any of these variables. However this was partly expected in absence of a clear confirmation of the stereotype threat hypothesis itself. Role conflict and evaluation apprehension however could be studied further for their function in the stereotype threat phenomenon. Through its design the study also attempted to appraise the role that media can play in influencing the career options of individuals.

Students from a professional training institute were employed for the study. Three sets of popular print advertisements were shown to the participants. This was the stimulus material used to induce gender stereotypic and otherwise feelings in the subjects. Subsequent to the stimuli, the participants were tested on their willingness to act as a leader or a problem solver on a task. The neutral set of advertisements made no reference to gender roles. The second set, in addition to the neutral ads, also comprised of stereotypic advertisements that specifically relayed the image of a woman who is beautiful and acts as a home maker with no professional pursuits – an important theme in Indian cultural ethos. This was the stereotype threat condition. It was hypothesized that this condition would aggravate the gender stereotypes associated with women. Women in this condition would feel the burden of negative expectations (stereotype threat) attributing women with better home-making rather than leadership qualities. Subsequently, in the leadership task to follow, women from this group would display an inclination towards problem solver rather than leadership role. In the counter-

stereotypic condition, the hypothesis was contrary. Women exposed to advertisements that showed women as managers and professionals, would select leadership roles. Since the stereotypes held no personal meaning to men, the male participants were hypothesized as being unaffected by any of the three conditions.

Women in the stereotype threat condition were expected to opt for a problem solver rather than a leadership role whereas women in the counter stereotypic condition will opt for leadership roles. The results showed condition emerged as the significant contributor. Women in the stereotype threat condition showed a significant decrease in their preference for leadership role. The leadership preference in the neutral and counter stereotypic conditions was higher. Post hoc tests confirmed the stereotypic and counter stereotypic were distinct from each other. The stereotypic advertisements – without making any reference to the supposed weak leadership qualities of women – did intensify the conventional gender associated meanings, which translated into lowered leadership aspirations for women. To the extent that women displayed differentials in their leadership preference, the hypothesis stands confirmed.

In the counter stereotypic condition 60% of women opted to be leaders whereas only 20% opted for the same in the stereotypic condition (Table 3) suggesting that the self-relevance of stereotypes can also be vouched by the fact that when that stereotype is negated, it impacts judgment of the target group. Professional women, who identified with domain of leadership and initiative, succumbed to the stereotypic representations of Indian women and preferred problem solver roles. This was to prevent being in situation that will confirm the negative associations of women with poor leadership

abilities. The neutral and counter-stereotypic conditions presented no such threat of confirmation of debilitating stereotypes.

Considering the exploratory nature of the research, it was considered pertinent to conduct simple effects analyses on gender so as to procure information that may provide insights for current as well as future studies. Moreover, any information that can help understand one's data better should be considered. In the two sets of ANOVAs differentiating male and female data, condition emerged as the significant factor for females but not for males. The simple effects analysis provided a confirmation of the stereotype threat model. A guarded approach to these results is necessitated. In absence of an omnibus gender and condition interaction, these findings can *prima facie* be rejected as being attributable to chance. However these results provide a major indication of the differential response pattern of males and females across the three conditions. For the females, condition is a determining factor in their role choice preference, for males it is not. This can be attributed to a visible difference between the numbers of males and females that opted for a particular role in each condition even though the mean on score (on the scale of degree of interest) was not much different. This is in consonance with the stereotype threat hypothesis that delineates that the negatively viewed group will experience the mental burden, and for males, the stimulus material will hold no message strong enough to be reflected in the role choices they make.

On the issue of behavior of the non-threatened group, previous studies have reported that either males' (or any group that is not the target group of stereotypes in that situation) performance will not significantly change across the conditions (for

instance whites in the Steele and Aronson, 1995 study showed no difference in performance across the conditions), or the performance will be enhanced in the stereotypic condition (Bell, Anderson-Cook, & Spencer, 2004). On the basis of the simple effects analyses, one finds that the male sample was unaffected by condition.

As earlier mentioned, in the absence of a significant interaction between condition and gender, the outcome on male data may be seen as reflection of a deeply traditional society and partly in terms of the ideomotor theory (Wheeler and Petty, 2001). This approach states that persons behave in ways suggested by a stereotype even though that stereotype image is not self relevant. Research in this field has demonstrated that exposure to certain mental representations impact judgment and behavior whether or not the activated mental contents apply to the individual. Thus in the stereotypic condition, the message relayed was one of an inviting family situation, distanced from career goals. This may have triggered among the males an imagery that did not favor leadership and worldly pursuits. In the counter stereotypic condition, with no stereotypic message in place, men's leadership aspirations became at par with the neutral condition.

Analyzing the correlations among the study variables (Table 1), only for males does one find a significant negative relationship between parental education level and the activation of feminine stereotype. A comparison of males and females data (Table 2) also informs us that the parental education level of the male sample was lower than that of females in the study. This may provide further insight into the male response pattern observed in the current study. The low education of parents affects the degree of exposure of individuals to situations that stray from conventional models. This, coupled

with the message transmitted by the advertisements, perhaps activated a non-aggressive approach towards leadership pursuits.

In terms of supporting the hypothesis, the results are mixed. While the females displayed leadership choices on hypothesized lines, the absence of an interaction between gender and condition weakens the case of stereotype threat as the explanatory mechanism. At the heart of this theory is the principle that the phenomenon affects only those to whom the negative stereotype is self-relevant. There is a possibility that while female reacted in response to stereotype threat, the males may have been swayed by influences as such the ideomotor motives. However this is not a conclusion one can definitively draw from the findings of this study.

As part of its second hypothesis, the study attempted a comprehensive analysis of eight proposed mediators of stereotype threat effect in the Indian scenario. The mediators being anxiety, self-efficacy, evaluation apprehension, role conflict, stereotype activation and parent's education level will mediate stereotype threat and leadership choices.

Any evidence of mediation in terms of meeting the conditions specified by Baron and Kenny (1986) for any of the mediators was not forthcoming. Thus even in the absence of these variables a relationship is likely to exist between the threatening condition and the outcome variable and none of these variables played a mediating role.

The study provided indication that that two variables viz. evaluation apprehension and role conflict, maybe acting as suppressor variables in the relationship between condition and outcome variable. These variables contributed by increasing the variance attributable to condition. Since these did not have a significant relationship with the

leadership role choice, they could not qualify as mediators however results indicated that in absence of evaluation apprehension and role conflict, the variance contributed by condition reduced to non-significance. These variables contributed by removing the error in condition and improving the total variance (Woolley, 1997).

Both these variables do have potential to affect the relationship between situations that can generate activation of stereotypes and resulting choices. Evaluation apprehension in a work context can influence motivation and affect behavior as the aspect of being identified and possible comparisons with co-workers can act as a deterrent (Green, 1991). Studies have also indicated a link between leadership and evaluation apprehension such that anonymity encouraged flexibility among individuals (Sosik, Kahai and Avolio, 1998).

Role conflict was studied as a possible mediator of stereotype threat effect for the first time in this study. It displayed a significant relationship with condition ($p = .002$). The stereotypic condition emanated the highest value of role conflict among females ($M = 28.53$) among the three conditions. It is pertinent to note that neutral condition – with its gender-neutral detached message – elicited lowest role conflict among females ($M = 22.5$). Counter-stereotypic condition also observed a high role conflict ($M = 27.6$). Thus though breaking stereotypes will encourage leadership among women, a strain free stage may still be elusive for modern Indian women who attempt a professional life. Role conflict has emerged as a potentially strong candidate for study in stereotype threat context. As emphasized earlier, in a culture as traditionally rooted as India, conflict between priorities is a crucial factor influencing the choices of Indian women. A study of women entrepreneurs in India found them doing a tight-walk between the two

attributes of individualism (defined by self-reliance and emotional detachment) and collectivism (associated with sociability and family integration) (Ghosh, 2004).

Overall, the second hypothesis of the study was not met as any evidence of mediation by the proposed mediators viz. anxiety, self-efficacy, evaluation apprehension, role conflict, stereotype activation and parental education level, was not found. In the

Implication and Future Directions

This study provided evidence of differential gender based leadership aspirations in response to varying media messages. These messages ranged from the traditional to the modern. It was hypothesized that stereotype threat would be one of the factors to determine this gender based response. The study has provided partial evidence to support this premise.

The larger goal of the study was to examine women in the contemporary Indian society as it stands at the crossroads of the modern and the traditional. It was a pertinent time to conduct a study on women in changing times. The last decade of the 20th century witnessed the adoption of the new economic policy and the arrival of the multinational corporations in India. With globalization, came new opportunities and an augment in the number of women seeking work opportunities. The decade of 1991-2001 saw a literacy percentage increase of 12% for men and 15% for women (Roy, 2004). According to the United Nations Development Project report for 2003 female participation in economic activity stood at 105, with 1990 as base year (equated at 100). The figures indicate an increasing foray that Indian women are making into economic spheres. The report also ranked India at 98 for 2003 on the gender-related development

index (GDI). The GDI is an average of three indices - educational, life expectancy and the per capita GDP (gross domestic product). The ranking for India is poor and provides an estimate of the current gender disparity.

The study employed the contrasting representation of women in media as a tool to study choices as impacted by stereotyping. Media has played an important social role in decimating messages that can affect individuals' decision-making. Satellite television was introduced in India in the early 1990s and became an effective instrument of consumerism. What is fascinating is the methodology adopted by the engineers of the advertisement campaigns. This was aptly defined as 'global through the Indian' by Fernandes (2000). The message of the global products was communicated by preserving the essence of the conservative Indian ethos. The media campaigns telecast images of Indian women that swayed between the very modern and the very traditional, perhaps an apt though ironical commentary on the state of affairs in which the Indian woman finds herself today. The principal logic was to present women as a stable force in this changing world. As Fernandes pointed out, "images of the 'new Indian woman' attempt to negotiate the contradictions inherent in the politics of globalization" (p. 623).

While this logic was in line with socio-cultural ethos of a country and also conveniently suited the media managers, it impacted individuals and exposed groups to dilemmas such as stereotype threat, as observed in the present study. Constant emission of conformist themes reinforce stereotypes that women in changing social scenes are attempting to shatter. When confronted with these stereotypes there is a crisis of confidence, as witnessed in the stereotype threat effect. Such campaigns inadvertently aggravate the role conflicts being experienced by women. A responsible

media can contribute effectively towards social empowerment by concentrating on progressive themes.

Another theme emphasized in the current study was leadership. Literature on women leadership in India has concentrated on political sphere. Some findings from this body can be reasonably generalized to work sphere. Since mid-1990s 30% of village panchayats (a panchayat is a local unit of self governance) were reserved for women such that only a woman could be elected to head these panchayats. This has been hailed across India as a major step in women empowerment at the grassroots level. A study of the degree of success of women heads (Duflo and Topalova, 2004) found that villages with women heads had better infrastructure and less corruption as instances of bribery were lesser. However the level of satisfaction reported by villagers in such panchayats was low. The explanation, according to the authors, could lie in reasons other than performance. Primarily it was attributable to a mental discomfort experienced by people in accepting woman leadership in what had hitherto been a male bastion. In an organizational context the above study provides instance of biases women managers or leaders could face when their performance is appraised.

Research on leadership in organizational settings in India is conspicuous by its absence. On a similar note, stereotype threat in organizational context in western literature, is just beginning to attract research thought. Current study is a step in this direction. It will be interesting to study how women are faring on leadership front in organizations. The factors that can be studied to place this in context are social, cultural and economic. These factors will also form a proficient link to stereotype threat as these dynamics form the breeding ground for phenomena as stereotype threat.

The current study can effectively be replicated in organizational settings with a sample of male and female employees instead of professional students as employed in the current study. This will ensure incidence of real-life scenario and also higher domain identification of women participants. Stereotype threat susceptibility can be studied in different types of media exposure and also in relation to the position the female employee employs in organizational hierarchy. Variables such as the number of female employees in organization, nature of profession (is it traditionally male or female dominated), and number of females in leadership positions can be additionally focused upon. Role conflict has emerged as a variable to reckon. Future studies can explore this factor further to determine whether it can emerge as a mediator.

As the detrimental effects of negative stereotypes become apparent, future studies can also concentrate on mechanisms that organizations can employ to offset these. Two such mechanisms found to enhance leadership aspirations are identity safety (Davies et al., 2005) and counter stereotypic mechanisms as in the current study. Mechanisms such as use of gender neutral language, a clear organizational policy reiterating belief in equal abilities of men and women, and simple endeavors like encouraging women to take up new initiatives could be studied for formulating policies that organizations can follow.

Finally no research in Indian social or organizational context can be complete without an investigation into the caste phenomenon. This is a serious source of myriad stereotypes that affect individuals in their day to day behavior. The majority of the so-called low castes are making forays into both public and private organizations owing to legislation and development in the past fifty years. Negative stereotypes abound

attributing them with low capabilities at work. The literature on stereotype threat should focus on the detrimental effects these negative expectations have on the work output and organizational commitment of the hitherto under-developed castes.

Limitations

The sample consisted of subjects primarily from one geographical location – from the mountainous foothills of north of India. In India geographical region is also entwined with a social and cultural identity. The sample was not representative of the professionals that inhabit the bigger centers of economic growth such as Mumbai or New Delhi. The professionals in the centers of Indian growth may have a different degree of exposure and thus may respond differently to media campaigns. The variables such as stereotype activation (both masculine and feminine) and parental education levels may have a role to play in such samples.

Moreover the professionals in the current study were young recruits. A more experienced sampling of professionals could have ensured better domain identification and may have elicited clearer results. Domain identification ensures that the sphere for which stereotype applies, is dear to the individual. Though in choosing professional students, domain identification was reasonably assumed, yet the degree of identification was limited by the fact that the sample comprised of young professional students yet to find their feet in real-life professional set up.

Other limitation of the study could be the strength of the message sent out in the three conditions by means of print advertisements. In the present age of electronic media, a television advertisement may have presented a more graphic image and hence, a stronger message to the subjects. A print ad may not be as effective medium

of communication as moving images. In the current study, print advertisements were employed owing to the logistic issues.

Another shortcoming of the study pertains to the role conflict scale developed and employed in the study. The scale was subjected to validity analysis during its preparation stage and also in the process of pre-testing of instruments. However the scale was not tested for reliability. In light of the encouraging results this study has obtained for role conflict as a potential mediator of the stereotype threat effect, future studies may well employ psychometrically stronger role conflict instruments to study the concept.

Table 1

Correlations Between Variables

	Condition	Mother's education	Father's education	Leader	Problem solver	Evaluation apprehension	Self efficacy	Anxiety	Role conflict	Feminine trait index	Masculine trait index
Condition		-0.03	-0.10	-0.11	0.42	0.02	0.05	0.03	0.05	-0.06	0.05
Mother's education	0.15		0.59*	-0.26	-0.41	-0.31*	0.02	-0.14	-0.18	-0.34*	-0.21
Father's education	-0.10	0.23		-0.26	-0.61*	-0.10	0.02	-0.05	-0.19	-0.31*	-0.26
Leader	-0.31	-0.05	0.37		**	-0.28	0.41*	-0.32	0.00	0.34	0.66*
Problem solver	-0.08	0.08	0.03	**		-0.15	0.33*	-0.39	-0.18	0.30	-0.17
Evaluation apprehension	0.33*	-0.02	0.11	-0.33	0.17		-0.35*	0.44*	0.22	-0.12	-0.08
Self efficacy	0.21	0.09	-0.21	-0.27	-0.12	-0.24		-0.52*	-0.22	0.28	0.29
Anxiety	0.15	0.03	-0.05	-0.07	-0.44*	0.17	-0.29		0.30*	-0.25	-0.26
Role conflict	0.35*	-0.11	0.11	-0.18	-0.24	0.25	-0.11	0.31*		0.01	-0.14
Feminine trait index	-0.11	0.16	-0.10	0.11	0.16	-0.02	0.25	-0.10	-0.23		0.49*
Masculine trait index	0.05	0.09	0.06	0.27	0.17	-0.29	0.28	-0.28	-0.10	0.23	

Note. The means for male subjects are above the diagonal and for females are below the diagonal. $N = 45$ (males) and 45 (females); for leader $N = 27$ (males) and 21 (females); for problem solver $N = 18$ (males) and 24 (females).

Point biserial correlation for the following variables – condition, leader and problem solver.

* denotes significance at .05 level.

** denotes correlation is not computed since one variable is constant.

Table 2

Data Mean, Standard Deviation and Range

Variables	Mean		Standard Deviation		Obtained Range	
	Male	Female	Male	Female	Male	Female
Mother's education	1.86	2.22	0.89	0.90	3.00	4.00
Father's education	2.52	3.04	1.03	0.82	3.00	3.00
Leader*	5.19	5.14	.88	1.01	3.00	4.00
Problem solver*	5.11	5.25	.90	.74	2.00	3.00
Evaluation apprehension	9.69	8.29	5.13	4.29	16.00	17.00
Self efficacy	21.51	21.67	4.39	4.18	17.00	18.00
Anxiety	10.48	8.96	4.68	3.80	20.00	14.00
Role conflict	29.53	26.23	5.25	5.93	24.00	26.00
Feminine trait index	46.47	48.51	8.21	6.18	35.00	31.00
Masculine trait index	45.07	39.81	8.97	8.06	36.00	29.00

Note. $N = 45$ (males) and $N = 45$ (females).

Score range – Evaluation apprehension: 4 – 24; Self efficacy: 5 – 30; Anxiety: 5 – 30; Role conflict: 10 – 60; Stereotype activation: 10 – 60; Parental education: Grade 12 or less = 1, undergraduate = 2, Masters/above = 3, professional = 4, others = 5.

* denotes a different sample size - for leader $N = 27$ (males) and 21 (females); for problem solver $N = 18$ (males) and 24 (females).

Table 3

Leader and Problem Solver Means

Condition	Leader		Problem solver	
	Male	Female	Male	Female
Neutral	5.33 (.6)	5.44 (.6)	4.67 (.4)	5.17 (.4)
Stereotypic	5.13 (.53)	5.33 (.2)	5.14 (.47)	5.42 (.8)
Counter Stereotypic	5.1 (.67)	4.78 (.6)	5.6 (.33)	5.00 (.4)

Note. The figures in brackets denote the proportion of males/females from the sample in that condition preferring the role. $N = 15$ males and 15 females in each condition.

The score ranged from 1 (not at all interested) to 6 (very strongly interested).

Table 4

Means of Female Scores on Proposed Mediators

Mediators	Condition		
	Neutral	Stereotypic	Counter Stereotypic
Evaluation apprehension	6.40	8.60	9.97
Self efficacy	20.80	21.27	22.93
Anxiety	8.80	7.93	10.13
Role conflict	22.50	28.53	27.60
Feminine trait index	48.07	51.00	46.47
Masculine trait index	38.53	41.40	39.50
Mother's education	2.13	2.07	2.47
Father's education	3.13	3.07	2.93

Note. Score range – Evaluation apprehension: 4 – 24; Self efficacy: 5 – 30; Anxiety: 5 – 30; Role conflict: 10 – 60; Stereotype activation: 10 – 60; Parental education: Grade 12 or less = 1, undergraduate = 2, Masters/above = 3, professional = 4, others = 5.

APPENDIX A
INFORMED CONSENT NOTICE

The purpose of this research study is to examine the process of memory and thinking among professional students. You will be asked to view some common print advertisements for 3 minutes and then you will be tested on what you have observed, after a gap of 15 minutes. In this interim break period you will be asked to fill some simple forms. These will not take more than 10 minutes to fill. The entire study will be over in 30 minutes. Participation in this study involves no foreseeable risks. Participation is voluntary and you may stop at any time. You give consent by participating and completing the forms. No individual responses will be reported to anyone because data will be reported only in the aggregate.

If you have any questions regarding this study, please contact Ambika Prasad (ap0087@unt.edu) or Dr. Linda Marshall (psychair@unt.edu, 940-565-2671, Department of Psychology, University of North Texas, Denton, TX 76201). This project has been reviewed and approved by the University of North Texas Institutional Review Board (940-565-3940). You may keep this notice for your records.

APPENDIX B
MEASURES

We would appreciate your participation in a study being conducted on the effectiveness of various leadership strategies. You can either choose to be a leader or a problem solver, but there will only be one leader assigned per group. Both the problem solvers and the leader will be given a written description of a series of complex problems to be solved. The leader, however, will also be supplied with the answers to those problems. It's the leader's job to guide the problem solvers to the solutions without explicitly telling them the answers. Previous research has demonstrated that the most effective leaders in these situations have the ability to facilitate cooperative interaction among the problem-solvers, which requires excellent interpersonal skills, whereas the most effective problem solvers are good team players and have excellent communication skills.

Please circle the number that indicates your interest in assuming the Leader role.

1	2	3	4	5	6
(not at all					(very strongly
interested)					interested)

Please circle the number that indicates your interest in assuming the Problem solver role.

1	2	3	4	5	6
(not at all					(very strongly
interested)					interested)

Use the following scale to describe how much you disagree or agree with each statement at this moment. Write the number that shows how you feel in the blank beside each statement

1	2	3	4	5	6
---	---	---	---	---	---

**strongly
disagree**

**strongly
agree**

- _____ People will think I have less ability if I do not do well on this test.
- _____ People will look down on me if I do not do well on this test.
- _____ If I don't do well on this test, others may question my ability.
- _____ If I do poorly on this test, people will look down on me.
- _____ I feel self-confident.
- _____ I am uncertain I have the knowledge to do well on this test.
- _____ I am concerned about whether I have enough ability to do well on the test.
- _____ I doubt I have the ability to do well on the test.
- _____ I can handle the test.
- _____ I am worried.
- _____ I feel nervous.
- _____ I am jittery.
- _____ I feel indecisive.
- _____ Taking this test could make me doubt my knowledge.
- _____ My professional work duties will conflict with my household duties.
- _____ At times I feel family and work do not go together.
- _____ My professional status does not match with my status within my family.
- _____ It is possible to find a balance between work and home.
- _____ At times, an employed woman has to compromise household duties to concentrate on work.
- _____ Children's upbringing suffers if the mother is employed.
- _____ Husbands should be equal partners in raising children and managing home.

_____ My job status will increase my decision-making power at home.

_____ In India expectations about what women do at home are not affected by whether women have a job.

_____ My professional role will always be secondary to my family role.

Now describe yourself by writing the number from this scale that shows how much each characteristic describes you.

	1	2	3	4	5	6
	<i>not at all like me</i>					<i>very much like me</i>
_____ Affectionate						
_____ Loyal						
_____ Tender						
_____ Sensitive to other's needs						
_____ Sympathetic						
_____ Compassionate						
_____ Eager to soothe hurt feelings						
_____ Understanding						
_____ Gentle						
_____ Warm						
_____ Have leadership skills						
_____ Willing to take a stand						
_____ Ambitious						
_____ Competitive						
_____ Dominant						
_____ Assertive						
_____ A strong personality						

_____ Forceful

_____ Acts like a leader

_____ Aggressive

Please provide the following information about yourself by checking the applicable category and filling in details

Are you a male _____ or female _____

What is your age in years? _____

Are you married _____ or single _____

What are your class 12 grades (in percentage)? _____

Major field (course) you are studying? _____

Put a check by your mother's educational background?

- _____ Class 12 or below
- _____ Bachelors
- _____ Postgraduate (Masters or above)
- _____ Professional
- _____ Others (Please specify)

Put a check by your father's educational background?

- _____ Class 12 or below
- _____ Bachelors
- _____ Postgraduate (Masters or above)
- _____ Professional
- _____ Others (Please specify)

APPENDIX C
SLIDES

Condition - Neutral

1.

2.

74

7.

8.

9.

10.

11.

12.

13.

14.

Condition - stereotypic

15.

16.

19.

20.

21.

Condition – counter stereotypic

22.

23.

24.

25.

26.

27.

28.

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