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Gender Role Attitudes and Stereotype Threat in Same-sex and Mixed-sex Competitive Conditions among University Students

Aaeena Salik and Anila Kamal

National Institute of Psychology

Quaid-i-Azam University, Islamabad

Based on the criticism on Horner's (1969) theory, the study aimed to explain the phenomenon of performance inhibition of university students under stereotyped threat conditions when the factor of fear of success (FOS) is controlled. The assumption that FOS is the fear of violating gender stereotypes; it was hypothesized that individuals with traditional gender role attitude (GRA) would inhibit their performance on tasks perceived as negatively gender stereotyped. A gender neutral Scrambled Word Task was developed to measure performance. Individuals with traditional GRA significantly underperformed than those with egalitarian GRA on negatively gender stereotyped task. The effect of competitiveness was significant for individuals with traditional GRA on negatively gender stereotyped tasks. Same-sex and mixed-sex group composition had nonsignificant effect.

Keywords: Gender role attitudes, stereotype threat, stereotyped task, competitiveness, same-sex/mixed-sex groups

Most of the high profile job allocations have been in favor of men and is a major factor in the gap between men and women earnings. Despite considerable gains over the last few decades, women remain the minority in quantitative fields (Benbow, Lubinski, & Shea, 2000). Social psychological research suggests that gender stereotypes

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Correspondence concerning this article should be addressed to Aaeena Salik, 4488 Helsinki Cres, Windsor, On N9G 0A6, Canada. E-mail: aaeenas @yahoo.com

contribute to the gender discrepancies in math and science (Davies, Spencer, Quinn, & Gerhardstein, 2002; Jacobs & Eccles, 1992; Quinn & Spencer, 2001; Schmader, 2002; Spencer, Steele, & Quinn, 1999). Gender differences have been of interest to a number of researchers for a long time. Much gender-typed behaviors may be largely independent of gender, and are related to social, cognitive, and personality factors that are not directly linked to gender in and of itself (Bem, 1981; Kohlberg, 1966). Is this gender gap due to lack of motivation in women? But researchers have found fairly similar achievement motivation in men and women (Crew, 1982; Mednick & Thomas, 1993; Spence & Helmreich, 1983).

In the 60's gender differences in achievement motivation were explained by the observation that achievement situations were more anxiety provoking for women than for men (Horner, 1969). This phenomenon was called Fear of Success (FOS) or Motive to Avoid Success. Fear of success has been criticized on a number of grounds (Mednick; Shaver; Tresemer; Wheeler; Zuckerman as cited in Hyde & Kling, 2001). Today in the Western world, research on FOS has virtually disappeared because of the indication that men also show FOS, and evidence that adapting behavior appropriate or inappropriate to one's gender role is related to their gender role attitudes rather than gender.

The anxiety resulting in low performance of an individual or group in a particular situation has been termed as stereotype threat (Steele & Aronson, 1995). In the brief history of just over a decade, stereotype threat has been studied numerous times (Beilock, Rydell, & McConnell, 2007; Brown & Joseph, 1999; Eriksson & Lindholm, 2007; McGlone & Aronson, 2006; Schmader, 2002). According to Steele and Aronson (1995) stereotype threat may occur when a person feels that his or her performance in a particular situation may confirm a negative stereotype about a relevant group that they identify with. For example, the negative stereotype that men can not show social sensitivity would threaten the performance of men on a test described as measuring social sensitivity on which men do worse than women which results as a stereotype threat for them (Koenig & Eagly, 2005). Stereotype threat is not just limited to gender differences but covers performance differences in groups regarding race (Helms, 2005), ethnicity (Steele & Aronson, 1995), age (O'Brien & Hummer, 2006), intellectual ability (Croizet et al., 2004) and more.

Research in stereotype threat has broadened in several other important respects. Studies have shown that the consequences of stereotype threat extend beyond underachievement on academic tasks. For example, it can lead to self-handicapping strategies, such as

reduced practice time for a task (Stone, 2002), and to reduced sense of belonging to the stereotyped domain (Good, Dweck, & Rattan, 2008). In addition, consistent exposure to stereotype threat can reduce the degree that individuals value the domain in question (Aronson, Fried, & Good, 2002; Osborne, 1995; Steele, 1997). In education, it can also lead students to choose not to pursue the domain of study and, consequently, limit the range of professions that they can pursue. Therefore, the long-term effects of stereotype threat might contribute to educational and social inequality (Good et al., 2008; Schmader, Johns, & Barquissau, 2004).

Nash (1979) gave a social explanation for the gender differences arguing that individuals perform better on cognitive tasks when the masculinity and the femininity in their self concepts are consistent with the gender stereotyping of the task at hand. An individual's self concept is a result of a number of ideas, attitudes, behaviors, and beliefs that he or she is exposed to since childhood. The information that surrounds a child and which the child grasps, comes to the child within the family arena through parent-child attractions, role modeling, reinforcement for desired behaviors, and parental approvals and disapprovals (Santrock, 1994). Later, these ideas and beliefs are reinforced by those around them as friends and teachers. Media also plays an important role. Through all these socialization agents, children learn gender stereotype behaviors.

According to social role theory, gender roles can emerge from the typically differential work performed by men and women. These differential work environments can then lead to the development of gender-based behaviors that differ for men and women (Eagly, 1997). However, women who work in male-dominated fields may acquire the 'masculine' gender roles that are necessary to function in that particular work environment. On the other hand it has been seen that phrases such as "She is quite feminine" or "He is very masculine" are usually used in an approving way; where as phrases such as, "She is somewhat masculine" or "He is a bit feminine" usually carry pejorative undertones (Williams & Best, 1990). Such reactions to gender-typed behaviors result in anxiety.

Several studies have reported that the gender stereotype of the achievement situation plays an important role in eliciting negative reactions to the achievement. With gender role inappropriate tasks generating greater anxiety or negative affect, than those, those are appropriate to the individual's gender role (see Gilbert & Thompson, 1999). People spontaneously categorize stereotypically masculine or feminine traits and job labels according to gender even when the task at hand has nothing to do with gender (Karylowski et al., 2001). In

other words negatively stereotyped situation, whether real or perceived, would threaten the individual when there is a discrepancy between their gender role attitudes and gender stereotyped situation.

Closely related to this discussion is the role of competitiveness and gender group composition, of the performing situation. When men and women compete against one another, women might perform less well than men even if they perform similarly in non-competitive situations (Gneezy, Niederle, & Rustichini, 2001). These findings reinforce previous research that competitiveness is a male personality characteristic (Bem, 1974). The general rule is males are simply trained to win, however over the last few decades, women have been urged to compete and to accept competitiveness as appropriate and even healthy (Kohn, 1992). This could be because regardless of gender, masculine individuals strongly endorse for themselves instrumental attributes, while feminine persons exhibit the reverse of this pattern (Bem, 1974). Literature indicating relationship between gender role attitudes and group composition found that the difference according to gender is scarce. In a study conducted with children, masculine children reported higher levels of intrinsic motivation when competing and when segregated by gender. The findings demonstrated that gender role is an important factor in determining children's responses to competition (Conti, Collins, & Picariello, 2001).

The present study aimed at finding relationship between gender role attitude and stereotype threat in competitive and non-competitive conditions. Based on the criticisms on Horner's (1969) theory explaining gender differences in achievement motivation resulting in fear of success, this study aimed at explaining the phenomenon of performance inhibition (stereotype threat) of men and women on gender stereotyped task when the generalized FOS has been controlled. This was done by measuring FOS on a gender neutral verbal cue (without specifying traditionally masculine or feminine activity) and excluding all individuals indicating generalized FOS.

It was assumed that gender related stereotype threat was related to the gender role attitude (traditional or egalitarian) rather than gender of an individual. Therefore it was hypothesized that individuals who view themselves as traditional will show stereotype threat more than those with egalitarian gender role attitudes as a whole, as well as when comparing their differences; between positively stereotyped and negatively stereotyped tasks; on negatively stereotyped task in non-competitive and competitive conditions; on negatively stereotyped tasks in mixed-sex competitive and non-competitive condition: and in competitive same-sex and mixed-sex conditions.

Method

Sample

A sample of 30 university students, without generalized fear of success, was selected from different departments of Quaid-i-Azam University, Islamabad. Fear of success was measured using verbal cue developed for the study. Standard TAT instructions and leading questions accompanied the verbal cue. The stories were content analyzed by two judges using Horner's (1969) scoring system. None of the participants showed FOS. In the sample half of the students were men and half women. Their age ranged from 20 to 23 years, with mean age of 21.8 years.

Design

In the present study three types of variables were utilized. The variables of gender role attitude and fear of success were identified independent variables and they were non manipulative ones. The second category of variables was manipulative independent variables including competitiveness (competitive x non competitive), gender group composition (same-sex x mixed-sex), and gender stereotyped tasks (negatively stereotyped x positively stereotyped). Each of these variables had two levels; therefore the experimental design was 2x2x2, resulting in eight conditions to be manipulated. Stereotype threat (performance) was the dependent variable.

Instruments

Fear of Success (FOS). Historically, fear of success had been measured using projective techniques. In the original work of Horner in 1965 (as cited in Horner, 1969), FOS was measured by a verbal cue, which was: "After first term finals, Anne (John) finds herself (himself) at the top of her (his) medical-school class."

This measure was criticized because it involved success in a domain considered predominantly masculine in the U.S. at that time. Shapiro (1979) developed feminine success cue, which was: "John (Anne), a professional ballet dancer, is looking through newspapers piled before him (her). His (her) solo performance has received excellent reviews".

The masculine cue used in this study was the one used by Horner (1969). The present study aimed at finding whether people had generalized Fear of Success, by using a cue related to success without specifying a masculine or feminine domain. Such an example was found in a study conducted by Basha and Ushasree (1998). They used the following verbal cue: "After the inter final examination Padma (Ram) finds herself (himself) at the top of her (his) class mates."

Following the same pattern, verbal cue was developed to use with university students. The cue measuring generalized Fear of Success developed to be used with university students for the present study was: "After first semester examination, Ayesha (Ahmad) finds herself (himself) at the top of her (his) class." Standard TAT instructions and leading questions accompanied the verbal cue. These instructions were as follows: "Please write a story on the situation given below. This is a test of imagination, a form of intelligence. Make as dramatic a story as you can. Your story should answer the following questions":

1. What has led to the event?
2. What is happening at the moment?
3. What the character(s) are feeling and thinking?
4. What was the outcome of the situation?

The stories were content analyzed by two judges according to Horner's (1969) scoring system.

Gender Role Attitudes (GRA). In order to measure gender role attitude of the participants, Sex Role Attitude Scale (Anila & Ansari, 1992) was used. It is a 5-point rating scale in Urdu language. It consists of 32 declarative statements covering the areas like work, role of men and women, parental responsibilities, personal relationships, level and type of academic achievement, occupational abilities, marriage plan and vital life decisions.

Egalitarian items are scored 5 to 1 from agreement to disagreement, while in the traditional items the scoring is reversed. The score ranges from 32 to 160. The higher the score the egalitarian is the gender role attitude of the individual. It is an extensively used instrument in Pakistan (Ahmad & Kamal, 2000; Anila, 1992; Aziz, 2001; Kamal & Saqib, 2004, Masood, 2004; Sabir, 1992). Its reliability (alpha coefficient) is .86 (Anila & Ansari, 1992).

Development of Scrambled Word Task. With the purpose of developing eight scrambled word lists of equal difficulty level to be used in 8 experimental conditions, 200 four to six-lettered words were selected from two local daily English newspapers. Any word, except proper nouns, second or third form of the verb or plurals was included. The words judged by the researchers as difficult or uncommon were excluded. Next these words were entered into a word scrambler available on an educational web page ("Word Scramble Generator," 2002). Two hundred scrambled word cards were made as a result of it.

On a volunteer sample of 15 (7 men and 8 women) university students, these words were individually administered. The students were asked to solve each scrambled word and the time taken to solve them was noted using a stopwatch. They were allowed a maximum of 2 minutes for each word. Words not solved by 75% of the individuals were discarded. This resulted in 154 scrambled words. Average time taken to solve each word was calculated and divided into 3 categories according to their difficulty level (Gilbert & Thompson, 1999):

Difficulty level		Average time taken to solve
a.	Easy	Less than 10 seconds
b.	Moderate	20 to 40 seconds
c.	Difficult	50 to 60 seconds

As a result of this categorization 42 scrambled words were left out. Gender differences for the resulting 112 words were found using *t*-test. This was done to make the task gender neutral so that the difference in the performance could be referred to the manipulation through instructions. The words having significant gender differences in the time taken to solve it were discarded. Out of the remaining 92 words, 80 were allotted to eight different lists keeping in consideration the difficulty level. Sixty percent of the words selected were of moderate difficulty level, where as, 20% of easy and 20% of difficult. Finally eight lists each comprising of 10 words were developed.

Development of Instructions. The variables of competitiveness and gender stereotyped tasks were manipulated through instructions.

First is the *competitiveness* is an interpersonal situation requiring excellence of performance and compelling to do one's best, the following instructions were written: "Try to do as well as you can. Marks obtained by all the participants will be announced." For the non-competitive condition instructions, the requisite was the lack of

requirement for standard of excellence and evaluation of performance. This purpose was achieved by the following instructions: "We are only interested in the type of responses we get."

These instructions were presented to two judges for evaluation, who were professors of psychology. Their unanimous decision was that these instructions fulfilled the purpose of manipulating competitive and noncompetitive conditions. Next these instructions were pre-tested on a volunteer sample of 10 Masters students (6 women and 4 men). Two lists of already developed Scrambled Word Task (SWT) were given to the students with these instructions. The mean performance of the participants in competitive and non-competitive condition was found and paired *t*-test revealed significant difference in the two conditions, $t\ (9) = 3.04$, $p < .001$. Therefore the instructions were finalized in their original form.

Second is *gender stereotyped task* by labeling the task as masculine or feminine and associating masculine and feminine characteristics to the task, can lead it to be perceived as gender stereotypical (Gatton, Dubois, & Faley, 1999; Lee, 1987). The instructions for this manipulation were adapted from Lee (1987). For the perceived feminine task the instructions were as follows: "These words are developed for girls and are expected to be in relation with sensitivity to subtle verbal cues. It is an indication of the ability to sense feelings being expressed by others. It seems to be related to feminine personality". Whereas for the perceived masculine task the instructions were: "These words are developed for boys and are expected to be related to intelligence and logic. It is an indication of the ability for business decision-making and related to masculine personality." These instructions were also finalized after following the same procedure as for competitiveness. Using these instructions appropriately with the gender would make the task positively stereotyped, where as reversing the order would make it negatively stereotyped.

Third is *Specifying the Time*, average time was calculated for solving each scrambled word and to make the eight lists equivalent in difficulty level, this recorded time was considered. To find out how much time would be sufficient for solving a 10 scrambled word list, the lists were pre-tested on 10 (6 women and 4 men) university students. They were allowed 5 minutes to solve one list. When the allotted time was over none of the participants was able to finish the task. The highest number of scrambled words solved was 6 while the lowest was 4. As in this study performance was not evaluated on the basis of how quickly the task was done, it required sufficient amount of time in which majority of the participants could solve the task.

With another group of 8 (3 men and 5 women) university students, the lists were administered by allowing them 10 minutes to solve each list. By the end of the time allowed, two participants attempted all the words from each list. Five of the participants were able to attempt an average of 9 words from each list. On at least 5 lists they were able to attempt all the 10 scrambled words. Only one participant averaged 7 words from all the lists. Therefore, 10 minutes were considered sufficient time to solve the list by most of the individuals. As a result, the instructions included the following statement: "You are allowed 10 minutes to solve them." These instructions accompanied eight lists of scrambled words to be used with men and women according to the conditions manipulated.

Procedure

The experiment was conducted in two sessions on two separate days. Personal information was obtained before administration of the experimental conditions. Experiment was conducted with three groups of 10 participants each (5 men and 5 women). For the same-sex conditions the groups were split according to their sex (comprising of 5 men and 5 women in each).

On the first day participants were seated comfortably in a well-lit room around a large rectangular table. In mixed-sex experimental conditions men were seated on one side of the table while women were seated on the other. After rapport building, the participants were briefed about the procedure that was to follow. They were given examples of scrambled words and were told that these words do not include plurals, proper nouns and second or third form of the verb.

The participants were then tested under 4 non-competitive conditions. Each condition requires almost 15 minutes of administration including distribution of lists, giving instructions, time allowed to solve a list (10 minutes), and collecting the solved lists. With the first groups experimental condition of same sex positively stereotyped task was administered first simultaneously in two subgroups of men and women. The next condition was same sex negatively stereotyped one. Mixed-sex positively stereotyped condition was administered next. Lastly, mixed-sex negatively stereotyped condition was administered.

With the second group the two mixed-sex conditions were administered first and then the two same-sex conditions. The third group was first tested in same-sex negatively stereotyped condition, then in positively stereotyped condition. Then the two mixed-sex

conditions were administered in the same order. At the end the participants were given refreshments and were requested to be present for the second session on the next day.

Same procedure was followed in the second session in which 4 competitive conditions were administered. Gender role attitude of the participants was measured by administering the Sex Role Attitude Scale (Anila & Ansari, 1992). After the refreshments the participants were requested to gather again after half an hour for the announcement of the marks obtained by them. After the announcement the participants were debriefed about the purpose of the study and what were its implications. Later they were acknowledged for their willingness to participate and their cooperation in the study. Same procedure was followed with the two other groups.

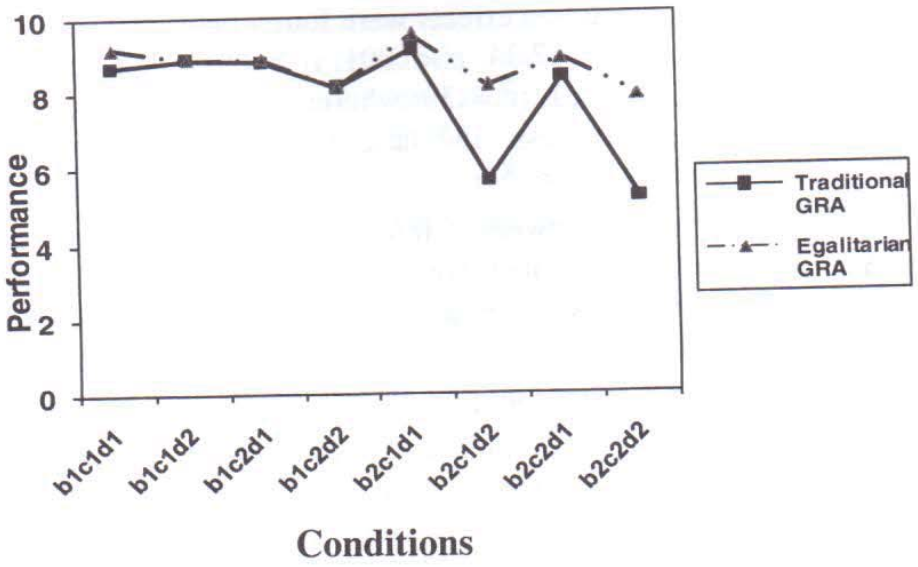
During the study the participants were aware that they are part of an experimental study, but the purpose of the study was not be disclosed to them, as it had given the desired effect of the independent variables. At the end of the study they were debriefed about the purpose of the study. Employing repeated measure design controlled all subject variables. All participants were tested under all conditions, so that each participant would serve as his or her own control.

In order to control practice effect alternate forms of the task were used in each condition. Counterbalancing was done to overcome order effect, except on the factor of competitiveness (preventing differential transfer). Half of the participants in rest of the conditions were given "level 1" first, while the other half were given "level 2". As a result major criticisms on repeated measure design were controlled.

Results

On the Sex role Attitude Scale (Anila & Ansari, 1992) the obtained scores ranged from 85 to 135. Participants were categorized into traditional GRA and egalitarian GRA using median split method. This distribution resulted in more men with traditional gender role attitudes, sample include 10 men and 5 women. Similarly it was found that more women with egalitarian gender role attitude and sample consist of 10 men and 5 women.

The difference in performance in the eight experimental conditions for traditional and egalitarian gender role attitude groups is shown in Figure 1.



b1=non-competitive, b2=competitive, c1=same-sex, c2=mixed-sex, d1=positively stereotyped, d2=negatively stereotyped.

Figure 1. Comparison of mean performance between traditional and egalitarian GRA groups in eight experimental conditions.

For the non-competitive conditions, there is almost no difference in the performance of the two groups, except for the moderate difference in the first condition. The two lines show the same trend, besides the sharp dip in the traditional GRA group, in same-sex negatively stereotyped competitive condition and mixed-sex negatively stereotyped competitive condition.

Table 1

Effect of gender role attitude on performance on negatively stereotyped task

	SS	*df*	*MS*	*F*	*p*	η^2
Gender Role Attitude	52	1	52	8.2	.01	.23
Error	177.49	28	6.3			

Results from factorial ANOVA showed significant main effect for all the four factors, i.e., gender role attitude $F(1, 28) = 8.9$, $p < .01$, effect size (η^2) = .24, competitiveness $F(1, 28) = 51.03$, $p < .001$, η^2 = .64, gender group composition $F(1, 28) = 32.98$, $p < .001$, $\eta^2 = .54$,

and gender stereotyped task $F(1, 28) = 138.38$, $p < .000$, $\eta^2 = .83$. Significant two-way interaction effects were found between GRA and competitiveness $F(1, 28) = 27.34$, $p < .001$, $\eta^2 = .50$, GRA and task type $F(1, 28) = 18.2$, $p < .001$, $\eta^2 = .39$; whereas three-way interaction between GRA, competitiveness, and task type was also significant $F(1, 28) = 29.21$, $p < .001$, $\eta^2 = .51$.

Two-way interaction between GRA and group type, three-way interaction between GRA, competitiveness, and group type; and four-way interaction between GRA, competitiveness, group type, and task type were nonsignificant.

The result F (1, 28) = 18.2 at .001 level of significance and effect size (η^2) =.39 showed that with the change in the gender role attitude, performance of the individuals on positively stereotyped and negatively stereotyped tasks also changes. The hypothesis that individuals with egalitarian GRA will perform better on negatively stereotyped task than individuals with traditional GRA, was tested calculating simple main effect of GRA on negatively stereotyped task (see Table 1).

Table 2
Effect of competitiveness on performance of individuals with traditional and egalitarian GRA on negatively stereotyped task

Source	*SS*	*df*	*MS*	*f*	*p*	η^2
Traditional	147.26	1	147.26	119.65	.000	.23
Error	17.23	14	1.23			
Egalitarian	4.8	1	4.8	24.00	.001	.63
Error	2.81	14				

Mean performance of individuals with traditional GRA was 27.6 (*SD* = 4.5) on negatively stereotyped task and that of egalitarian GRA was 32.86 (*SD* = 3.3). There is a 95% probability that the obtained confidence interval, 1.78 to 8.24, contains the true population mean difference. Analyzing this difference further, it was of interest to find whether the differences in performance on gender stereotyped tasks were significant within the two GRA groups.

Simple main effect of the task type was found significant for participants with traditional F (1, 14) =79, $p < .000$, $\eta^2 = .46$ as well as egalitarian GRA F (1, 14) =74.7, $p < .000$, $\eta^2 = .64$. The mean score of the participants with traditional GRA on positively stereotyped task

was 35 (SD = 2.24) and on negatively stereotyped task was 27.6 (SD = 4.5). The 95% confidence interval, 6.88 to 7.92, gives the probability that the obtained limits contain the true population mean difference. For participants with egalitarian GRA, the mean score on positively stereotyped task was 36.33 (SD = 2.74) and on negatively stereotyped task was 32.87 (SD = 3.31) that indicate the difference in means of performance of participants with traditional GRA is more than that of egalitarian GRA.

Three-way interaction between GRA, competitiveness, and task-type was analyzed to test the hypothesis that the difference in performance on negatively stereotyped task in non competitive and competitive conditions will be greater for traditional GRA group than the egalitarian GRA group. As this interaction was significant F (1, 28) = 29.21, $p < .001$, $\eta^2 = .51$, simple main effect of competitiveness for traditional and egalitarian GRA were found (see Table 2).

Effect of competitiveness was significant on both levels of GRA factor, but effect size for traditional GRA was more ($\eta^2 = .90$), than for egalitarian GRA group ($\eta^2 = .63$). This indicates that competition has more effect for individuals with traditional GRA than for those with egalitarian GRA.

Comparing the means of the two groups gender positively stereotyped and negatively stereotyped tasks, we can see that there is almost no difference in the two groups for positively stereotyped task (16.93 for traditional and 17 for egalitarian GRA). For negatively stereotyped task this difference is large (10.67 for traditional GRA and 15.83 for egalitarian GRA).

Table 3

Difference in Performance of Individuals with Traditional and Egalitarian GRA on Negatively Stereotyped Task in Competitive and Non-competitive Mixed-sex Condition

	Non-competitive MS (n = 15)		Competitive MS (n = 15)		
	M	SD	M	SD	t
Traditional	8.1	0.88	5.1	1.67	1.58*
Egalitarian	8.1	0.99	7.8	0.01	1.03

MS = mixed-sex. df = 28. *$p < .01$

To find the effect of group composition on stereotype threat in competitive condition, analytical comparisons were carried out using

t-test for matched groups on the repeated factor of same-sex/mixed-sex group composition, as the four-way interaction was not significant, $t\ (1,28) = 1$ at $p < .01$. For traditional as well as egalitarian GRA groups the difference in the performance in the two conditions was non-significant (see Table 3). The 95% confidence interval for the difference in performance in two conditions for traditional GRA group was 0.13 to 0.94. For the group with egalitarian GRA these limits were -0.18 and 0.70. As the confidence interval for the two groups overlap we can conclude that the difference in performance of these groups in same-sex and mixed-sex conditions do not differ significantly. In other words, the presence of opposite sex members does not significantly affect stereotype threat on negatively stereotyped tasks in competitive conditions any more for participants with traditional GRA than that with egalitarian GRA.

Discussion

The results of this study reinforce the notion that experiencing gender related stereotype threat is related to the gender role attitudes of the people even if the actual gender of the participants is ignored. Women showing more egalitarian attitudes than men indicate the expected changing trend that, as in most cases using the same instrument as well as other instruments, reveal same trend in the GRA of men and women from general public and various occupations (Ahmad & Kamal, 2000; Anila, 1992; Cassidy & Warren, 1992; Hartung & Rogers, 1997; Twenge, 1997). The modern attitude of women toward behaviours considered appropriate for men and women indicate their views regarding equality between genders. On the other hand, men still stick to the conventional gender roles. This might be the reason why women face discrimination at various levels, as men still do not consider them as having equal competence level to their own.

Analyzing the results comparing performance of individuals with traditional and egalitarian GRA on gender stereotyped tasks in various competitive and non-competitive conditions, render support to the hypothesis that individuals with traditional GRA will experience more stereotype threat on gender stereotyped tasks than those with egalitarian GRA. Traditionality, i.e., femininity in women and masculinity in men is something that is the usual socialization practice (Kite, 2001). Individuals with such gender role socialization would fear violating the society's norms. They would inhibit their performance on tasks labeled opposite to the traditional GRA. Those

with egalitarian GRA do not conform to the society's expectations as their socialization permit them to more liberal views. This allows them to make use of their potential to a greater extent in a variety of domains as compared to those with traditional GRA.

While comparing the difference in performance on positively stereotyped and negatively stereotyped tasks, significantly greater difference for traditional GRA group as compared to the egalitarian GRA group indicate that instructions specifying the appropriateness of the task opposite to that of the gender of the individual that they identify with, affect their performance. Showing nonsignificant difference in performance on positively stereotyped task, but experiencing stereotype threat on negatively stereotyped task is the result of traditional gender role socialization. These findings are consistent with earlier work of Bem (1974), according to which gender role identity influenced an individual's behavioral responsiveness and mastery percepts when engaged in gender-typed and non-gender-typed tasks. The reason might be the need for approval from others and experiencing less interpersonal strain (Long, as cited in Gianakos, 2000). But due to their role congruent behavior this traditionality has undermined their performance.

Individuals with traditional GRA were mostly men and for them to be masculine is not to display any features associated with femininity. In view of this fact, characteristics that are potentially associated with femininity (e.g., sensitivity) must be avoided (Perry as cited in Good & Sherrod, 2001). Gender associated characteristics are more rigidly defined for men than for women (Hort, Fagot, & Leinbach, 1990). Also, people react more negatively towards men who possess feminine characteristics than toward women displaying masculine characteristics. Traditional men also equate acting in a feminine-typed way with people perceiving them to be "sissies" or homosexuals (McCreary, 1994), and situations that require a man to respond in a feminine-typed manner may also elicit masculine gender role stress (MGRS: Eisler & Skidmore, 1987).

The performance of individuals with egalitarian GRA also decreases significantly on negatively stereotyped task as compared to their performance on positively stereotyped task, but the gap in performance is wider for traditional GRA group. The reason for this decline in performance of the modem GRA group might be that, that they have egalitarian gender role attitudes only relative to the other group and their performance also suffers relatively on gender inappropriate task to the traditional GRA group. But still they are affected by instructions specifying the inappropriateness of the task according to their gender.

Similar findings were obtained regarding the difference in performance of the two GRA groups as for their performance on negatively stereotyped tasks, in non competitive and competitive conditions. Both groups performed significantly less well on negatively stereotyped tasks in competitive conditions but the difference in performance in the two conditions is greater for the traditional GRA group indicating negative effect of competitiveness while performing a gender inappropriate task according to their gender role identity. Regardless of gender, masculine individuals strongly endorse for themselves instrumental attributes, while feminine persons exhibit the reverse of this pattern (Bem, 1974). But involving task considered inappropriate for a particular gender, restrict making full use of instrumentality. As the evaluation of performance was magnified in competitive conditions, the performance of all participants declined on gender inappropriate tasks, i.e., they all showed stereotype threat. The performance of traditional GRA group suffered more because by doing well on a negatively stereotyped task in competitive condition would also magnify their violation of the gender roles ascribed by the society and their socialization prevent them from doing well in such conditions.

Karabenick (1977) hypothesized for both genders that the inhibition of performance on gender inappropriate tasks would be prominent when individuals are in mixed-sex competitive conditions. But the results showed only decline in performance of women in such conditions. In the present study the inhibition of performance was hypothesized according to their gender role attitudes, with traditional GRA group affected more in this condition as compared to modem GRA group. The results supporting this hypothesis indicate that competing in a group comprising of both sexes negatively affect performance on a negatively stereotyped task of traditional GRA group. On the other hand the mere presence of the opposite sex does not result in the similar way, as in mixed-sex non-competitive condition; there was no significant difference in performance on gender inappropriate task, for the two groups.

Further going into specifications, the factor of gender composition of the group in the performance of traditional and egalitarian GRA groups on gender inappropriate tasks in competitive condition was found non-significant. This indicates that no matter with whom an individual is competing on gender inappropriate task; it does not affect their performance. These findings are contrary to those found by Horner (1969) and Karabenick (1977) in relation with gender. The reason might be that the participants were university students, competing within groups comprising of members familiar to

each other, and just their studying in coeducational institution indicates that they do not get anxious in the presence of the opposite sex. The factor of gender-typed task and competition are the major influencing factors. On the other hand from the additional analysis we found that ignoring the factor of competition, difference in performance was significant between the two groups on gender inappropriate tasks.

Within the traditional GRA group individuals performed significantly better on gender inappropriate task in same-sex group than in mixed-sex group. This shows that to them it mattered more, how members of the opposite sex view them rather than what members of the same-sex think of them and thus experience stereotype threat more. Also, the traditional GRA group comprised of mostly men. The present findings are contrary to the study regarding anger and aggression in which Fischer and Rodriguez-Mosquera (2001) found that losing status and respect in the eyes of the fellow men is the major concern for men.

Gender role attitudes are studied in various cultures and have been studied in Pakistan in various contexts, but regarding an experimental study its relationship with performance on gender stereotyped tasks in competitive and non-competitive situations had not been touched upon adequately. Competitiveness has been usually studied with respect to gender and similar has been the case with behaviors involving gender stereotyped tasks, academic disciplines, occupational choices, and the like. On the other hand there have been studies where performance had been related with Fear of Success. But the current study controlled the factor of generalized FOS. This indicates that the inhibition of performance can not be explained as a result of FOS, present in women, but it might be fear of violating the society's norms prescribed according to gender, especially in those with traditional gender role attitudes.

According to the findings of the study, it is important to know the gender role attitude of an individual, as it may be the reason behind their stereotype threat. And it may explain why he or she performed well on one task and not on the other. The categorization of tasks, behaviors, academic disciplines, and occupation according to gender restrain individuals to show their potentials, especially in competitive situations. If the simple labeling of tasks, behaviors etc. can have such an elaborate effect, than emphasizing the gender appropriateness of a behavior may lead to enhance the performance of certain individuals and their stereotypic threat may be reduced. Hort et al. (1990) support the notion that people's perceptions of maleness are more stereotypically framed than their perceptions of femaleness,

suggesting that more draconian notions of gender appropriateness are applied to males than to females in our society. The results of the study also support Kulik's (2002) findings that males tend to be more traditional in their enforcement of gender-roles than females.

The extent to which gender inappropriate behaviour in children is discouraged has been found to be dependent upon the sex of the child. Studies have shown that boys who engage in traditionally feminine activities are viewed more negatively than girls who engage in masculine activities (Feinman, 1981; Martin, 1990). One of the reasons behind men's relatively more decline in performance than women on negatively stereotyped task might be that during socialization adults' attitudes toward gender atypical boys and gender atypical girls were found to differ significantly. Gender atypical girls were expected to have grown out of masculine characteristics by adulthood, although they were predicted to be less feminine than girls labeled "typical." For boys the picture was somewhat different; cross-gender boys were expected to remain both more feminine and less masculine than their peers labeled as "typical." Both men and women predicted gender atypical boys to be less psychologically well-adjusted as adults than cross-gender girls and men predicted cross-gender boys to be more likely to grow up to be gay than "typical" boys.

A reason behind women performing better even on gender inappropriate task could be that high achieving or talented females are perceived more favorably even more than equivalently high-achieving or talented males (Quatman, 2000). It might be that the environment surrounding women is not hostile, unfriendly, or exclusionary toward them and they could attain success even on gender inappropriate tasks. It appears that males tend to be more traditional in their enforcement of gender-roles than females (Kulik, 2002). In fact, some of the clearest sex differences in adolescence and adulthood seem to occur in domains such as occupational choice and interest (Lytton & Romney, 1991), where job selection by males and females corresponds with beliefs about appropriate gender role behaviours.

Conclusion

Taken as a whole, the results of this study suggest a hopeful space. Just labeling the task as gender appropriate can enhance the performance of both men and women. The egalitarian attitude of women regarding gender roles indicate that they are more free in choosing academic disciplines and careers according to their interests

and abilities. Also they would be comfortable with their success in large number of domains as their socialization would not threaten them of violating gender role stereotypes. Socialization practices with male children and their resulting gender role attitudes in adult life need further attention in order to acquire gender role compatibility. But their current status is not very problematic as it is masculine-typed academic and career domains which are considered prestigious and well paying, and women's entering into them is more important than of men's entry into feminine-typed ones. But if we want to increase the worth of feminine-typed domains, more men need to enter into them and their attitude regarding the appropriateness of these domains need to be changed.

Limitations and Suggestions

There are certain limitations in the study. A major criticism regarding experimental research is regarding ethical issues. In this study also deception was an ethical problem as the participants were not aware of the purpose of the study. Also, they were made to believe the tasks were gender typed when it had nothing to do with it. This situation could not be avoided, as their awareness would not have given the effect associated with the independent variables. The researcher went on with the study, as the deception was evaluated to be unthreatening for the participants. To clear any misconceptions of the participants due to their participation were removed through debriefing after the conduction of experiment, that is, they were explained about the nature of the experiment and why deception was necessary.

Experimental studies usually have problems regarding external validity of its findings. This might be true for this study also, but instead of studying a representative sample, a representative sample of situations were included in the study making it a factorial one which brings it closer to real life settings. The factors of gender role attitudes, gender appropriateness of the task, competitiveness, and gender group composition jointly work in various academic and occupational settings. Therefore, we can externally validate the findings with much more confidence than a completely closed setup experiment manipulating a single factor.

With respect to taking the sample of university students, it is usually criticized that they are a select group who may not always provide a good basis for building general conclusions about human behaviour and mental processes. This is true for most situations, but

for this particular study as the implications can be applicable directly to academic settings besides occupational ones, we are justified to use a sample of students. The findings may not be generalizable to a variety of populations, but to make the findings externally valid it is suggested that similar experiments be conducted with students of other academic institutions, rural as well as urban. This might be done by partial replications when slightly different experimental procedures are used. Regarding external validity, one thing should be made clear that by doing this single research a conceptual relationship between the four factors is established and not the specific conditions, manipulations, settings, or samples. Also it is suggested that further studies should be conducted involving larger sample size

The use of a repeated measure design in an experimental setting where factors are manipulated using instructions, problem of differential transfer could occur. It was because of this problem that while order effect was controlled with most of the variables by altering the levels, but for competitive and non-competitive conditions all non-competitive conditions were administered first so that the participants do not transfer the instructions into non-competitive ones. It is further suggested that two separate experiments be conducted to determine whether differential transfer is a problem. One experiment may use random group design while the other uses repeated measure design.

The task used in the study was developed for this particular study and no work had been done on it previously. To make the task gender neutral, a sample of ten individuals was employed, which might not be enough to declare the task gender neutral, as in later use of the task in all conditions women's performance was above that of men's. Also the nature of the task was the one involving language and women are considered to be better in language than men. Another important factor is the gender of the experimenter which was not controlled. With both men and women, a women experimenter conducted the experiments. This might be a reason behind men performing relatively poorly than women.

In mixed-sex conditions equal number of men and women constituted the groups. It might be that women's performance on masculine-typed tasks and situations was not negatively affected when there are other women also in that situation and it is only manifested when they have solo status. Women express a desire to change the gender composition of the group because they have apprehensions about being solos and they perform poorly when in solo status (Sekaquaptewa & Thompson, 2002).

References

Ahmad, S., & Kamal, A. (2000). Development of rape myth scale and its relationship with gender role attitude. *Pakistan Journal of Psychological Research, 15*(1-2), 57-74.

Anila (1992). *Attribution of responsibilities for sexual harassment as related to sex role attitudes*. Unpublished master's of philosophy dissertation, Quaid-i-Azam University, Islamabad, Pakistan

Anila & Ansari, Z. A. (1992). *Development of sex role attitude scale for Pakistan*. Unpublished manuscript. National Institute of Psychology, Quaid-i-Azam University, Islamabad, Pakistan.

Aronson, J., Fried, C. B., & Good, C. (2002). Reducing the Effects of Stereotype Threat on African American College Students by Shaping Theories of Intelligence. *Journal of Experimental Social Psychology, 38,* 113-125.

Aziz, S. (2001). *Task specific occupational self efficiency in relation to gender role attitudes and occupational aspirations*. Unpublished master's of philosophy dissertation, Quaid-i-Azam University. Islamabad, Pakistan.

Basha, S. A., & Ushasree, S. (1998). Fear of success across life span. *Journal of Personality and Clinical Studies, 14*(1-2), 63-67.

Beilock, S. L., Rydell, R. J., & McConnell, A. R. (2007). Stereotype threat and working memory: Mechanisms, alleviations, and spillover. *Journal of Experimental Psychology: General, 136*, 256-276.

Bem, S. L. (1974). The measurement of psychological androgymy. *Journal of Consulting and Clinical Psychology, 45*, 195-205.

Bem, S. L. (1981). Gender schema theory: A cognitive account of sex-typing. *Psychological Review, 88*, 354-364.

Benbow, C. P., Lubinski, D., & Shea, D. L. (2000). Sex differences in mathematical reasoning ability at age 13: Their status 20 years later. *Psychological Science, 11*, 474-480.

Brown, R. P., & Josephs, R. A. (1999). A burden of proof: Stereotype relevance and gender differences in math performance. *Journal of Personality and Social Psychology, 76*, 246–257.

Cassidy, M. L., & Warren, B. O. (1992, November). *Attitudes towards gender roles in the family: A comparison of women and men in dual and single earner families*. Paper presented at the annual conference of the National Council on Family Relations (54th). Orlando, FL. Abstract retrieved August 28, 2003 from Eric Database (ED359442).

Conti, R., Collins, M. A., & Picariello, M. A. (2001). The impact of competition on intrinsic motivation and creativity: Considering gender, gender segregation, and gender role orientation. *Personality and Individual Differences, 31*(8), 1273-1289

Crew, J. C. (1982). An assessment of needs accessing black business majors. *Psychology, 19*, 18-22.

Croizet, J., Després, G., Gauzins, M., Huguet, P., Leyens, J., & Méot, A. (2004). Stereotype threat undermines intellectual performance by triggering a disruptive mental load. *Personality and Social Psychology Bulletin, 30*, 721-731.

Davies, P. G., Spencer, S. J., Quinn, D. M., & Gerhardstein, R. (2002). Consuming images: How television commercials that elicit stereotype threat can restrain women academically and professionally. *Personality and Social Psychology Bulletin, 28*, 1615-1628.

Eagly, A. H. (1997). Sex differences in social life: Comparing social role theory and evolutionary psychology. *American Psychologist, 52*, 1380-1383.

Eisler, R. M., & Skidmore, J. R. (1987). Masculine gender role stress: Scale development and component factors in the appraisal of stressful situations. *Behavior Modification, 11*, 123-136

Eriksson, K., & Lindholm, T. (2007). Making gender matter: The role of gender-based expectancies and gender identification on women's and men's math performance in Sweden. *Scandinavian Journal of Psychology, 48*, 329-338.

Feinman, S. (1981). Why is cross-sex-role behavior more approved for girls than for boys? A status characteristic approach. *Sex Roles, 7*, 289-299.

Fischer, A. H., & Rodriguez-Mosquera, P. M. (2001). What concerns men? Women or other men?: A critical appraisal of the evolutionary theory of sex differences in aggression. *Psychology, Evolution and Gender, 3*(1), 5-25. Abstract retrieved October 15, 2002 from www.infotrieve.com.

Gatton, D. S., Dubois, C. L. Z., & Faley, R. H. (1999). The effects of organizational context on occupational gender stereotyping. *Sex Roles, 40*(7-8), 567-582.

Gianakos, I. (2000). Gender roles and coping with work stress. *Sex Role, 7* (37), 1401-1415. Retrieved July 21, 2002, from http://www.science direct.com/science?

Gilbert, S., & Thompson, J. K. (1999). Winning or losing against an opposite sex peer on a gender-based competitive task. *Sex Roles, 41*, 875-899.

Gneezy, U., Niederle, M., & Rustichini, A. (2001). Performance in competitive environments: Gender differences. Received through electronic mail through the 1st author. Available atwww.cepr.org /meets/ *wkcn/G/683/papers/rustichini.pdf.*

Good, G. E., & Sherrod, N. B. (2001). The psychology of men and masculinity: Research status and future directions. In R. K. Unger (Ed.), *Handbook of psychology of women and gender* (pp. 201-214), NY: John Wiley & Sons.

Good, C., Dweck, C. S., & Rattan, A. (2008). *The effects of perceiving fixed-ability environments and stereotyping on women's sense of belonging to math*. Unpublished manuscript, Columbia University.

Hartung, P. J., & Rogers, J. R. (1997, August). *Career salience and gender role attitudes in medical students*. Paper presented at the 105th Annual Conference of the American Psychological Association Chicago IL. Abstract retrieved August 28, 2003, from Eric Database (ED414531).

Helms, J. E. (2005). Stereotype threat might explain the Black-White test score difference. *American Psychologist, 60*(3), 269-270.

Horner, M. (1969). Failing: Bright women. *Psychology Today, 3(6),* 36-38.

Hort, B. E., Fagot, B. J., & Leinbach, M. D. (1990). Are people's notions of maleness more stereotypically framed than their notions of femaleness? *Sex Roles, 23*(3-4), 197-212.

Hyde, S. J., & Kling, K. L. (2001). Women, motivation, and achievement. *Psychology of Women Quarterly, 25*, 364-378.

Jacobs, J. E., & Eccles, J. S. (1992). The impact of mothers' gender-role stereotypic beliefs on mothers' and children's ability perceptions. *Journal of Personality and Social Psychology, 63*(6), 932-944.

Kamal, A., & Saqib, T. (2004 September). *Exploration of the change in gender role attitudes during past decade*. Paper presented at 1st National Conference on Role of Psychologist in the Socioeconomic Development of Pakistan, Islamabad, Pakistan.

Karabenick, S. (1977). Fear of success, achievement and affiliation disposition and the performance of men and women under individual competitive condition. *Journal of Personality, 45*, 117-149.

Karylowski, J. J., Motes, M. A., Wallace, H. M., Harckon, H. A., Hewlett, E. M., Maclean, S. L., Parretta, J. L., & Vasvani, C. L. (2001). Spontaneous gender stereotypical categorization of trait labels and job labels. *Current Research in Social Psychology, 6*, 155-161.

Kite, M. E. (2001). Changing times, changing gender roles: Who do we want women and men to be. In R. K. Unger (Ed.), *Handbook of psychology of women and gender* (pp. 215-227). New York: John Wiley.

Koenig, A. M., & Eagly, A. H. (2005). Stereotype threat in men on a test of social sensitivity. *Sex Roles, 52*, 489-496.

Kohlberg, L. (1966). A cognitive-developmental analysis of children's sex role concepts and attitudes. In E. E. Maccoby (Ed.). *The development of sex differences* (pp. 52-173). Stanford, CA: Stanford University Press.

Kohn, A. (1992). No contest: The case against competition. New York: Houghton Mifflin.

Kulik, W. L. (2002). The impact of social background on gender role ideology. *Journal of Family Issues, 23*(1), 53-73.

Lee, S. S. (1987). Attribution and performance: The effect of sex role identity and sex-typed tasks. *Journal of Social Psychology, 127*(2), 151-157.

Lytton, H., & Romney, D. M. (1991). Parents' differential socialization of boys and girls: A meta-analysis. *Psychological Bulletin, 109,* 267-296.

Martin, C. L. (1990). Attitudes about children with non traditional and traditional gender roles. *Sex Roles, 22*, 151-165.

Masood, S. (2004). *Gender Role attitudes and attribution of blame for spousal violence in married men and women.* Unpublished master's of philosophy dissertation, Quaid-i-Azam University, Islamabad, Pakistan.

McCreary, D. R. (1994). The male role and avoiding femininity. *Sex Roles, 31,* 517-531.

McGlone, M. S., & Aronson, J. (2006). Stereotype threat, gender identity salience, and spatial reasoning. *Journal of Applied Developmental Psychology, 27,* 486-493.

Mednick, M. T., & Thomas, V. G. (1993). Women and the psychology of achievement: A view from the eighties. In Y. L. Denmark & M. A. Paludi (Eds.0, *Psychology of women: A handbook of issues and theories* (pp. 585-626). Westport, CT: Greenwood.

Nash, S. C. (1979). Sex role as a mediator of intellectual functioning. In M. A. Witting & A. C. Petersen (Ed.), *Sex related differences in cognitive functioning*. New York: Academic Press.

O'Brien, L. T., & Hummer, M. L. (2006). Memory performance of late middle aged adults: Contrasting self stereotyping and stereotype threat accounts of assimilation to age stereotypes. *Social Cognition, 24*(3), 338-358.

Osborne, J. W. (1995). Academics, self-esteem, and race: A look at the assumptions underlying the Disidentification hypothesis. *Personality and Social Psychology Bulletin, 21*, 449-455.

Quatman, T. (2000). Adolescent perception of peer success: A gendered perspective overtime. *Sex Roles, 43*(1-2), 61-84. Retrieved August 24, 2002 from http://www.ingentaconnect.com/content/klu/sers/2000/00000043/F0020001/00227265.

Quinn, D. M., & Spencer, S. J. (2001). The Interference of stereotype threat with women's generation of mathematical problem-solving strategies. *Journal of Social Issues, 57*, 55-71.

Sabir, F. (1992). *Sex role attitudes of working and nonworking women.* Unpublished master's of philosophy dissertation, Quaid-i-Azam University, Islamabad, Pakistan.

Santrock, J. (1994). *Child development* (6th ed.). Madison: Brown and Benchmark.

Schmader, T. (2002). Gender identification moderates stereotype threat effects on women's math performance. *Journal of Experimental Social Psychology, 38*, 194-201.

Schmader, T., Johns, M., & Barquissau, M. (2004). The costs of accepting gender differences: The role of stereotype endorsement in women's experience in the math domain. *Sex Roles, 50*, 835-850.

Sekaquaptewa, D., & Thompson, M. (2002). The differential effects of solo status on members of high and low status groups. *Personality and Social Psychology Bulletin, 28*, 694-707.

Shapiro, J. P. (1979). Fear of success imagery as a reaction to sex role inappropriate behaviour. *Journal of Personality Assessment, 43*(1), 33-38.

Spence, J. T., & Helmreich, R. L. (1983). Achievement related motives and behaviours. In J. T. Spence (Ed.). *Achievement and achievement motive: Psychological and sociological approaches* (pp. 7-74). San Francisco. Freeman.

Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology, 35*, 4-28.

Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist, 52*, 613-629.

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African-Americans. *Journal of Personality and Social Psychology, 69*, 797-811.

Stone, J. (2002). Battling doubt by avoiding practice: The Effect of stereotype threat on self-handicapping in white athletes. *Personality and Social Psychology Bulletin, 28*, 1667-1678.

Twenge, J. M. (1997). Attitude towards women, 1970-1995: A meta analysis. *Psychology of Women Quarterly, 21*, 35-51.

Williams, J. E., & Best, D. L. (1990). *Sex and psyche: Gender and self viewed cross-culturally*. London: Sage.

Word Scramble Generator (2002). *TeAch-nology.com's Word Scramble Generator. Teachnology - The Art and Science of Teaching with Technology*. Retrieved March 24, 2002 from http://teachers.teach-nology.com/webtools/scramble/

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