

EFFECTS OF STEREOTYPING ON PERFORMANCE OF WOMEN IN MATH TESTS

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STEREOTYPES

A stereotype is a belief/bias built either through experience or influence about a class of people which may be true for some but not all people belonging to that class.

Some examples -

- Blondes are unintelligent
- Asians are good in maths
- White men are weak in sports
- Elderly people are unreliable



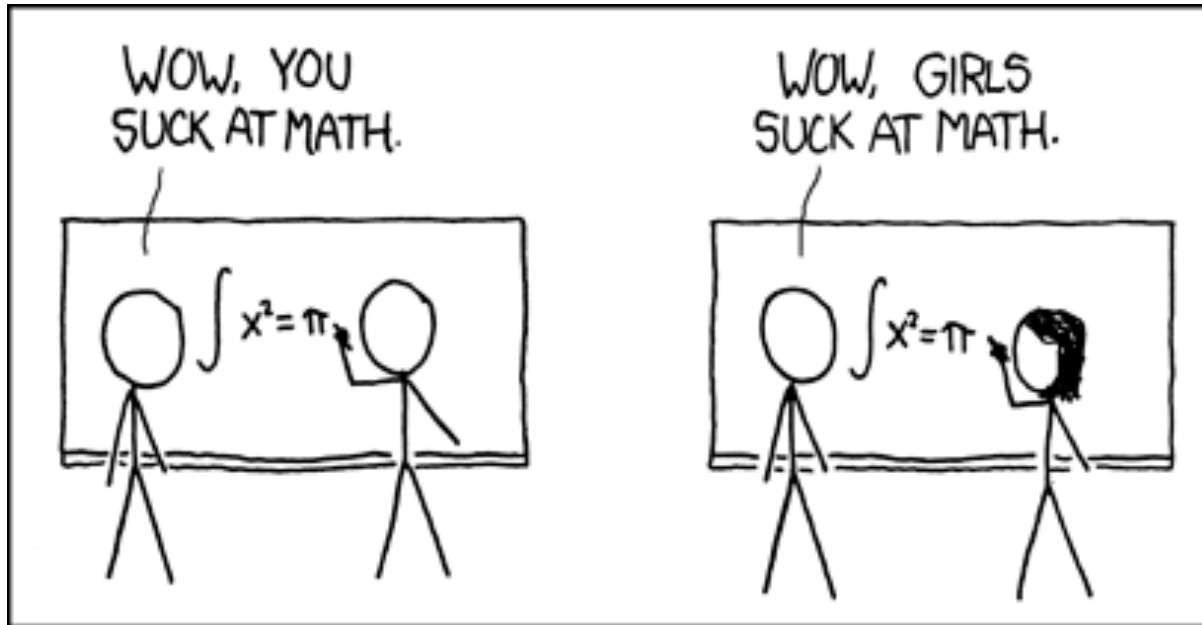
Source : <http://www.bizarro.com/>

STEREOTYPE THREAT

**Stereotype threat refers to being at risk of confirming, as self-characteristic, a negative stereotype about one's group -
Steele & Aronson, 1995**

- **Potential contributor to racial and gender gaps in academic performance**
- **Decreased performance of targeted groups in non-academic domains(e.g. sports)**
- **Causes disengagement and disidentification**
- **Alters aspirations**

WOMEN ARE WEAK IN MATHS?



Source : xkcd

Previous explanations

- Nature - genetically rooted sex differences in math ability
- Nurture - males are encouraged more to participate in math

EXPERIMENTS BY SPENCER ET AL.

Hypothesis : Apprehension caused by stereotype threat may disrupt women's math performance

STUDY 1

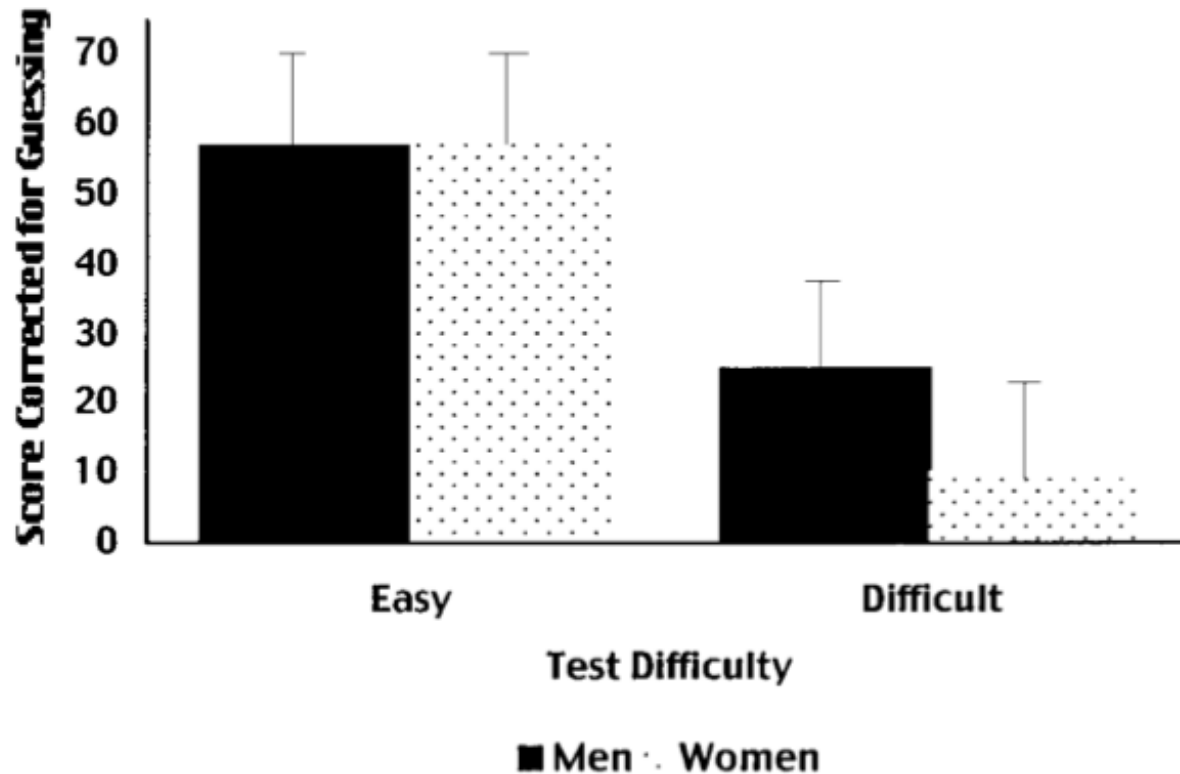
Two tests : Easy - questions from GRE general exam

Difficult – questions from GRE advanced

Participants : 28 men and 28 women psychology students

Before the test - “We are developing some new tests that we are evaluating across a large group of University of Michigan students. Today you will be taking a math test.”

STUDY 1 RESULTS



Their explanation - stereotype threat is especially likely to undermine performance on difficult tests

EXPERIMENTS BY SPENCER ET AL.

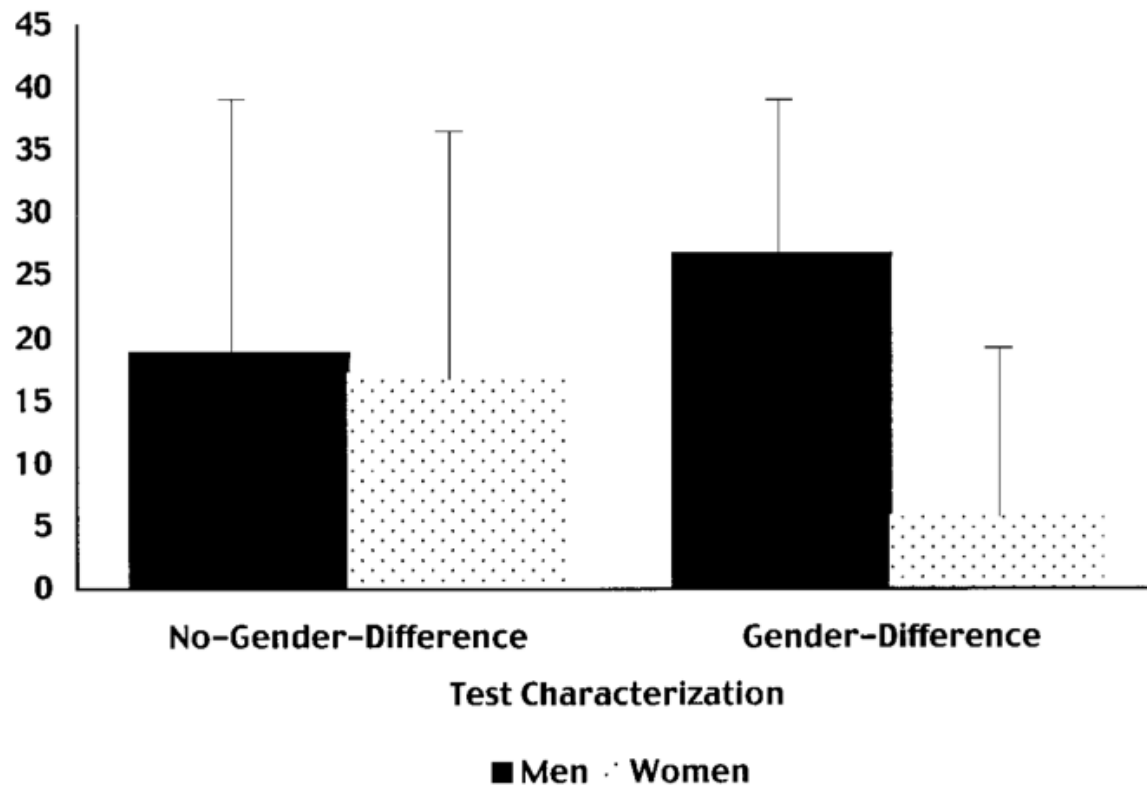
STUDY 2

Two tests : Difficult questions from Study 1, paper divided into two halves.

Participants : 34 men and 30 women psychology students

Before the test - “Previous research has sometimes shown gender differences and sometimes shown no gender differences. Yet little of this research has been carried out with women and men who are very good in math. You were selected for this experiment because of your strong background in mathematics”

STUDY 2 RESULTS



Results provide strong evidence that women underperformance in difficult math tests results from stereotype threat

MY EXPERIMENT

Two tests : 15 difficult questions(for XII std) from GRE in each

Participants : 22 boys and 15 girls from Central School, IITK

Before the first test - “We are making some new math ability tests and first want to evaluate them on XII standard students.”

Before the second test - “This is also a math ability test and it has shown difference in performance of girls and boys in the past. We want to see if this is really true.”

Results:

First test : BOYS - 8.7

GIRLS - 7

Second test : BOYS - 8.5

GIRLS - 5.2

REFERENCES

- [1] 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.
- [2] Schmader, T. (2002). Gender Identification Moderates Stereotype Threat Effects on Women's Math Performance. *Journal of Experimental Social Psychology*, 38, 194-201.