

Gender, Science Anxiety, and Science Attitudes: A Multinational Perspective

Science Anxiety

A debilitating interaction of emotion--fear, with cognition--science learning.

Science Anxiety (SA) Questionnaire

- 44 questions
 - 22 science related questions
 - 22 non-science related questions
- students were asked how much they were frightened in performing the activities described in the questionnaire.

- Self reported anxiety:

1

2

3

4

5

not at all little fair amount much very much

Science Anxiety Questionnaire Sample Items

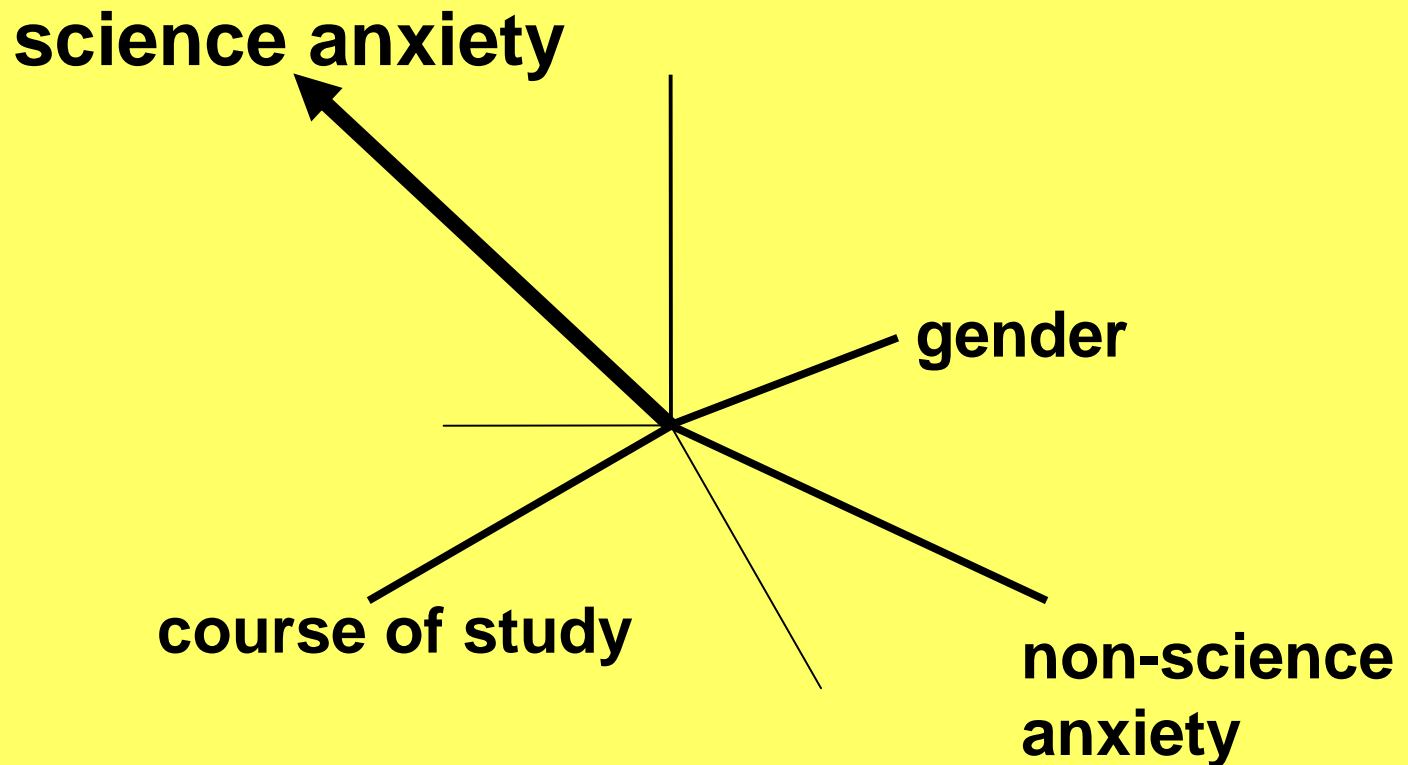
- **Asking a question in a science class.**
- **Asking a question in an English Literature class.**

- **Focusing the lens on your camera.**
- **Focusing a microscope.**

- **Memorizing a chart of historical dates.**
- **Memorizing the names of elements in the periodic table.**

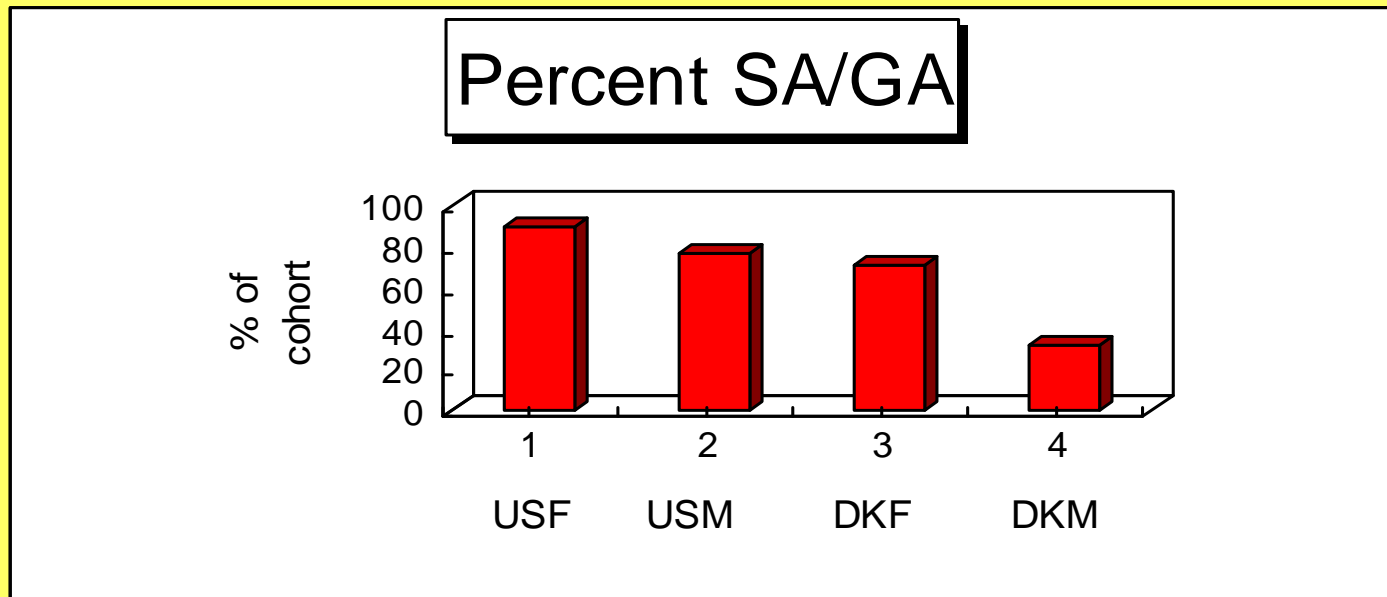
MULTIPLE REGRESSION ANALYSIS

Best predictors of science anxiety are non-science anxiety, gender, course of study.



ACUTE ANXIETY: ORIGINAL STUDY

Percent of Science-Anxious Students of Generally-Anxious Samples US & DENMARK



SA: "Science-Anxious"--students answered any of the 22 science questions "much" or "very much".

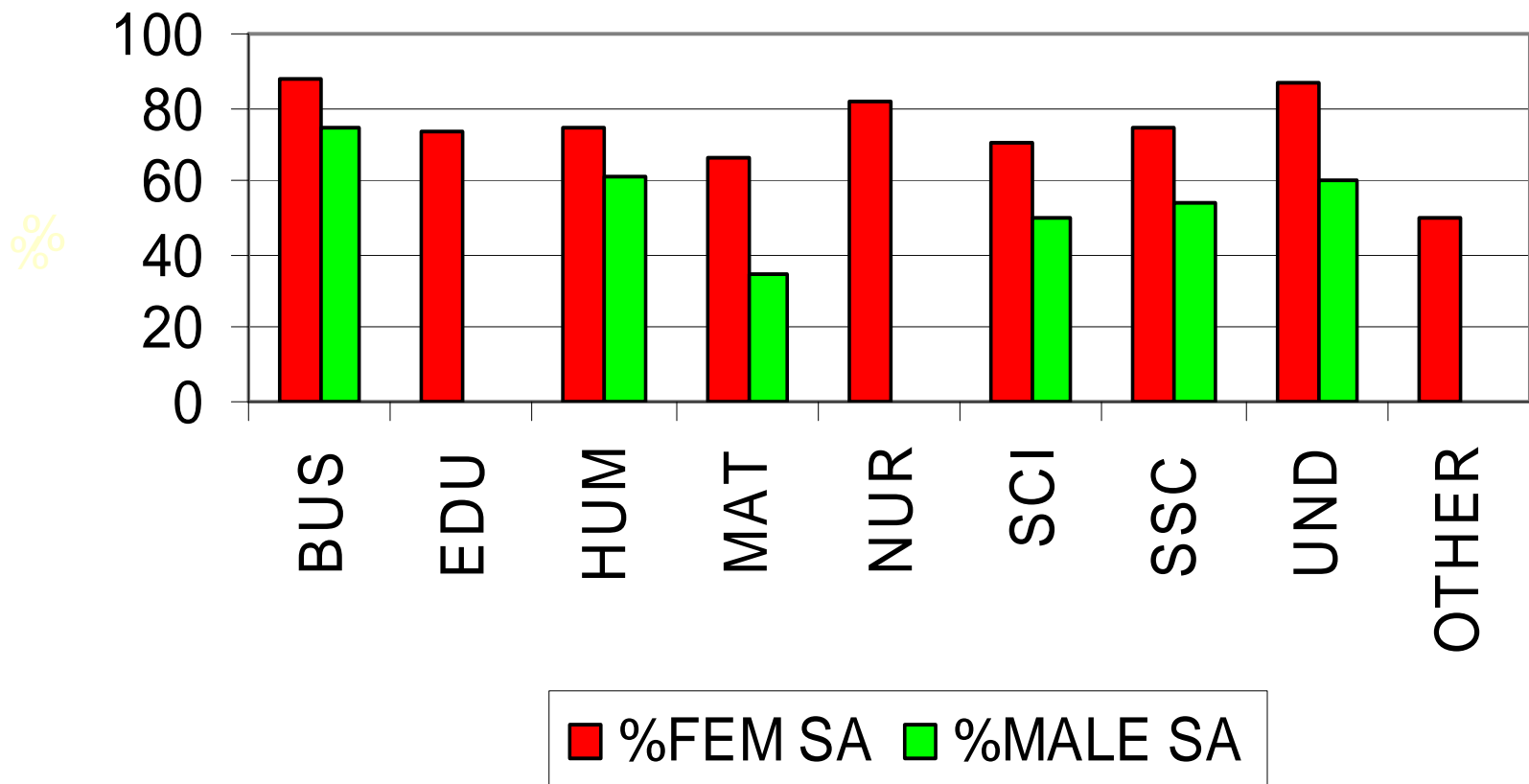
GA: "Generally-Anxious"--students answered any of the 44 questions "much" or "very much".

Changes in Acute Science Anxiety in a Semester of Physics (US)



Acute Science Anxiety in Science and Non-science Students (US)

% SA/GA students by gender and course of study



DANISH GYMNASIUM REFORM

Physics required for all.

- Pre-reform students of both genders were more science-anxious than post-reform students.
- No gender differences in science anxiety among pre- or post-reform students.
- The level of science anxiety among both pre- and post-reform students was higher than in the 1990's studies.

Further Observations

US students' results are the same as Danish students': no gender differences in SA/GA.

SA/GA masks separate SA and GA values, which appear to exhibit some gender differences and changes over time. Further study needed.

“Attitudes Towards Science” Questionnaire

Science is a “level playing-field” in which men and women have equal status and opportunity.

(“Traditional” view)

Science reflects the social and political values, philosophical assumptions, and intellectual norms of the culture in which it is practiced.

(“Moderate constructivist” view.)

Science is by its nature hostile to women.

(“Radical constructivist” view)

