

# Differences Between Men and Women in Cognitive Outcomes, and the Factors that Influence Those Outcomes, in the First Three Years of College

## Research Questions:

1. Controlling for differences in precollege characteristics, institutional characteristics, and college experiences, to what extent and in what ways do women and men differ in objectively-measured cognitive outcomes?

## Research Questions (contd.):

2. Are differences between women and men in the cognitive outcomes of college general or conditional? That is, are the factors that influence the outcomes of college similar in magnitude and direction for both men and women, or are some factors more influential for men whereas others are more important for women?

# NATIONAL STUDY OF STUDENT LEARNING (NSSL)

## SAMPLE

2680 students in 23 two- and four-year colleges located in 16 different states.

5 community colleges  
3 public research universities  
1 private research university  
4 liberal arts colleges  
2 historically black colleges  
8 regional colleges and universities

# TYPICAL CONTROLS IN ANALYSES

- \* individual precollege scores
- \* average institutional precollege scores
- \* precollege academic motivation
- \* sex
- \* ethnicity/race
- \* age
- \* family SES (parent education and income)
- \* part- or full-time enrollment
- \* work responsibilities
- \* place of residence during college
- \* coursework taken in five different clusters

## DATA COLLECTED

Fall 1992

CAAP reading, math,  
critical thinking  
NSSL precollege questionnaire  
(3,331)

Spring 1993

CAAP reading, math,  
critical thinking  
NSSL follow-up questionnaire  
College Student Experiences  
Questionnaire (CSEQ)  
(2,416)

## DATA COLLECTED (contd)

Spring 1994	CAAP science reasoning, writing skills NSSL follow-up questionnaire CSEQ (1,613)
Spring 1995	CAAP reading, critical thinking NSSL follow-up questionnaire CSEQ (1,054)

# Results:

Research Question 1a: Are there differences between men and women in objectively-measured cognitive outcomes of college?

Answer: Yes. In the presence of controls for precollege characteristics, institutional characteristics, and academic and non-academic college experiences:

- 2-Year Colleges: significant differences on 3 of 5 standardized measures (CAAP tests)
- 4-Year Colleges: significant differences on 4 of 7 standardized measures (CAAP tests)

# Outcomes on Standardized Tests (CAAP):

## 2-Year Colleges (all controls)

Men had significantly higher scores than women on:

- First-year mathematics
- First-year critical thinking

Women had significantly higher scores than men on:

- Second-year writing

# Outcomes on Standardized Tests (CAAP):

## 2-Year Colleges (all controls)

No significant differences between men and women on:

- First-year reading comprehension
- Second-year science reasoning

# Outcomes on Standardized Tests (CAAP):

## 4-Year Colleges (all controls)

Men had significantly higher scores than women on:

- First-year mathematics
- Second-year science reasoning

Women had significantly higher scores than men on:

- Second-year writing
- Third-year critical thinking

# Outcomes on Standardized Tests (CAAP):

## 4-Year Colleges (all controls)

No significant differences between men and women:

- First-year reading comprehension
- First-year critical thinking
- Third-year reading comprehension

# Results

## Research Question 2:

Are the factors that influence the outcomes of college similar in magnitude and direction for both men and women, or are some factors more influential for men whereas others are more important for women?

Answer: Some factors are more influential for men, whereas others are more important for women.

## Conditional Effects

### 4-Year Colleges: Third-Year Critical Thinking

#### Positive for Women:

- + College Grades
- + On Campus Residence

#### Negative for Women:

- Average SES @ institution

# Conditional Effects

## 4-Year Colleges: Third-Year Critical Thinking

### Positive for Men:

- + Cumulative credit hours
- + Social sciences courses taken
- + Mathematics courses taken
- + Computer use
- + Non-course-related peer interactions
- + Engaged in volunteer work

### Negative for Men:

- Individual SES

## Conclusions from this study:

1. With regard to objectively-measured outcomes of college, the men and women in this sample were more different than similar.
  - The stringency of the controls applied in the analyses indicates that those differences are associated with sex or gender rather than precollege or institutional characteristics or college experiences.

- Some of the differences mirror gender stereotypes.

### 2-Year Colleges:

Men significantly higher scores:

First-year math, first-year critical thinking

Women significantly higher scores:

Second-year writing

### 4-Year Colleges:

Men significantly higher scores:

First-year math, Second-year science-reasoning

Women significantly higher scores:

Second-year writing, Third-year critical thinking

## Conclusions from this study:

### 2. With regard to conditional effects:

- Different factors influenced cognitive outcomes of men and women differently.
- Trends in the differences at four-year colleges can be identified.

Four-year college women: environmental variables in particular

Four-year college men: "engagement" variables in particular

## Conclusions from this study:

### 2. With regard to conditional effects:

- Many more variables were associated with outcomes for men than for women. And more of those variables had positive associations than negative. And the number of variables associated with men's outcomes increased over time in college.

## Conclusions from this study:

The results with regard to conditional effects indicate that it might be possible to influence cognitive outcomes of college by a variety of means, including environmental characteristics, academic experiences, and non-academic experiences. Especially for men.