

Educational Goals and Gender at the College Level

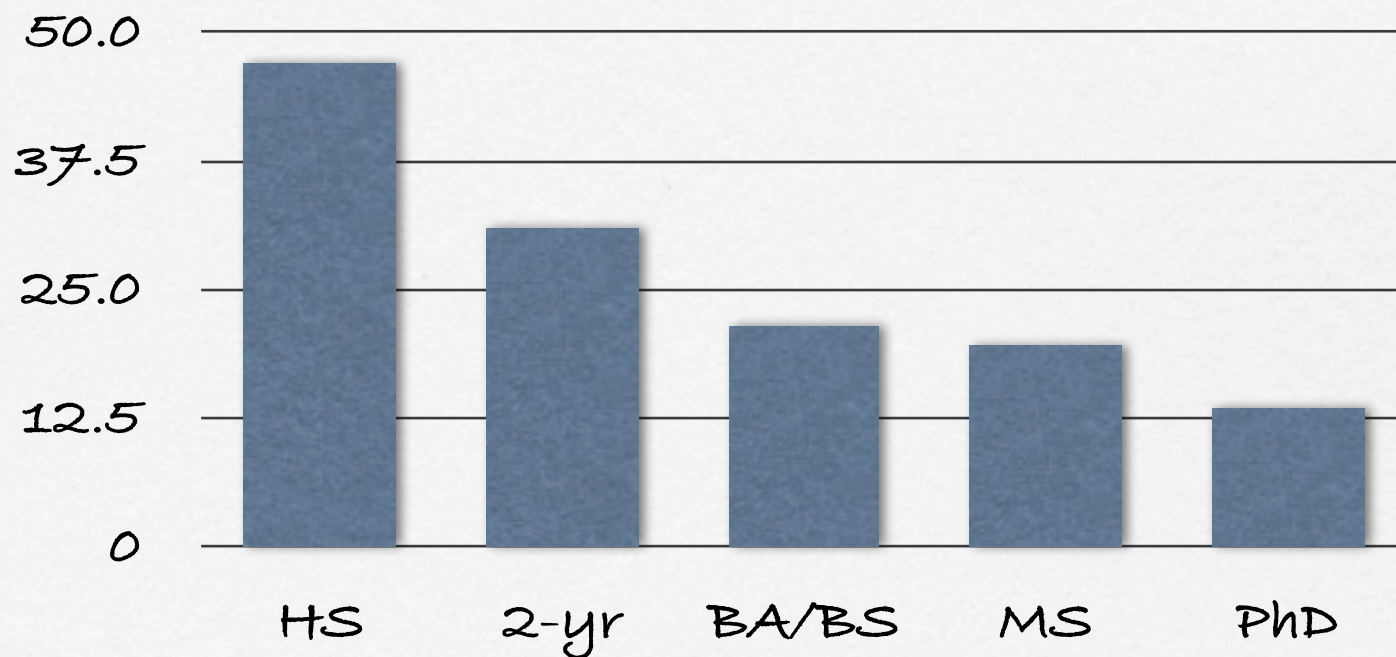
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Costs and Benefits/Goals

- Every educational process and choice comes at some cost; what are the costs relating to gender in the college physics environment?
- How should our goals help us decide on our course of action?

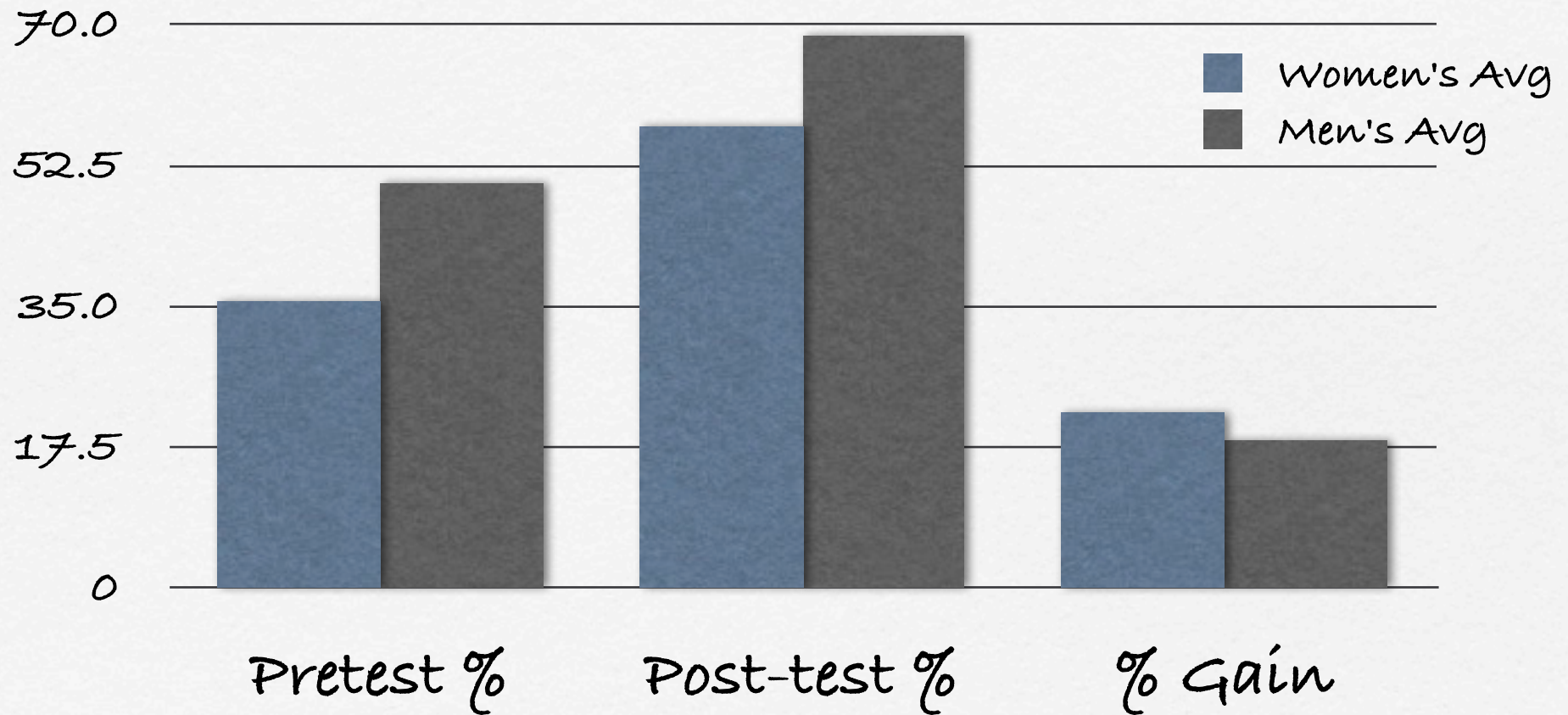
Setting: Gender Inequity

■ Percentage of women in physics by educational level (1997-2000)



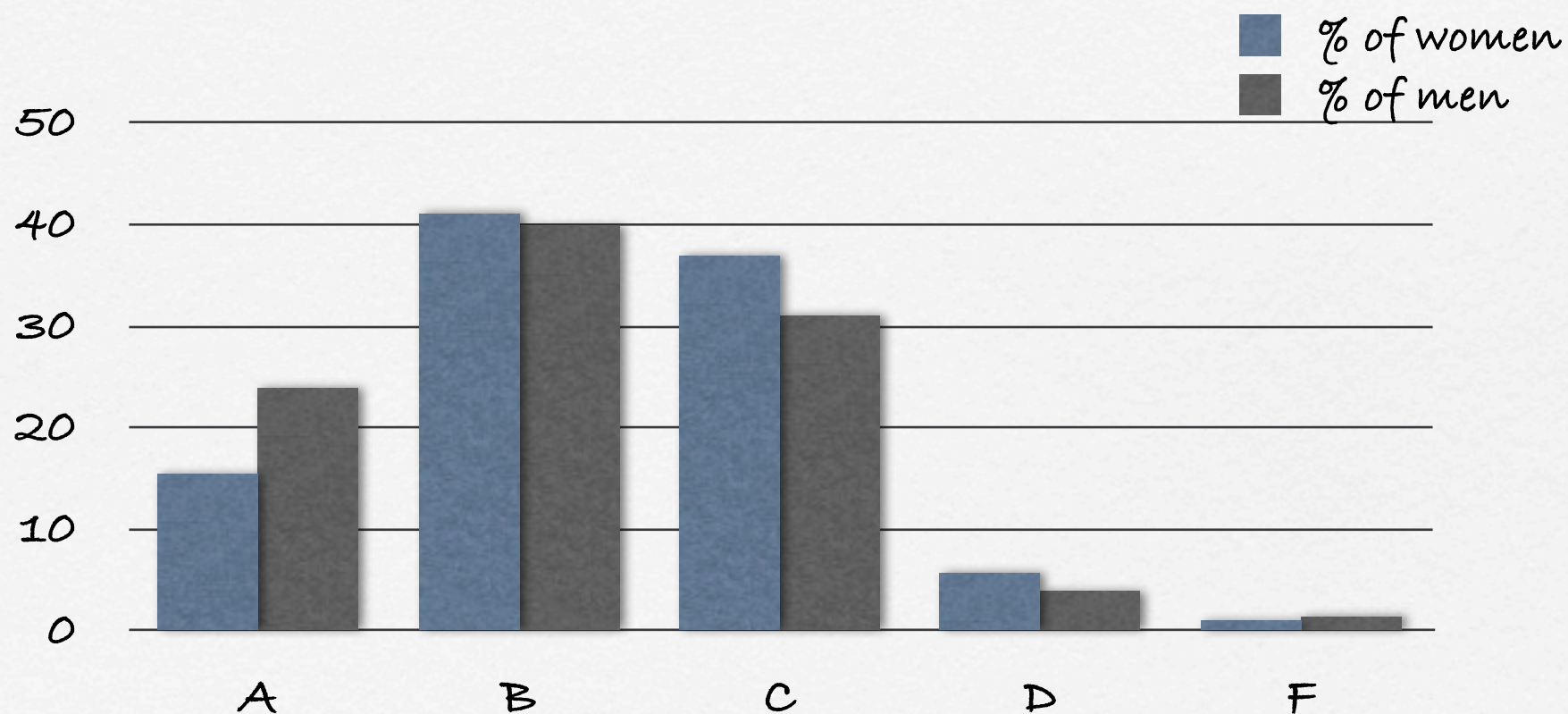
Data from AIP Report R-430 (Ivie & Stowe) and NSF Report 02-327
Also see new report by Nelson & Rogers (2004)

Educational Inequity—FCI



(Data from McCullough & Crouch, January 2001 AAPT Meeting, Philadelphia PA)

Educational Inequity—Grades



(Data from McCullough & Crouch, January 2001 AAPT Meeting, Philadelphia PA)

Inherited problem

- ❑ Gender differences in science show up starting in elementary school
- ❑ Societal pressures, familial influences, discrimination, harassment start before college
- ❑ Gender inequity is a problem we inherit along with our students

What can we do?

- This problem needs to be dealt with (doesn't it?)
- But our solutions depend upon many things:
 - Our goals for our students
 - Our "audience"
 - Our resources and costs

Visions of Utopia

- In a perfect world, everyone leaves with a complete understanding/skill set and a positive attitude
- However...
- Need goals that are realistic

Possible Goals

- Teach "physics" to students
 - problem-solving
 - conceptual understanding
 - understanding of world around us
- Reduce fear and loathing of physics
- Teach observation, critical thinking, argumentation, etc.
- (weed out prospective majors)

Possible Audiences

- Physics majors/programs
- Other science and engineering programs
- Elementary education/teachers
- "Poets"/general education students

- Gender ratio for each audience; racial and cultural issues

Possible Resources & Costs

- Limited in-class time
- Limited out-of-class time
- Chance of harming one gender while assisting another

General Options

- Ignore the gender gap
- Try to keep gap from worsening
(maintain)
- Try to reduce the gap
- Same-sex classes
- (Try to rid physics of all women)

Specific Options

- Teach to the women
- Teach to the men
- Try to teach to everyone
 - use gender-neutral curricula, instruction
 - use reform/research-based curricula in hopes of raising both men's and women's scores/grades/understanding

Our Responsibilities

- No child left behind?
- Science for all Americans?
- Teach every student who walk in our door?
- Do what you can for who you can in the time you can?

Costs

- What counts as success? Raising women's "scores"? But if we can raise women's scores, shouldn't we be able to raise men's?
- Should we focus on women when there is so much to be done in getting the college physics curriculum into the twenty-first century?
- And any resources devoted exclusively to women must mean fewer resources for men whether intentional or not

Example: Gender FCI

- My "gender-conscious" version of the FCI raises women's scores but at a cost of slightly lowering men's scores
- Bias if I use it?
- Bias if I don't!
- I choose to use the original FCI currently; the cost is too much at the moment and my goals lend themselves to using the original at this stage

Discussion

- What are our responsibilities?
- What costs come with our actions?
- How do our goals inform our actions?