

FACTORS AFFECTING GENDER DISPARITY IN INTRODUCTORY PHYSICS

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Outline

- ▶ **What is the gender gap?**

Outline

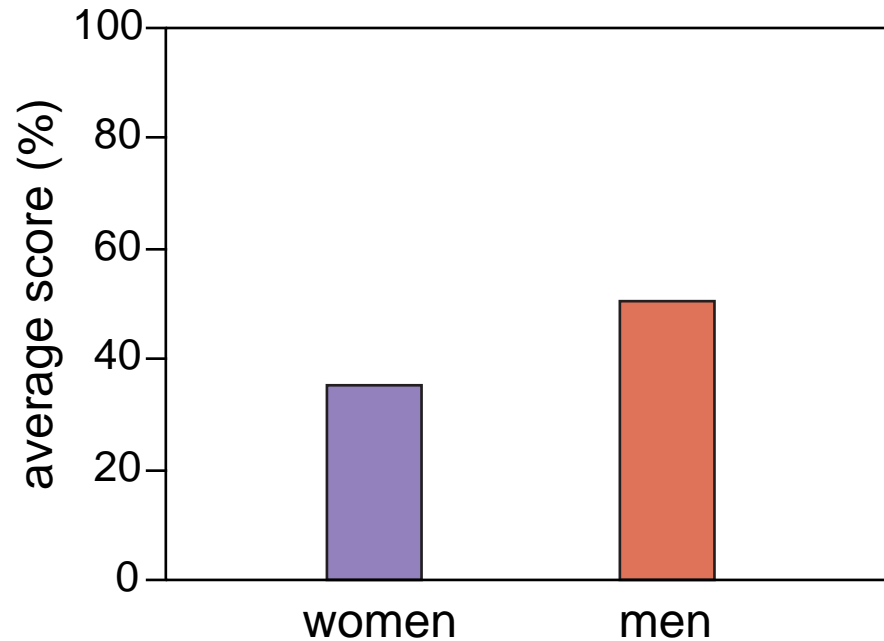
- ▶ **What is the gender gap?**
- ▶ **What causes it?**

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- ▶ **What is the gender gap?**
- ▶ **What causes it?**
- ▶ **What can we do about it?**

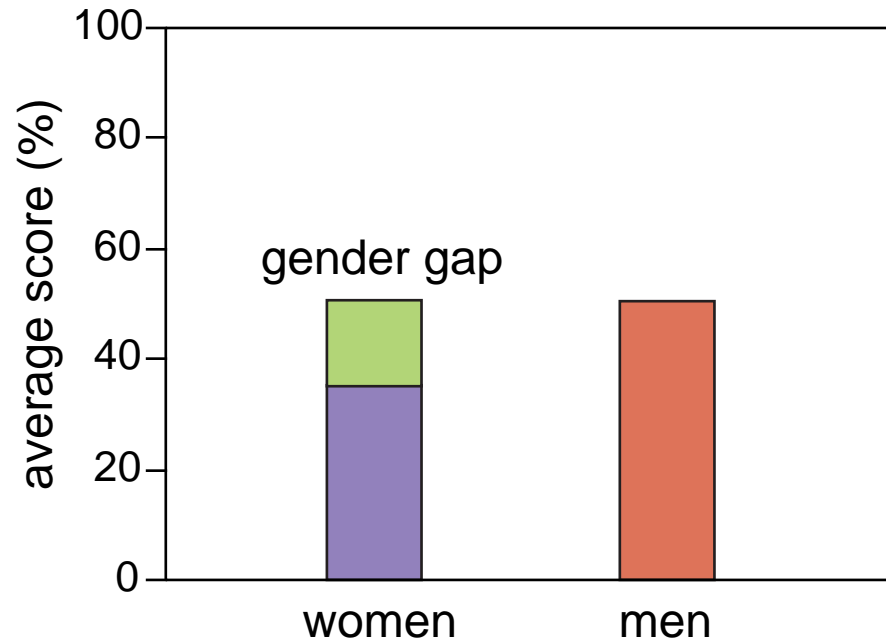
What is the gender gap?

Force Concept Inventory posttest scores

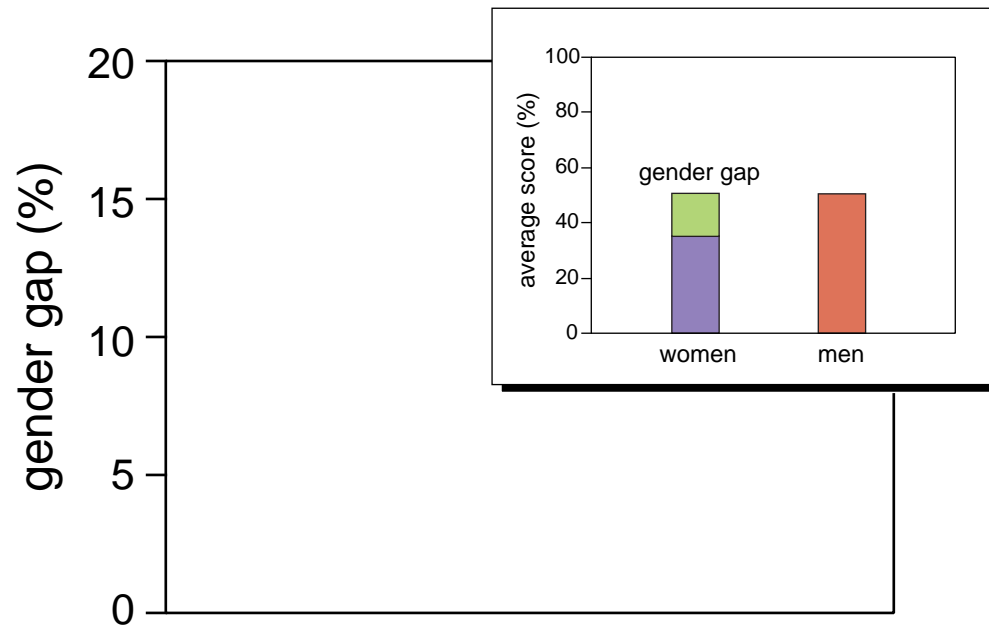


What is the gender gap?

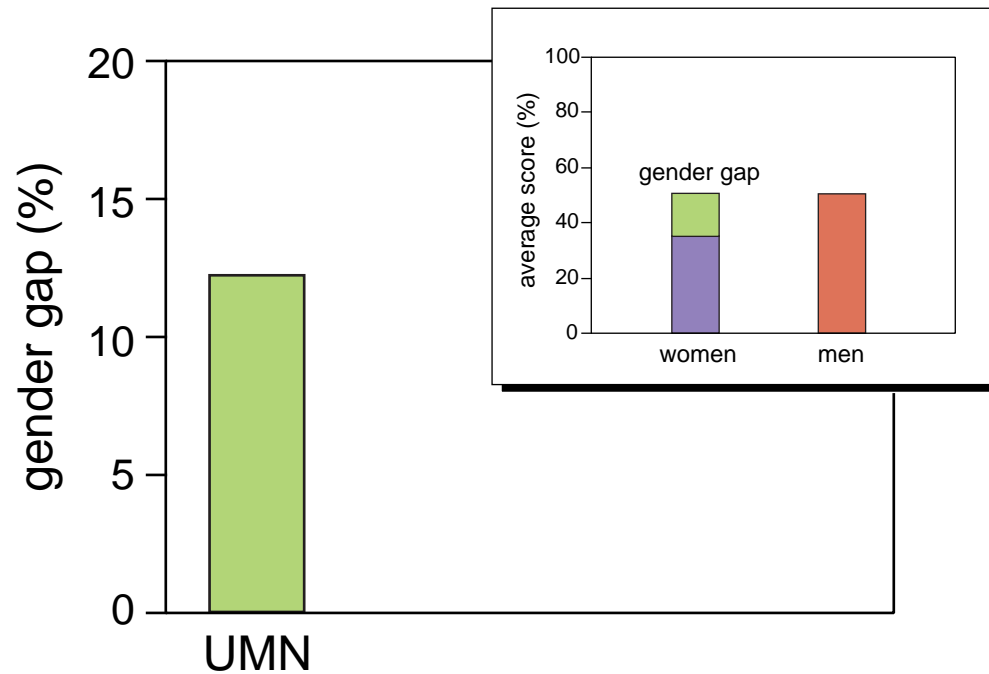
Force Concept Inventory posttest scores



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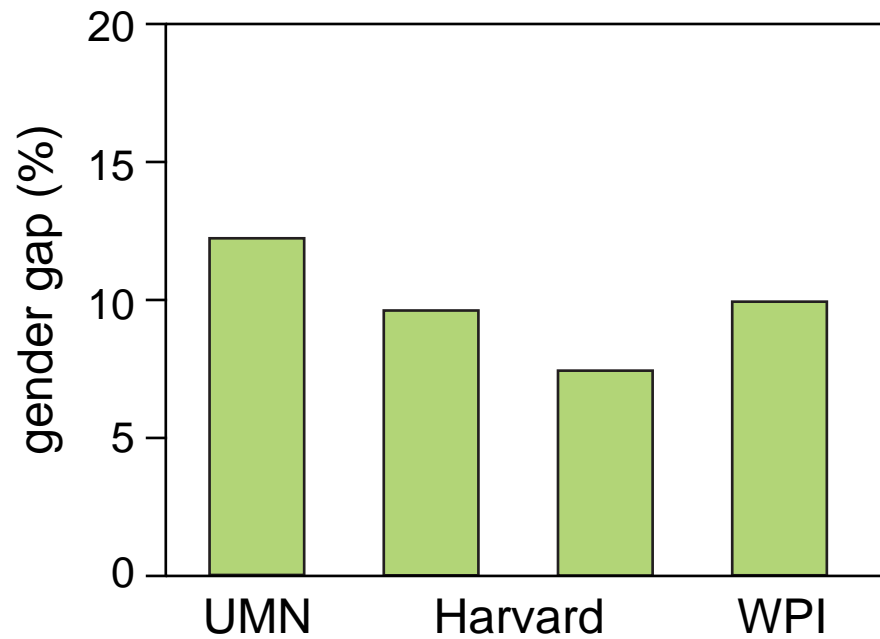


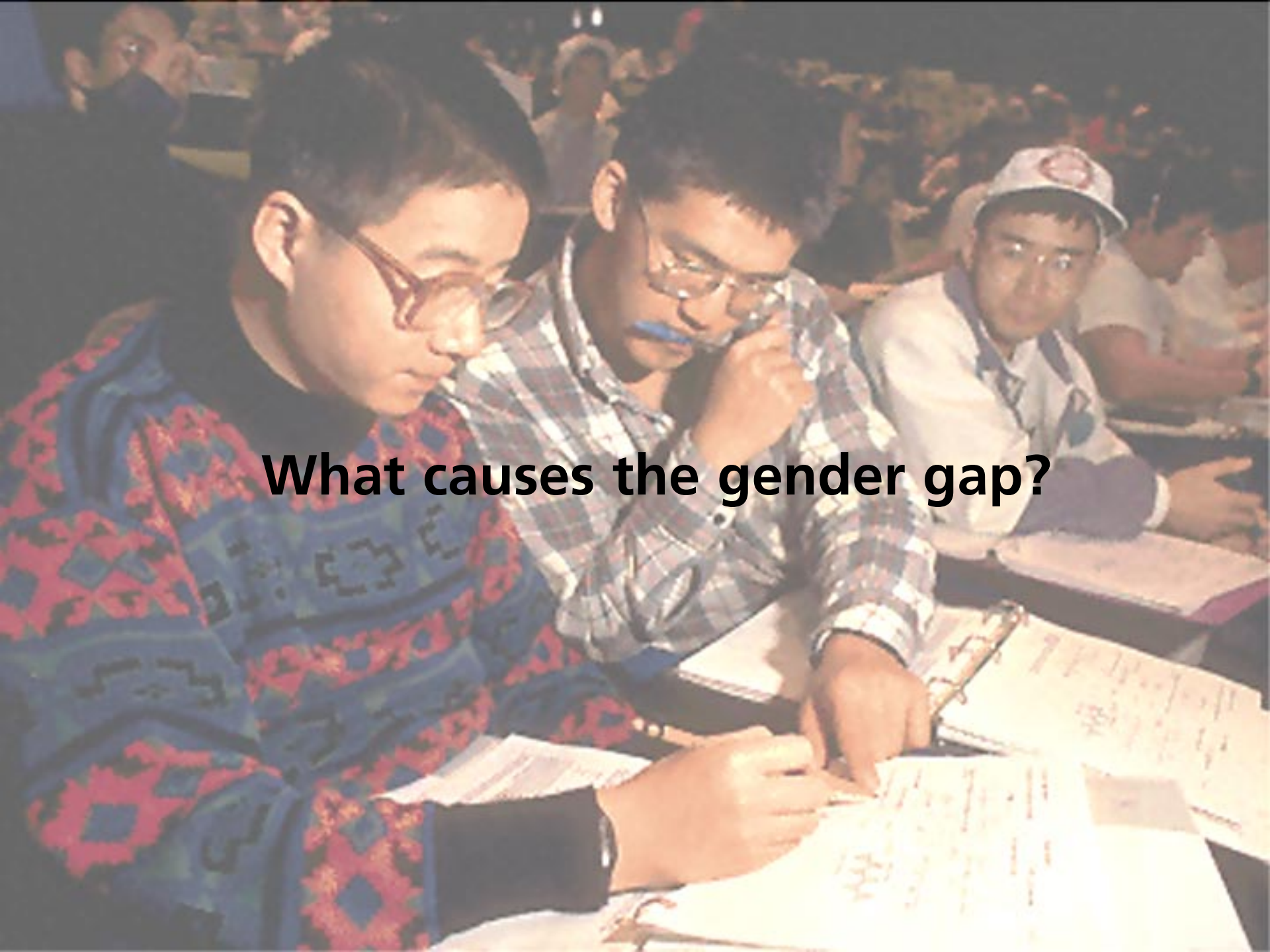
What is the gender gap?



What is the gender gap?

Gap is widespread

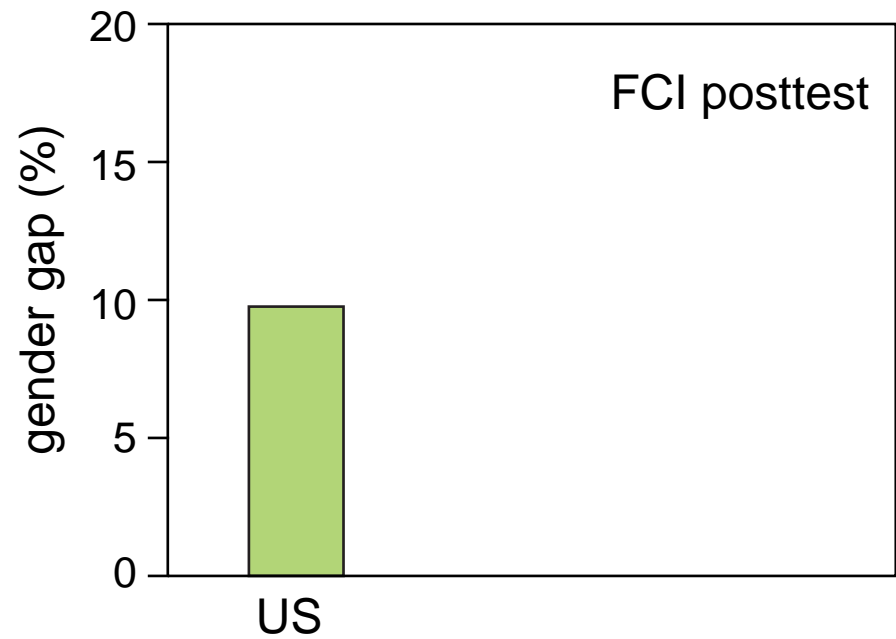




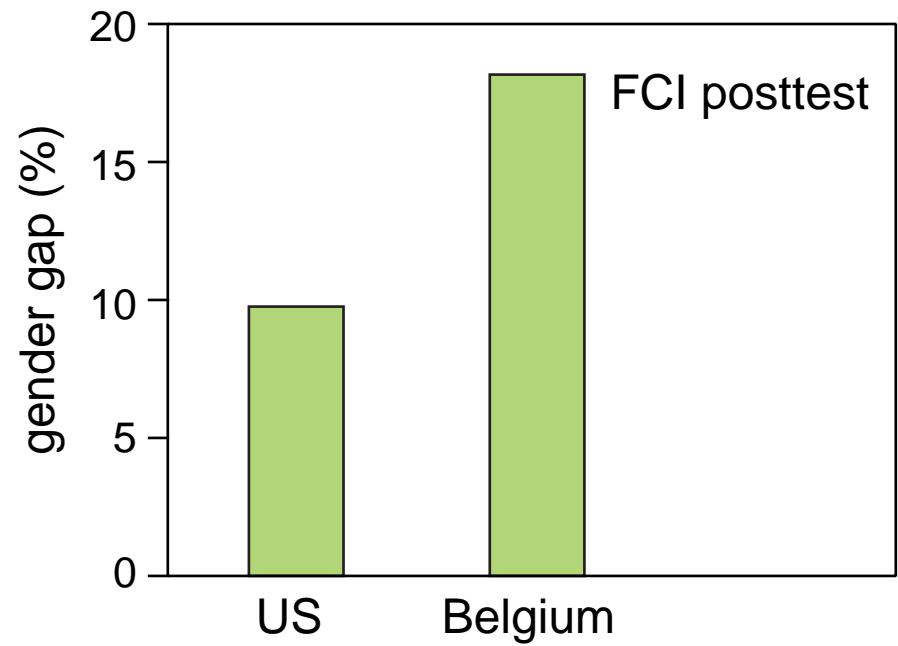
What causes the gender gap?

What causes the gender gap?

Is it cultural?

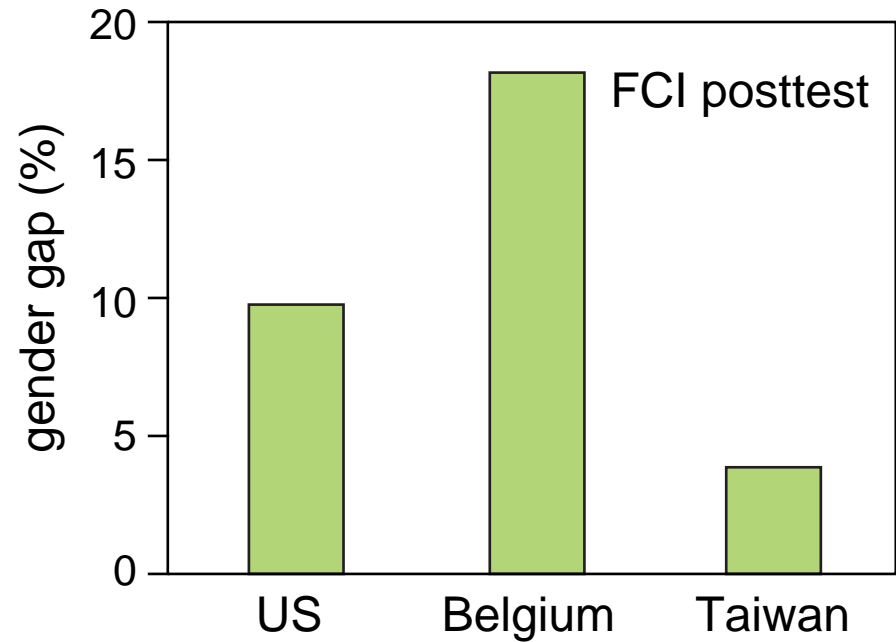


What causes the gender gap?



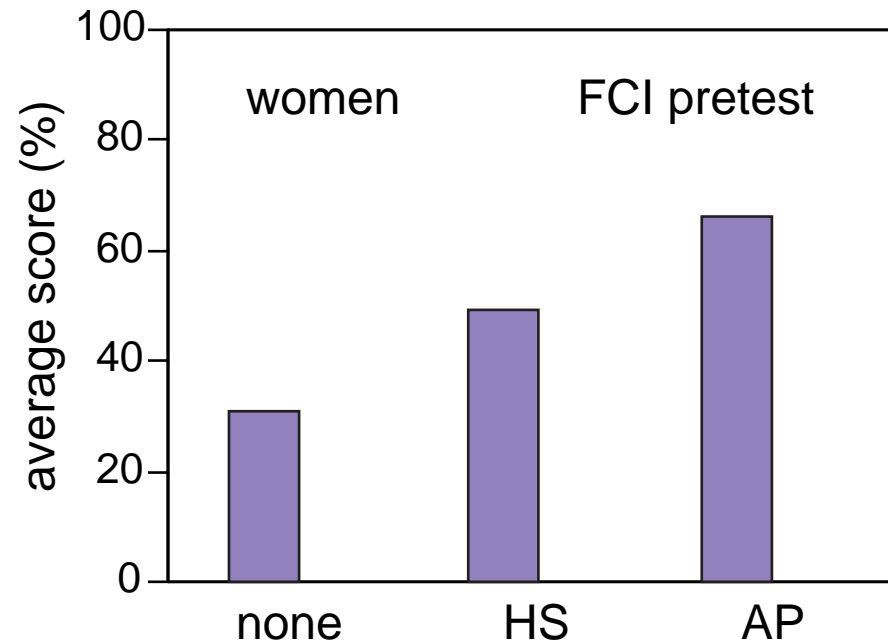
What causes the gender gap?

Strong dependence on culture!



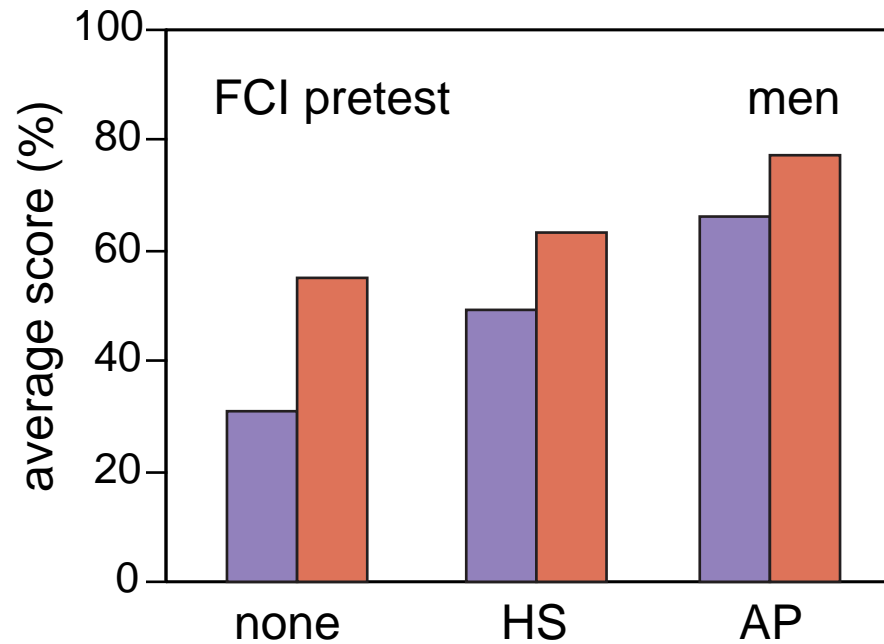
What causes the gender gap?

What is the effect of precollege education?



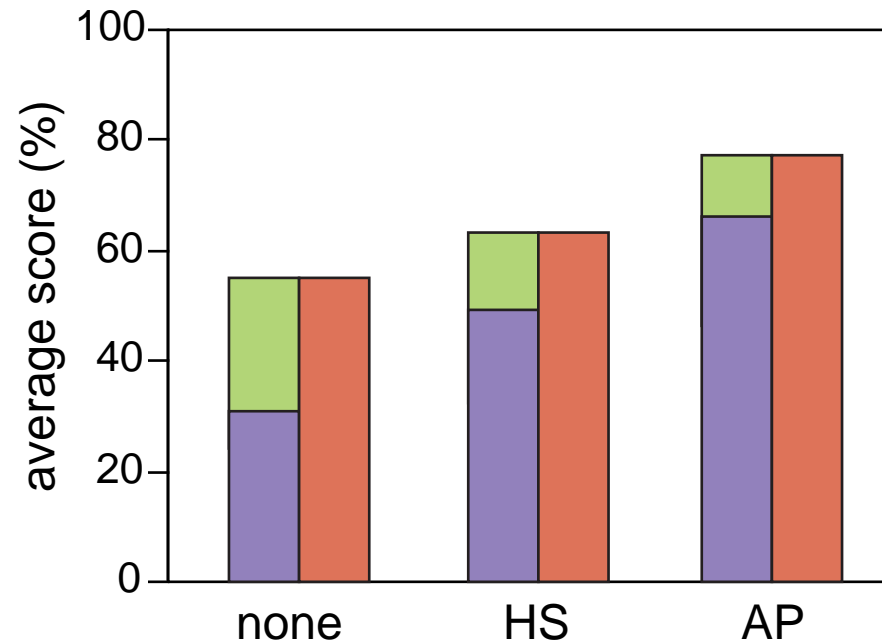
What causes the gender gap?

Everyone gains...



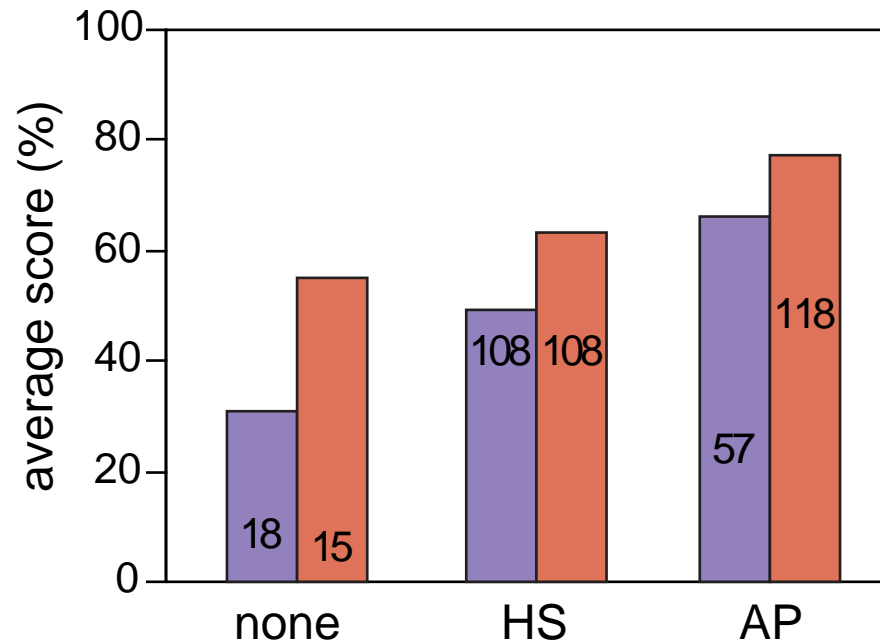
What causes the gender gap?

... but gap persists ...



What causes the gender gap?

...and women underrepresented in AP courses





What can we do about the gender gap?

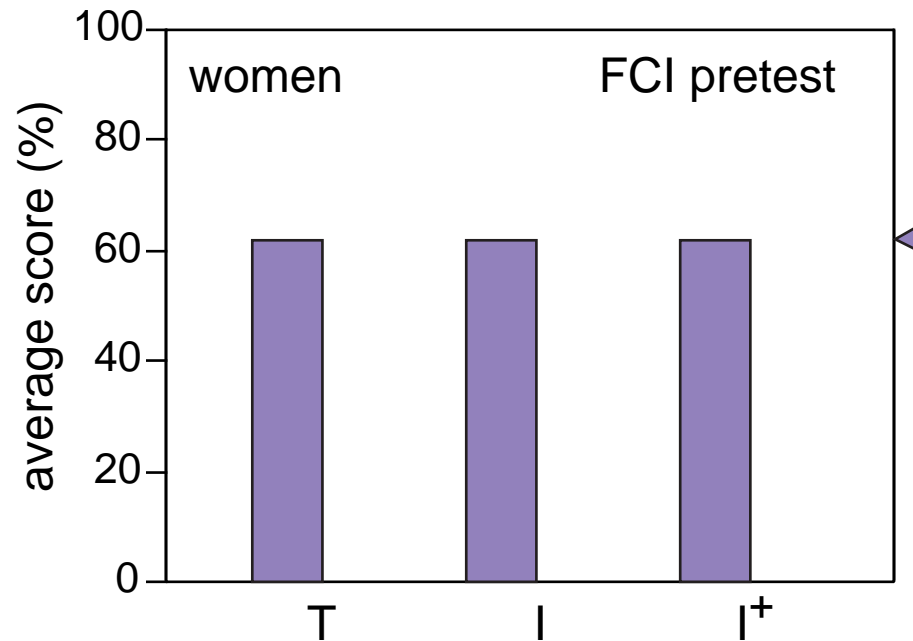
What can we do about the gender gap?

Compare three pedagogies:

- ▶ **Traditional lecture (T)**
- ▶ **Interactive lecture (I)**
- ▶ **Interactive lecture and sections, reading assignments (I⁺)**

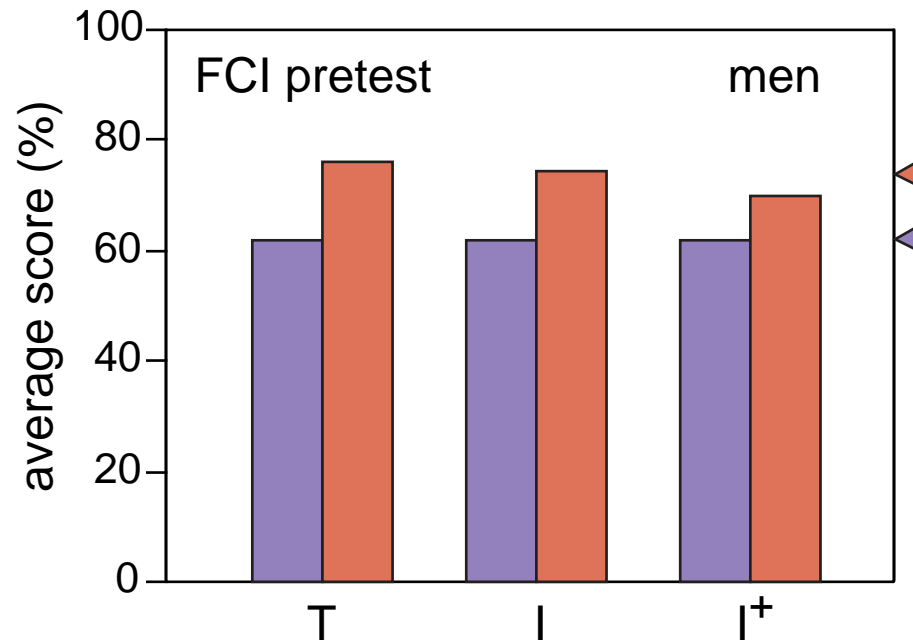
What can we do about the gender gap?

Does pedagogy help?



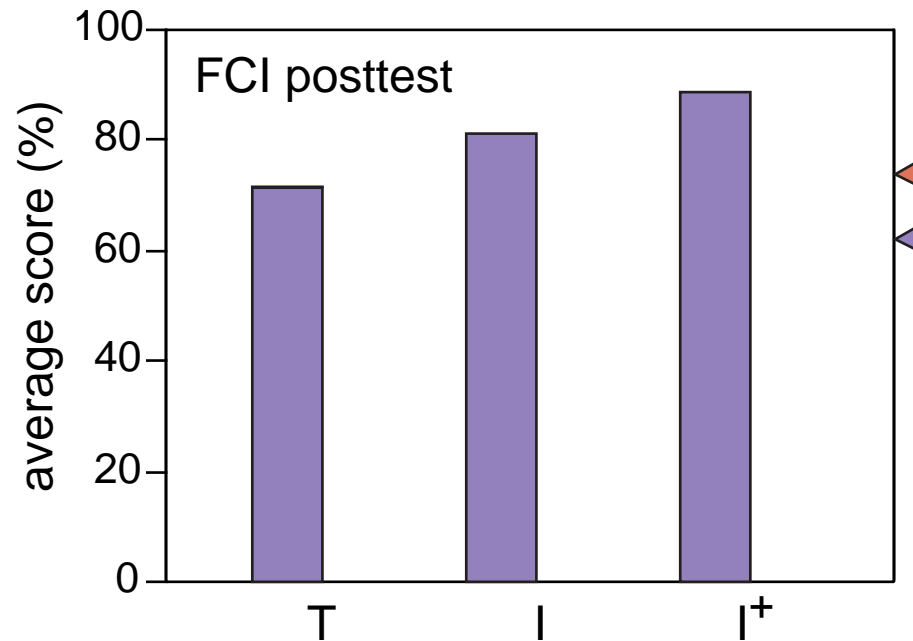
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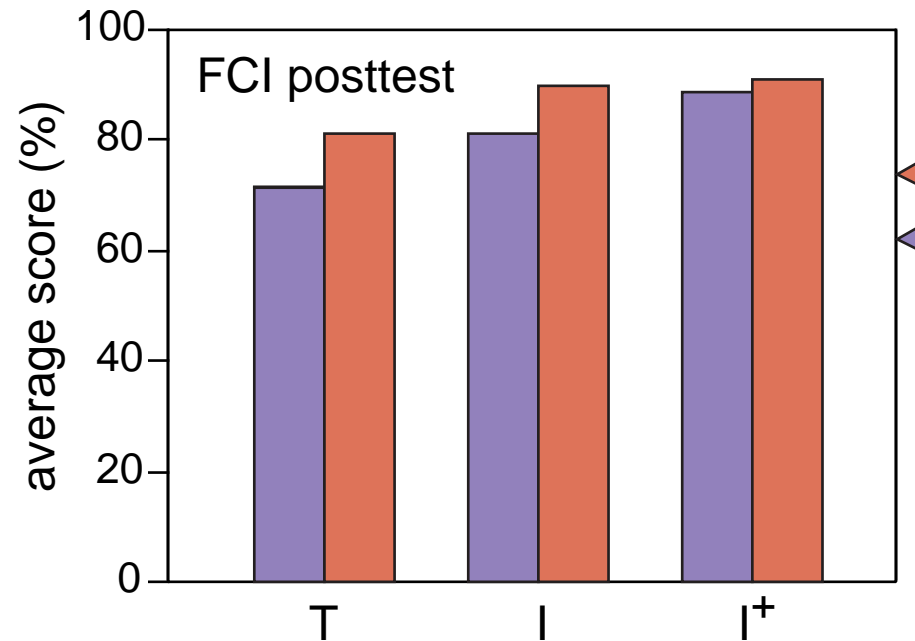
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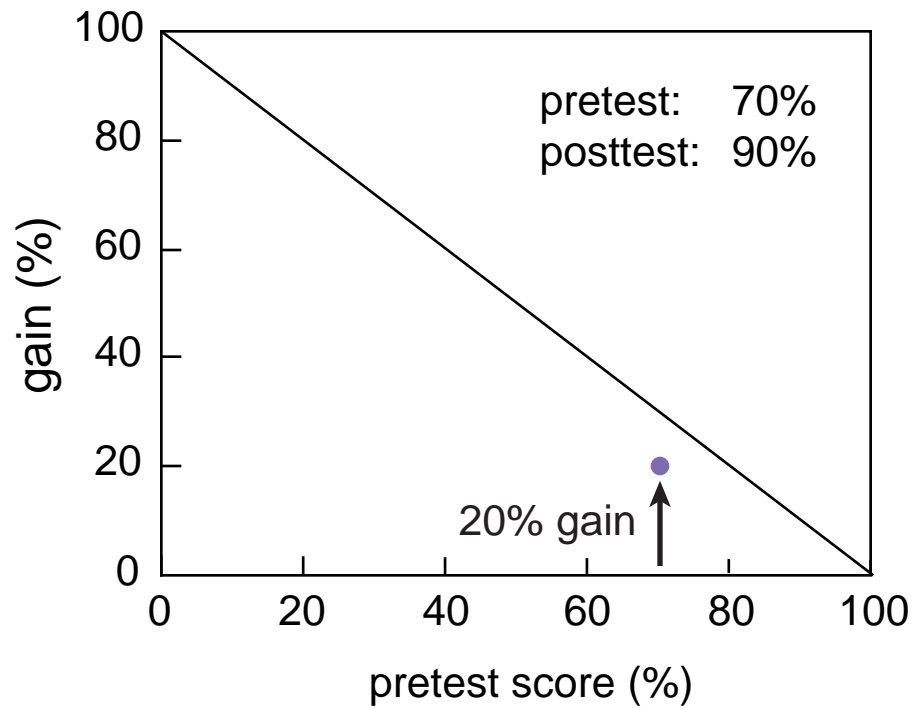
What can we do about the gender gap?

Yes, pedagogy narrows gap



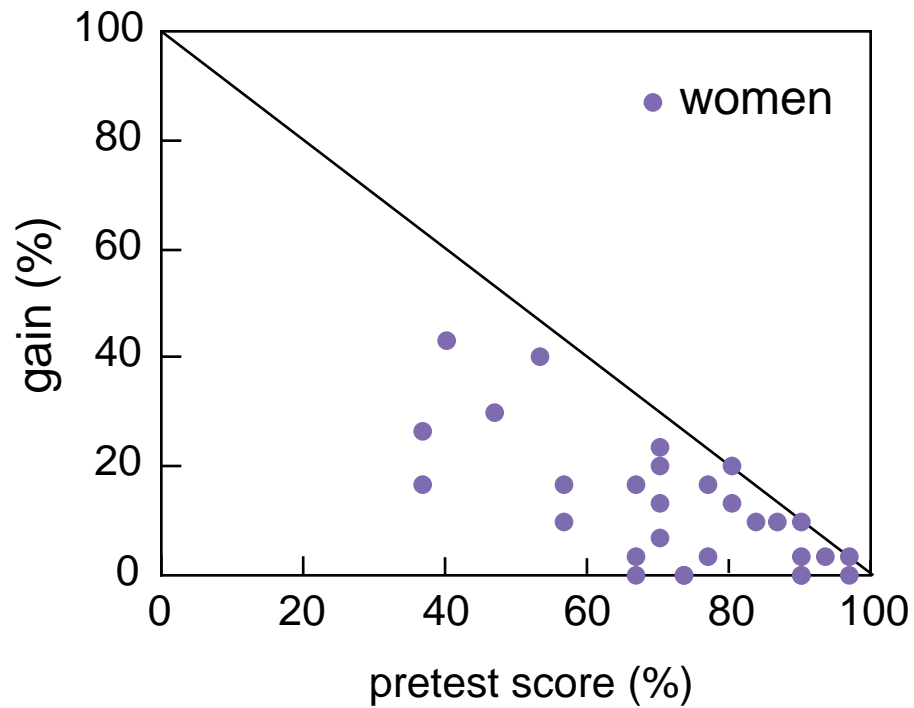
What can we do about the gender gap?

Who are the low-gain students?



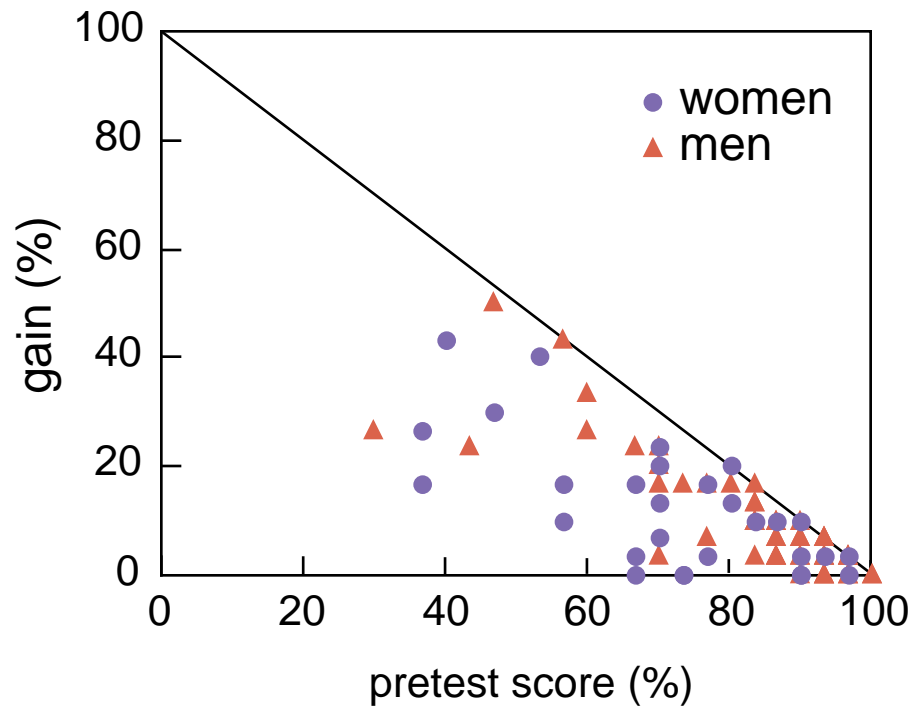
What can we do about the gender gap?

Traditional class



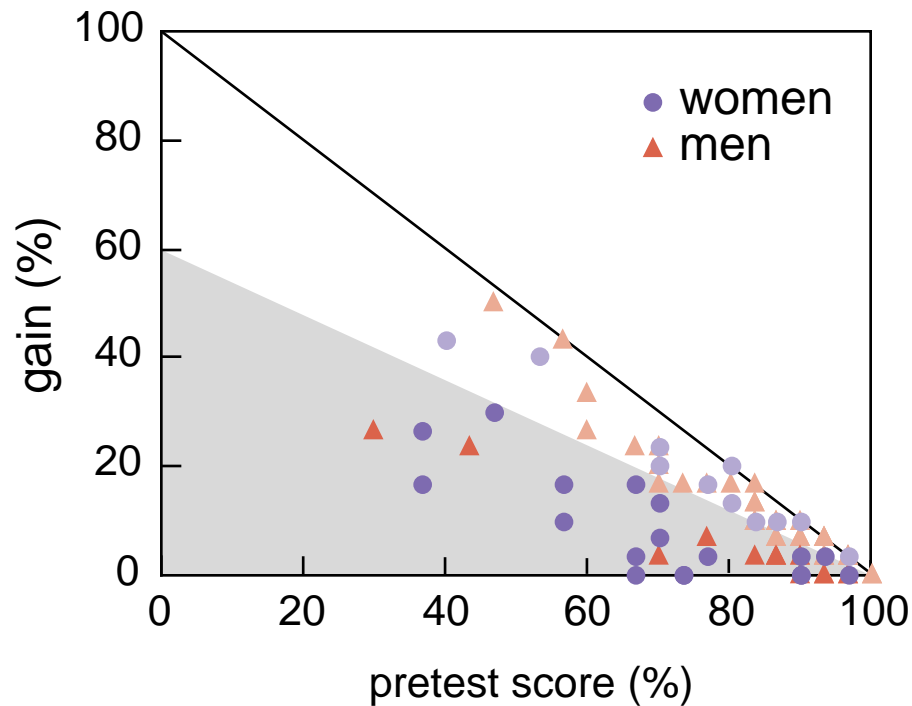
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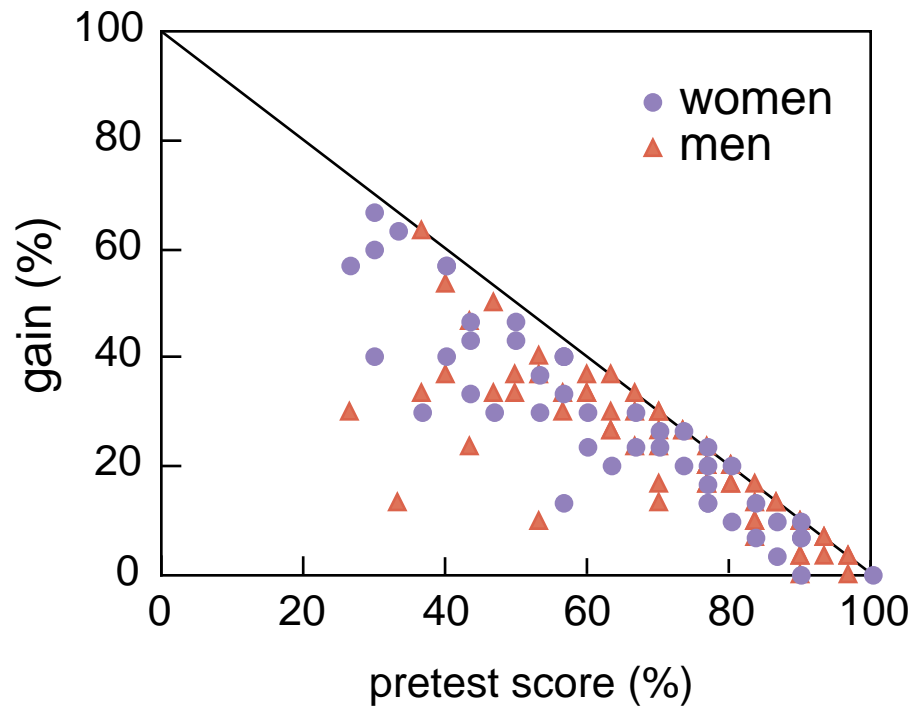
What can we do about the gender gap?

Traditional class: gender imbalance



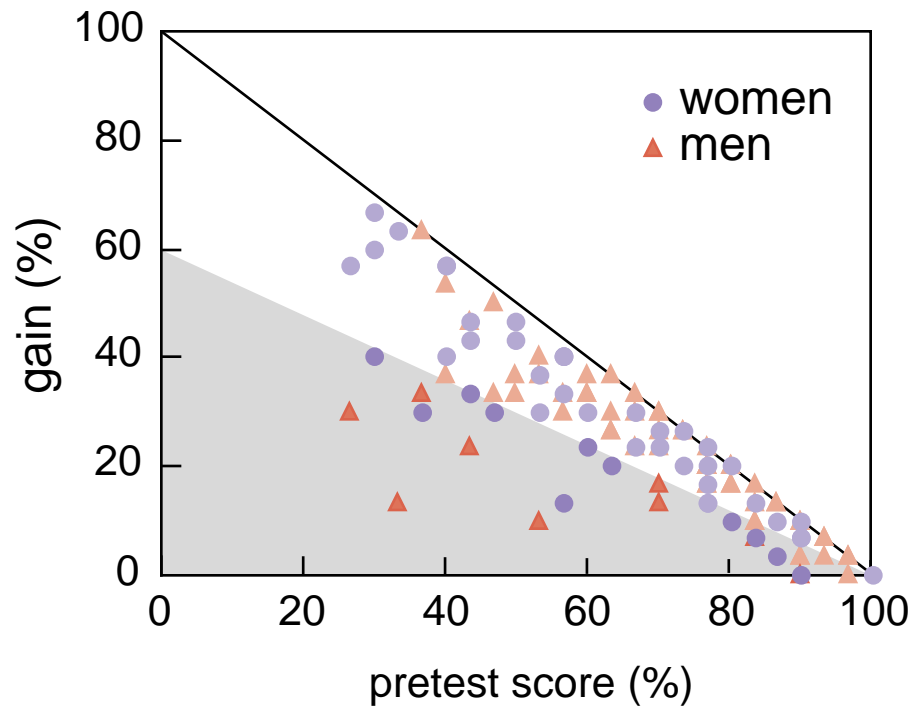
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Interactive class



What can we do about the gender gap?

Interactive class: gender balance



Summary

- ▶ **Gap comes from culture and background**

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- ▶ **Interaction makes a difference!**

Acknowledgements

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Pat and Ken Heller (UMN)

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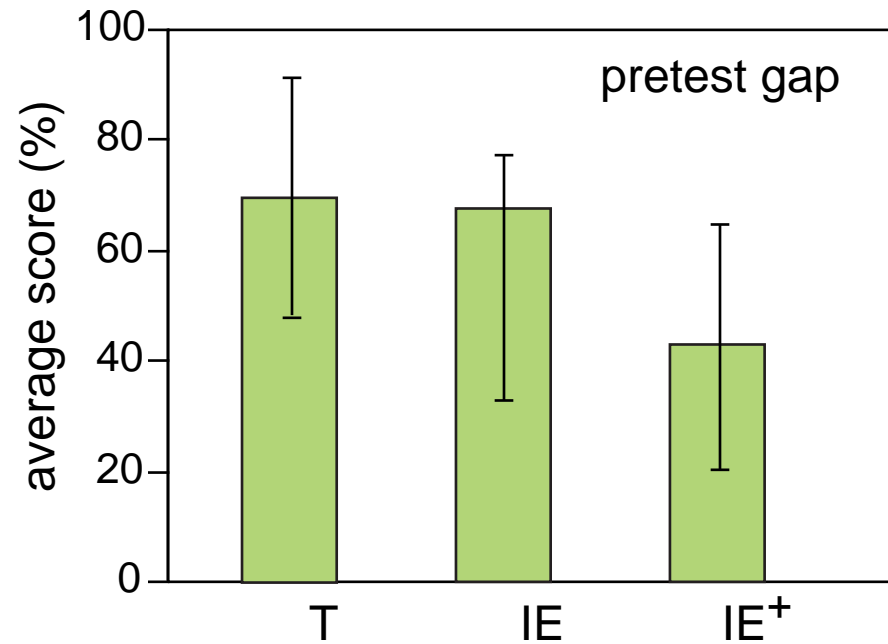
Steve Pierson (WPI)

Tom Keil (WPI)

**For a copy of this talk and
additional information:**

<http://mazur-www.harvard.edu>

Confidence intervals on gender gap



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