



MEMORIZATION OR UNDERSTANDING: ARE WE TEACHING THE RIGHT THING?

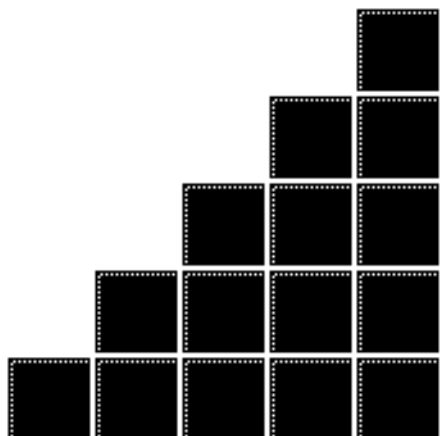
Eric Mazur

*Physics and Applied Physics
Harvard University*

AAAS

AMSIE '97, Seattle

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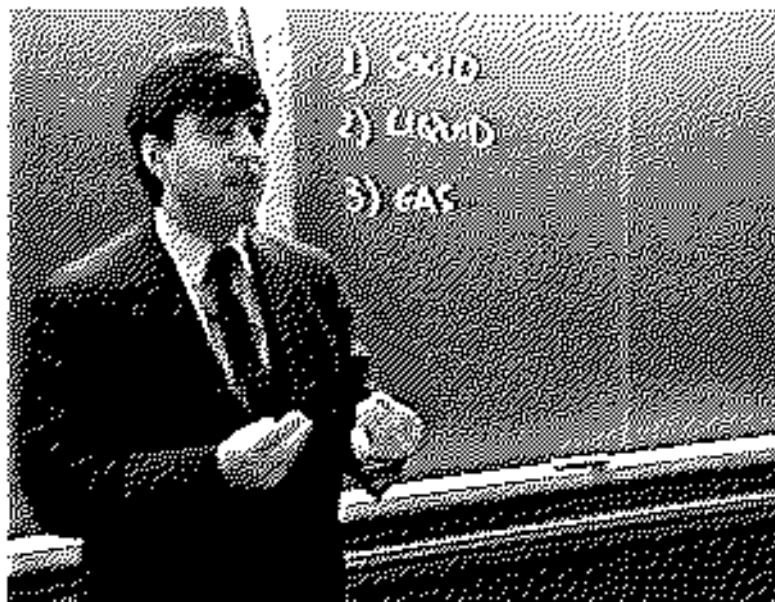


- ① Why reform?
- ② How reform?
- ③ Challenges



THE CAUSE

Are we teaching the right thing...?

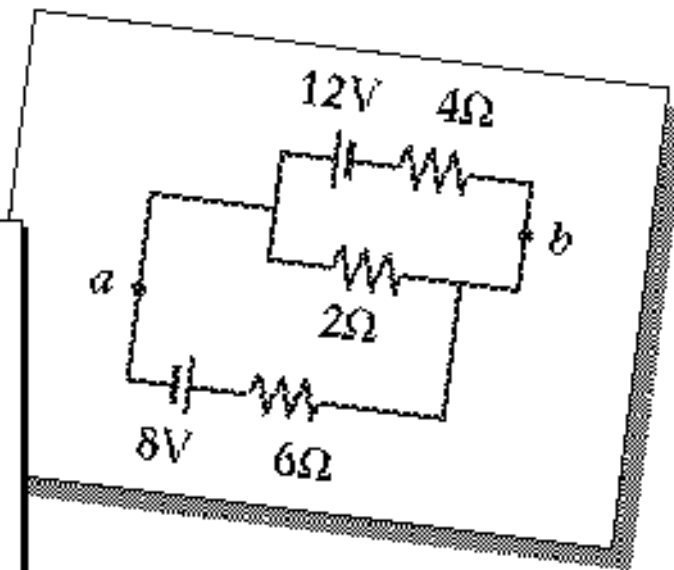


THE CAUSE

Traditional question:

Calculate:

- (a) the current in the $2\text{-}\Omega$ resistor, and
- (b) the potential difference between points a and b .

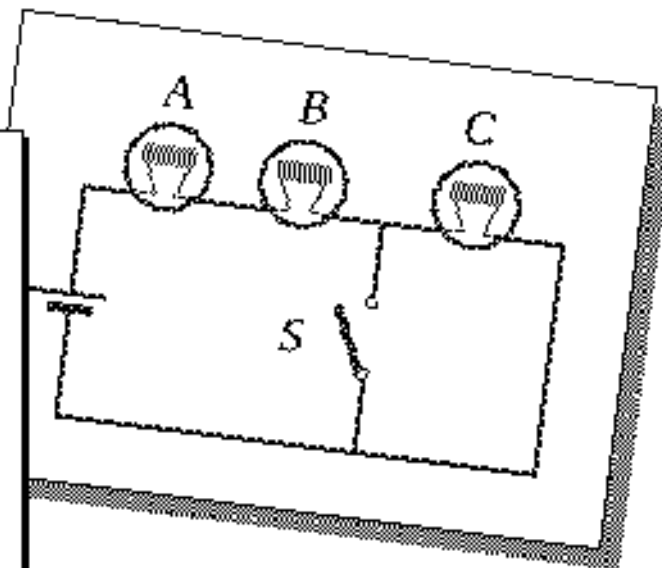


THE CAUSE

Conceptual question:

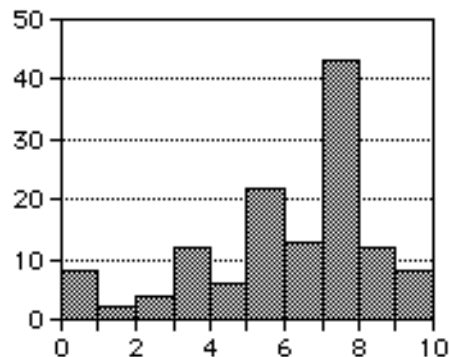
When S is closed, what happens to the:

- (a) intensities of A and B ?
- (b) intensity of C ?
- (c) current through battery?
- (d) voltage drop across A , B , and C ?
- (e) total power dissipated?

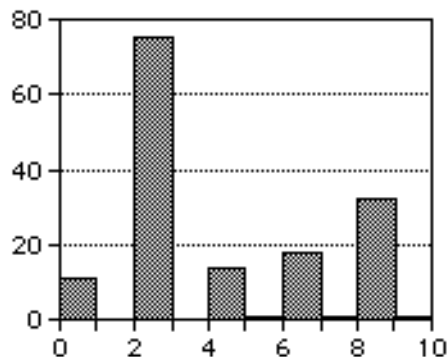


THE CAUSE

Results



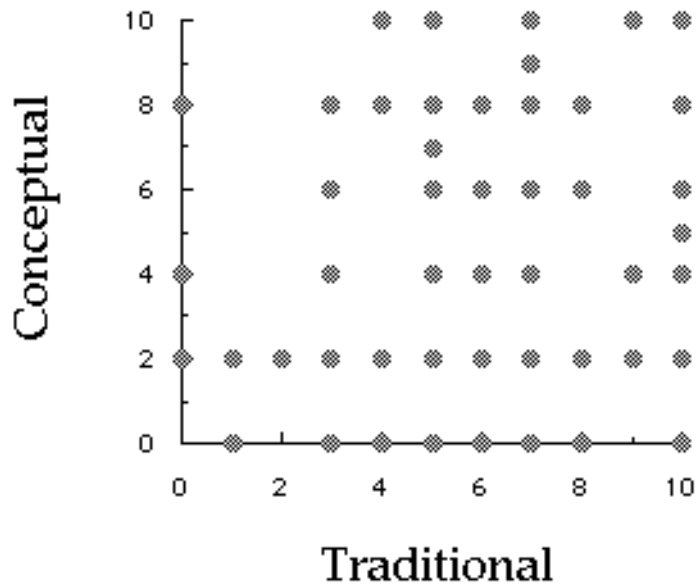
Traditional



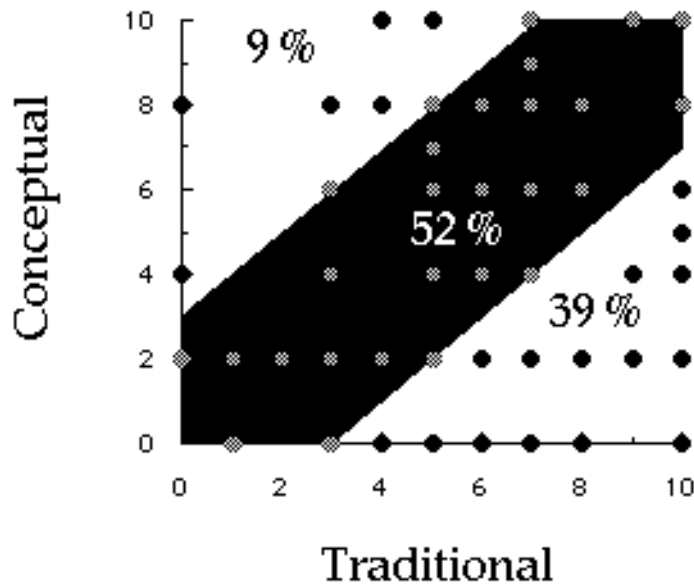
Conceptual



THE CAUSE




THE CAUSE



- ① Why reform?
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PEER INSTRUCTION



Why peer instruction?

PEER INSTRUCTION

Peer Instruction:

- prerequisites
- lectures
- *ConcepTest*TM
- feedback

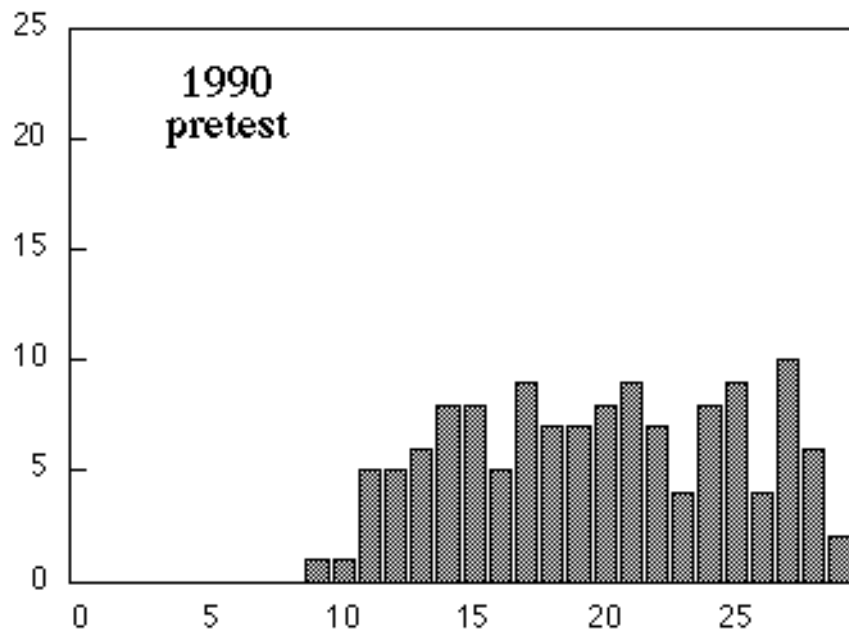


Is it any good...?

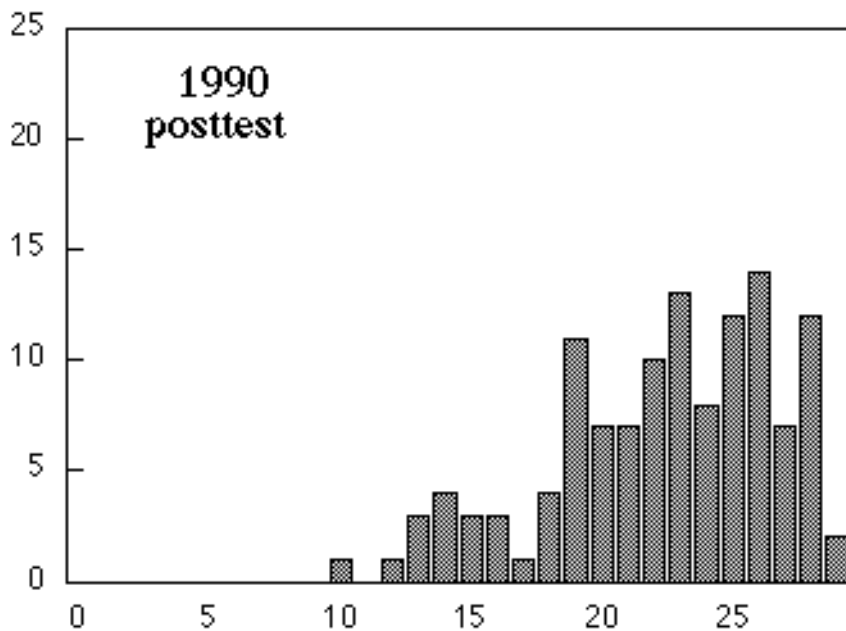
- ① Results
- ② Student reactions



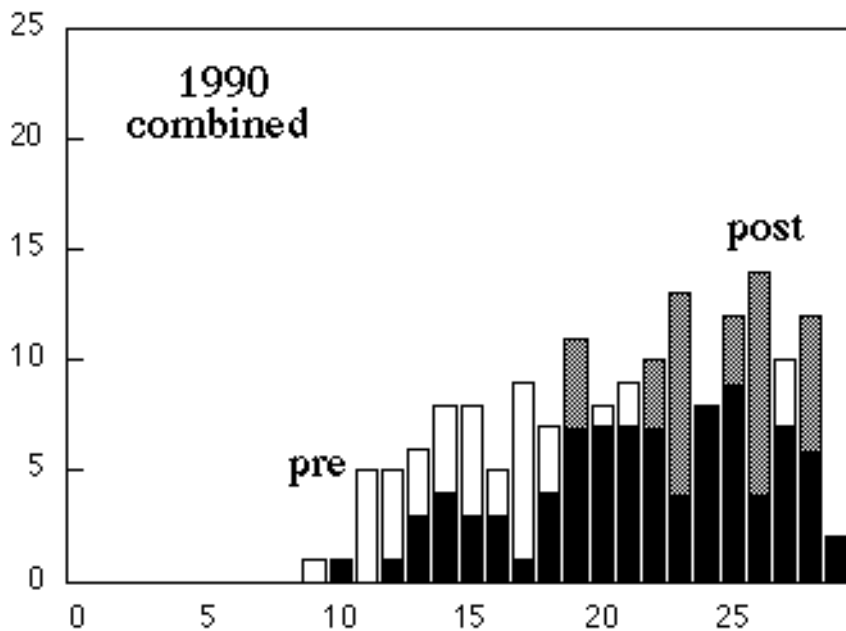
Results



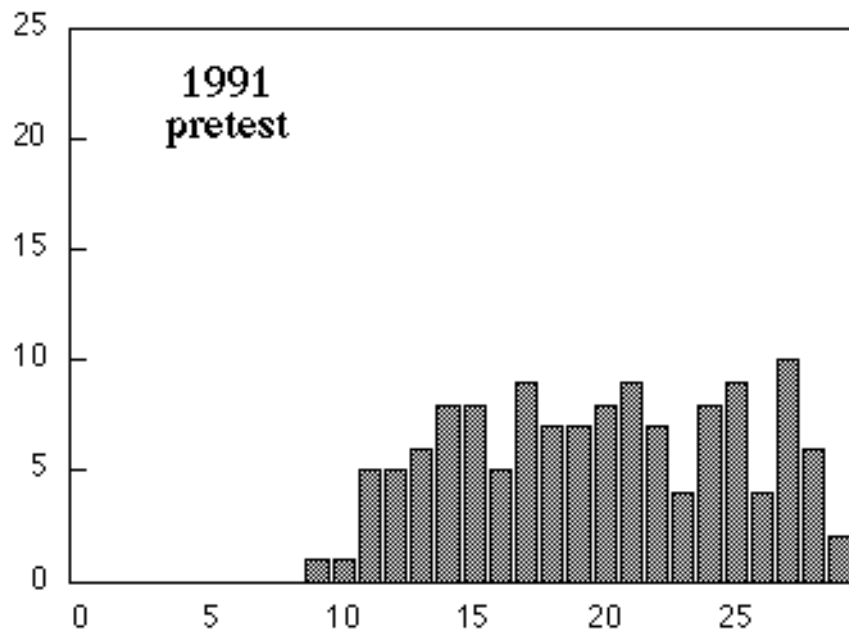
Results



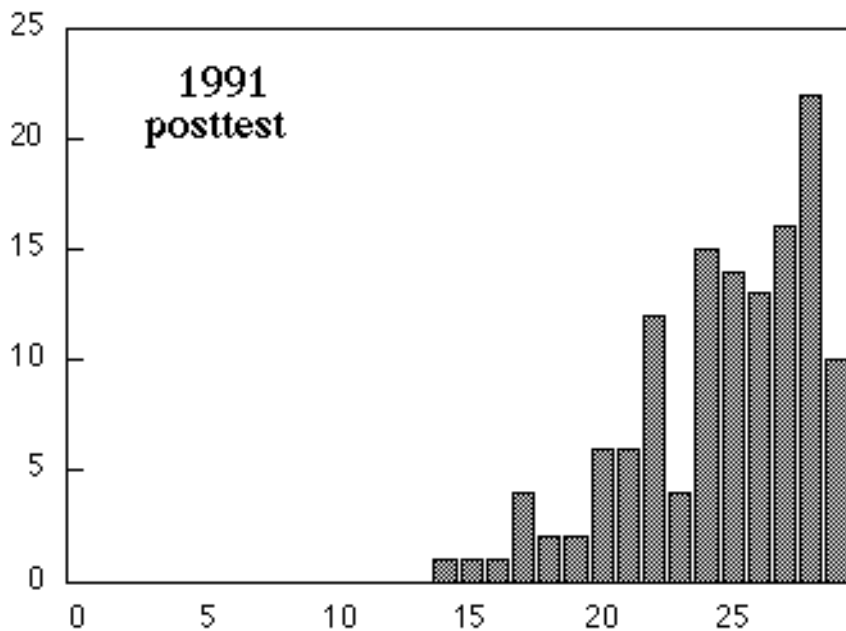
Results



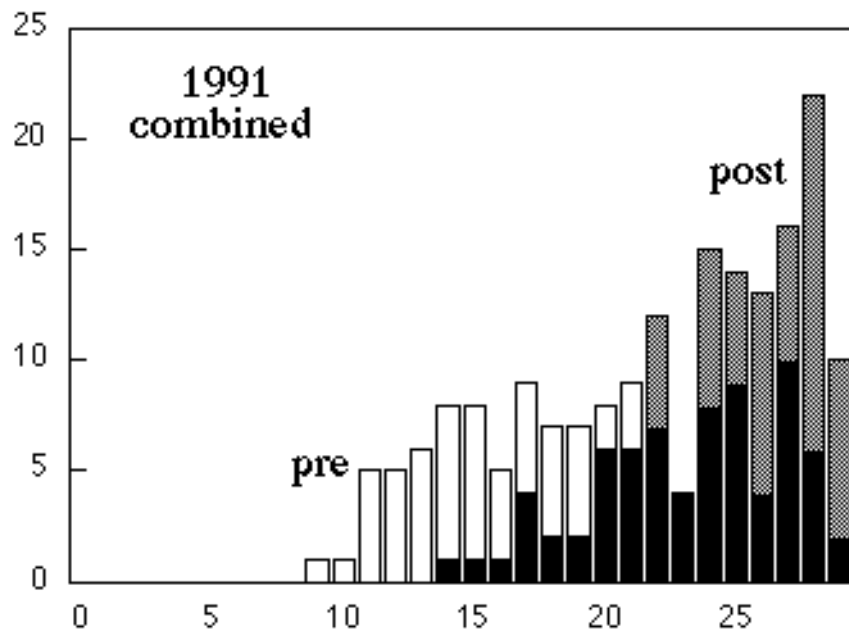
Results



Results



Results

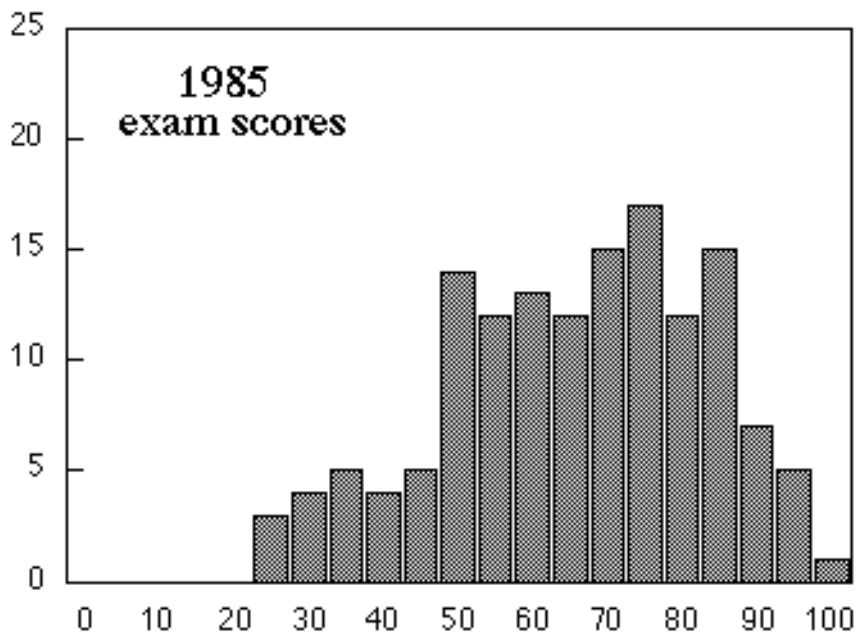


Results

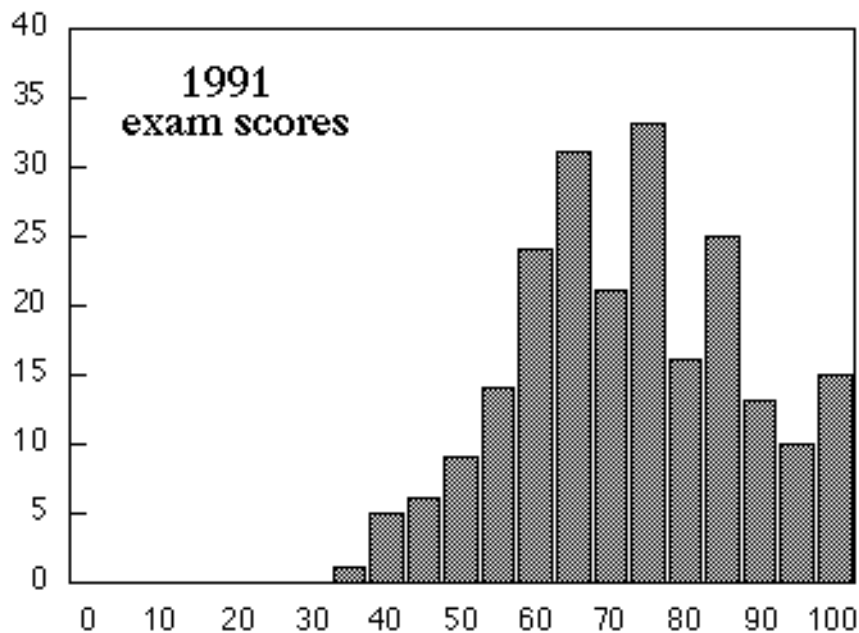
What about problem solving...?



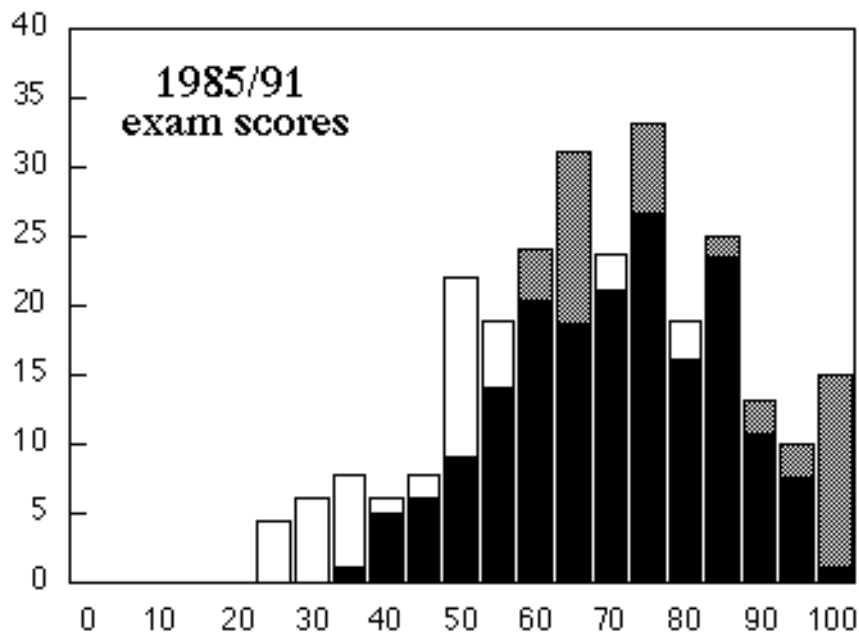
Results



Results



Results

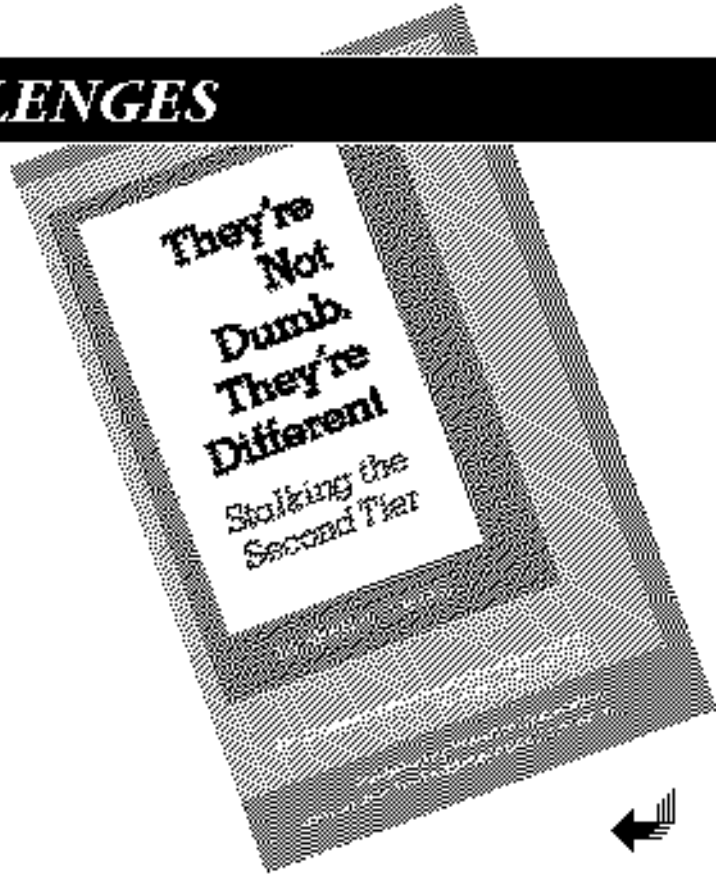


- ➊ Why reform?
- ➋ How reform?
- ➌ Challenges



CHALLENGES

- scepticism
- initial effects
- mismatch



Acknowledgments

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



Thank you!