### Engaging students in the classroom



**Eric Mazur Physics** 

4 February 2000 Classroom Committee Meeting



### Technology is not a magic bullet

## brief history of Information Technology

- blackboard
- overhead projector
- television
- computer



What's wrong with old methods for presenting content?

לפורכות נפעותכנה בלונטופות לפיור עלוון חווכו pure ware not whenly purer will in לביל כותיים כי לחויים ויכורים בא שונה חי The course then police primer forever לוך צוביל לחסור לכב בדילום חידור קופן כמו חבריחון ו כפבוצות בי עולון חוצה

מו דוב חניארום על כול בעניאור ויאוקר נכא אין אי כלין איש כנווא כלישריוב עונוריוף ובנו כ בבריכון כובוו ברוב עריות ביקטורית . ניחוו יניי לאוף ממנחי ינייריותי ניוכיע קולהוכיה ולרונה על מוכלקה פיוניע נישליון ועל שונותנה וחויין שרחותר בושרות שליות שיניותונה להואי דלה דוויים כרישנים יוכות וכבר אדוף לריעת שיוני ב ב ב של במכור למוכל בעל בכירום בן the same of the property

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DISCORSI

E

### DIMOSTRAZIONI

MATEMATICHE,

intorno à due nuoue scienze

Attenenti alla

MECANICA & I MOVIMENTI LOCALI,

del Signor

GALILEO GALILEI LINCEO,

Filosofo e Matematico primario del Serenissimo Grand Duca di Toscana.

Con una Appendice del centro di granità d'alcuni Solidi.



IN LEIDA,
Appresso gli Essevirii. M. D. C. XXXVIII.





# not delivery of information but assimilation of knowledge



think about educational goals before introducing technology

### What constitutes effective use of technology?

- furthers educational goals
- facilitates new modes of learning
- investment commensurate with returns
- reusable and flexible

### What problems can technology help with?

#### Large lectures...

- are impersonal
- focus on information transfer
- don't necessarily address students' needs

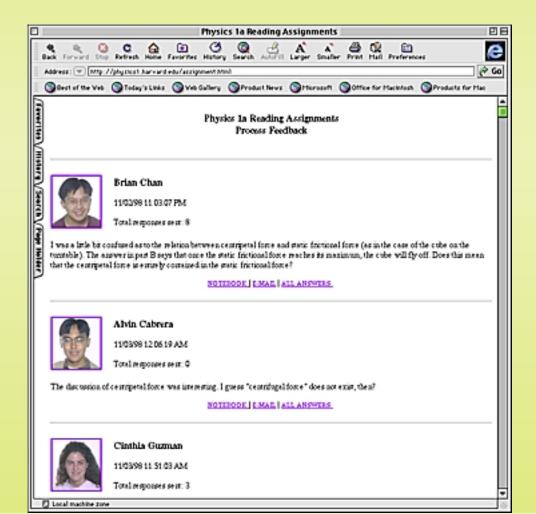
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#### **Benefits:**

connects names and faces



Physics 1a Reading Assignments

keep students involved

probe and address difficulties





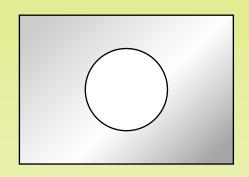


1. aim tip at nearest receiver



3. watch for ID on screen

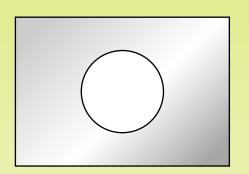
Consider a rectangular metal plate with a circular hole in it.



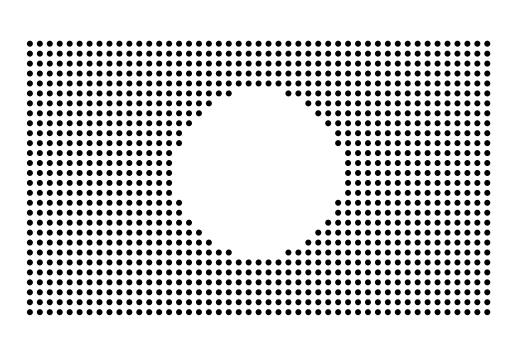
Consider a rectangular metal plate with a circular hole in it.

When the plate is heated so it uniformly expands, the diameter of the hole

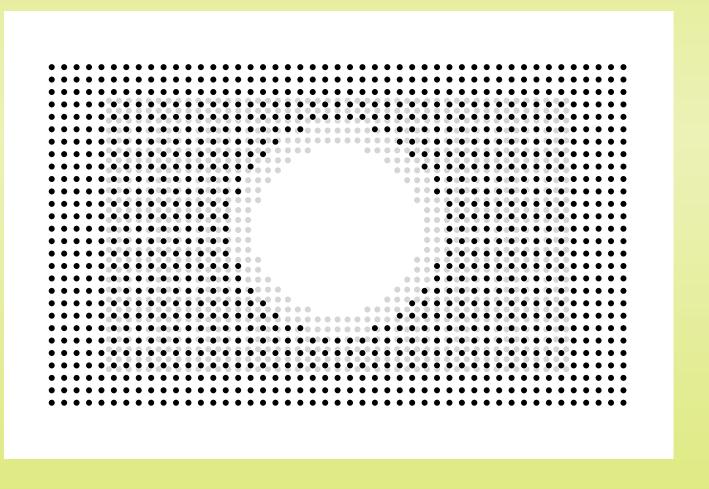
- 1. increases
- 2. stays the same
- 3. decreases



### Just so you won't lose sleep:



#### Just so you won't lose sleep:



#### **Benefits:**

- engages students
- gets students to cooperate
- provides real-time feedback



we need *education* technology, not just information technology



Dr. Catherine Crouch
Prentice Hall
Varitronix

For a copy of this presentation and additional information, see:

http://mazur-www.harvard.edu