

# 8 Ways Educational Technologies Can Foster Learning

Based upon what the educational research tells us

Workshop on MIT Online Learning & Residential Education

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. . . the same design principles that promote learning in traditional environments are likely to promote learning in electronic environments. The consensus among researchers is that e-learning has the potential to offer different (and perhaps better) learning opportunities only to the extent that it can offer different instructional methods.

Richard Mayer in the *Journal of Educational Computing Research*, 2003

# Educational technologies can . . .

## **1. Allow students to be more actively involved in learning**

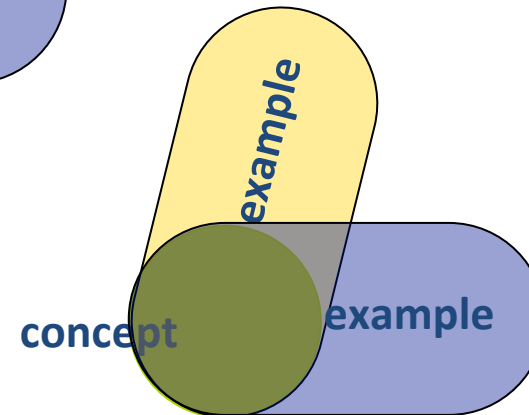
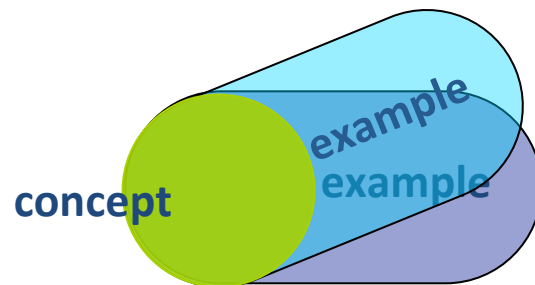
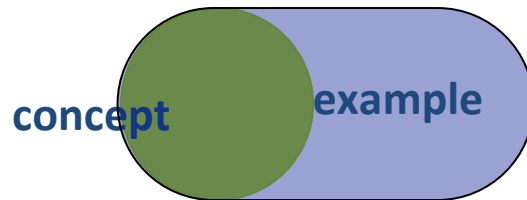
**Learners are active agents, who purposefully seek and construct knowledge within meaningful (and specific) contexts**

# Educational technologies can . . .

## **2. Present the same concept in different contexts**

**Opportunities for transfer are strengthened by presenting the same idea in multiple contexts**

# Teaching for transfer



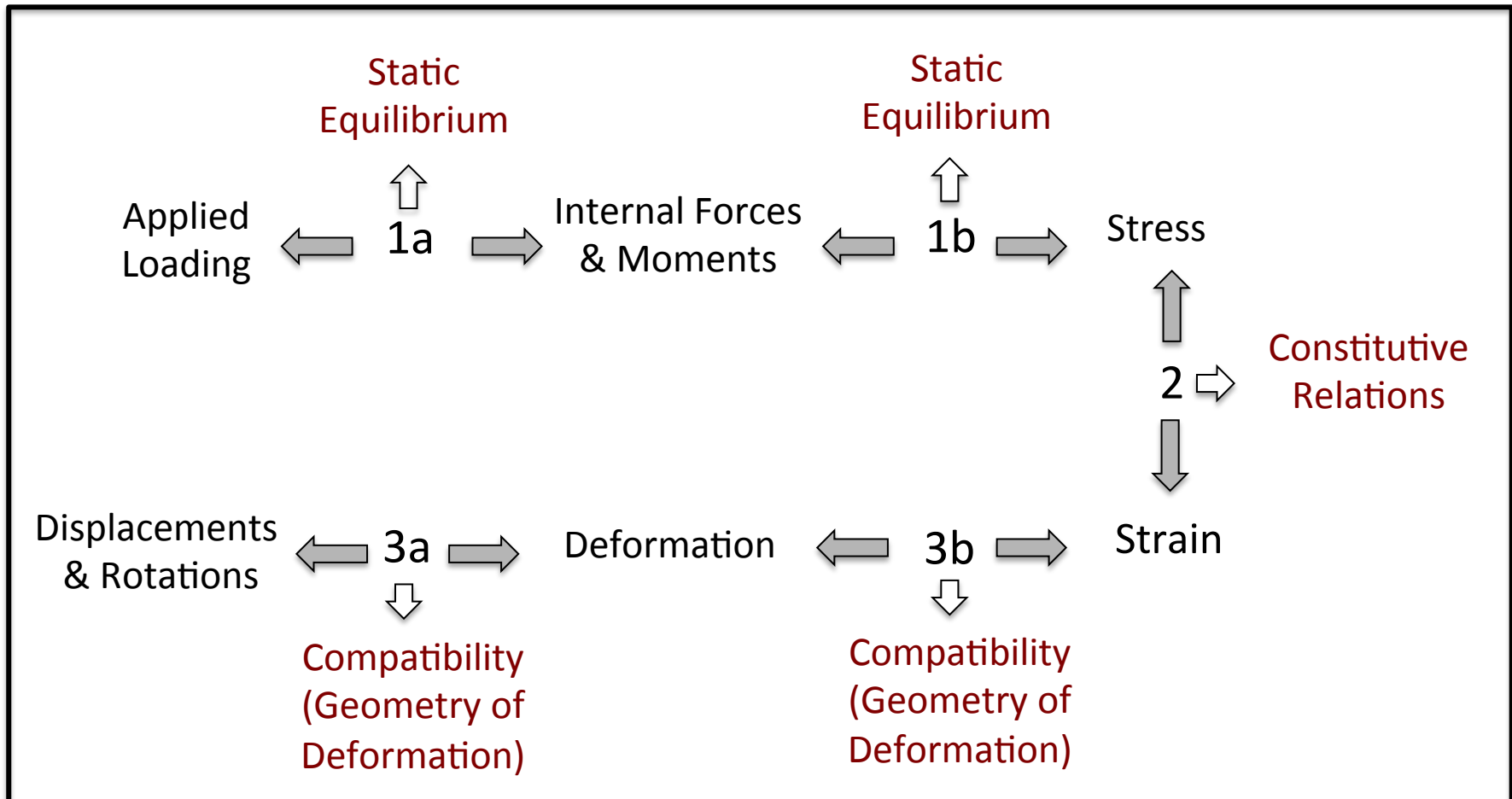
Slide courtesy of Dr. Sanjoy Mahajan,  
Professor, Olin College of Engineering

**Educational technologies can . . .**

**3. Provide easily referenced  
frameworks to show relationships  
among different concepts**

**Successful learners develop mental  
models and strong frameworks of  
related concepts**

# 2.001 Framework



S. Socrate, A. Hosoi, C. Livermore, W. Seering, J. Rankin

**Educational technologies can . . .**

**4. Describe the same concept using different means of representation**

**Learning and recall are strengthened when learners integrate information from both auditory-verbal and visuospatial channels**



**Educational technologies can . . .**

**5. Tailor feedback more individually**

**Thereby providing a solution to Bloom's  
"2-sigma problem"**

# Educational technologies can . . .

## **6. Increase time on task (and make that time more flexible)**

**“The single most important variable in promoting long-term retention and transfer is ‘practice at retrieval’.”**

Halpern & Hake, “Applying the Science of Learning to the University and Beyond,” *Change*, 2003

**Educational technologies can . . .**

**7. Provide opportunities to demonstrate new mastery to others**

**. . . which increases motivation to improve**

**Educational technologies can . . .**

**8. Provide more opportunities for  
interaction between faculty &  
students and students & students**

**. . . which are the two factors that correlate  
most closely with college students'  
achievement and satisfaction**