Failure/Withdrawal Rates in Online and Face-to-Face Courses

Southern State-24,000 students, 23 community colleges, 2004-2008
Western State-51,000 students, 34 community colleges, 2004-2009

Jaggers & Xu, 2010
Jaggers & Xu, 2011
Failure/Withdrawal Rates in Online and Face-to-Face Gatekeeper Courses in a Southern State

Jaggers & Xu, 2011
Interpersonal Interaction Correlates with Student Performance

Analysis based on sample from 35 course sections from 23 online courses and transcripts from 678 students who completed at least one section.
Video Lecture Formats Inhibit Instructor-Student Connection

- Instructor representation is absent or unreadable
- Non-verbal communication (instructor and student) is largely absent
- Eye contact is impossible
- Chemical representations are presented in isolation
- Little or no integration of real 3D objects

\[ \text{BF}_3(\text{g}) + 3 \text{H}_2\text{O}(\ell) \rightleftharpoons 3 \text{HF}(\text{g}) + \text{H}_3\text{BO}_3(\text{g}) \]

Solvent is \( \text{H}_2\text{O} \)

\[ K_{\text{eq}} = \frac{[\text{HF}]^3 [\text{H}_3\text{BO}_3]}{[\text{BF}_3][\text{H}_2\text{O}]^3} \]

Section 9.1

Information Given by Chemical Equations

\[ \text{C}_2\text{H}_5\text{OH} + 3\text{O}_2 \rightarrow 2\text{CO}_2 + 3\text{H}_2\text{O} \]

- The equation is balanced.
- All atoms present in the reactants are accounted for in the products.
- 1 molecule of ethanol reacts with 3 molecules of oxygen to produce 2 molecules of carbon dioxide and 3 molecules of water.
- 1 mole of ethanol reacts with 3 moles of oxygen to produce 2 moles of carbon dioxide and 3 moles of water.
“Hand gestures are a natural, ubiquitous and meaningful part of spoken language—so much so, researchers have claimed that gesture and speech form a tightly integrated system during language production and comprehension.”

Michael Peshkin (Northwestern University)

http://peshkin.mech.northwestern.edu/
The Lightboard Setup

- Black Backdrop
- LED
- 4' x 8' Glass
- Video Camera
- PC
Teaching from the iPad: Overlaying Video Signals
GFP Structure
(iMolView on the iPad)
Open Questions

• How will the image of an instructor impact student learning and perception of learning?

• To what extent does full integration of instructor/chemical imagery impact student learning?

• What do students look at and think about when they view these videos?

• Will this tool inform instruction?
Eye Tracking Studies: 
*What are you thinking?*
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