From Tweets to Wikis: Fostering Engaged Enquiry in Large Lectures

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Near-Term Power Plant Economics with CO₂ Allowance Costs

To illustrate the economics of operating existing and new power technologies, the chart shows the cost of various technologies when the projected CO₂ allowance prices are included.

Projected CO₂ allowance prices of roughly $50/ton in 2025 increase variable costs of existing plants powered by fossil fuels to the point where many are likely to shut down.

However, S. 2191 provides significant incentives for CCS technology for coal plants in the form of bonus allowances, resulting in earlier penetration of advanced coal with CCS.

Notes: For the case with bonus allowances, the variable, capital, and fixed O&M costs are actually an aggregate of the solid part and the hatched part but the net cost is only the solid part. For this illustrative calculation, EPA used a conservative efficiency metric for existing coal plants (10,600 Btu/kWh), which most plants currently meet or exceed. The marginal energy cost is defined as the cost of production of the most expensive unit operating in that hour. It includes the cost of fuel, variable O&M cost and the cost of environmental allowances. The capital costs used here are from EPA 2005, which relies upon EPA capital cost data from AEO 2005. More recently, capital costs have increased with increasing international demand for raw materials. It is not clear how the market will respond to these price increases and whether these increased costs will be sustained over the period of the analysis.
Review of Test Data Indicates Conservatism for Tile Penetration

- The existing SOFI on tile test data used to create Crater was reviewed along with STS-87 Southwest Research data
  - Crater overpredicted penetration of tile coating significantly
    - Initial penetration to described by normal velocity
      - Varies with volume/mass of projectile (e.g., 200ft/sec for 3cu. ln)
    - Significant energy is required for the softer SOFI particle to penetrate the relatively hard tile coating
      - Test results do show that it is possible at sufficient mass and velocity
    - Conversely, once tile is penetrated SOFI can cause significant damage
      - Minor variations in total energy (above penetration level) can cause significant tile damage
  - Flight condition is significantly outside of test database
    - Volume of ramp is 1920cu in vs 3 cu in for test
What does it mean to effectively teach in large lectures?
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participatory culture
A participatory culture has relatively low barriers to artistic expression and civic
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In a participatory culture, members also believe their contributions matter and feel some degree of social connection with one another.

Jenkins et al., Confronting the challenges of participatory culture
participatory culture
Effective teaching in large lectures involves cultivating distributed cognition, making use of available tools and spaces, and fostering engaged enquiry.
Twitter can be an invaluable resource for students to develop disciplinary knowledge and contribute to global conversations.
Twitter can readily be used in large lectures to create a backchannel and allow students to participate in collaborative note-taking.
Lisa-Marie @sing_a_long
Page 5: ‘technologies have helped people interested in democracy build extensive networks...and organise political action’ #edgu1002

katie Yeaman @katieYeaman
Technologies helped interest in democracy build extensive networks, create social capital and create desire for political freedom. #EDGU1002

Zara Stanton @zara_stanton
Page 7: “Political parties and social movements have become particularly adept at using social media to their advantage” #edgu1002

Brendan Colnan @BrendanColnan
#edgu1002 Technology is bridging the gap between people on opposite ends of the spectrums of wealth and opportunity.

Pat Johnson @_jeezypeezy
Social media is used as an agent for social change and public voice #edgu1002

Madeline Eades @madelinejenny
#EDGU1002 P.2 "Social media was used heavily to conduct political conversations by a key demographic group in the revolution"

Baris @lastmove7
The article shows that blogging had helped the protest in Tunisia grow through extremely talented tech savvy hackers. #EDGU1002

Alex Kim @alexkimalexkim
Social media helped spread word globally about the oppressive Tunisian Government. #EDGU1002
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As online learning tool, wikis can be a way for students to collaboratively engage in learning tasks.
Digital tools and online spaces provide a way for students to learn from and with each other and for teachers to formatively assess student learning.
participatory culture

- play
- performance
- simulation
- appropriation
- multitasking
- distributed cognition
- collective intelligence
- judgement
- transmedia navigation
- networking
- negotiation
Thank you!

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