Trends in higher education: How can we stay ahead (or even keep up)?

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Things we talk about

• Abstract and situated knowledge
• Technology is a player in teaching
• Excellent instruction is evolving
• Collaborative inquiry into learning
• Efficient and successful institutions
• Public articulation of our work

National Research Council

• Cognitive science brought to bear on models of teaching

Various challenges

• What do we mean by understanding?
Carnegie Mellon University
research on expertise and learning

Meta-cognition is a top-down process that is learned from the bottom up

Learning in Context

How do we respond

• **Keep up:**
  – Teach for deep learning
  – Examine measures of success
  – Demonstrate beyond memory

• **Stay ahead:**
  – Look downstream at skills
  – Match preparation to future
  – Avoid simple reproduction
  – Demonstrate generality of learning
  – NUS liberal arts initiative is a great opportunity
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NUS well positioned

- IVLE active
- E-learning week
- Centre for Instructional Technology

Collaboration with faculty

- Centre for Development of Teaching and Learning

Responding to reading

<table>
<thead>
<tr>
<th>Topic</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinds of Punishment</td>
<td>1/4</td>
</tr>
<tr>
<td>Features of Punishment</td>
<td>0/5</td>
</tr>
<tr>
<td>Rules for Using Punishment</td>
<td>0/9</td>
</tr>
<tr>
<td>Problems with Punishment</td>
<td>0/3</td>
</tr>
</tbody>
</table>

Among the items in the outdoor play area, Jerry’s favorite is the water-tub where they can泼水 and other objects. Unfortunately, he also enjoys splashing water on the other children whenever he is playing there—a behavior that upset the children as well as their parents whenever they hear about it. If Jerry’s teacher were to use TIME-OUT to decrease this behavior, which of the following should she use?

Your Answer: removing Jerry from the water-tub area every time he does this

Comment: Time away from enjoyable settings is one of the classical forms of TIME-OUT. It’s a simple procedure although sometimes hard to do in public.
Responding to other students

Collaborative writing assignment

Leza Logue Group - Self Control

Old questions

New questions

Most recent

Tracking learning over time

Shift up for overall conversation

Levels of Achievement

Percent Students

2006

2007
CMU trumps MIT

Open & Free Courses
No instructors, no credits, no charge.
Use these self-guiding materials and activities to learn at your own pace!
You can work alone or with others on the "Netрактива". You will have the opportunity to test your knowledge and skills.

Adaptive Tutorials
This course includes self-guiding materials and activities, and is ideal for independent learners, or instructors trying out this course package.
OLI does not provide any verification of completion.
If you would like to receive credits for completing this course, please make arrangements with your local institution.

Research on effectiveness
The Open Learning Initiative: Measuring the Effectiveness of the OLI Statistics Course in Accelerating Student Learning
Marko Lovric, Oded Moyer, and Candace Tillee
Carnegie Mellon University
500 Forbes Ave, Pittsburgh,
USA
www.cmu.edu

- Learning in tutorial same as instructor
- Tutorial matches learning in half semester
How do we respond

• Keep up:
  – Take advantage of student interest
  – Keep teaching spaces up to date
  – Guide faculty use

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How do we respond

• Stay ahead:
  – Make E-learning a priority
  – Provide time for development
  – Build a climate of innovation
  – University Town potential is great
  – NUS can add E-learning to ways it is leading the community forward

20th Century Maxim

• G.B. Shaw:

  He who can, does.
  He who cannot, teaches.
Historical rejoinder

Aristotle:
In general it is a sign of the man who knows, he can teach, and therefore we think art more truly knowledge than experience is; for artists can teach and men of mere experience can not.

What is excellent teaching?
- Key is inquiry into learning
- Tracking student work and trying to improve quality and percent who succeed
- There is a time for telling
- Technology is not a substitute
- At its best, technology allows instructors to use lecture in its finest form

Excellent work is up to date
- This 1945 lab won a 1961 Nobel Prize
- No one ignores new resources for research
- Intellectual work on teaching has advanced beyond 1960’s methods

Mary Huber
- Cultural anthropologist
- Identified the qualities of scholarly work
- Not a definition, but a process of continuous exploration and growth
Scholarship Assessed (1997)

- Clear goals
- Adequate preparation
- Appropriate methods
- Significant results
- Effective presentation
- Reflective critique

Glassick, Huber, & Maeroff

APA Model of Excellence in Teaching

Continuous reflection and application of evidence-based instructional strategies

External Peer Review

- Joan Leitzel, Provost long ago
- “Highlight the peer reviewed work; don’t send me chapters in books edited by a graduate school colleague.”

Need sophisticated readers

- Walt Whitman:
- “To have great poets there must be great audiences too.”
Teaching **can be** serious intellectual work

- Identifying goals
- Designing instructional activities
- Developing opportunities to demonstrate understanding
- Evaluating effectiveness
- Qualifies as scholarship when public

How do we respond

- **Stay ahead:**
  - Embrace scholar metaphor
  - Expect up to date awareness
  - Capture products and reflection
  - Routinely provide comments
  - Seek formal peer review on the elements of inquiry into learning

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How do we respond

- **Keep up:**
  - Being clear about student work
  - Seek research on effective methods
  - Make student and faculty work visible
Conceptual Rationale

Conventional Design:
- Instructor Designs Course
- Students Engage Assignments
- Successful Students Proceed
- Unsuccessful Students Receive help
- Writing Center
- Library
- Goals Achieved

Progressive Design:
- Instructor Designs Course
- Students Engage Assignments
- Successful Students Proceed
- Unsuccessful Students Receive Consultation
- Writing Center
- Library
- Goals Achieved

Collaborative Design:
- Library Instruction
- Instructor Leads Course Design
- All Students Receive Iterative Consultation
- Universal Design as Guide
- Writing Center
- Goals Achieved

Design for learning

- Prof Andrea Greenhoot (Psychology)
- Evidence based advice column
- Librarian on search
- Writing Center on genres and audience
Samples of shorter work

- First assignment
- Helpful feedback
- Greenhoot makes this work visible for colleagues to learn from

Samples of longer work

- Find, read, and understand three pieces of primary literature
- Use the ideas to write an advice column for parents
- Demonstrate understanding via correct translation and application

Carefully structured feedback

<table>
<thead>
<tr>
<th>Points</th>
<th>Exemplary</th>
<th>Good</th>
<th>Limited</th>
<th>Unsatisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Thesis is clearly defined and focused</td>
<td>Thesis is clear, provides some direction for paper</td>
<td>Thesis is inappropriate, unclear, or incomplete</td>
<td></td>
</tr>
<tr>
<td>Study 1 Description</td>
<td>Accurate, appropriate level of detail</td>
<td>Accurate, appropriate level of detail</td>
<td>Sufficient and accurate, partly inaccurate, inappropriate, or unclear</td>
<td></td>
</tr>
<tr>
<td>Study 2 Description</td>
<td>Accurate, appropriate level of detail</td>
<td>Accurate, appropriate level of detail</td>
<td>Sufficient and accurate, partly inaccurate, inappropriate, or unclear</td>
<td></td>
</tr>
<tr>
<td>Study 3 Description</td>
<td>Accurate, appropriate level of detail</td>
<td>Accurate, appropriate level of detail</td>
<td>Sufficient and accurate, partly inaccurate, inappropriate, or unclear</td>
<td></td>
</tr>
<tr>
<td>Synthesis</td>
<td>Interesting, sophisticated, insightful integration of findings of 3 studies (note that this may be integrated into the body of the paper)</td>
<td>Sufficient and accurate integration/comparison of 3 studies</td>
<td>Sufficient and accurate integration/comparison of 3 studies</td>
<td></td>
</tr>
<tr>
<td>Conclusion/Recommendations</td>
<td>Extends and connects ideas, insightful comments</td>
<td>Satisfactory: Purposeful, appropriate comments</td>
<td>Unlikely, incomplete, or inappropriate; Summaries previously stated information</td>
<td></td>
</tr>
</tbody>
</table>

Look at distributions

- Gradual shift in student performance
- Losing the bottom end of work
- Continuous replication
Cumulative inquiry

The Evolution of an Assignment: Timeline

- Simplification and Scaffolding
  - Reduced number of required sources
  - Grading rubric
  - Supporting (in-class) assignment
- Efforts to Improve Data Gathering
  - In-class literature search instruction
  - Source identification contributes more to grade
  - Write paragraphs about relevance of sources
- Additional Scaffolding and Instructional Partnership
  - Partnership with Libraries and IT
  - Literature Search Lab
  - Article summaries and Writing Workshop
  - New supporting assignments
  - Increased target assignment difficulty

Generalists and specialists

- Richard Felder, Prof of Engineering
- Zero correlation between teaching and research skill
- Calls for specialists and collaboration

How do we respond

- Keep up:
  - Build teams for teaching
  - Humanities only area with solo work
  - Social/natural sciences and professional areas collaborate in research and application

- Stay ahead:
  - Advance team quality
  - Make them a public asset
  - Share the advances they develop
  - University Town has high potential
  - Continuous inquiry into technology, residential education, integrated learning, and team development
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Completion and Quality

- National panel
- Access for all
- Deep understanding
- High completion
- Cultural and economic miracle

Failure: Waste of time and money

- Long ago it was desirable to filter
- Government and leaders saw problem in losing 50% of entrants
- Hubris of aiming for 100% high end work
- Joint problems:
  - Talent
  - Motivation
  - Background and preparation

Reanalysis of work

- Critiques our preparation as irrelevant and unnecessary
- Analyzes the culture of work into the future
How do we respond

• **Keep up**:
  – Improve retention and completion
  – Preserve quality at the same time
  – Use technology to achieve goals

How do we respond

• **Stay ahead**:
  – Embrace OLI fully
  – Document learning quality
  – Go for full hybrid in any location
  – Hold to standards
  – Preserve competence over seat time
  – Constantly re-evaluate our goals

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Support will come and go

• Those who provide funds want reports
• Much resistance from faculty generally
• Many variables beyond our control
• Rankings make matters worse
Outcome measurement is unsatisfying

- Measurable entities are unhappily concrete
- Many variables contribute to learning
  - Family and cultural foundation
  - Educational preparation
  - Motivation for studying and learning
  - Some variation in talent
- Within those limits we contribute something

“No whining on the yacht.”

- Prof Ann Brill, Dean of Journalism
- Public funding carries responsibility
- Avoid trap of dismissing parents, officials, and politicians

What do these three people have in common?

How do we respond

- Keep up:
  - Be very clear about goals
  - Happily keep track of progress
  - Make that evidence public and use it
How do we respond

- **Stay ahead:**
  - Make focus on learning a signature
  - Be public on continuous improvement
  - Embrace our partial contribution
  - Listen on matters of priorities
  - Lead firmly on matters of competence

How does this all fit together?

- Abstract and situated knowledge
- Technology is a player in teaching
- Excellent instruction is evolving
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Excellent teaching is serious intellectual work

- Connected with community on goals
- Based on evidence of effectiveness
- Reflection on learning generates insight
- Track a positive trajectory for instructors and for students
- Make that as public as research
- Genuinely welcome comment
- The keys to all good scholarship