Technology in Education

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Technology in Education

• Disclosures
  – Just my humble opinion

Technology in Education

• Things you can control
  (you)
• Things you can not control
  (everything else)

Technology in Education

• Students capture maybe 30% of a lectures points in notes
• 3 weeks later, most students remember <10% of lecture facts

How do we change this?

Technology in Education

• Teaching and Lecturing
• Effective Lecturers
• Future of Education Technology
Teaching and Lecturing

• Lecturing ≠ Teaching
  – With lecturing, you are in control
  – With teaching, you never know what is going to happen
    • Tabula rasa

• Teaching
  – Academics
    • Frustrating
    • Challenging
    • Anxiety producing

• Print/Online is better than Lecturing
  – Students can read faster than a lecture
  – Students can go back to review material
  – Students can skip irrelevant material
  – Lecturers go alone at their own pace, without feedback

• Lecturing
  – If you want to learn something well, put together a talk cover the subject
  – If you want to learn something REALLY well, put together a talk and give that talk in front of experts in the field

• Teaching is better than Lecturing
  – Student retention following course
  – Transfer of knowledge to new situations
  – Motivation of further learning
  – Development of problem solving, thinking, attitude change


• Lecturing is better than Teaching
  – Presenting up to date material
  – Summarizing material from different sources
  – Adapting material to audience
  – Focusing discussions on key concepts, ideas, and principles
Teaching and Lecturing

• Lecturing is better than Teaching
  – Bring attention to specific problems
    • Conflicting point of views
    • Challenging ideas
  – Stimulate a region of interest in areas of focused learning
  – Guide students with enthusiasm and attitudes
    • Important effect on student motivation

Passive teaching methods
Interactive teaching methods

5% Lecture
10% Reading
20% Audio-Visual
30% Demonstration
50% Group Discussion
75% Practice
90% Teaching Others

Adapted from National Training Laboratories, Bethel, Maine

Teaching and Lecturing

• Most student learning occurs outside of the lecture hall
  – Therefore we should direct our attention to stimulating and guiding student learning


Teaching and Lecturing

• “Information is not knowledge … Knowledge is information that is experienced and interpreted by humans …”

Teaching and Lecturing

• What is important is learning, not teaching
  – What the teacher does?
  – What the student does?
• Teaching involves listening as much as talking
• Dispensing knowledge vs teaching to learn/think

Teaching and Lecturing

• Intellectually challenging experience
  – Interactivity
  – Questioning
  – Demonstrations
  – Case examples/reports
  – Problem solving exercises
  – Student presentations/small group work
  – Brainstorming/games
Technology in Education

- Teaching and Lecturing
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Effective Lecturers

- Telling a story
  - Introduction
  - Characters
  - Setting
  - Plot
  - Conflict
  - Resolution

Effective Lecturers

- Tell them what you are going to tell them
- Tell them
- Tell them what you told them

Effective Lecturers

- Effective lecturers
  - Energy
  - Voice variations
  - Expressiveness
  - Motion
  - Eye contact
  - Gestures

Effective Lecturers

- Sign posts
  - Directions

Effective Lecturers

- Research on student rating of teachers and student learning
  - Enthusiasm
  - Dr Fox effect

Effective Lecturers

- Characteristics of effective lecturers
  - Scholar
  - Researcher
  - Writer
  - Producer
  - Comedian
  - Entertainer
  - Teacher

Effective Lecturers

- Cognitive psychology
  - Memory
  - Telling a fact vs telling a story


Effective Lecturers

- Lecture notes from 75 different Universities
  - Extensive lecture notes
    - Helped keep on topic/cover main points
    - Helped keep on time
    - Took away eye contact
    - Induced a passive, non questioning student role
  - Recommended use of graphical representation of notes to increase flexibility and spontaneity

Technology

- PowerPoint
- Audience response systems
- Interactive whiteboards
- BYOD – bring your own device

Technology

- PowerPoint: the good, the bad, and the ugly...
  - Font
  - Font size
  - Transitions
  - Animations

- …or PowerPoint poisoning…
Technology

- Arial
  - This is a type of font
  - There are hundreds of different options
  - One of these is easier to read, can you tell which one?

Sans-serif font

- Times New Roman
  - This is a type of font
  - There are hundreds of different options
  - One of these is easier to read, can you tell which one?

Serif font

Technology

- Sans-serif fonts
  - Arial
  - Calibri
  - Candara
  - Tahoma
  - Verdana

- Serif fonts
  - Cambria
  - Courier
  - Times
  - Times New Roman
  - Georgia
  - Palatino linotype

Technology

- Different font sizes
  - Arial 28 font size
    - Arial 24 font size
      - Arial 20
      - Arial 18
      - Arial 16
      - Arial 14
      - Arial 12
      - Arial 10
  - Verdana 28 font size
    - Verdana 24 font size
      - Verdana 20
      - Verdana 18
      - Verdana 14
      - Verdana 12
      - Verdana 10

Don’t use smaller than 20 font

Technology

- Slide transitions
  - …or…”please God, make it stop…”
  - Years ago, I accidentally showed someone who knew very little about computers the slide transitions in PowerPoint
    - I knew right away it was a huge mistake
    - Because he was so excited about it
    - He gave a talk the next day with transitions set on "random"
    - I was amazed… and tried to sink into my seat as I watched the horror unfold slowly in front of me…

This is an actual slide

- From an actual background I really saw at a conference
  - no, I’m not lying

- Used at an actual conference

- It is hard to read white text on a white background it turns out
There are lots of neat backgrounds you can choose from.

- You can even choose different fonts.
- But just because you can do something, does not mean that you should do it.

Effective Lecturers

- Telling a story
  - Introduction
  - Characters
  - Setting
  - Plot
  - Conflict
  - Resolution
  - No distractions

Minimize Distractions

- Slide animations…
  - or “please God, make it stop!”

Technology

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**Technology**

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**BYOD**

[pollev.com/wiggins](http://pollev.com/wiggins)

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**Future Lectures**

- “the illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.”
  – Alvin Toffler

**Future Lectures**

- So, what are the students doing during a lecture?

  ![Tech Use During Lecture](http://stanfordflipsides.com/2009/02/graphic-what-are-we-doing-on-our-computers-during-lecture)

  - 13%: Facebook stalking the professor.
  - 11%: Watching a different lecture.
  - 15%: Registering in an account on eHarmony.com.
  - 12%: Editing the Wikipedia talk page for Roger Rabbit.
  - 28%: Posting to faplife.com. FML.
  - 9%: Fixing makeup using Photosbooth.

**Flipping the Classroom**

- Blended learning
  - Asynchronous learning and interactivity
    - Between students, peers, and teachers
  - Interactive (learner-centric) session
    - Face to Face (F2F)
Flipping the Classroom

**Sage on the Stage**
- Traditional
  - Teacher lectures
  - Student takes notes
  - Students follow instructions
  - Teacher gives assignments
  - Students do homework

**Guide on the Side**
- Flipped
  - Teacher instructs prior to class
  - Students work in class

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**Flipping the Classroom**

- Increase interactivity
- Constructivist learning
- Archived content
- Engagement through application
- Personalized education

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**Research or application?**
- Clintondale High School
  - 2010: over 50% 9th graders failed science
  - Almost 50% failed math
  - 2012: Post flip
    - English failure: dropped from 52% to 19%
    - Math failure: dropped from 45% to 13%
    - Science failure: dropped from 41% to 19%


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**Transmedia Storytelling**

- Different forms of media connecting to a single story line
  - Star Wars
  - Matrix
  - Year Zero ARG
  - Walking Dead

- How can we utilize this for our lectures?
Transmedia Storytelling

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  - How can we utilize this for our lectures?

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