Teaching on a Swivl
Integrating Technology to Foster Engaged Learning

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Students reported that most of their courses required little effort.

Reported studying slightly more than **12 hours per week**

Few courses required **40 pages or more of reading per week**

Writing **20 pages** over the course of the semester.
NSSE and FSSE Data

- Average full-time student studies 14.7 hours per week.
- Faculty expect 16.5 hours per week but their perception is closer to 9 hours per week.
- Carnegie Unit recommendation (2-3 hours out of class for every credit hour)
- A decrease* has been observed by ~10 hours between 1961 – 2003
  - Student empowerment ("Nonaggression pact")
  - Employers rely less on grades, more on educational pedigree

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2011 National Survey of Student Engagement
2010 Faculty Survey of Student Engagement
Babcock & Marks, 2011, Rev. Econ. & Stat.
Active Learning & Technology

**Most Learning (Single-Loop)**
Improvement within an existing system that rests on unchallenged assumptions that often are implicit and unchallenged.

**Double-Loop Learning**
Expanding the analytical framework to specifically (and explicitly) identify and challenge underlying assumptions/behaviors

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1974, Argyris & Schon
The idea
Utilize technology to increase student engagement outside of normal classroom activities.

How, what and why?
Swivl video capture & Livescribe pencasts
What is the Swivl?

**Hardware**

**The Robot**
A rotating robot that moves with the instructor

**Software**

**Swivl Capture**
Controls the robot, manage slides and video content (iOS or android)

**Cloud**

**Swivl Cloud**
Unlimited (almost) storage of course content and media, easy integration into myCourses
What is the Livescribe?

**Hardware**
- The pen
  - Pen with a camera that syncs with an audio recorder

**Software**
- Echo & Livescribe App
  - Stores digital copies of notes and audio files

**Cloud**
- Multiple apps
  - Store notes on multiple digital notebooks
MONEY
$800 Swivl
$200 Livescribe
(Title III Strengthening Institutions Grant – DOE)

Time
Swivl = moderate
Livescribe = moderate

Student Accessibility
Swivl – Videos immediately available

Livescribe – pencasts (pdf) immediately available
IDEA GROWTH
Utilization - Swivl

Students who viewed videos (n = 24)

Exam 1: 68%
Exam 2: 85%
Exam 3: 50%
Exam 4: 50%

Videos Viewed
- Exam 1: 4.2
- Exam 2: 3.2
- Exam 3: 2.3
- Exam 4: 2.7

Function
- review material
- missed class
- fill gaps in notes
Utilization - Livescribe

Students who utilized pencasts (n = 24)

Function
- email questions
- exam answer key
Impact on Student Engagement

How many hours per week have you spent studying/reviewing/learning course materials & content (since previous exam)?

How many hours per week did you spend on the online homework assignments?
Impact on Course Performance

2016

- Exam 1 = 74.2 (19.6)
- Exam 2 = 73.8 (20.3)
- Exam 3 = 78.1 (17.8)
- Exam 4 = 71.1 (25.6)
- Final Exam = 80.5 (12.8)
- Final Course Grade = 83.7 (12.5)

2017

- Exam 1 = 73.9 (22.3)
- Exam 2 = 76.3 (16.7)
- Exam 3 = 78.1 (14.3)
- Exam 4 = 74.4 (27.3)
- Final Exam = 81.0 (7.8)
- Final Course Grade = 82.5 (18.3)
Student Perceptions

Technology was used effectively to keep me engaged in this class  
4.55

The learning experience in this class was enhanced by the use of technology  
4.64

As a result of taking this class, I feel more confident in my ability to use technology.  
3.95
Next Steps

Systemic change in the course
Next Steps

Carefully incorporating technology where it makes sense

Developing assessment to measure skill development & student learning
Thank You

Questions?

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