Teaching on a Swivl

Integrating Technology to Foster Engaged Learning

QUEENS COLLEGE of ARTS & SCIENCES | Department of Environmental Science and Chemistry

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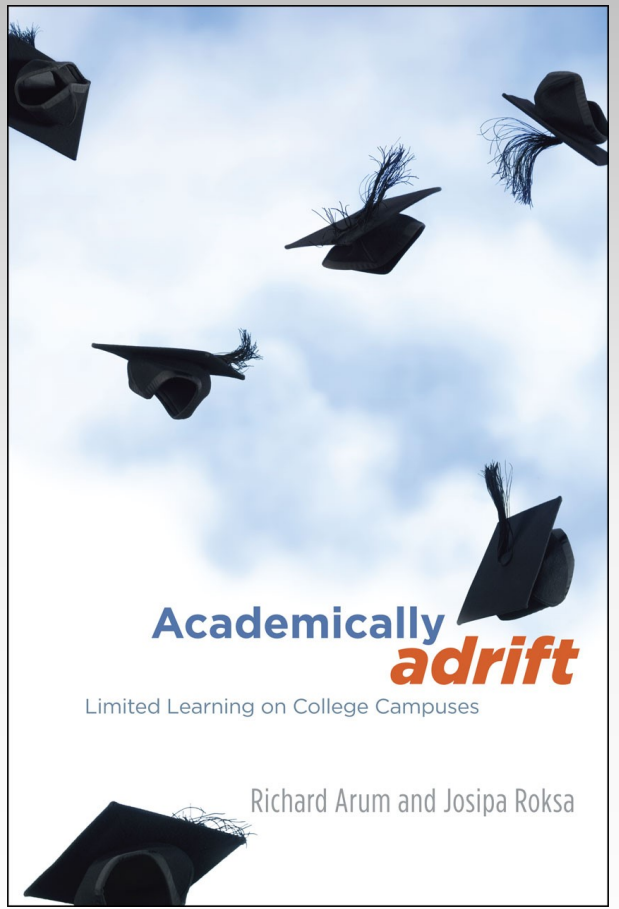
Academically Adrift

- 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.



Academically Adrift – 2011, University of Chicago Press

NSSE and FSSE Data

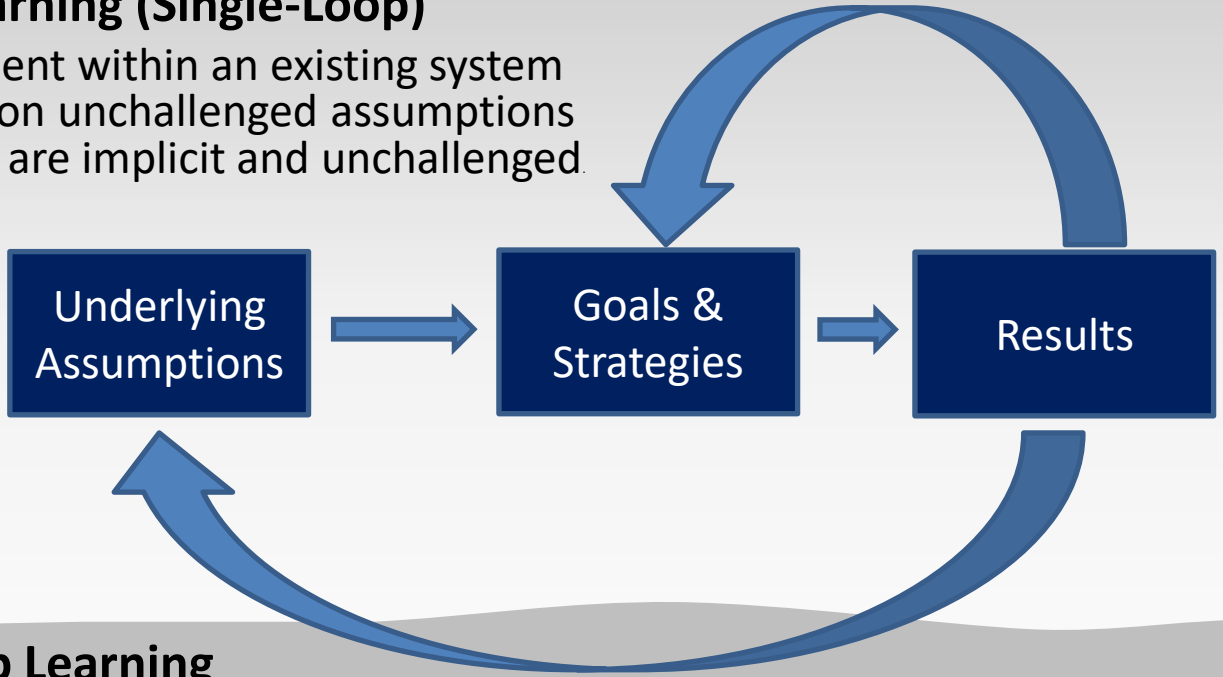
- Average full-time student studies 14.7 hours per week.
- Faculty expect 16.5 hours per week but their perception is closer to 9 hours per week.
- Carnegie Unit recommendation (2-3 hours out of class for every credit hour)
- A decrease* has been observed by ~10 hours between 1961 – 2003
  - Student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

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.



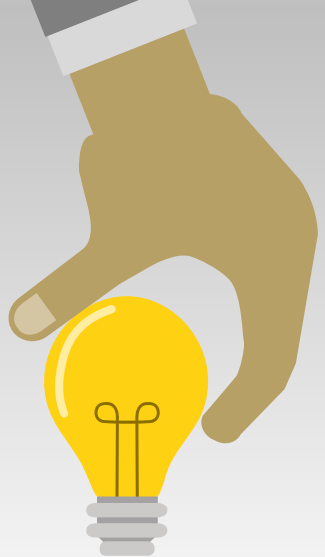
Double-Loop Learning

Expanding the analytical framework to specifically (and explicitly) identify and challenge underlying assumptions/behaviors.

1974, Argyris & Schon

The idea

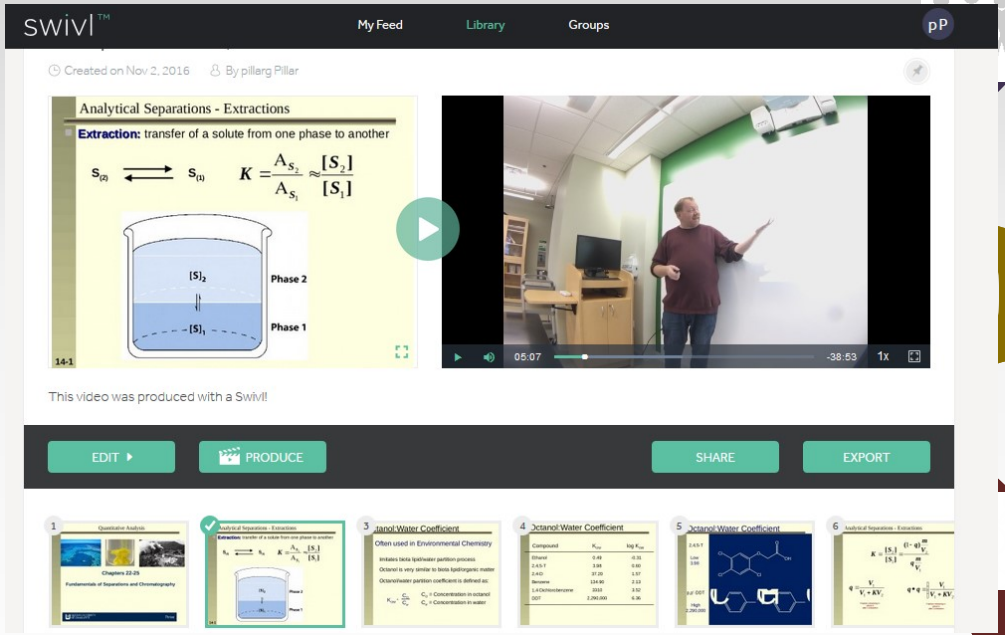
Utilize technology to increase student engagement outside of normal classroom activities.



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

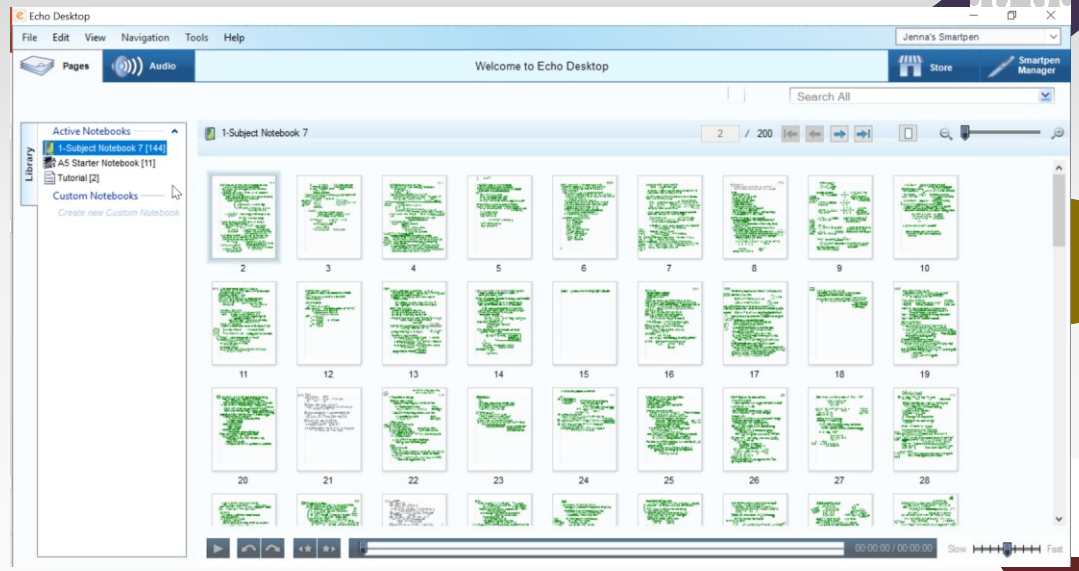
Controls the robot, manage slides and video content (iOS or android)

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

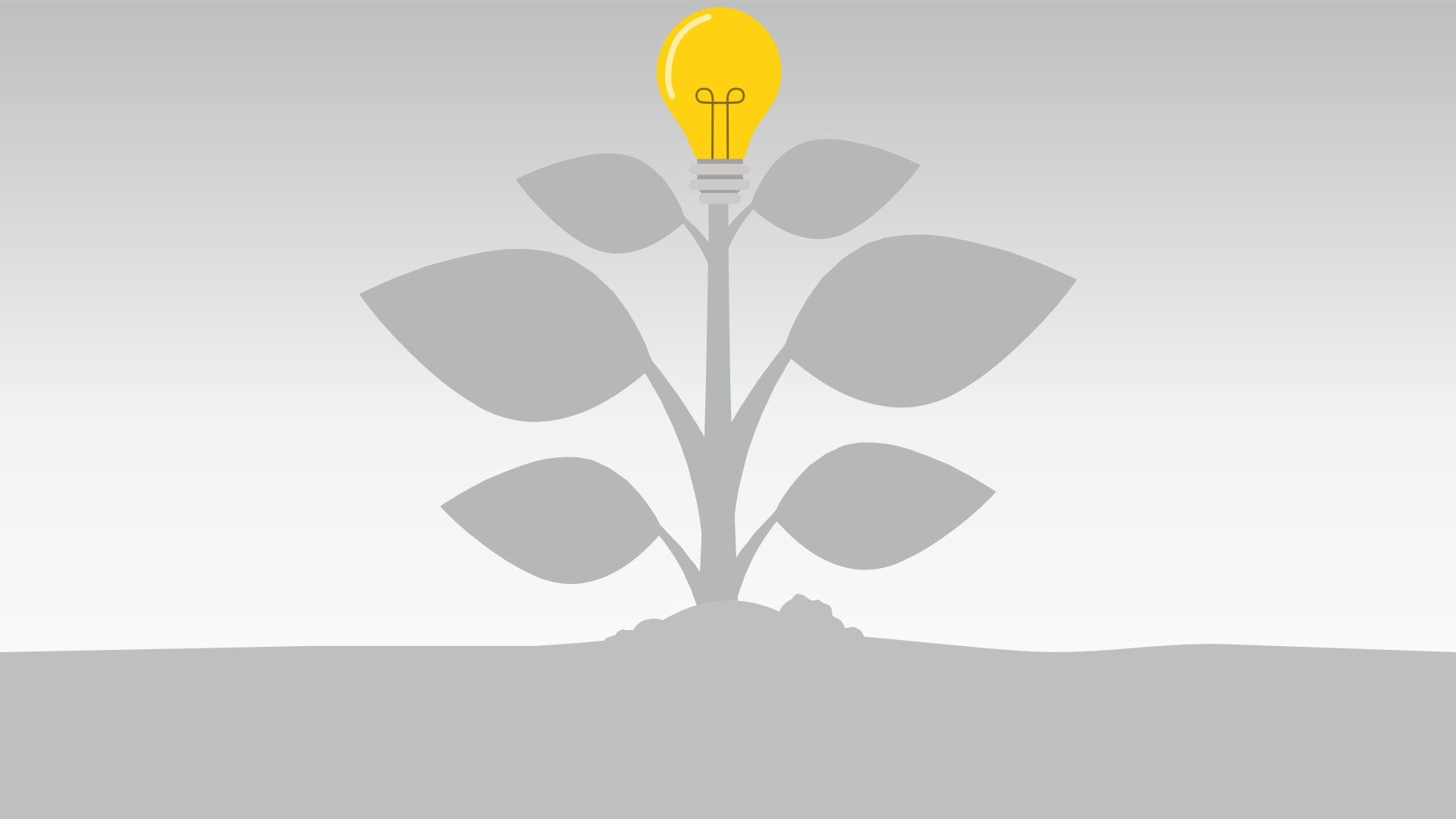
Swivl = moderate
Livescribe = moderate

Student Accessibility

Swivl – Videos immediately available

Livescribe – pencasts (pdf) immediately available

IDEA GROWTH



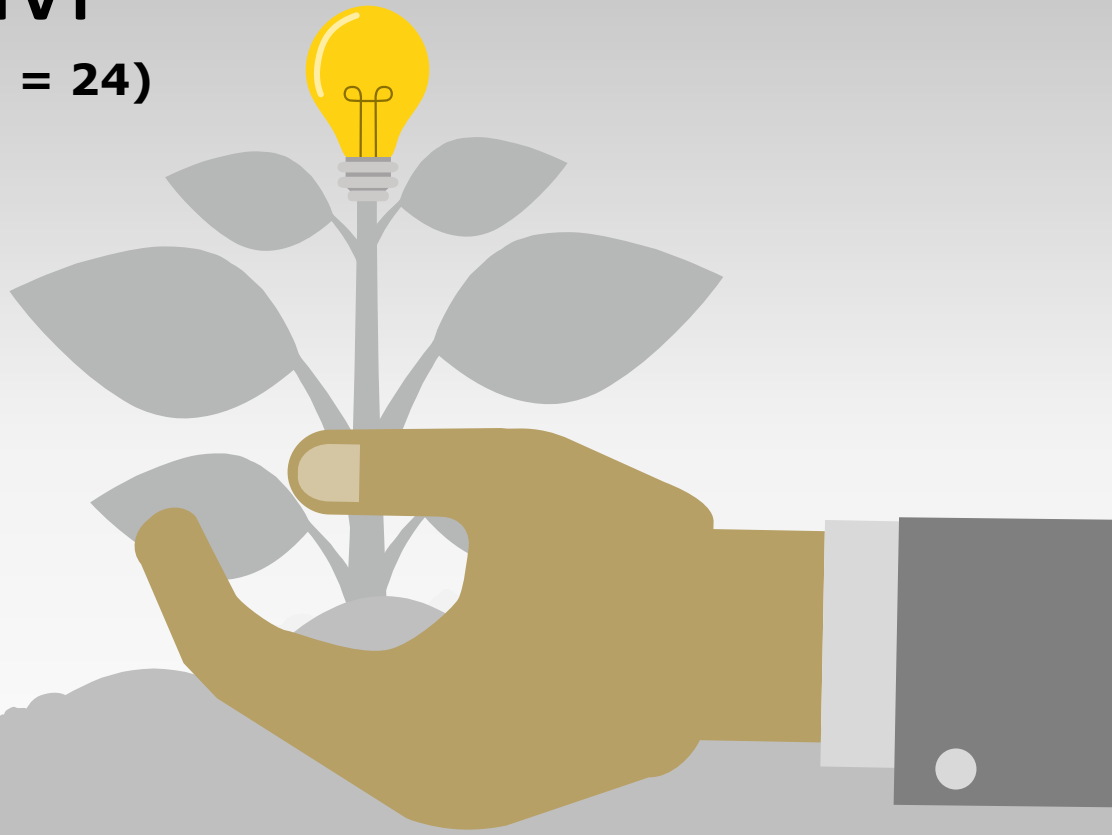
Utilization - Swivl

Students who viewed videos (n = 24)

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

Videos Viewed

Exam 1	Exam 2	Exam 3	Exam 4
4.2	3.2	2.3	2.7

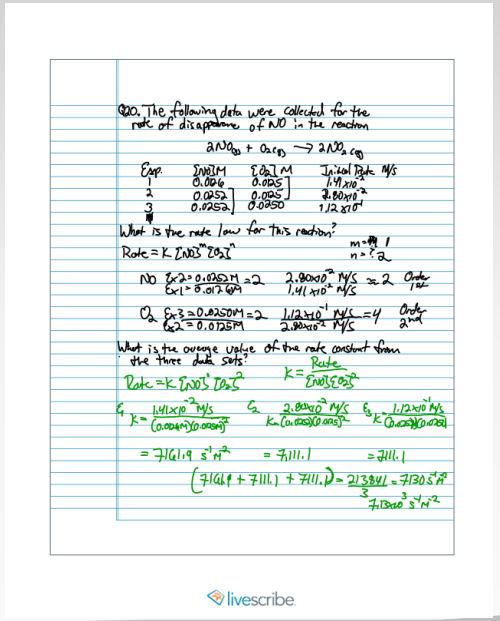


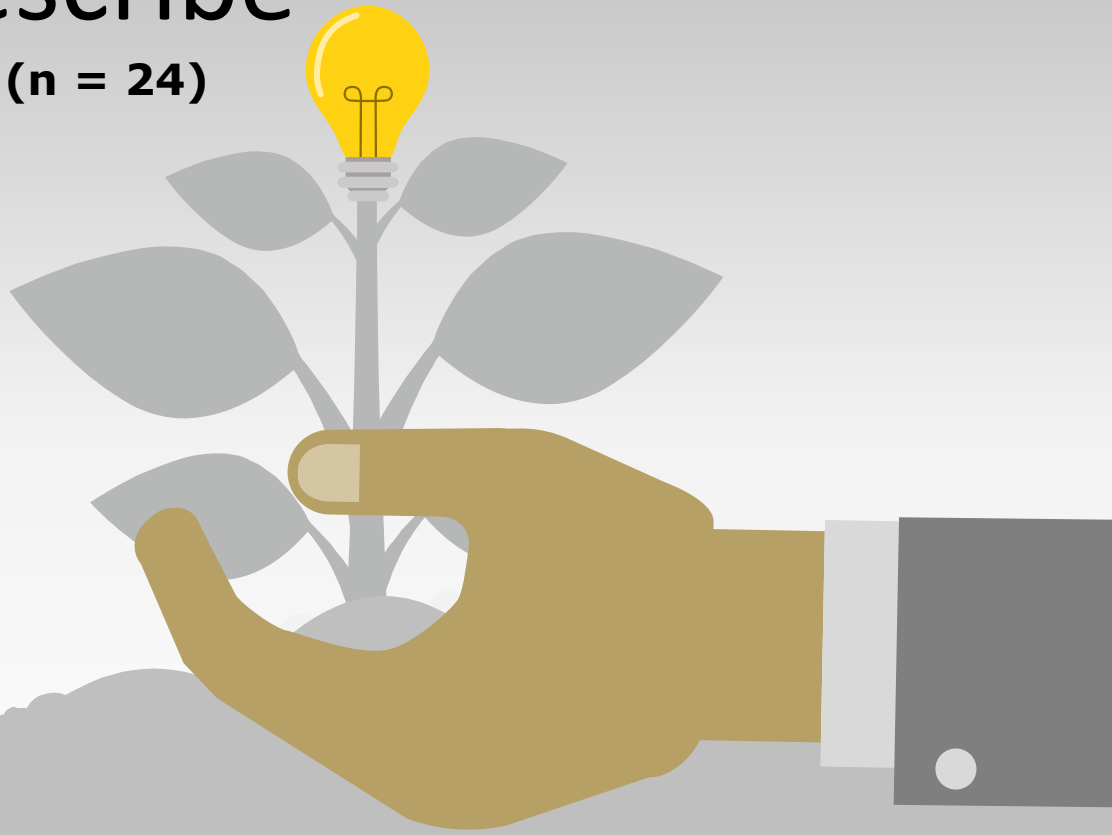
Function

- review material
- missed class
- fill gaps in notes

Utilization - Livescribe

Students who utilized pencasts (n = 24)

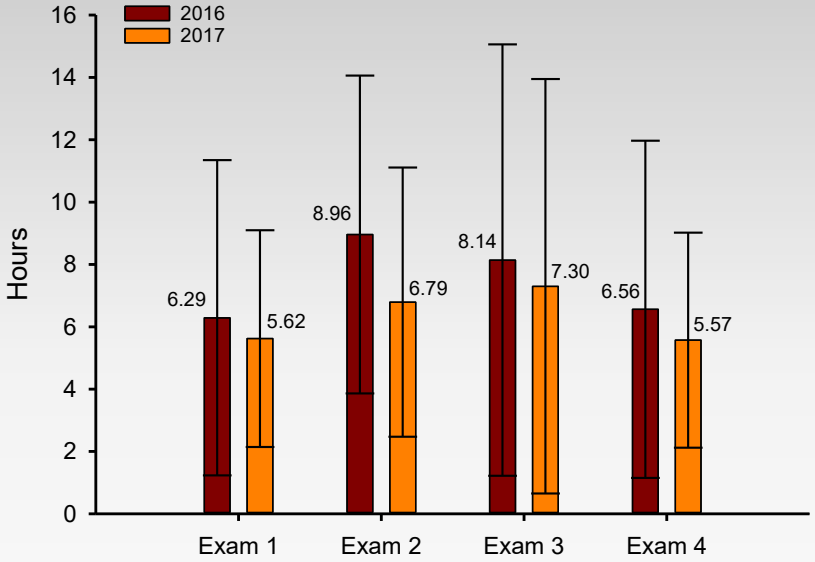




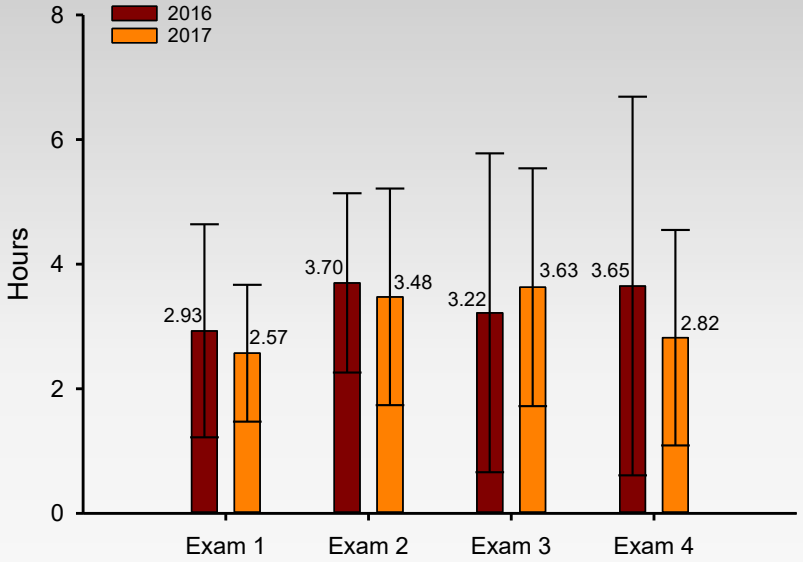
Function

- 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)

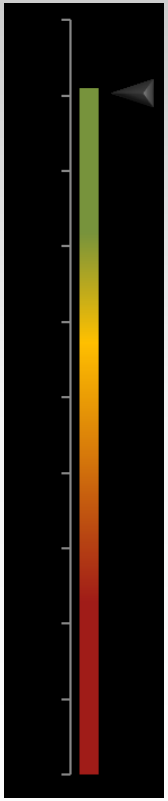
2017

- 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

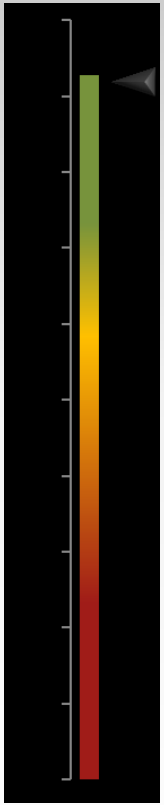
Technology was used effectively to keep me engaged in this class

4.55



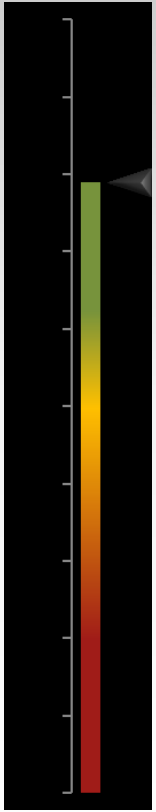
The learning experience in this class was enhanced by the use of technology

4.64



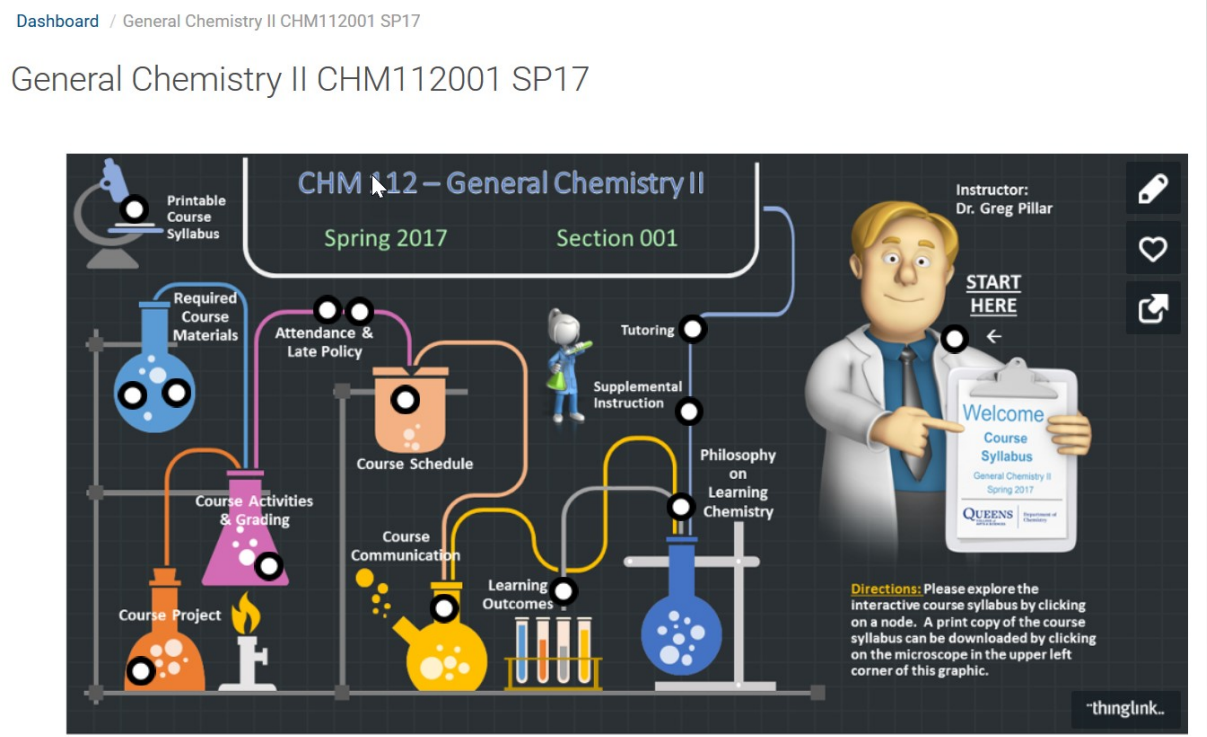
As a result of taking this class, I feel more confident in my ability to use technology.

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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