

# Blended Learning

Methods used and lessons learned

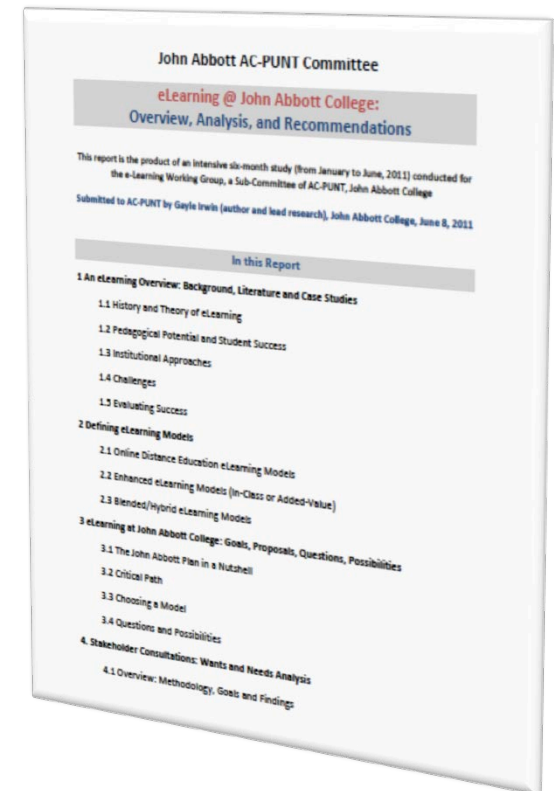
Eileen Kerwin Jones – Humanities

Greg Mulcair – Physics



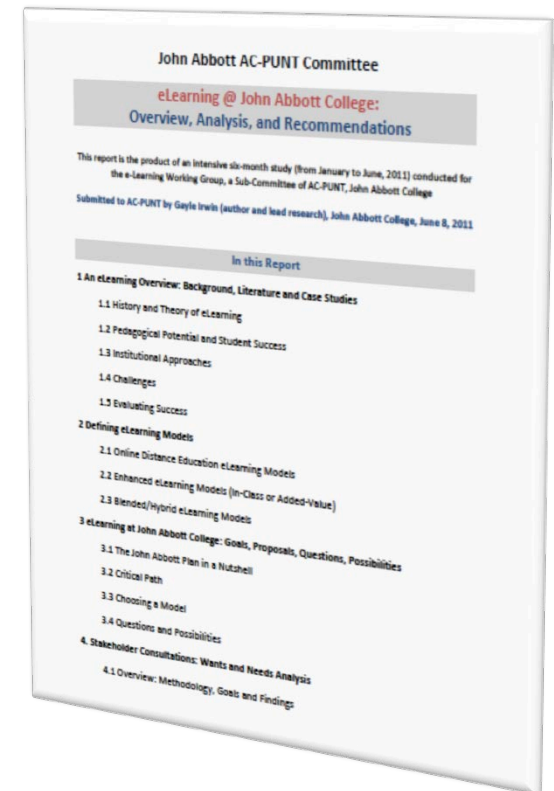
# A brief history

- ◆ In June 2011, the interim report **eLearning @ John Abbott College: Overview, Analysis and Recommendations** was presented as information to Academic Council by Gayle Irwin, the author and lead researcher, on behalf of the Academic Council subcommittee Pedagogical Use of New Technology.



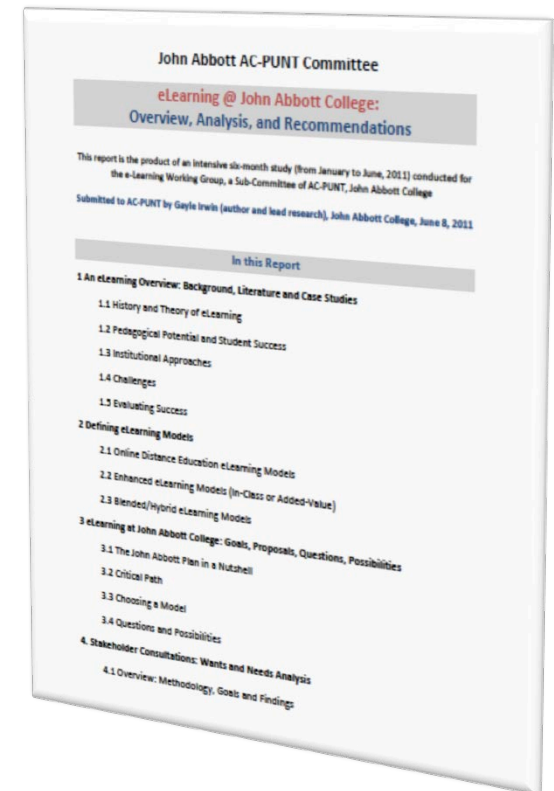
# A brief history

- ◆ The report included:
  - ◆ Research into existing eLearning case studies, reports and other literature.
  - ◆ Review of the different eLearning models
  - ◆ Possible paths for eLearning at JAC
  - ◆ Best practices and recommendations



# A brief history

- One of the recommendations of the eLearning report was that two blended learning pilot projects be conducted.
- The report proposed that Instructional Designers and/or eLearning Specialists assist in building the eLearning pilots.



# Blended Learning Pilot Projects

- ◆ The two pilots for this blended learning initiative were taken up by the following teachers:

Eileen Kerwin Jones – Humanities  
*Current Events: Reading our Global World*

Greg Mulcair – Physics  
*NYC – Waves, Optics and Modern Physics*





# Physics Blended Learning Pilot

Physics NYC – Waves, Optics and Modern Physics  
Greg Mulcair



# Physics Blended Learning Pilot

- ◆ Teacher: Greg Mulcair
  - ◆ B.Eng. (Mechanical, McGill); M.Eng. (Aero, Polytechnique)
  - ◆ Three years teaching at John Abbott (since Winter 2009)
  - ◆ Teacher in the Physics and Engineering Tech. departments
- ◆ Course: Physics NYC – Waves, Optics and Modern Physics
  - ◆ Usually taken by students in their final semester
  - ◆ 3-2-3: Two 1h20min lectures, one 2h lab per week
  - ◆ 45 students in two sections (lecture is combined, lab is split)



# Physics pilot: Winter 2012

- ◆ The official Winter 2012 schedule of classes explained to students that my Physics NYC course would be a blended course by saying the following before they registered:

*“A significant component of this course will take place on line and will require reliable access to a computer with high speed internet service.”*





# My teaching style

(irrespective of the blended learning pilot)

- ◆ Traditional lectures using SmartBoard and chalkboard.
- ◆ Lectures include demos, discussions, simulations and peer instruction to keep students engaged.
- ◆ Labs are done “with the recipe” (they are given a complete procedure). Students are encouraged to troubleshoot on their own when encountering problems.
- ◆ Day-by-day course calendar (see the next slide).
- ◆ All slides and content are posted online after every class.



# A page from the course calendar I give my students

Physics NYC – Fall 2011

Calendar and study guide

Greg Mulcair

Week # Week of	Monday (class) 16:00	Wednesday (class) 16:00	Friday (lab) 12:30 & 14:30	• Assignments • Problem Sets
Week 5 Sep. 19	<p><b>16.1</b> Sound is a <i>longitudinal</i> wave that can travel through gas (i.e. air), liquid or solid.</p> <p><b>Note:</b> For longitudinal waves, the particle displacements (amplitude = <math>A</math>) <u>and</u> the pressure differences (amplitude = <math>p_{max}</math>) move parallel to the wave motion.</p> <p><b>16.3</b> Sound intensity (<math>I</math>) is found like in ch.15.5</p> <p><b>16.3</b> Sound intensity level (<math>\beta</math>) uses a logarithmic scale to cover the range of human hearing.</p> $\beta = (10 \text{ dB}) \log \frac{I}{I_0} \quad \text{where } I_0 = 10^{-12} \text{ W/m}^2$ <p>Recall: <math>\log 10=1</math>, <math>\log 100=2</math>, <math>\log 1000=3</math>, etc...</p> <p><b>16.4</b> Like ch.15.8, standing <i>sound</i> waves create nodes and antinodes of particle displacement A displacement node is a pressure antinode A displacement antinode is a pressure node</p> <p><b>16.4</b> Standing sound waves can be created in pipes and tubes: open ends are pressure nodes; closed ends are pressure antinodes.</p> <p><b>16.4</b> A pipe has one end open. The other end is either open (open pipe) or closed (stopped pipe) and the normal mode frequencies are:</p> <p>Open pipe: <math>f_n = \frac{nv}{2L}</math> (<math>n = 1, 2, 3, \dots</math>)</p> <p>Stopped pipe: <math>f_n = \frac{nv}{4L}</math> (<math>n = 1, 3, 5, \dots</math>)</p> <p><b>16.4</b> Like strings, the standing waves in a pipe are combinations of several normal modes so we hear the fundamental mode plus harmonics.</p>	<p><b>16.5</b> In ch.13.8 we saw resonance for systems with one normal mode (i.e. pendulum). This also applies to systems with many normal modes (i.e. sound waves in pipes). If we drive a system (e.g. organ pipe) at the same frequency as any of its normal modes, the sound amplitude will sharply increase.</p> <p><b>16.6</b> When waves of same frequency overlap (e.g. sound from speakers), there's <b>interference</b>:</p> <p><b>Constructive</b> interference: distance travelled by the two waves differs by <math>0, \lambda, 2\lambda, 3\lambda, \dots</math></p> <p><b>Destructive</b> interference: distance travelled by the two waves differs by <math>\lambda/2, 3\lambda/2, 5\lambda/2, \dots</math></p> <p><b>16.7</b> When waves of differing frequencies but same amplitude overlap, there are variations in loudness called <b>beats</b> that occur at a certain beat frequency: <math>f_{beat} = f_a - f_b</math></p> <p><b>16.8</b> When a source of sound moves, the change in frequency is called the Doppler effect:</p> $f_L = \frac{v + v_L}{v + v_S} f_S$ <p>where: <math>f_L</math> = listener frequency <math>f_S</math> = source frequency <math>v_L</math> = listener velocity <math>v_S</math> = source velocity <math>v</math> = speed of sound = 343 m/s</p> <p>The direction from the listener to the source is set as the positive direction. All velocities are written following that sign convention.</p>	<p>Lab 4: Standing Waves</p>	<ul style="list-style-type: none"> <li>• Assignment 3 <i>Due Sep.25 at 11pm</i></li> <li>• Problem Set 3</li> <li>• Study for Test 1 <ul style="list-style-type: none"> <li>• Lectures</li> <li>• Textbook</li> <li>• Assignments 1-3</li> <li>• Problem Sets 1-3</li> </ul> </li> </ul>
Week 6 Sep. 26	Overflow class / Review of Unit 1	Test 1	Module Project intro and begin	

# My teaching style

(irrespective of the blended learning pilot)

- ◆ Student-centred learning is an approach whereby students are actively engaged in their learning, and the teacher facilitates this. Two main approaches I use are:
  - ◆ Peer Instruction (PI)
  - ◆ Problem Based Learning (PBLs)
- ◆ Much can be said of this (my colleagues and I recently gave a workshop on the topic in India), but this is for another day.



# The Pilot: Pedagogical and technical tools

Blended Learning Pilot

Physics NYC – Waves, Optics and Modern Physics  
Greg Mulcair



# Pedagogical and technical tools

## As used in the blended learning pilot

- ◆ I'll give a **brief** overview of the following (interrupt me at any time):
  - ◆ ePhysics.ca website (a custom-built website for my students)
  - ◆ Video solutions
  - ◆ Online assignments (Lon-Capa)
  - ◆ Webinars
  - ◆ eLesson (distance ed.)





# ePhysics.ca website

Blended Learning Pilot

Physics NYC – Waves, Optics and Modern Physics

Greg Mulcair





# ePhysics.ca website

- ◆ I built [www.ePhysics.ca](http://www.ePhysics.ca) for features unavailable with Lea:
  - ◆ Video Solutions that can be streamed on desktop computers and mobile devices
  - ◆ A survey given the first week to determine the students' comfort level with computers and the Internet
  - ◆ A poll for each Problem Set where students can vote on the problems for which they'd most like a video solution
  - ◆ Videos of past webinars
  - ◆ Other: Posting the “Physics Question of the Week”





# ePhysics @ CEGEP JOHN ABBOTT COLLEGE



## NYC Assignment 1 – Indiana Jones

Posted on 27 Jan, 2012 by Greg Mulcair in Greg Mulcair, NYC, Unit 1, Video Solutions, Videos

In the figure, Indiana Jones is swinging from a rope. The distance between the pivot point and his center of mass is 31.0 m. He begins swinging from rest at an angle  $\theta = 18.0^\circ$  as shown in the figure. Assuming that Indiana and the rope can be treated as a simple pendulum, what is the value of  $\theta$  after 1.33 s (in degrees)?

$x = 18^\circ \cos(\omega t + \phi)$

**Pendulums, Simple Harmonic Motion**

### GREG MULCAIR'S NYC

- NYC Assignment 4 – Two antennas
- NYC Assignment 3 – Length
- NYC Assignment 3 – Beats
- NYC Assignment 3 – Pain Threshold

### VIDEO SOLUTIONS

- NYC Assignment 4 – Two antennas
- NYC Assignment 3 – Beats
- NYC Assignment 3 – Pain Threshold
- NYC Assignment 3 – Standing Sound Wave in a Long Pipe

**TAGS** Beats Electric fields Electric potential Electric Potential energy Equipotential surfaces Field lines Multiple choice Pendulums Percent

Projectile motion **Simple Harmonic Motion** Sound intensity Sound intensity level Sound Waves springs Standing Waves String Tension Traveling Waves Waves **Webinar**

Students can get notifications of new posts by subscribing

Browse by teacher/class: Caroline Viger recently joined me on ePhysics.ca

Students can search for content

Videos can be streamed from desktop or mobile

The latest Posts and Video Solutions appear in the sidebar

All posts (video, etc) on ePhysics.ca can be given a tag (category). This "tag cloud" then displays them with a font size proportional to the number of posts

Students can comment using Twitter/Facebook/Google/other accounts

Add New Comment

Type your comment here.

Showing 0 comments

Sort by popular now

Subscribe by email RSS

# Video solutions

Blended Learning Pilot

Physics NYC – Waves, Optics and Modern Physics

Greg Mulcair



# Video solutions

- ◆ I record solutions to problems that students can watch whenever, and however many times, they want. The tools used are:
  - ◆ A tablet (price range \$250-\$750) to capture my writing
  - ◆ A microphone headset (\$20)
  - ◆ A screen recording software (free-\$100)
- ◆ I choose problems students are having the most difficulty with (apparent through Lon-Capa, or from office hours).
- ◆ The solutions are instructional; they review the relevant theory, often using simulations in the video.



# Video solutions

- ◆ Students benefit, but **so does the teacher!**
- ◆ Once a video solution is made fully and properly, students can watch and re-watch as often as they need.
- ◆ Office hours can be spent tackling other problems.





# Video solutions feedback



	Average rank					
	1	2	3	4	5	
It was easy to find the video solutions on ePhysics.ca				■		4.6
The video solutions were not too long				■		4.4
The video solutions clearly explained the reasoning behind the solution to a problem					■	4.8
The amount of video solutions available was sufficient				■		4.4
I prefer the video solutions to a PDF solution				■		4.5





# Video solutions feedback



- ◆ It was helpful to hear you explain each step on the video solutions instead of having to figure out what was done in each step of pdf problem solutions
- ◆ It was easier to understand the steps to solve a problem in a video solution instead trying to understand something out of a PDF file.
- ◆ The video solutions are much preferable and they are available at any time for however many times...especially helpful when reviewing for the final and have long forgotten some past concepts.
- ◆ I found them really helpful, because we were able to hear the teacher's voice as well as see him writing important stuff in the same time.



- ◆ Found the video solutions a little slow, but I didn't mind as i can understand the need to clarity for those less comfortable.



# Online assignments (Lon-Capa)

Blended Learning Pilot

Physics NYC – Waves, Optics and Modern Physics  
Greg Mulcair



# Online assignments (Lon-Capa)

- ◆ Lon-Capa is an open source platform implemented in colleges and universities around the world.



- ◆ It was used to manage all assignments during the pilot.
- ◆ Assignments are done online by students on their own time.



# Online assignments (Lon-Capa)

- Each student has a similar problem, but with different numbers.
- Teacher can choose how many tries are allowed (3 tries? 99 tries?)

Gregory Mulcair (Course Coordinator)      **Physics NYC - Greg Mulcair**      Messages   Roles   Help   Logout

**Main Menu** | **Course Contents** | **Course Editor** | **Groups** | Switch course role to... ▾

← → Course Contents » ... » Assignment 4 - Light   Notes   Bookmark   Evaluate   Communicate   Print   Info

A grating has a line density of  $1060 \text{ cm}^{-1}$ , and a screen perpendicular to the ray that makes the central peak of the diffraction pattern is  $3.0 \text{ m}$  from the grating. If light of two wavelengths,  $620 \text{ nm}$  and  $700 \text{ nm}$ , passes through the grating, what is the separation on the (flat) screen between the second-order maxima for the two wavelengths?

     Tries 0/3






# Online assignments (Lon-Capa)


- Peer Instruction: Students can ask/answer

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  Course Contents » ... » Assignment 4 - Light  Notes  Bookmark  Evaluate  Communicate  Print  Info

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Tries 0/3

[Threaded View](#) [Chronological View](#) [Sorting/Filtering options](#) [Export?](#)


Preferences on what is marked as NEW  
Mark NEW posts no longer new


**NEW**  :johnabbott) Hide Delete Reply Submissions (Thu Oct 13 11:51:24 am 2011 (EDT))

Does anyone know how to go about solving this question?

**NEW**  :johnabbott) Hide Delete Reply Submissions (Thu Oct 13 07:52:46 pm 2011 (EDT))

Separation on the screen between n'th order maxima for two wavelength is  $\Delta X = X_2 - X_1$  where  $X = L \tan(\theta)$

**NEW** **Re:**  :johnabbott) Hide Delete Reply Submissions (Wed Oct 19 10:21:09 am 2011 (EDT))

Thank you 



# Online assignments (Lon-Capa)

- Assistance: Automatic hints can be setup to appear after a certain number of incorrect attempts.

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**Main Menu** | **Course Contents** | **Course Editor** | **Groups** | Switch course role to... ▾

← → Course Contents » ... » Assignment 2 - Wave   Notes   Bookmark   Evaluate   Communicate   Print   Info



A violinist is trying to tune her instrument to 512 Hz, but it is at 462 Hz. By what percent does she have to change the tension to tune the violin?

**Hint:**

This is a straightforward calculation for the ratio of two natural frequencies.  
Please keep in mind that the string tension is proportional to the square of the frequency!





# Online assignments (Lon-Capa)

- Answer is displayed after the due date passes

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**Main Menu** | **Course Contents** | **Course Editor** | **Groups** | Switch course role to... ▾

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A violinist is trying to tune her instrument to 512 Hz, but it is at 462 Hz. By what percent does she have to change the tension to tune the violin?

## Hint:

This is a straightforward calculation for the ratio of two natural frequencies.  
Please keep in mind that the string tension is proportional to the square of the frequency!

## Answer:

To work out this problem, call the original frequency  $f$ , and the new one  $f'$ ; and we call the original tension  $T$ , and the new tension  $T'$ . The percentage change in the tension is then:

$$\text{change} = 100 \cdot (T' - T) / T = 100 \cdot ((T'/T) - 1)$$

Since

$$f^2 = \text{const.} \cdot T$$

we get:

$$\text{change} = 100 \cdot ((f'/f)^2 - 1)$$

$$= 100 \cdot ((512/462)^2 - 1)$$

$$= 22.8162890500553.$$

# Online assignments (Lon-Capa)

- ◆ Other advantages to online assignments:
  - ◆ Track individual student progress in real-time
    - ◆ Which students are doing it at the last minute
    - ◆ Which students are trying topics not yet covered together
  - ◆ Track class progress and analyse trends
    - ◆ Identify topics which need to be reviewed with the class
  - ◆ Monitor peer instructions discussions
    - ◆ Correct false advice (if applicable)
    - ◆ Add additional answers or guidance



# Online assignments feedback



	Average rank					
	1	2	3	4	5	
The Lon-Capa assignment were a good way to make sure I understood the topic					■	4.6
The Lon-Capa problems covered the material taught in class					■	4.6
The Lon-Capa interface was easy to navigate					■	4.7



# Online assignments feedback



- ◆ Though long and tedious, they do help in understanding the material.
  - ◆ some problems in lon capa are confusing, but it's good overall.
  - ◆ In the past Lon Capa was not the best of programs to use. (Mastering Physics can be a ``friendlier`` program)..but the problems given this symester were really helpful when thinking about converting and some not so easy problems...since there were some detailed solutions available it made learning easier and non-stressfull
  - ◆ LON-CAPA assignments were good for the most-part.
- 
- ◆ I liked the LON-CAPA assignments but I thought they should've been better spaced out throughout the semester. Some assignments we had a month to do while others we only had a week.
  - ◆ LC questions not similar to final questions
  - ◆ I did not think that all the maerial o the lon capa covered all the material. I wish we had hand written assignments instead.
  - ◆ Lon-Capa made it very difficult to navigate through questions when answers had been given. If the answer were given in small applets, it should make navigation much smoother.



# Webinars

Blended Learning Pilot

Physics NYC – Waves, Optics and Modern Physics

Greg Mulcair





# Webinars

- Using the John Abbott GoToWebinar account, staff are able to schedule their own webinars with students.
- I provide three or four per semester.
- Students vote on their preferred time.
- I provide instructions and the connection link to students on the ePhysics.ca website.



## Information for our upcoming webinar

Posted on 08. Feb, 2012 by Greg Mulcair in Greg Mulcair, NYC

Here is the information and instructions for any upcoming webinar, if applicable.

**Title:** Greg's NYC Webinar

**Date:** Thursday March 15, 2012

**Time:** 6:00 pm – 8:00 pm

**Subject:** First two weeks of Unit 2

### Instructions:

- Reserve your webinar seat now at: <https://www3.gotomeeting.com/register/649718070>
- After registering you will receive a confirmation email containing a link to join the webinar.
- At the webinar date and time, click the link you were emailed to join the webinar.
- You will be taken to a GoToWebinar page.
- If prompted, click **Yes**, **Grant** or **Trust** so that it can install the necessary Java applet.
- When prompted, type in your name (and optionally your email address).
- Click OK and you will enter the webinar.

Once you are in the Webinar:

- Make sure your speakers are on so you can hear me.
- Take a couple of minutes to explore and learn the interface and options.
- Type your questions or try using your microphone if you want ([click for audio help PDF](#)).

Please note that this Webinar will be recorded, and the recording will be posted on [ePhysics.ca](http://ePhysics.ca)

### Helpful Links:

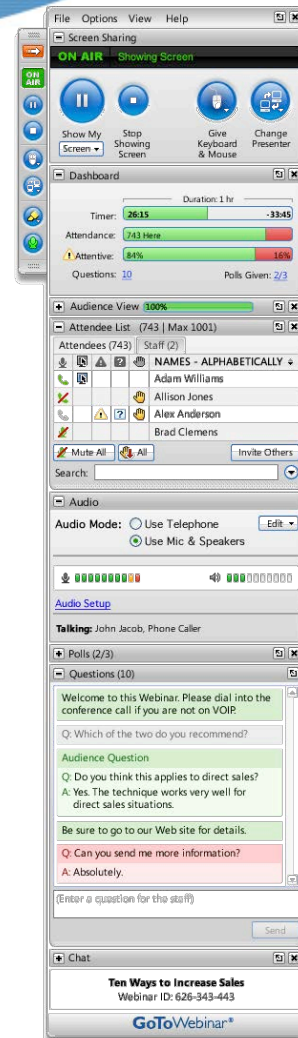
- [PDF: Instructions on using the iPad/iPhone/iPod Touch App to connect to a meeting](#)
- [PDF: Best practices & Audio Troubleshooting Checklist For VoIP](#)
- [Website: GoToWebinar support](#)





# Webinars

- ◆ The GoToWebinar panel sits along the right side of my screen, and allows me to:
  - ◆ View students who are present
  - ◆ Mute or unmute their microphone
  - ◆ See which students have their virtual hands up
  - ◆ Read questions or chats posted by students
  - ◆ Show students my screen (or a region on Windows)
  - ◆ **This is the key aspect.** When students ask a question, I allow them to see my screen and they can watch me solve it with the tablet pen input device.



# Webinars feedback



	Average rank					
	1	2	3	4	5	
The instructions for connecting to a webinar were easy to follow					■	4.7
It was easy for me to get my question answered during the webinar				■		3.9
I would have liked to have more than three webinars this semester				■		3.8
I was less motivated to attend a webinar when I knew the solutions done during the webinar would be posted as separate videos afterwards			■			3.1



# Webinars feedback



- ◆ Very helpful as well
- ◆ I loved webinars, having a webinar from time to time was a really good idea...
- ◆ The webinars are a good idea for those interested.



- ◆ I had already experienced classes through a webinar since I had done distance ed. in highschool for chem and physics, but I prefer being in class and seeing the person teach as opposed to only seeing a whiteboard.
- ◆ I preferred to watch the webinar when i had time instead of watching it at the specific time
- ◆ The webinars stressed me out! When I asked questions they either didn't get answered or they were misunderstood and I couldn't type a fast and accurate response. I also felt like we got way less done than we would have in class.



# eLesson

## Online screencast + activities

Blended Learning Pilot

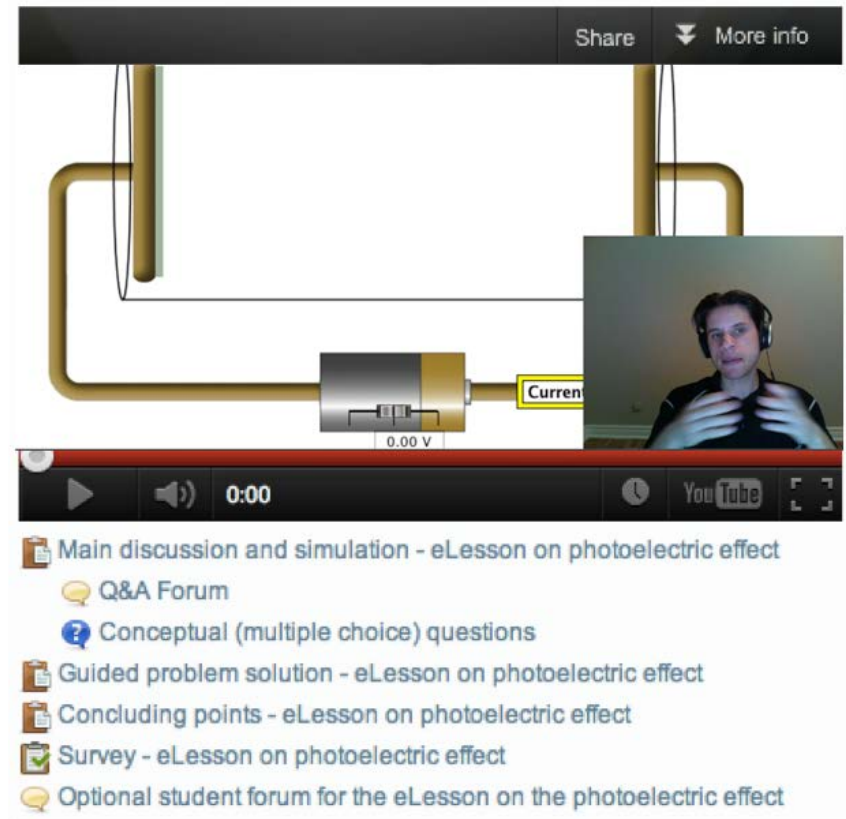
Physics NYC – Waves, Optics and Modern Physics  
Greg Mulcair



# eLesson

## Online screencast + activities

- The eLesson is done in a dedicated Moodle Topic box.
- Students do all tasks from here, starting with an introduction to help guide them through the expectations and the links below the video.



The screenshot displays a Moodle interface. At the top right, there are 'Share' and 'More info' options. The main content area features a video player showing a simulation of a photoelectric effect experiment. The simulation includes a vacuum tube with a metal plate on the left and a collector plate on the right. A voltmeter is connected across the plates, showing a reading of 0.00 V. A current meter is also connected in the circuit, labeled 'Current'. A small inset video shows a person wearing headphones, likely the instructor. Below the video player, there is a list of activities:

- Main discussion and simulation - eLesson on photoelectric effect
- Q&A Forum
- Conceptual (multiple choice) questions
- Guided problem solution - eLesson on photoelectric effect
- Concluding points - eLesson on photoelectric effect
- Survey - eLesson on photoelectric effect
- Optional student forum for the eLesson on the photoelectric effect





# eLesson

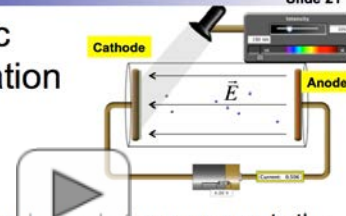
- Video screencast alongside photoelectric simulation:
- Video is placed alongside a simulation students can actively work with. Video prompts students to pause and test various things.
- Students view results instantaneously and draw conclusions.
- Students click Play again as I recap what was seen and explain.

Start the YouTube screencast below, where I will introduce the photoelectric effect. At times I will tell you to test out the theory on the photoelectric simulation (embedded below the video).

At those moments, pause the video and test it out. Then resume the video.

Slide 21

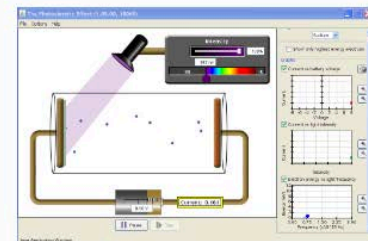
## Photoelectric effect simulation



- Pause the video and see what more energy to the surface does to the emitted electrons: bring the intensity up to 100%.
- Does it speed them up (give them more kinetic energy) as one would expect?
- If not, what happens?

0:00

Click the image below to launch the simulation



If you have trouble viewing the simulation, you can try directly from the PhET website:  
<http://phet.colorado.edu/en/simulation/photoelectric>

If you still have trouble, read the Java troubleshooting steps:  
<http://phet.colorado.edu/en/troubleshooting/java>

If you still have trouble, then after you have truly tried all of the above, contact me and we will set it up together.

I will not accept "I couldn't get it working sir!" as a valid excuse for this exercise.



# eLesson

## Q&A Forum questions

- ◆ Q&A Forum questions:
  - ◆ Video prompts students to pause and answer a “Q&A Forum” question in one sentence.
  - ◆ Students’ cannot see other student answers until they answer (at which point their answer is visible to those who have answered).



### Q1 - The odd behaviour of the photoelectric effect

by [Gregory Mulcair](#) - Monday, 19 March 2012, 07:59 AM

From the simulation we have just done, in one sentence explain why the results are odd if we consider light to behave as a wave.

[Edit](#) | [Delete](#) | [Reply](#)



### Q2 - The argument for the photon

by [Gregory Mulcair](#) - Monday, 19 March 2012, 08:00 AM

From the explanation you just saw, explain in a sentence why the photon nature of light (tiny packets of energy) is a better explanation for the simulation behaviour than the wave nature of light.


[Edit](#) | [Delete](#) | [Reply](#)



# eLesson

## Multiple choice questions

- Multiple choice questions:
  - Video prompts students to pause and answer a multiple choice question.
  - Answers are randomized for each student.
  - Students click Play again
  - I recap the correct solution and continue with the screencast.


1  In an experiment to demonstrate the photoelectric effect, you shine a beam of monochromatic blue light on a metal plate. As a result, electrons are emitted by the plate. If you increase the intensity of the light but keep the color of the light the same, what happens?

Marks: - /1

Choose one answer.

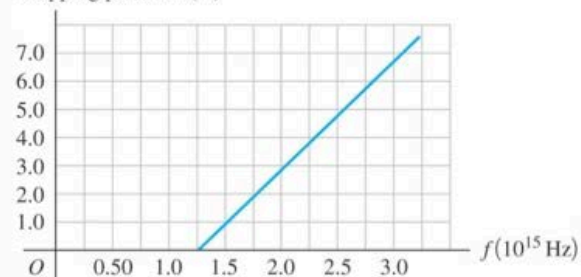
- a. More electrons are emitted per second
- b. both A. and B.
- c. The maximum kinetic energy of the emitted electrons increases
- d. neither A. nor B.

Submit

2  This graph in shows the stopping potential as a function of the frequency of light falling on a metal surface. If a different type of metal is used.

Marks: - /1

Stopping potential (V)



Choose one answer.

- a. the graph could intercept the horizontal axis at a different value
- b. both A. and B.
- c. the graph could have a different slope
- d. neither A. nor B.

Submit



# eLesson

## Guided problem solution

- Video screencast:  
Guided problem solution
  - Students simply watch this as I guide them through the solution to a problem and the logic involved.
- Concluding topics
- Survey

Slide 61

### Guided problem solution

(a) Find the photoelectric work function for this metal.

■ So let's solve this equation using values when the stopping potential is zero.

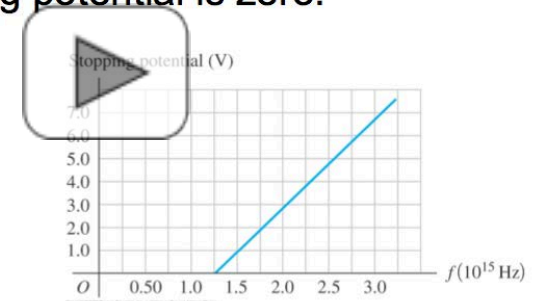
$$V_0 = \frac{h}{e} f - \frac{\phi}{e}$$

$$0 = \frac{h}{e} f - \frac{\phi}{e}$$

$$\frac{h}{e} f = \frac{\phi}{e}$$

$$\phi = hf$$

$$= (6.63\text{E-}34 \text{ J s})(1.25\text{E}15 \text{ Hz}) = 8.2875\text{E-}19 \text{ V}$$





# eLesson feedback



	Average rank					
	1	2	3	4	5	
The eLesson was effective in teaching me the topic				■		4.6
The ability to rewind and rewatch parts of the eLesson was helpful				■		4.7
I didn't miss the ability to raise my hand and ask questions				■		4.1
I would be comfortable replacing up to three classes per semester with a similar eLesson				■		4.5





# eLesson feedback



- ◆ I liked it a lot mostly because we were able to decide when to do it. It was well prepared and the topic was easy to understand just like in class.
  - ◆ Very good! I was skeptical as to the usefulness of having an eLesson rather than a real class -- yet, I ended up finding it very effective.
  - ◆ I thought that it was very relaxing, I can have a little snack, bathroom break and not miss anything! Also, working on my own time is really good, replaying the video to better understand and doing the problems at my own pace. I would do this again.
  - ◆ Very good explanations, it was clear and I didn't experience any issue with the demo or videos.
  - ◆ I love this this option to a regular class, since you can watch when it suits you (ie. not tired) and what I don't understand I can watch over and over again. Well balanced (questions/explanation).
  - ◆ It's a very good method for those who have a hard time concentrating in class and prefer learning on their own at home (or elsewhere).
  - ◆ Great. It's much easier to stay focused and actually learn something, since you can always hear the material and see the slides, and you can go back if you missed something
- 
- ◆ it was good in general, but id rather be in class to ask questions from time to time.



# Student survey: Tech comfort level

Given at the start of the semester

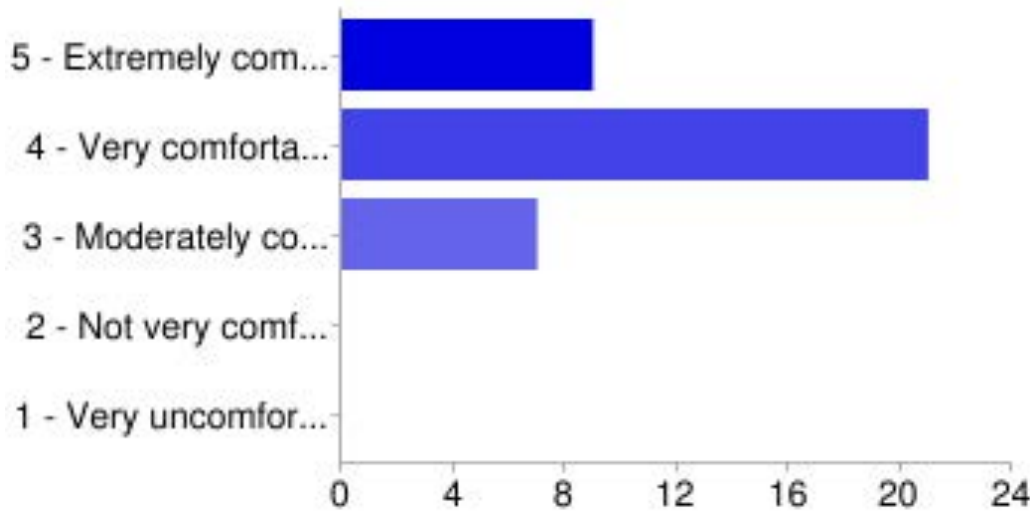
Blended Learning Pilot

Physics NYC – Waves, Optics and Modern Physics  
Greg Mulcair



# Student survey: Tech comfort level

How comfortable are you with computers and the internet?



5 - Extremely comfortable (I am the family tech support, I code websites, etc...)	9	24%
4 - Very comfortable (I use it all the time, I seldom run into trouble or confusion).	21	57%
3 - Moderately comfortable (I can use Facebook, YouTube and search Google with ease).	7	19%
2 - Not very comfortable (I know the basics but run into difficulty from time to time).	0	0%
1 - Very uncomfortable (I seldom use the internet and don't know where to start).	0	0%



# Humanities Blended Learning Pilot

Humanities – Current Events: Reading our Global World  
Eileen Kerwin Jones



# Humanities Blended Learning Pilot

- ◆ Teacher: Eileen Kerwin Jones
  - ◆ Ph.D. (Ethics) University of Ottawa
  - ◆ Background in public health, midwifery, maternal health
  - ◆ Teaching in the Humanities Department at JAC (2009)
  - ◆ E-Learning Background
  
- ◆ Course: [Knowledge] Current  
Events: Reading our Global World
  - ◆ Globalization and global citizenship
  - ◆ Development of ‘literacies’ to better read our world: (economic, gender, moral and ecological)
  - ◆ Two sections, 4 hours/week





# HUMANITIES: BLENDED LEARNING PILOT PROJECT

## FALL 2011 Learning & Thinking about e-LEARNING!

- \*JAC Resources: Reports 2009; 2011.
- \*Brenda Lamb, Pedagogical Counselor, ICT Specialist
- \*e-Resources: Smart classroom  
Library: e-books-27,986; video links-6,626  
Atomic Learning Platform: training resource for using technology  
Learning objects: websites-Merlot, MIT open courseware, profweb and others
- \*Pilot project with CEGEP @ Distance for instructional design services (April)
- \*Internet educational sites: UN websites, NGO websites, TedTalks, Youtube, discussion forums, e-journals, podcasts, 'GoToMeeting' class blogs, wikis



Gary Small,  
*i-Brain: Surviving the Technological Alteration of the Modern Mind*  
(New York, Harper Collins, 2008)

- ◆ Pivotal Time! Impact of technology on brain (Internet is rewiring us--but at what cost?)
- ◆ Brain's plasticity + time devoted to activity = stronger neural pathways for executing activity (connected online ~ 11 hours/day; 80 texts/day)  
"Technology is like oxygen."
- ◆ Tech savvy have > working memory, > perceptual learning and > motor skills, but < adept at reading non-verbal social cues, interpersonal relations, *critical thinking skills*.
- ◆ Brain gap: digital natives, digital immigrants
- ◆ Multi-tasking but also PCA--social and mental implications, including learning and writing challenges, Internet addiction, social isolation, mental stress.



# THINKING ABOUT PEDAGOGY

- ◆ In light of today's uniquely wired students: How best to modify traditional course content to a blended format that attends to the following questions?
- ◆ Can digital natives & digital immigrants develop mutually beneficial relationships?
- ◆ Can technology be humanized in ways that reduce CPA and improve critical thinking skills, encourage positive social interactions, reduce stress in students?
- ◆ What aspects of the traditional F-2-F course content can be altered and what are the best online resources that can be leveraged?
- ◆ Interviews with Humanities colleagues: -Social
  - constructivist pedagogy virtually possible?
  - Student centered, active learning strategies virtually possible?
  - Optimal class size, teacher workload, contact hours?
  - Are we feeding an Internet addiction?
  - Netiquette & Digital Identity*: the responsible use of computers, technology, copyright issues



# [Winter 2012] Humanities Blended Learning Pilot: Course Information

*“This course is part of an e-Learning pilot project and is offered in a blended format. This means that online educational components will replace some face-to-face classroom learning. A variety of online e-Learning tools and resources will be gradually implemented throughout the course, and will amount to a maximum of 30% of the overall course content.”*

*“In addition to LEA, we will also be using the Moodle online learning system. Students will require some basic computer skills and will also require reliable access to high speed Internet services (available at the college during normal library hours). Students will also receive tutorials on the Moodle learning system, as well as the necessary technical support to ensure their on-going competency in using the Moodle system*



Literacy: Globalization/Global citizenship in the 21st century

- TED TALK “Making Global Labour Fair”
- Log on to site [www.fairlabour.org](http://www.fairlabour.org)
- Choose a well known corporation
- Evaluate corporation’ s standing from two audit reports
- Discuss findings online in team forums
- Post team summary/evaluation in class forum
- Post response to other teams’ summaries





# TEAM FORUM SUMMARIES GROUP

## “A”

- ◆ *“The Fair Labor Association (FLA) is an organism which mission is to improve working conditions worldwide. It has published some "Tracking Charts" that are meant to promote transparency and to encourage corporations into taking concrete actions. Motivations are there, and a difference can be made, but the efforts are not sufficient.”*
- ◆ *"American Eagle Outfitters" did not complete any of its plans of actions. Furthermore, some countries get more involved in making a difference than others. As an example, the company "Electronic Arts" has two factories, one in Mexico, and one in the United States.” “Surprisingly, Mexico respected all of its plans of actions, and the US, none. Yet, the US is a more developed country than Mexico... Also, some wording might not be appropriate for the plans of actions. For instance, "Puma" said they would make the employees aware of insurance and overtime pay, but to what extent? Even though they still have a long way to go, Puma was making a difference by ameliorating the way employees were treated.”*



# RESPONSE TO A TEAM FORUM'S SUMMARY

**“The facts that you discovered in the factories you studied are sometimes hard to fathom. Can you imagine not having safe drinking water in your place of work?”**

**“Many governments feel that the inhumane working conditions of places of work in their country are not under their jurisdiction-- they claim it is a supra-national issue as the Tedtalks brought out and the responsibility of the trans-national corporations. This is an example of a governance gap.”**

**“Many impoverished nations fear that if they complain about the working conditions, the company will move the factory elsewhere. Likewise, some trans-national companies feel they can say that it is not up to them to meddle in the affairs of a nation where their factory is. In both cases, they are dropping the ball and negating their responsibilities for the well-being of their workers.”**



# *EVALUATION OF DISCUSSION FORUMS*

- ◆ Detailed information & clear guidance critical to student participation
- ◆ Student inertia experienced initially, but diminished over time!!
- ◆ Online teacher presence important to stimulate and reinforce discussion forums
- ◆ F-2-F class group contact facilitates & reinforces online relations
- ◆ Autonomous & collaborative learners needed for effective online work
- ◆ Online activities need to be aligned with marks!
- ◆ Quality of online responses-insights, clarity, writing-impressive!



# *PICTURE THIS!*

## ECONOMIC LITERACY

**This is your online task!**

- 1) Take a camera and explore your everyday life.**
- 2) Take two photos:- one showing the negative side of our economic system & one that shows the positive or potential of our economic system.**
- 3) Put the two photos into a document, such as Word.**
- 4) Go into the class forum, and click on the subject "Picture This!"**
- 5) Click on "Reply to this Subject."**
- 6) Type in two lines explaining what the photos represent to you, why did you take these photos?**
- 7) Click on "Attach a file" to attach your document with the two photos.**
- 8) Then click on "Post" to post your comments and pictures in the class forum.**





# PICTURE THIS!





# PICTURE THIS!



# ECONOMIC LITERACY

## In-Class Debates using Team Forums

- ◆ *“You have chosen a topic for debate and you have divided your team into a group that is PRO and a group that is CON. Use this forum as a tool to help you prepare for your in class face to face debate on Monday.*
- ◆ *Note: Each group will have a maximum of 4 minutes to present their position, which means each Team will have 8 minutes maximum to debate the issue. So be prepared! After that the debate will be opened to the entire class for further discussion.”*



# ECONOMIC LITERACY

## In-Class Debates using Team Forums

- ◆ What creates wealth?
- ◆ Should there be a specific tax on fatty foods?
- ◆ Should tuition fees be raised?
- ◆ Is a nation's GDP a good economic measurement of well-being?
- ◆ Should the EU continue to bail out Greece?
- ◆ Is a trade embargo in the Middle East justifiable?
- ◆ Does capitalism need to be modified?
- ◆ Does the USA invade other countries for its own economic gain?



# Team Forums & In-Class Debates

- ◆ Insights into student learning, peer teaching, creative engagement are phenomenal!
- ◆ Some groups worked very effectively & collaboratively, integrating Internet resources, supporting others' insights
- ◆ Direct relationship between level of online activity and quality of presentation in debate
- ◆ Despite clear information, some groups had difficulty initiating and completing task
- ◆ Online teacher presence required to support vulnerable teams and also to encourage well functioning teams





# MOODLE WELCOME PAGE



## WELCOME TO CURRENT EVENTS: READING OUR GLOBAL WORLD!

We often speak about our world in *global* ways: we speak of *one global economy, one global community, one global environment*. But is our global world truly one?

Are there not deep differences in wealth, power and security among members of our *global community*? Do not an accurate 'read' of our world reveal a global community in which some enjoy unprecedented prosperity, while others struggle daily to survive? Indeed, how ought we to live within the context of *one humanity, one economy and one environment*?

 [News forum](#)





# MOODLE CHAT ROOM



## Online office hours

Dear Current Events Students, Welcome to our online chat room! This chat room is open and visible to all my Current Events students.

*It is a place where you can ask any questions about the course material.*

I look forward to chatting with you online every Thursday between 9:00 a.m. to 12 noon!



# MOODLE CHAT ROOM

**Q: “So what do you think about this chat room as a vehicle for exchanging ideas or having office hours with me?”**

**A: I like the chat room very much.”**

**“Its a bit lagging on response whenever you click enter, but its so simple to just log on, ask a question and be done with it.”**

**“I find the online portion of the class quite useful, especially when it replaces class time for projects. Not because it takes away from going to class, but because then I can do some research and formulate an intelligent opinion on a topic instead of being put on the spot in class. Most of my group meetings in class have been rather silent and awkward because none of us really know what to say, and those WITH opinions dominate over the others, while the quieter students just sit there not knowing what to Input.”**



# MOODLE CHAT ROOM

**Q: *That's a good point--so do you think that the online part of the course will allow the quieter students to have more of a voice?***

**A:** Absolutely! It helped me. When we had to do the debate, S. and I didn't really know what side to take and what to add to the conversation. I didn't know anything about the topic when our group decided. Then we had the online part and S. sent us a link with an article that helped me understand. From there I was able to write out a whole page of information. Then I was able to choose a side, and for that I thanked S. sincerely because while she is quiet, the forum helped her help me.”



# ONLINE GUEST SPEAKERS

- ◆ Interactive exchange with UK's 'London Pathways' founding member, Sister Trudy Boyce RN, SCM, MBE
- ◆ Lead homeless healthcare nurse practitioner and care navigator coordinator for pioneering project for homeless persons in London, UK
- ◆ Students to become familiar with London Pathways website, ([www.londonpathway.org.uk/](http://www.londonpathway.org.uk/)) View Youtube with Professor Aiden Halligan Podcast of interview, followed by online quiz
- ◆ May 7, in-class online meeting using 'GoToMeeting'

Pathway  
A new approach to health care for  
homeless people

DR NIGEL HEWETT  
CLINICAL LEAD UCLH HOMELESSNESS TEAM  
MEDICAL DIRECTOR PATHWAY



# A STUDENT VIEW OF ONLINE ASSIGNMENT (PODCAST)

3 **Economic Literacy: Providing Healthcare to Homeless People** 

Read the Word document below for instructions on this online assignment.

 [Instruction for this online assignment](#)

## The London Pathway Charity Organization

 [Click here to access the video Inception of the London Pathway](#)

»» After watching the video interview with Professor Aidan Halliganon discussing the Inception of The London Pathway, click on the related discussion forum link and post your answer to the question being asked.

 [Q and A Discussion Forum on the Inception of The London Pathway](#)

## Interview with Trudy Boyce

 [Part I](#)

 [Part II](#)

 [Part III](#)

 [Part IV](#)

»» After listening to the interview with Trudy Boyce please click on the related discussion forum link and post your answers to each of the three questions being asked.

 [Q and A Discussion Forum on the Trudy Boyce interview](#)

**More information about this charity organization can be found on their website.**

 [Click here to access The London Pathway Website](#)





# ONLINE MEETING LIVE FROM THE UK

- ◆ Trudy Boyce of *The London Pathway Project* comes to Current Events class!
- ◆ Students actively engaged in dynamic interactive conversation concerning her work with homeless people.
- ◆ Student feedback very positive: students inspired by Trudy's compassion and insight!



# SOCIETY FOR TEACHING AND LEARNING IN HIGHER EDUCATION [STLHE] CONFERENCE

MONTREAL (JUNE 19-22)

*Learning Without Boundaries: e-  
Learning in the Humanities*

**\*Preliminary report on  
e-Learning pilot project in  
Humanities at JAC**

**\*Interactive workshop in  
collaboration with Brenda  
Lamb**



— MONTRÉAL —

**STLHE 2012 SAPES**

**LEARNING WITHOUT BOUNDARIES ?  
APPRENTISSAGE SANS LIMITES ?**

**JUNE 19 - 22 JUIN**



## ▼ Stories

- > Story List
- > Suggestion Form
- > Authors' Guidelines
- > Apropos...

## > Reports

## > ProfwebExpresso

## RECENT RELEASES

**Monday May 21, 2012**  
Eileen Kerwin Jones (Cégep John Abbott College)

### Mind the Gap

**Monday May 07, 2012**  
Greg Mulcair (Cégep John Abbott College)

### A Toolbox for a Blended Learning Pilot

Greg Mulcair touches upon the tools that he has used to blend information technology and traditional teaching in his Physics course which is part of a pilot project for blended learning at John Abbott College.

**Monday April 23, 2012**  
Nathan Loewen (Vanier College)

### Dissemination is the Key

As a new participant in the fifth year of the J@nus Project, a hybrid joint course between Vanier College and CAnen de Sent-Îles, Nathan Loewen is

## STORIES

Monday May 21, 2012 | Humanities 345

## Mind the Gap



**Eileen Kerwin Jones**  
Teacher, Cégep John Abbott College

### Humanities and Blended Learning

As part of e-learning initiatives at John Abbott College, faculty release time was given to pilot blended learning projects in two different disciplines: Physics and Humanities. In my Humanities department, the idea of e-learning was received with mixed feelings. While some colleagues doubted the value of technology in a discipline that championed face-to-face interactions and critical dialogue, others were already integrating technology into their classes through using LEA, chat rooms, blogs and discussion forums.

My own view was that if we rejected e-learning, we might not fully understand our students. There can be no doubt that technology is influencing the way young minds develop and interpret information. Moreover, there is often a technological *gap* between some teachers (digital immigrants, like myself, who more recently have learned about electronic technology) and students who have grown up with such technology (digital natives). I was reminded of the British Railway's standard warning to passengers, *Mind the Gap*. As an educator, I thought there was an important message here! So my initial questions were: how does one accommodate this new person in the classroom? Is it possible to leverage and humanize technology in ways that genuinely engage students in critical thinking and active learning? What different skills do digital natives and digital immigrants bring to learning situations?



*Standard Warning to Passengers*

**Economic Literacy: Providing Healthcare to Homeless People**  
Read the Word document below for instructions on this online assignment.  
Click here to access the video location of the London Pathway.  
After watching the video interview with Professor Adam Hargreaves discussing the location of the London Pathway, click on the related discussion forum link and post your answer to the question being asked.  
Go and a Discussion Forum on the location of the London Pathway  
**Interview with Trudy Boyce**  
Part I  
Part II  
Part III  
Part IV  
After watching the interview with Trudy Boyce please click on the related discussion forum link and post your answer to each of the three questions being asked.  
Go and a Discussion Forum on the Trudy Boyce interview

The blended learning course that resulted was focused on the question of what it means to be a global citizen in the 21<sup>st</sup> Century. We initially explored the ideas of globalization and global citizenship: discerning ways in which we are both connected and disconnected in our global world. The course then focused on developing specific '*literacies*', which honed abilities to accurately *read* our world, including economic literacy, gender literacy, moral literacy and ecological