E-Learning and Higher Education: Distinguishing Myth from Reality

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What drives the current interest for e-learning in higher education?

Share your thoughts.
Why do so many commentators and people *outside* higher education believe so strongly in e-learning for higher education?

Share your thoughts.
What concerns do higher education faculty have regarding e-learning?

Share your thoughts.
Objective

Using empirical evidence as a guide, suggest possibilities for technology-based learning in higher education.
What drives the current interest for e-learning in higher education?

<table>
<thead>
<tr>
<th>Rising financial and personal costs to students</th>
<th>Competing goals—citizenship versus training</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Skills crisis”</td>
<td>Second-class role of teaching in universities</td>
</tr>
<tr>
<td>Funding uncertainties</td>
<td>Higher education</td>
</tr>
</tbody>
</table>
Why do so many commentators and people outside higher education believe so strongly in e-learning for higher education?

1. Because market research suggests that e-learning will supplant universities by 2050.
2. Because research suggests that e-learning is as effective as classroom learning.
3. Because they are looking for a silver bullet.
MOOCs and social media

From mwidlake.wordpress.com, visited April 1, 2013.
Commentators who actively promote e-learning in higher education.

|-----------------|-----------------|----------------------|-------------------------|
The outsiders overlook a number of practical issues.

- Awarding credits
- Identity verification
- Credentialing
- Credits—transferring
- Socialization
- Quality control
What concerns do higher education faculty have regarding e-learning?

<table>
<thead>
<tr>
<th>Basics related to teaching:</th>
<th>Basics related to their work:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is it effective?</td>
<td>How will my job change?</td>
</tr>
<tr>
<td>But what can you really teach online?</td>
<td>What training do I need? Will I get it?</td>
</tr>
<tr>
<td>How can instructors interact with students?</td>
<td></td>
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<tr>
<td>What about intellectual property?</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Student issues</th>
<th>Questions people should ask but don’t:</th>
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</thead>
<tbody>
<tr>
<td>Do they want it?</td>
<td>How do I design effective learning experiences?</td>
</tr>
<tr>
<td>How will it affect their own university experience?</td>
<td>How else can technology support the learning experience?</td>
</tr>
</tbody>
</table>
E-learning is less effective than face-to-face (classroom) learning.

1. Myth
2. Reality
Myth.
Several *meta-analyses* validate the effectiveness of e-Learning.

Several meta-analyses exploring every educational context concluded:

*No significant difference between classroom and online instruction*

(US Department of Education, 2010; Sitzmann, et al., 2006; Bernard, et al., 2004).
The primary choices are classroom or all-online courses.

1. Myth
2. Reality
Myth. First, consider this definition of e-learning.

Instructional materials delivered to students through an intelligent device, such as a computer or smart phone.

The types of instructional materials vary widely, from individual reference guides to entire courses.
A continuum of uses exists for delivering courses, enhancing teaching, and supporting students.

Uses of technology to enhance teaching and support students, in addition to delivering courses.

| No technology support | Some technology to augment teaching | Blended (hybrid) courses, such as flipped courses | Courses taught and supported exclusively online either synchronously or asynchronously. |
Campus-Wide App
(University of Auckland)
Example of a *Flipped Class*

Although presented as optional readings, some of these highly readable selections offer practical insights into real-world projects. The others link this practical topic to the theory and research in the field.
(Optional reading.) Estimating documentation projects.  
(Optional reading.) Contracts 101.  
Project Management Slides

31 October - 6 November

- Reading Guidesheet for Week 9
- Optional Activity 1: Additional Practice with Project Planning—Charter
- Optional Activity 1: Additional Practice with Project Planning—Schedule
- Optional Activity 1: Additional Practice with Project Planning—Budget and Staffing
- Optional Activity 1: Additional Practice with Project Planning—Quality
- For Activity 2b. Lathrop, L. (2000.) Knowing when to bail out.
- For Activity 2b. Harvey P. (2001.) Managing—and surviving—a design project.
- For Activity 2b. Wilkinson, T. A. (2000.) Building a project site. 1
- Activity 2c. Video about Managing an Ongoing Project
- Activity 3. Overview of the Production Process
- Activity 4b. Video about Closing Out a Project
- Activity 4d. I’ve Got Something to Add to this Discussion.
- Activity 4d. Take-Aways from the Project Management Unit.
- Activity 4d. Reflecting on the Asynchronous Learning Experience

Although presented as optional readings, some of these highly readable selections offer practical insights into real-world projects. The others link this practical topic to the theory and research in the field.
Continuing the What do they cost? Discussion.

What is the going rate for an moderately experienced contract instructional designer per hour?

(a) $25  
(b) $50  
(c) $65  
(d) $80
Example of a Synchronous Class

Take-Aways

What specific tactics will you take with your high-level design as a result of today’s discussion?
Example of an *Asynchronous* Class

I understand that you are having productivity issues at the office. Any idea what may be causing them?

**Question 2:**
How are you addressing the problem?

**Question 3:**
What about the *current work environment*?
Question 1:
I understand that you are having productivity issues at the office. Any idea what may be causing them?

Sarah, your HR-coach:
I understand that you are having productivity issues at the office. Any idea what may be causing them?

Rhonda, training manager:
Well, I think it has something to do with the turnover that we have had this year. Many of our senior sales people have either retired or left the company and I think that the recruits are having trouble coping with the elevated expectations.
We have quite a bit of information to digest here... Let's take a moment to review what we've learned.

Who is the *intended audience* for the workshop on best practices and sales techniques that Rhonda is currently putting together?

- Underperforming employees
- New recruits
- Veteran sales people
- Entire sales team
Which of the following is a problem that has been identified by Nick and Rhonda at the Toronto office?

Incorrect

The current problems were identified as

- **Absenteeism**: rise in sick days
- **Productivity**: as demonstrated with the overall numbers
- **Time management**: they are complaining that they don’t have enough time
- **High turnover rate**: many new recruits lately

- [ ] High turnover rate

Continue
Which suggestions would you make for the Toronto office to increase their productivity?

- Better orientation for new employees
- Skills workshop for underperforming employees
- Skills workshop for entire sales department
- Make all training mandatory
- Hire retired employees to coach the newer ones
- Extend coaching for new employees beyond one month
- Schedule fewer meetings

Click on a choice below to receive feedback from me! You may work through all my suggestions, but be advised to take one after the other :-)

- Better orientation for new employees
- Skills workshop for underperforming employees
- Skills workshop for entire sales department
- Make all training mandatory
- Hire retired employees to coach the newer ones
- Extend coaching for new employees beyond one month
- Schedule fewer meetings
What can you really teaching in online courses?

1. Lower-order thinking skills, such as recall and comprehension.
2. Higher-order thinking skills, such as analysis, synthesis, and evaluation?
Prevailing thinking: Declarative and procedural knowledge. 
Actual experience: Anything.

<table>
<thead>
<tr>
<th>Writing</th>
<th>Information systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political science</td>
<td>Commerce</td>
</tr>
<tr>
<td>Art</td>
<td>Critical thinking</td>
</tr>
<tr>
<td>Art history</td>
<td>Medieval English</td>
</tr>
<tr>
<td>Biology</td>
<td>Women’s studies</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Science writing</td>
</tr>
<tr>
<td>Physics</td>
<td>Culture</td>
</tr>
<tr>
<td>Law</td>
<td>Music</td>
</tr>
<tr>
<td>Medicine</td>
<td>Language</td>
</tr>
<tr>
<td>Nursing</td>
<td>Grammar</td>
</tr>
<tr>
<td>Education</td>
<td></td>
</tr>
</tbody>
</table>

At all levels of Bloom’s taxonomy
Faculty have less interaction with online students than face-to-face ones.

1. Myth
2. Reality
Myth.
Consider the difference between *interactivity* and *interaction*.

<table>
<thead>
<tr>
<th>Interactivity</th>
<th>A reciprocal exchange between the technology and the learner. Wagner adds that it focuses on the characteristics of the technology.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>The behavior of participating in a reciprocal exchange</td>
</tr>
</tbody>
</table>

(Wagner)
Consider, too, the types of interactions available.

- Between learners and instructors
- Between learners and the content
- Among learners
“It’s not the technology—it’s the opportunity to express their opinion”

Eric Mazur, 1 February 2013
What about intellectual property?

*The fear*
“*I will be signing away all of my rights.*”

*The reality*
Universities want the right to offer the course even if the original instructor is not available to teach it.

And universities don’t want instructors to teach a competitive course at another university (an issue that also arises in classroom teaching).
How will my job change?

Depends how you use technology

<table>
<thead>
<tr>
<th>Scenario 1</th>
<th>Scenario 2</th>
<th>Scenario 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face.</td>
<td><em>Flipped</em> environment.</td>
<td>Exclusively online.</td>
</tr>
<tr>
<td>No change.</td>
<td>Transition to a combination of teacher and course manager.</td>
<td>From teacher to course manager.</td>
</tr>
</tbody>
</table>
Students want technology-based teaching.

1. Myth
2. Reality
A bit of myth. . .

- CREPUQ study
- e-Books research
- Practical experience
. . . and a bit of reality.

<table>
<thead>
<tr>
<th>University</th>
<th>Impact on Enrolment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Université du Québec à Trois-Rivières</td>
<td>Number of registrations in online courses increased five times in five years (2010)</td>
</tr>
<tr>
<td>Université Laval</td>
<td>36,047 registration in its online courses in 2010-2011</td>
</tr>
<tr>
<td>Concordia University</td>
<td>30,990 enrolments in the current academic year (approximately 15 percent of all enrolments)</td>
</tr>
</tbody>
</table>

Moving forward: Université de Montréal, Université Laval, Université de Sherbrooke and UQAM all plan to substantially increase their online course offerings.
The real challenge is providing students with the encouragement and support needed.

- Encouragement to take courses online: Primary tool for lifelong learning
- Also not an easy A. (Devey, 2011.)
- Support:
  - Before
  - During
  - After
How will online learning affect students’ own university experience?

- False assumptions about millennials.
- Realities about an online experience:
  - For traditional students
  - For non-traditional students
How do I design effective learning experiences?
According to the US Department of Education, the issue is not the *medium* of instruction (classroom or online), but the *design of that instructional experience*.
Teaching online often results in a fundamental re-think of the purpose and design of a course.
Controls in place for tutorial-style e-learning to ensure as strong a learning experience as possible.

- An instructional design team advises on instructional strategy
- Design guidelines in place to ensure:
  - Completeness
  - That known trouble areas are addressed
- Technical and editorial reviews to ensure operational and editorial accuracy.
To view more details of the Patient’s History, select from the menu buttons on the left.
To continue, click one of the tabs above.

This 59 year-old African-American man, a grounds keeper, came to the emergency department after experiencing severe breathing difficulty while at work. The shortness of breath which he describes as “smothering and choking” began suddenly while digging a hole with a shovel. He was able to breathe more easily with rest but had similar trouble when he tried to return to digging. Later in the day, while planting roses, he felt too weak to lift the small bushes and asked a friend to bring him to the hospital.

In the ER, he denies chest pain, palpitations, cough, orthopnea, but he continues to be mildly short of breath.

He began having similar symptoms several weeks ago but failed to tell his family physician at the last office visit.
Dr. Gregory Thompson offers the following case notes:

- This man has presented with dyspnea on exertion that now continues at rest in the emergency room. The history is suggestive but leaves room for many possible causes of dyspnea and you should avoid jumping to conclusions at this point. Initially, the broad differential diagnoses must include several possible body systems including:

- Pulmonary - obstructive airways disease due to tobacco use, asthma, pulmonary edema, or more acute condition (eg. hypersensitivity pneumonitis from yard chemicals)
- Cardiac - arrhythmia, heart failure, painless ischemia
- Peripheral vascular - pulmonary embolus from DVT
- Hematologic - severe anemia
- Psychiatric - anxiety neurosis

Your diagnostic evaluation should easily be able to rule out most of these conditions. Significantly, he is diabetic and a former heavy smoker. There are other cardiac risk factors here as well. The primary task will be to differentiate between cardiac and pulmonary dyspnea.
Click on the “SUBMIT ORDERS” button to choose from the following sets of treatments. You may return to this page at anytime to change your choice of treatment.

**Treatment 1**
Advised the patient to continue his current medications and discharge the patient to follow-up with his general practitioner (GP) in one month for better diabetic control.

**Treatment 2**
Prescribe a cholesterol-lowering medication and have the patient follow-up with his general practitioner (GP) in two weeks.

**Treatment 3**
Discharge to GP follow-up with instructions to refer again if ECG changes do not resolve.

**Treatment 4**
Monitor the patient in the ER. Give him an aspirin, O₂ 3 L/min by nasal cannula, and subcutaneous insulin to bring down his glucose levels.

**Treatment 5**
Monitor the patient in the ER. Give him O₂ 3 L/min by nasal cannula, sublingual NTG, IV labetalol, and begin a heparin drip.

**Treatment 6**
Discharge with metered dose inhalers and a tapering steroid dosage. Follow-up with his GP in 3 to 4 weeks.

**Treatment 7**
Place O₂ 3 L/min by nasal cannula, initiate IV heparin infusion protocol, and admit to the CCU.

**Treatment 8**
Start O₂ 3 L/min by nasal cannula, give aspirin and IV labetalol, start IV NTG and heparin drips and admit to the CCU for cardiac monitoring, serial cardiac enzymes, and a PTT.
Least treatment regimen ordered:
Start O₂ 3 L/min by nasal cannula, give aspirin and IV labetalol, start IV NTG and heparin drips and admit to the CCU for cardiac monitoring, serial cardiac enzymes, and a PTT.

He feels better after the O₂ is placed. His initial CCU course is uneventful and his CK and troponin levels remain low. However, 24 hours after arriving in the CCU, his symptoms return and repeat ECG reveals prominent ST-segment depression and T-wave inversion in V2 through V5.

Author’s comments:
These are very appropriate measures, however his condition is refractory.

What would you like to do next?

You may choose from any of the tabs at top in order to:

- Change your choice of therapy and re-check the patient progress
- Review the patient’s history or examination
- Edit your differential diagnoses
- Order additional diagnostic tests or procedures
- Review results of any tests that have been ordered (Note: Any pending results are now available)
- Proceed to Final Dx/Rx, followed by the post-test and case evaluation.

Click the “CONSULT” button to get an expert’s opinion.
Click the “FINAL DX/RX” to proceed.
Please choose one or more diagnosis(es) from the following list.

Final Diagnosis

- Acute anterior MI
- Alcoholic cardiomyopathy
- COPD exacerbation
- Community-acquired pneumonia
- Diabetic retinopathy
- Hypersensitivity pneumonitis
- Painful cardiac ischemia
- Pickwickian syndrome
- Respiratory neuromuscular disease
- Unstable angina
- Acute inferior MI
- Anxiety neurosis
- Cardiac autonomic neuropathy
- Congestive heart failure
- Dyspnea secondary to severe anemia
- Lower extremity claudication
- Paroxysmal atrial tachycardia
- Pulmonary embolus
- Uncontrolled type II diabetes
- I don’t know

RESET  SUBMIT
To review the Final Treatment, click on the "FINAL TREATMENT" button.

**Final Diagnosis**

- **Hold** your mouse pointer over the icon for an explanation of the incorrect diagnosis.

**Final Treatment**

<table>
<thead>
<tr>
<th>You chose 5 correct diagnosis(es):</th>
<th>You chose 6 incorrect diagnosis(es):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac autonomic neuropathy</td>
<td>Acute anterior MI</td>
</tr>
<tr>
<td>Lower extremity claudication</td>
<td>Anxiety neurosis</td>
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<td></td>
<td>Paroxysmal atrial tachycardia</td>
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</table>

The correct diagnoses are:

- **Uncontrolled type II diabetes** - Hgb A1C of >10% suggests very poor long-standing glucose control.
- **Lower extremity claudication** - Physical examination and lower extremity arterial Doppler studies suggest moderately severe peripheral vascular disease.
- **Painless cardiac ischemia** - Given this man’s cardiovascular risk factors, this is the most likely explanation for his symptoms and ECG changes.
- **Cardiac autonomic neuropathy** - This condition, often found in long-standing diabetic patients, would account for this man’s orthostatic hypotension and painless exudative ischemia.
How can I determine whether students learned the intended material?

Design authentic assessments.

- You can use any type of test in e-learning courses.
- Examples:
  - Writing assignments
  - Essays
  - Personal marketing plan
- The catch: they might require manual grading.
How else can technology support the learning experience?

- Diagnostics and assessments
- Tutoring support
- Research
  - Library research
  - Personalized Learning Networks
- Co-curricular activities
  - GradProSkills
  - Virtual internships
  - Virtual volunteering
- Access to confidential services
MOOCs will alter higher education.

1. Myth
2. Reality
3. Too soon to tell
(As I understand the situation, you are going to offer some.)
Too soon to tell. MOOCs are in their experimental phase.

- “Opportunistic” course offerings
- Primarily tier-one schools
- No credits
- High signup rates, low retention (about 95 percent drop out)
- Dominant student is a working professional (not undergraduate, credit-seeking)
- Limited to no opportunities to earn academic credit
- No clear revenue model
- Mixed reviews for course quality
- Seeming unawareness of similar efforts 10 years ago (Fathom.com; universitas21.com; unext.com)
But as research institutions, we have a responsibility to explore them.

- Efforts to recognize credits continue.
- “Course curation” through licensing agreements arising as a viable model
- Experts believe they force universities to focus on our “value added” to the university experience
- Instructional designs will evolve (EdX approach)
- Likely to play some role in higher education and lifelong learning though the exact role is unclear
My prediction

They’ll be integrated into e-textbooks that students “read” using tablets like the iPad, Nexus, and Surface.
Questions
Take-Aways

Name 1 or 2 insights about e-learning that you’ll take away from this session.
Learn More about e-Learning

**Experience**
- www.coursera.com
- www.edx.edu
- www.lynda.com

**Read**
Visit:
- References listed in this slide deck.
- Learning Solutions magazine (www.learningsolutionsmag.com)
- Wired Campus blog (http://chronicle.com/blogs/wiredcampus/)
- Designing e-learning blog (http://designingelearning.wordpress.com)