Geospatial Literacy Instruction in a Blended Learning Environment

Gord Beck, Map Specialist
Lloyd Reeds Map Collection
Mills Memorial Library
McMaster University
LAMG Workshop, 2012
“...it is important to emphasize that blended learning is not to be approached merely as a temporal construct, but rather as a fundamental redesign of the instructional model...”

(Dziuban et al., 2004)

“Blended learning is on the rise in higher education. 93% of higher ed instructors and admin say they are using blended learning strategies somewhere in their institution. 7 in 10 expect more than 40% of their schools’ courses to be blended by 2013.”

Web Learning @ Penn State
http://weblearning.psu.edu/blended-learning-initiative/what_is_blended_learning

Drummond Report, 2012
**Recommendation 7-8:**
“Post-secondary institutions need to devote more resources to experiential learning such as internships; allow for more independent or self-assigned study; develop problem-based learning modules...”

Commission on the Reform of Ontario’s Public Services
**What is “Blended Learning?”**

**Web Learning @ Penn State**
“[Currently] there is no consensus on a single agreed-upon definition for blended learning...the terms *blended,* *hybrid,* and *mixed-mode* are used interchangeably in current research literature.

http://weblearning.psu.edu/blended-learning-initiative/what_is_blended_learning

**Queen’s University, Faculty of Arts and Science**
“Blended learning integrates in-class, face-to-face learning with online learning in a purposeful, thoughtful and complementary way to enhance student engagement. (Garrison and Vaughn 2008).”

http://www.queensu.ca/artsci/academics/teaching-and-learning/blended-learning

“Defining hybrid or blended education is a trickier task than one might think—opinions vary wildly on the matter...but the essence is clear: Hybrid education uses online technology to not just supplement but transform and improve the learning process.”

What Do These Online Modes Look Like?

Online tools could be interactive presentations, screen-casts, podcasts, self-directed worksheets, or other kinds of modules.

University of Waterloo’s Centre for Teaching Excellence
“Online learning activities include synchronous and asynchronous online discussions, online self-assessments, blogs, wikis, virtual field trips, virtual labs, case studies, simulations, problem solving, concept mapping, and interactive learning objects.”

https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/developing-assignments/blended-learning/developing-online-learning-activities
Blended Learning Pilot Project

To respond to the growing body of literature supporting the concept of online modes of delivery for library instruction, the McMaster University Library collaborated with the McMaster Centre for Leadership in Learning (CLL) to design blended learning modules for five, Level I courses.

- Human Geography: Society & Culture
- Human Geography: City & the Economy
- Environmental Science
- Integrated Science (iSci)
- Social Science Inquiry

Chosen:
- elementary content
- repetitive sessions

My experience was with the 2 Human Geography courses.
Professors: Walter Peace & Michael Mercier

Geography 1HA3: Society and Culture

- approximately 500 students
- 30-35 students per lab section
- 16 lab sections within 1 week
- rotate through 5 map stations in 2-hour lab
- assignment to be handed in at the end of lab
- popular elective

Geography 1HB3: City and the Economy

- approximately 350 Students
- 30-35 students per lab section
- 11 lab sections within 1 week
- rotate through 4 map stations in 2-hour lab
- assignment to be handed in at the end of lab
- recommended elective for business students

Courses offered every Fall and Winter Term (sometimes Summer)
Class Demography

- Social Sciences
- Science
- Humanities
- Health Sciences
- Engineering
- Business

Number of Participants

Levels: Level I, Level II, Level III, Level IV, Level V+
Learning Objectives

A Basic Level of Spatial Literacy

“...the ability of an individual to capture and communicate knowledge in the form of a map, understand and recognize the world as viewed from above, recognize and interpret patterns, know that geography is more than just a list of places on the Earth’s surface, see the value of geography as a basis for organizing and discovering information, and comprehend such basic concepts as scale and spatial resolution.” (Bednarz & Kemp, 2011)
Materials For Spatial Literacy

• Topographic Maps (symbols, scale, coordinates)

• Thematic Maps (data through cartographic devices)

• Air Photos (temporal studies)

• Fire Insurance Plans

• City Directories

Concept of Projection and the Origin and Types of Toponyms
Advantages of Adopting BL

Advantage to the Student:

• Self-determine the order and pace of study (circumvents disengagement resulting from repetition of learned material)

• Ability to fast-forward, pause, rewind and replay multiple times

• Access information at point of need and when most receptive (available 24/7)

• Ability to review material again later in the course (prep for exam)

• Take responsibility over their own education and become self directed learners

• Content delivered to each student is consistent and complete
Advantages of Adopting BL

**Advantage to the Library:**

- Delegating instruction of rudimentary elements to students allows for more F2F time in labs addressing higher-level questions and concepts.
- Removing repetitive sessions ‘frees up’ staff time to improve service and outreach to others user groups during peak parts of the term.
- Removes vulnerability & inconsistency in the information delivery system.
- Generic modules can be used for multiple courses and the general public.
What’s the Downside?

Disadvantage to the Student:

• If material is viewed too early, it can be forgotten before lab session.

Blended vs Replacement
  • ensure online portion is not just PowerPoint thrown online or webcasts of talking heads.
  • no connection made with library staff, materials and study spaces = opportunity lost for multiple layers of support

Disadvantage to the Library:

• If material is viewed too early, it can be forgotten before lab session.

Blended vs Replacement
  • ensure online portion is not just PowerPoint thrown online or webcasts of talking heads.
  • no connection made with library staff, materials and study spaces = opportunity lost for multiple layers of support
Will Students Do it?

Is this asking them to take on extra work?

Will they take the time necessary to view the module content effectively?

• No different than assigning chapters to read before next class

• Proof of completed module related quiz or no participation in lab

• Mark assigned to quiz to lend importance to completion of modules
The Modules:

http://cll.mcmaster.ca/articulate/blended_learning/Geospatial%20Literacy%20Modules/player.html
Higher Education Quality Council of Ontario (HEQCO) multi-year project to be completed in June 2013

- Student satisfaction
- Student learning
- Instructor satisfaction
- Financial feasibility
- Alignment with Universal Instructional Design Principles

Literature Review

Focus Groups

Survey
Student Feedback (350 responses)

The module has improved my...

Issues to Consider:
- Length of modules; content can be dry; compliance;
- labour and cost; Technical: font sizes, audio.
Instructor, IA & TA Feedback

Instructors:

“The geospatial literacy modules allow for students to be fully prepared with upcoming lab material. We have seen outstanding comprehension and completion of geospatial skills because of these modules.”

“With the students coming to the labs with background knowledge from the geospatial literacy modules, they are allowed more time to work with the material and develop higher-level questions.”

IAs & TAs:

The Instructional Assistant and Teaching Assistants, who were themselves students in the class several years earlier under the previous method of instruction, unanimously preferred the new online module approach.
Bibliography: Blended Learning


Articles on online tutorials


QUESTIONS?

Gord Beck, Map Specialist
Lloyd Reeds Map Collection
Mills Memorial Library
McMaster University
beckg@mcmaster.ca