

Geospatial Literacy Instruction in a Blended Learning Environment



Geospatial Literacy Modules (23/19/39/13) ATTACHMENTS

McMaster University

Colours and Symbols

International system of colours & symbols

Intuitive

Common 1:50 000 map symbols

camp ground
boundary
golf course
locks
canal
rocks
wooded area
rocky ledge
rapids
highway number
road
highway
contour
contour number
water
buildings

Blue = water
Green = vegetation
Brown = elevation
Pink = urban area
Black = man-made
White = undeveloped

Legend found on back of map

Image from: Natural Resources Canada. [Topographic Maps, the Basics](#)

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Gord Beck, Map Specialist
Lloyd Reeds Map Collection
Mills Memorial Library
McMaster University
LAMG Workshop, 2012

Shift Happens

“...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

<http://www.fin.gov.on.ca/en/reformcommission/chapters/ch7.html>

What is “Blended Learning?”

Web Learning @ Penn State

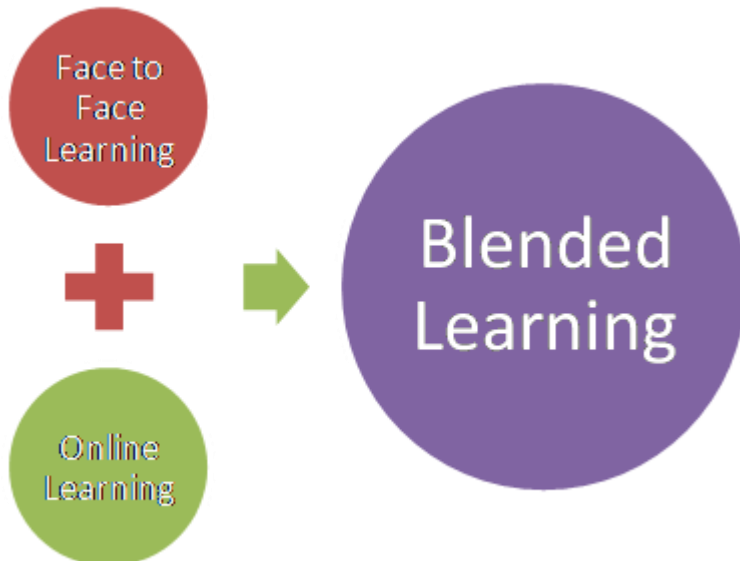
“[Currently] there is no consensus on a single agreed-upon definition for blended learning...the terms "**blended**," "**hybrid**," and "**mixed-mode**" are used interchangeably in current research literature.

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.”

<http://www.teachthought.com/blended-learning-2/the-definition-of-blended-learning/>

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

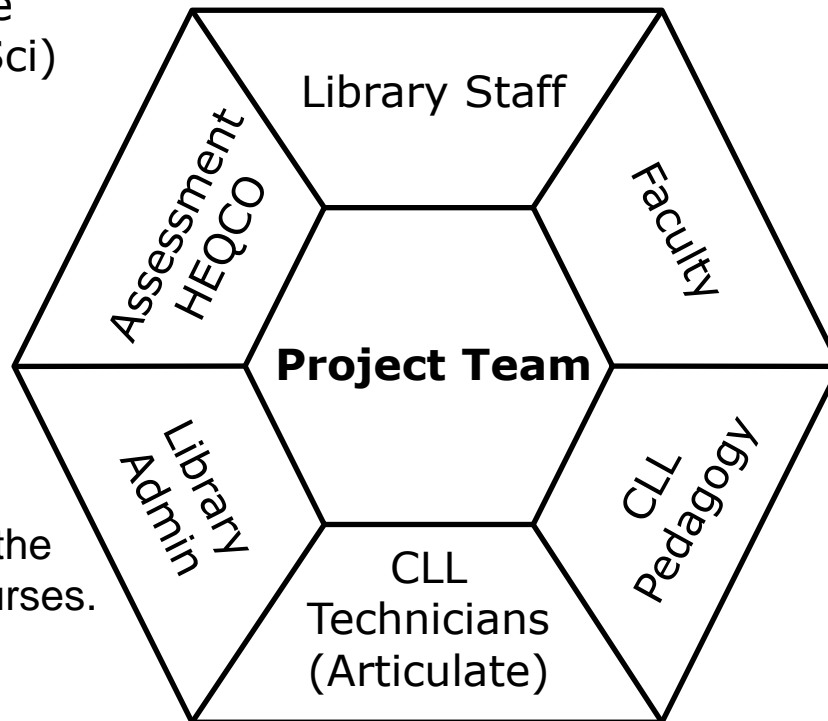
To respond to the growing body of literature supporting the concept of online modes of delivery for library instruction, the McMaster University Library collaborated with the McMaster Centre for Leadership in Learning (CLL) to design blended learning modules for five, Level I courses.

- 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.



Course Profiles (Jan.-Apr. 2012)

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

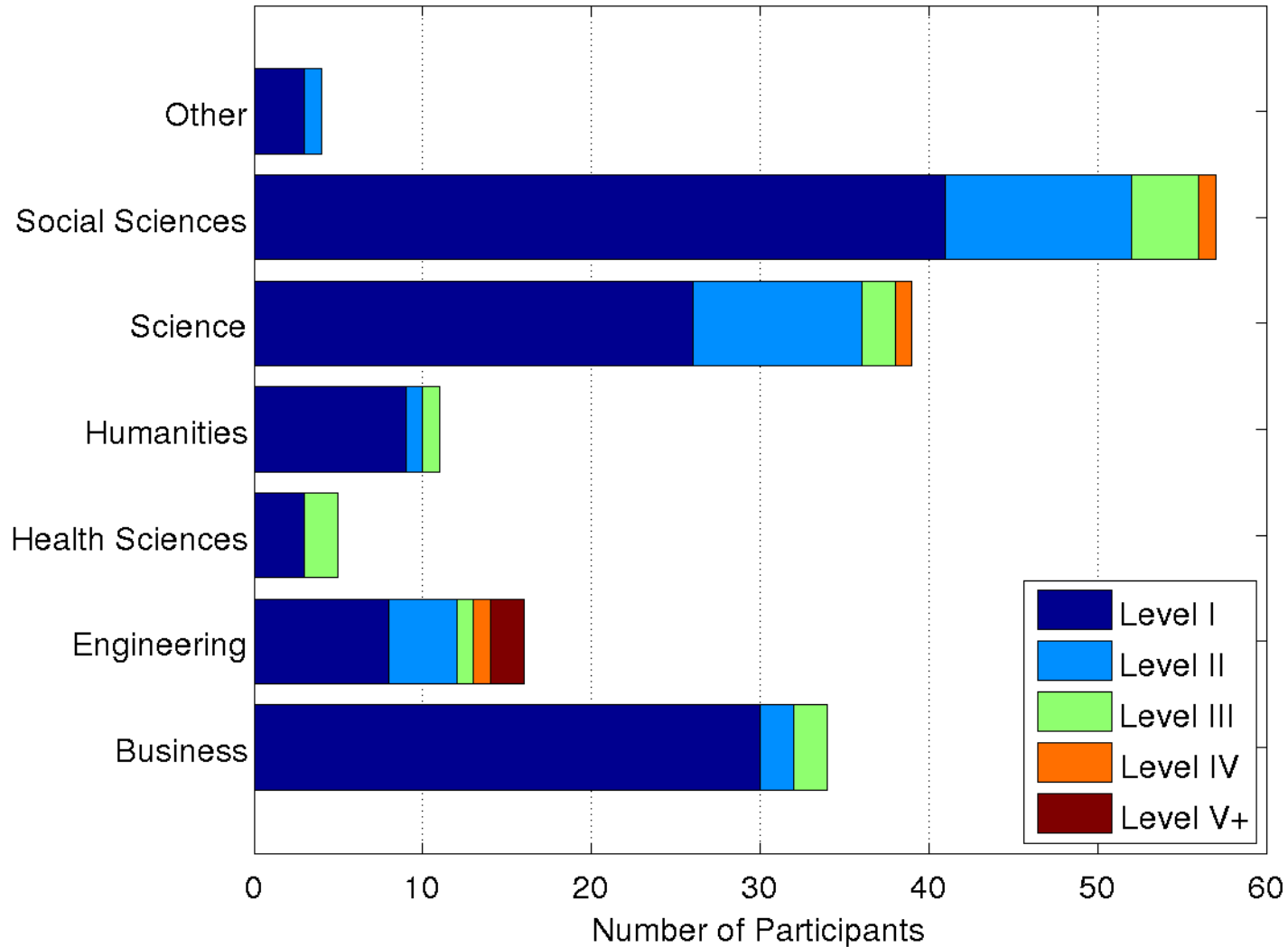
Geography 1HB3: City and the Economy

- 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



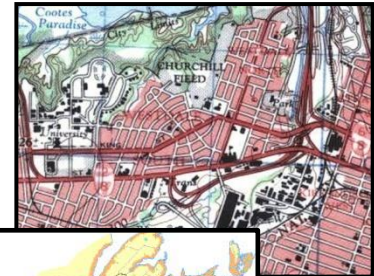
Learning Objectives

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



CANNON ST W South Side LBR 2B2		
X	11* Cvetkovic A	527-7543
(8)	13 No Return	
X	15-3 Constable B	572-9288
(3)	15 Parlow D	524-5962
■	29 Huynh D	525-2030
-- MACNAB N CROSSES LBR 2B4		
X	53* Salvage G	529-5930
(8)	55* Fazzari A	525-7405
(8)	55 Salvi R	524-1425
(1)	59 Nieboer M	525-7353
-- PARK ST N CROSSES		

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

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Blended vs Replacement

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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

Geospatial Literacy Modules (06:24 / 39:13) | ATTACHMENTS

Map Elements

The 2006 Census Subdivision of Hamilton, Ontario Canada

Neat Line

A neat line is important in defining the geographic extent of the map. It lets the user know the extent of the data used to create the map.

Legend

- Water
- Census Subdivision
- Hamilton Census Subdivision

Map created by: John MacKinnon, McMaster University
Map created on: June 17th, 2014

Data source: (MTI) Spatial, CanMap-Roads Logistics V 3.4 (Ontario Highways) (selections: regional)
Mackinnon, John (2011) Spatial-Info, 2008. Ontario and provincial Geographic Information System
Map Projection: North American Datum 1983, zone 17N

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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

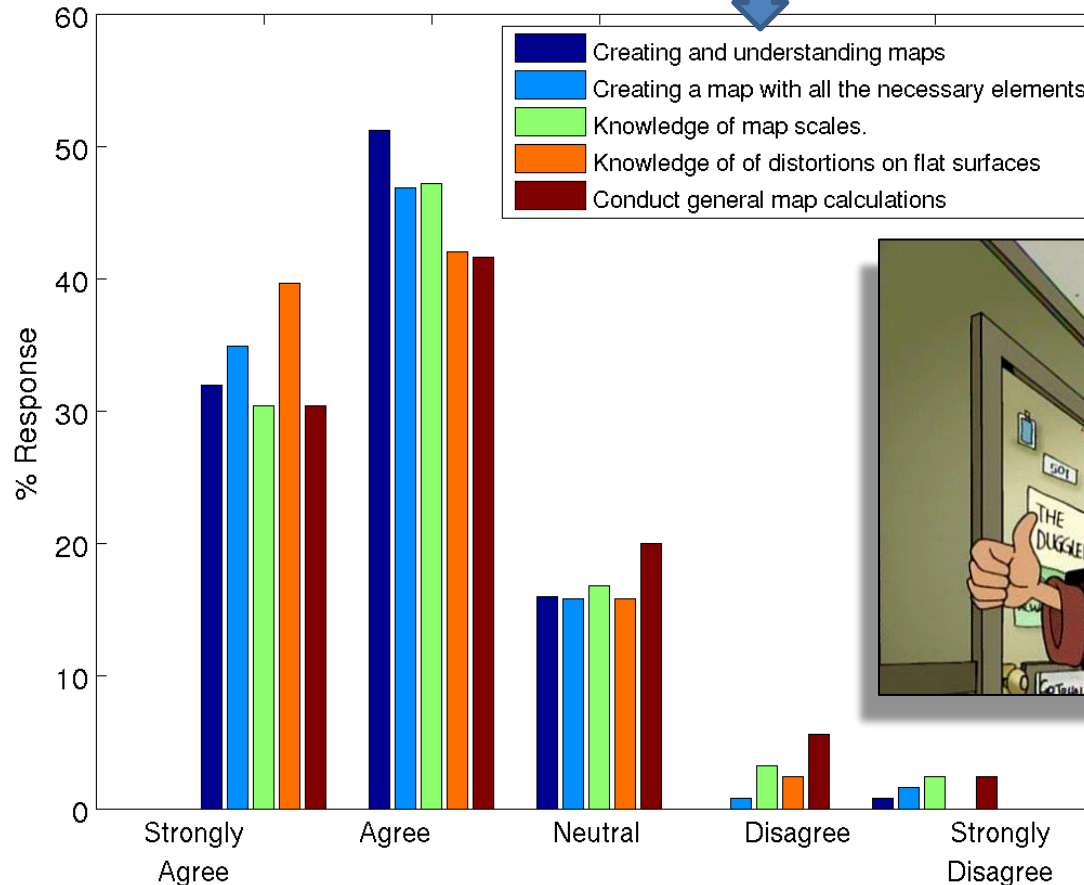
Literature Review

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.

Select Literature Review

McMaster University Library Task Force on Blended Learning



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Waters, A. (28 Nov. 2012). *Top Ed Tech Trends of 2012: The Flipped Classroom*. HackEducation. Retrieved from <http://hackeducation.com/2012/11/28/top-ed-tech-trends-of-2012-flipped-classroom/>

Articles on online tutorials

Bowles-Terry, M., Hensley, M. K., & Hinchliffe, L. J. (2010). Best practices for online video tutorials in academic libraries. *Communications in Information Literacy*, 4(1), 17-28.

Mestre, L. S. (2012). Student preference for tutorial design: A usability study. *Reference Services Review*, 40(2), 258-276. doi: 10.1108/00907321211228318

Sherer, P., & Shea, T. (2011). Using online video to support student learning and engagement. *College Teaching*, 59(2), 56-59. doi: 10.1080/87567555.2010.511313

QUESTIONS?



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