

Using Interactive Maps as Learning Tools

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PPT equipment

Objectives

- Inform the audience regarding a technique for online learning.
- Provide a rationale for the design of the technique.
- Assess the strengths and weaknesses of the technique.

Consider generalizable lessons from the use of this technique

Approach

- Presentation
- Q & A

Abstract: This presentation outlines an example where an interactive map is used to deal with the challenges of student engagement, geographical knowledge, and analytical skills. In the Canadian Society course I have been faced with the challenge of engaging students from a large number of locations, communicating to people who have a wide range of familiarity with the history and geography of Canada, and introducing comparative analysis to those who are unfamiliar with the concept. By using an interactive map I have been able to address all three of these challenges. Students are required to select a location in Canada, use the Statistics Canada website to collect information regarding the location, and post this information on a map along with a brief account regarding the significance of the site. The data from these postings is then used at later points in the course – to build the students' skills in comparative analysis..

Challenges

- Student engagement
- Depth and range of knowledge
- Range of analytical skills

Challenges

1. Student engagement
2. Wide range of student knowledge of Canadian geography and history
 - Quebecers know little of the rest of Canada
 - ROC know little of Quebec
 - Non-nationals know little of Canada
 - (in fact, the course is frequently chosen for this reason – by both national and international students)
3. Wide range of students' analytical skills
 - It occurred to me that these challenges might be mitigated by a technique I have used in my private life and in my research approach – bringing out the family album.
 - My research is on small towns and rural communities. We have found that one of the best techniques for opening – and continuing – conversations with those in small towns has been to ask them to show us their family album. In fact, we have expanded it to inviting local community groups to prepare a community family album for display at our workshops and conferences.
 - Typically, people are thrilled to do so.
 - They are quickly engaged and excited that someone is interested in their history and community
 - They bring unique and surprising perspectives to the exchange
 - And the activity itself is community-building.
 - Considered – can it work online?

Strategy

- Select a village, town, city, or neighbourhood
- Collect information about it
- Post it on a map
- Compare and analyze locations

- I planned to use this technique – but with a twist that reflects my pedagogical intentions.
 - Engagement plus learning
- Step 1:
 - Select a village, town, city, or neighbourhood in Canada in which they are interested.
 - “I suggest you choose one that you know a little bit about: because you do or have lived there, worked there, visited frequently, or have a close family member or friend who lives there.”
- Step 2:
 - Collect some information about this location using the Statistics Canada Community Profiles database.
- Step 3:
 - Post a summary comment on a map of Canada
- Step 4:
 - Conduct analysis of the location in 2 subsequent lessons
 - One: analysis of local implications of different general policies
 - Two: comparative analysis of 2 locations

2006 Community Profiles

Cap-Saint-Ignace (Municipalité) vs. Quebec (Province)

	Cap-Saint-Ignace, Municipalité			Quebec		
	Total	Male	Female	Total	Male	Female
Population in 2006 ¹	3,204			7,546,131 ¹		
Population in 2001 ¹	3,204			7,237,479 ¹		
2001 to 2006 population change (%)	0.0			4.3		
Total private dwellings ²	1,437			3,452,300		
Private dwellings occupied by usual residents ³	1,301			3,188,713		
Population density per square kilometre	15.4			5.6		
Land area (square km)	208.44			1,356,366.78		

	Cap-Saint-Ignace, Municipalité			Quebec		
	Total	Male	Female	Total	Male	Female
Total population ⁴	3,205	1,610	1,595	7,546,130	3,687,695	3,858,440
0 to 4 years	180	95	90	375,270	191,265	183,710
5 to 9 years	170	80	85	386,960	203,985	195,000
10 to 14 years	160	85	80	478,255	242,595	234,655
15 to 19 years	180	80	95	475,005	242,185	232,820
20 to 24 years	165	90	75	472,170	238,440	233,730

- Steps 1 and 2: Identify a location and collect some information about it
 - Used Statistics Canada Community Profiles Database
 - <http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/index.cfm?Lang=E>
- They are asked to identify (and in some cases, calculate) data regarding things like:
 - % Married
 - % Dwellings needing major repairs
 - % 1st generation immigrants
 - % lived at same address 5 years ago
 - % Aboriginal identity
 - % at least high school
 - Unemployment rate
 - % Manufacturing employment
 - % Unpaid child care
 - % Used public transit or walk to work
- Objectives
 - To provide them with information about the location they have chose which is potentially of interest to them
 - To teach basic statistical techniques (calculation of %s) and their interpretation
 - To establish a basis for comparison that I will use in future assignments.

LESSONS | DISCUSSION BOARD | RESOURCE CENTRE | MY ASSIGNMENT | MAP OF CANADA | BELL'S REDO-1

Home > Lessons > Lesson 3: What is Society? > Study Materials > Lesson 3 Assignment: Location Selection

Lesson 3: What is Society? 21/24

Lesson 3 Assignment: Location Selection (cont'd)

Section 1: Data on your Location (cont'd)

	Cap. St. Ignace	Quebec
Total Population	3,204	7,546,131
% Married	39.0%	37.5
% Dwellings needing major repair	10.0%	7.7%
% 1st generation immigrants	39%	13.6%
% Lived at same address 5 years ago	73.7%	61.9%
% Aboriginal identity	1.8%	1.5%
% At least high school	67.3%	75.0%
Unemployment rate	11.2	7.0
% Manufacturing employment	31.9%	14.6%
% Unpaid child care	43.0%	41.4%
% Used public transit or walk to work	6.7%	20.9%

Using the data I have collected from the Statistics Canada website, I can now fill in the information about my location. Review the table of data comparing the town of Cap-Saint-Ignace and the province of Quebec. You only need to record the data for the 11 variables identified in my example table on the left.

How to Calculate the Data

For example, on the Statistics Canada website (refer to Step 4 on the previous slide) you will see a number of tables. In the table on legal marital status characteristics, I give me the number of married people in Cap-Saint-Ignace (1,050) and Quebec (2,361,855) — and it also gives me the total number of people in the population who are 15 years of age or older. A screenshot of this portion of the Statistics Canada data is included below.

I will use these latter figures to calculate the % of people 15+ who are married for:

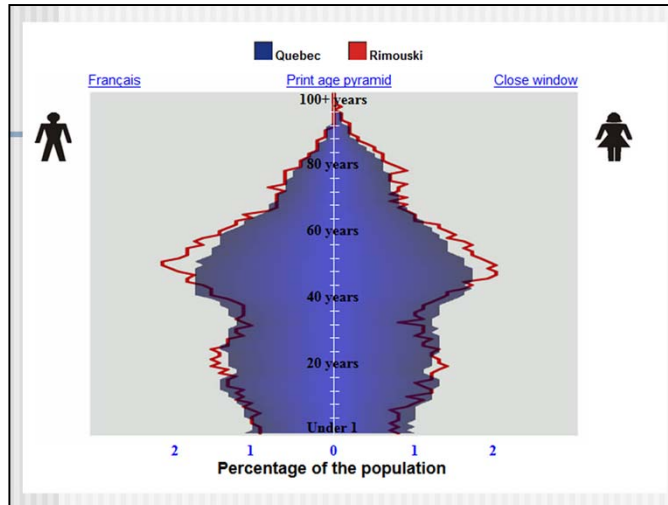
Cap-Saint-Ignace (1,050/2,695) = .39
 $.39 \times 100 = 39.0\%$

Quebec (2,361,855/6,293,420) = .375
 $.375 \times 100 = 37.5\%$

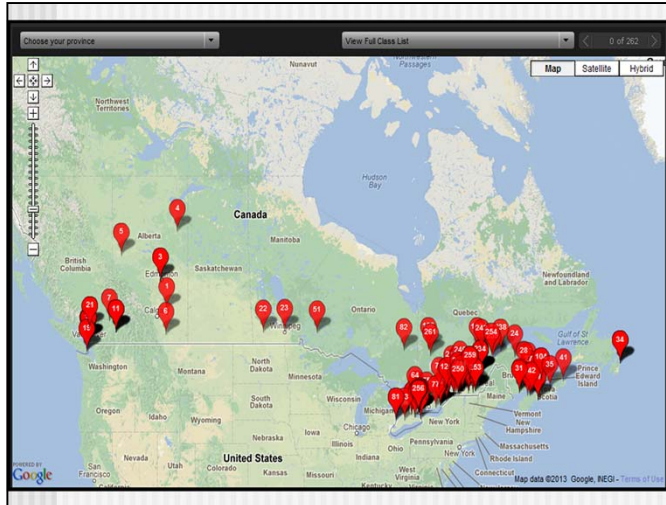
Screenshot Example on Legal Marital Status from Statistics Canada

Legal marital status characteristics	Cap-Saint-Ignace, Municipalité		Quebec	
	Total	Male	Total	Male
Total population 15 years and over ¹	2,695	1,350	6,293,420	3,245,070
Never legally married (single) ²	1,170	635	2,721,330	1,296,245
Legally married (and not separated) ³	1,050	530	2,361,855	1,180,515
Separated, but still legally married ³	90	20	132,285	72,645
Divorced ¹	200	110	667,400	366,895
Widowed ¹	219	90	410,750	219,375

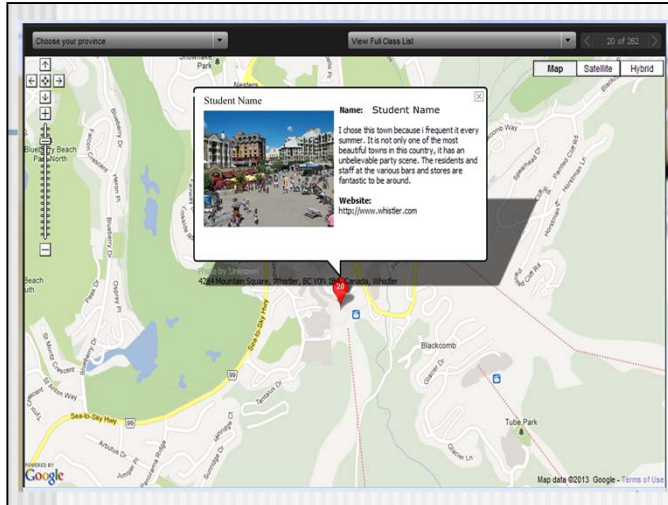
- I provide an example and videos showing how it can be done



- I also ask them to generate a population pyramid using the Statistics Canada site:
<http://www12.statcan.ca/census-recensement/2006/as-sa/97-551/figures/index.cfm>
- Or an excel program I prepared if the location they have chosen is not one of those in the Statistics Canada population pyramid inventory.
- This procedure expands their technical and analytical skills – with a particular focus on comparative approaches.
- Video demonstrations help a great deal – according to the students.



- Step 3: They are then asked to plot the location on a map of Canada – including with the submission:
 - A brief description of the location (using their own knowledge and what they have learned from the data they collected)
 - A link to any interesting or relevant websites associated with the location
 - An image that in some way depicts the location (with appropriate permission recognition)



- Clicking on the marker reveals the student, comment, web link, and image.

Analysis of locations (Lesson 4)

- How has Canada's trade position affected your location?
- How would your own position on trade (e.g. more open or closed) affect the location?

- Step 4: Subsequent assignments use these locations in various ways:
 - Lesson 4: Canadian Autonomy
 - How has Canada's trade position affected your location?
 - How would your own position on trade (e.g. more open or closed) affect the location?

Compare 2 Locations (Lesson 6)

- Identify some of the key differences between the two locations that may be accounted for by some of the explanations for regionalism discussed in the text
- Make clear how the drivers suggested by those explanations are related to the differences between the locations

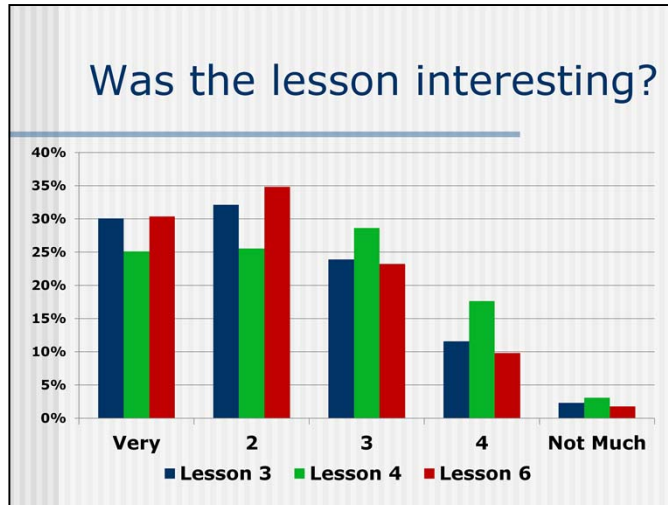
- Step 4: Subsequent assignments use these locations in various ways:
 - Lesson 6: Regionalism
 - Compare 2 locations on the map – “Identify some of the key differences between the two locations that may be accounted for by some of the explanations for regionalism discussed by Hiller. Make clear how the drivers suggested by those explanations are related to the differences between the locations. When doing so, make reference to specific information about the location that supports your claim.”

Student Responses

- “Challenging but well worth the information gained”
- “My brain doesn’t like charts or graphs” vs. Graphs “easiest”
- Videos and audios useful

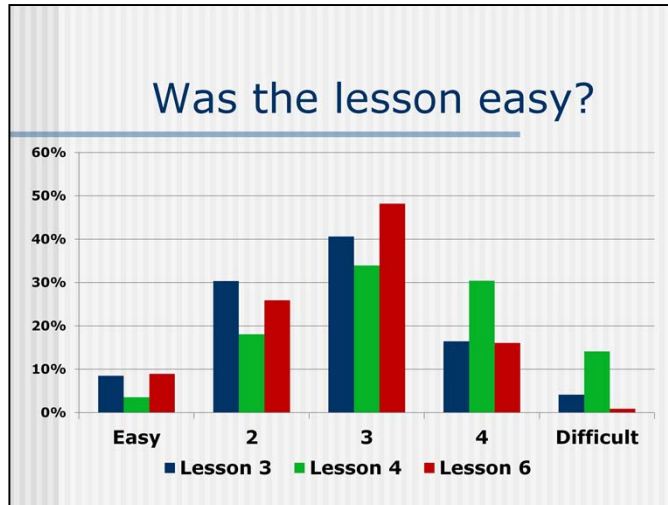
Student Responses

- Lesson 3: Gathering and plotting of the data. I have been surprised by the responses of the students.
 - In general they consider the collection and preparation of the data to be a positive experience. A representative comment on the “Rate this lesson” response was “I really enjoyed this assignment. It was challenging but well worth the information gained.” (Summer 2012 (b) Lesson 3).
 - “Reading the figures”, “how to make the calculations on the assignment”, and the population pyramids were mentioned by several students as the “Most difficult” part of the lesson – with one student commenting that “My brain doesn’t like graphs or charts”, but these tend to be balanced by many of them identifying “reading the figures”, “The graphs”, and “the charts” as the “Easiest part” of the lesson.
 - Many comments on the value of the examples, audio, and videos I provided.
 - Grades on the Assignment:
- Lesson 4: How has Canada’s trade position affected your location?
 - Frequent mention of the more theoretical components of the lesson being the greatest challenge: “Staples theory”, “International trade effects”, “Canadian trade and commercial relations”. The amount of reading on this lesson also considered heavy.
 - They also came up frequently in the “Easiest part” evaluations.
 - I was encouraged by comments like the following (under the “Most difficult” section): “To familiarize myself with parts of Canadian History that were not common knowledge to me, and all the different terms used.”
 - Grades on the Assignment:
 - Hard to assess the extent to which the location selection played a part in their learning for this lesson alone.
- Lesson 6: Compare 2 locations with respect to regionalism.
 - Few mentions of the assignment – most focus on the lessons and readings.
 - Grades on the Assignment:



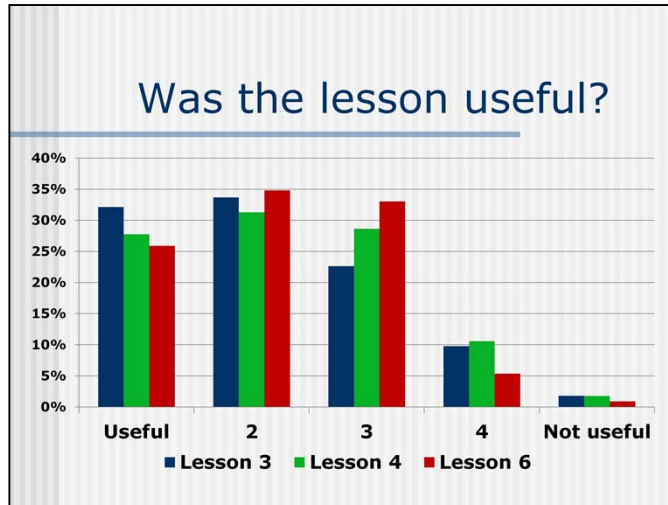
More quantitative representations of the student responses: Was the lesson interesting? (Very to Not At All)

- Lesson 3: Gathering and plotting of the data.
- Lesson 4: How has Canada's trade position affected your location?
- Lesson 6: Compare 2 locations with respect to regionalism.



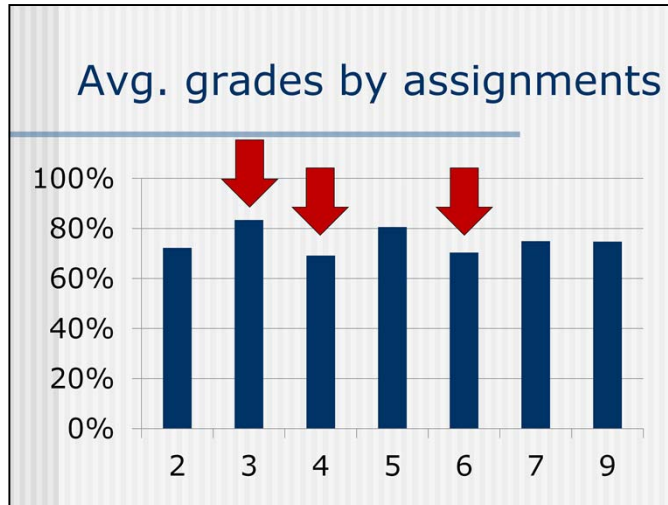
More quantitative representations of the student responses: Was the lesson easy? (Easy to Difficult)

- Lesson 3: Gathering and plotting of the data.
- Lesson 4: How has Canada's trade position affected your location?
- Lesson 6: Compare 2 locations with respect to regionalism.



More quantitative representations of the student responses: Was the lesson useful?
(Useful to Not Useful)

- Lesson 3: Gathering and plotting of the data.
- Lesson 4: How has Canada's trade position affected your location?
- Lesson 6: Compare 2 locations with respect to regionalism.



Grades – gathering data – best results

- Lesson 3: Gathering and plotting of the data.
- Lesson 4: How has Canada's trade position affected your location?
- Lesson 6: Compare 2 locations with respect to regionalism.

Conclusions

- Engagement: successful
- Increase knowledge of Canada
 - Initial choice – known vs. rumoured
 - Comparative analysis – useful
- Analytical capacity
 - Location of information
 - Organization of statistical information
 - Analysis
 - Link general to specific
 - Develop comparative analysis

Conclusions

- Engagement: reasonably successful
- Addressing wide range of knowledge re. Canada
 - Useful – split between known places and those places they had only heard about
 - Comparative analysis most useful here
- Improving analytical skills
 - Locating the data useful
 - Organization and presentation well done (often just following example)
 - Analytical aspects encouraging
 - Linking general issues to particular instances
 - Developing comparative analysis skills

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