

Using Statistics Canada data and lesson plans in senior elementary grades

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and
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Using relevant electronic resources in the senior elementary grades (grades 6-8) is no small feat. This is particularly true when looking at statistical data and the plethora of information available for these students.

Teacher librarians, and particularly people who may now be attempting to fill this important school function, may be reluctant to foray into what seems like a morass of information above the comprehension of students. For the astute elementary teacher, however, the Statistics Canada (STC) web site (www.statcan.ca) provides a wealth of resources.

These resources are divided into teacher and student categories ("Learning Resources" link). Teacher resources tend to focus on teaching tools like reference material and lesson plans for using the E-STAT program, for the *Canadian Social Trends* magazine (approximate grade 10 reading level), for census resource kits, for the 1999 or 2001 *Canada Yearbook* as well as other materials. The student link highlights a series of relevant curriculum areas like Social Studies and Aboriginal Studies, as well as resources like community profiles, downloadable (free) publications and thematic population maps. This paper will focus, however, on the use of E-STAT and on other relevant data sources for these grades.

Lesson plans on using the E-STAT program in a wide variety of subject areas by grade level can be easily found at www.statcan.ca/english/edu/teachers.htm. Subjects (22) extend from Aboriginal Studies to Science; lessons are arranged by elementary, intermediate (grades 7-9), and senior levels. Each lesson has a similar format: overview, objectives, suggested grade level and subject areas, outcomes, materials (e.g. student worksheets), classroom instructions, and suggested evaluation strategies. Teachers need only click on the grade level and subject area to get a listing of grade and subject relevant E-STAT lessons as well as lessons for using other STC resources (e.g. *Canada*

at a Glance). As an added bonus, all of these lessons are in French which is a boon to French Immersion teachers.

One lesson in the Health and Physical Education curriculum area, for example, is "*Comparing the Health and Lifestyles of 13 Year-olds around the World*." It requires that students estimate lifestyle patterns in five countries and then use E-STAT (CANSIM data base) to research World Health Organization survey data found therein.

Instructions are easy but do require preparation on the teacher's or teacher librarian's part. That is, while instructions are clear and precise there are still

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some directions that are taken for granted (e.g. vocabulary is explained in the lesson plan but should be clearly taught to the students; instructional terms like "select" need to be explained in class by the teacher - i.e. "Select" means "left click on"). In work that the authors have done recently with grade 7 and 8 learners, such minor reworking of these plans made for easier implementation of E-STAT based lessons. By deconstructing each lesson, and trying out the steps as written in the plan, potential stumbling blocks became apparent. Key interventions were added to either large or small group instructions appended to the teacher's lesson notes.

In another lesson that can be used in Social Studies or Mathematics, "*Calculating Population Growth For a Region*" ([\[population/pop1.htm\]\(http://www.statcan.ca/english/kits/pop1.htm\)\), there are both print literacy as well as research skills involved. Terms such as immigration, emigration and migration all have to be taught and understood before the exercise can be successfully completed. The student worksheet contains a table that has to be completed for each of the components of population growth. Students have to use the program carefully in order to research the data well. Line graphs can be easily constructed as visual demonstrations of statistical patterns. Hence, teachers and teacher librarians need to preview lessons for relevant terminology and technical skill requirements.](http://www.statcan.ca/english/kits/</p></div><div data-bbox=)

A third lesson, also in the Social Studies area, is "*Role Playing Jean Talon*." This lesson (www.statcan.ca/english/kits/jtalon1.htm) does not require the actual use of E-STAT since the 1666 census information is reproduced in a series of tables in the lesson. The essence of this group based lesson is reading and interpreting historical data as well as selecting appropriate graphs to present selected data. This particular lesson is a good start for any teacher or teacher librarian who might not want to begin using the E-STAT program immediately. However, there is a treasure trove of information inside the E-STAT program: choose "Data"; "Censuses of Canada, 1665 to 1871"; "1665-66 Census of New France" and then click on "Jean Talon" for information on how the first Canadian census was taken. Be sure also to click on "Related Resources", then "About this volume" to get to the rich resources of the Museum of Civilization, the Virtual Museum of New France and the National Archives of Canada.

Making the E-STAT program a part of one's instruction may seem difficult but need not be. In work done with

pre-service teachers (Lundy, in press; Lundy, 1998) utilization of this program is enhanced via direct instruction (1½ hour lab) employing step-by-step lesson plans mounted on a web site (www.nipissingu.ca/faculty/lundyj). These sequenced lessons include “show me” links that give pictorial representations of the particular steps involved in using the program. Most novice teachers learn the rudimentary steps in this lab. Peer helpers also enhance its use. At the grade 6 to 8 level, pre-instruction in a whole group environment seems to be the best method of preparing these learners for using E-STAT. Initial instruction should focus on the main steps in using the program: logging in, selecting “data,” choosing the appropriate major category of information (e.g. “People”), then the relevant data base (e.g. CANSIM II or Census)

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followed by the pertinent sub-category (eg. CANSIM II, “population characteristics”) and finally, the particular data set.

Other steps follow these main ones but may differ based on the choice of CANSIM II or the Census databases. Teachers and teacher librarians may find that short instructions similar to those included at the “STC Workshops” link at www.nipissingu.ca/faculty/lundyj may be useful for brief, guided directions for one student or a group wishing to find information via the E-STAT program itself or the free downloadable *Canadian Social Trends* or *The Daily* articles contained in the E-STAT program. Topics of high interest to senior elementary students, such as teen television viewing habits or number of hours spent on computer games, are easy to find in E-STAT and help to motivate them

during data exploration and skills training activities.

In essence, teachers need to preview the major steps in using the E-STAT program and need to give clear, sequenced instruction on these directions and especially the reasons for making certain program choices. This type of instruction is similar to that provided by a teacher librarian who methodically teaches learners information literacy and especially the important parts of any electronic resource (Branch & Oberg, 2001, p.10): a) explaining “the similarities and differences between databases” such as CANSIM II and a Census; b) ensuring “adequate prior knowledge” of relevant terms, either technical or substantive (as in lesson plan terms such as “select” or as in the meaning of “migration” in population studies); c) teaching or reinforcing “skimming and scanning through text to locate pertinent information” as in the relevant final choice of census database; d) teaching or reinforcing important aspects of presentation formats, as in graph or map types and editing techniques in E-STAT. These elements, combined with the prepared lesson plans at the STC web site, should ensure meaningful and fun intermediate grade lessons in a multitude of subject areas.

Students also can approach the STC web site (www.statcan.ca, “learning resources” link) for their own research purposes. While all of these resources can be incorporated into a set of sequenced teacher led lessons via help from the “teachers” link, the student site is both immediately useful as a quick research source of information and also for materials not found on the teacher link. The “Thematic Maps” of population distribution, produced after the 2001 Census (http://geodepot.statcan.ca/Diss/Maps/ThematicMaps/index_e.cfm), are particularly helpful. For example, the animated colour file, “100 Years of Change in Population Settlement” is a most dynamic way of showing population change in Canada and the resulting urbanization over the last 100 years. The 3D coloured map “Population Change 1996-2001...” is also most effective in its visual presentation of data. However, as noted above, instruction in visual literacy is particularly

important at this grade 6-8 level. Some students will definitely not understand the visual layout of the latter map and others will not focus on the changing aspects of any particular province in the former unless instructions on how to view these files are given. Nonetheless, on their own these maps offer a most relevant visual resource for students and teachers in understanding population changes in Canada.

Some materials, such as “Aboriginal Resources” (www.statcan.ca/english/kits/abst.htm) at the student site, are more clearly exhibited than at the teacher site. Not only are there immediately useful short articles (in .pdf format) on topics like “Canada’s Aboriginal Languages” (Norris, 1998), but also there is a direct portal into the E-STAT program, arriving at the “Aboriginal Population (1996 Census of Population (43 Large Urban Centres, Census Tracts (neighbourhood))” database choice, for example. In approximately six steps one can produce a coloured map showing the percentage of the 1996 Aboriginal population in any of the 43 large cities (over 50,000 persons) in Canada. If one does not know how to produce maps or how to create percentages from raw data one can easily go to the “User Guide” link on the left hand side of the screen and then to the “Quick Guides.” From here one chooses “Census Database”, then “Mapping the Population by Mother Tongue”, which demonstrates the steps to producing these results as well as various levels of analysis of the maps produced.

Resources like the Statistics Canada’s web site, and especially the E-STAT program, can offer a large measure of help in accessing current and relevant Canadian data. Careful work with electronic tools such as these will help a new generation of Canadian youth discover their country anew. ♣

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Creating a business

I use the www.statcan.ca website with my Data Processing 12 course. The ultimate assignment is to create a web site for a fictional business. The students' first job is to show that the type of business chosen would do well in the Nova Scotia community they have picked. To do this, they have to use the information in the StatCan site to produce two graphs that back up the choices. Some of the information used has been:

- Unemployment rate
- Household income
- Education levels
- Male/female populations
- Age cohorts
- Future population predictions

Since Nova Scotia has mostly small communities, I ask that each business be only 2 or 3 employees, to reduce the need to locate in the metro Halifax region. Examples that have been done are a toy store (lots of kids and grandparents), a tack shop (farm acreage and income), a golf course (income and most popular sport). In creating the web site, many also include a map of the area where they have located the business, using the maps available in the "Community Profiles" section of the Statistics Canada website.

As an introduction to the assignment, we use our own community to search through the data available and produce some graphs. We use a spreadsheet to create graphs by copying data to the spreadsheet and then using the graphing function to make bar graphs, pie charts etc. We also look at the information in E-STAT and how graphs can be produced and modified there. These are great for income levels and comparing different parts of the province.

This exercise has the students search for information on the Internet, use a spreadsheet and think about the background that goes into starting a small business.

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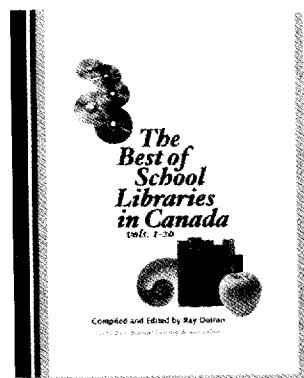
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