Using Data Visualization for Knowledge Translation*

V. Foot, PSYC6135

* Explaining your research findings in a way that your 11-year old nephew, 97-year old grandmother (with 20/20 vision), or someone not in your field, would understand.

Varieties of information visualization

- 1. Manuel Lima, A Visual History (Network and Tree Visualization)
- 2. Hans Rosling, The Best Stats (Animation and Interactive Graphics with Gapminder)
- 3. Nicholas Christakis, How Social Networks Predict Epidemics (Networks)

Common Theme

How they chose to **communicate** their research findings to the widest possible audience... through visualizations!



Easier said than done... Communicating research is not easy!



How can visualizations help?

There's TOO MUCH information out there!! Solution? We can use our eyes to see pictures instead of read (mostly) boring, jargon-y (no offense) academic papers or huge collections of data.

Visual information is magical

- It can compress knowledge into a single image

IS IMMIGRATION IMPORTANT TO CANADA?

ŤŤŤŤ

25% of Canada's population will be over 65 by 2035

> **5,000,000** Canadians set to retire by 2035



anada's worker-to-retiree ratio TODAY



Canada's worker-to-retiree ratio in 2035 1.6 Canada's fertility rate, which is ranked 181st globally, is well below Canada's replacement rate of 2.1

Almost

100%

of Canada's net

population growth will be through

immigration by 2035

NOW

HIRING

Immigrants TODAY make up 65% of Canada's net annual population growth



The Conference Board of Canada Le Conference Board du Canada

Canada's acceptance of immigrants on humanitarian grounds demonstrates compassion, leadership and enhances Canada's global standing

IMMIGRANTS...



boost trade ties between Canada and the world

strengthen culture and diversity

> are motivated, innovative and entrepreneurial

needs

350,000

Estimated number of

immigrants Canada will

need annually by 2035

to meet its workforce

National Immigration Centre | conferenceboard.ca/NIC | 🕑 @ImmigrationCBoC

Can you think of any costs associated with representing big data using visualizations?

Snake Oil?

Scientific evidence for popular health supplements Showing tangible health benefits when taken orally by an adult with a healthy diet





What can an image creator do to encourage the accuracy of their information? Likewise, what are the steps you can take as a consumer of research to make sure what you are reading is good quality?



"Data does not draw conclusions - people do. Any conclusions that you perceive are based largely on your own preconceived notions of what the images are attempting to show, or to prove."

Agree or disagree?

Discussion #4: Replications

The Proteus Phenomenon says that the first published study on a scientific question may find the most extravagant effect size and as further evidence is gathered, effect sizes tend to diminish (Ioannidis, 2006).

How many replications are optimal before we can share our findings through a "quick fix" visual representation, like an infographic? Is it even practical to want replications?

Did anything that you encountered this week change or reaffirm how you might use graphic displays in your own research?



Use Survey of Full Time University Students.



