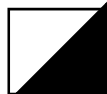# Torturing Nurses With Data, And Other Stories

Adventures in teaching quantitative research methods

The presentation that wasn't.

- Original plan: a presentation describing how we:

  1. Designed a modest quantitative unit for a graduate nursing course

  2. Executed it successfully and were invited to do an expanded version the following year

  3. Expanded, improved, evaluated it, then came here to tell you our success story

The First Draft

The torture begins.

In The Beginning

- Data Services was a new thing at the University of Windsor

- They weren't sure what to do with us, and we needed something to do

- We contacted faculty asking them to put us to use, and several did so

- One adventurous professor invited us to design a teaching unit for a research methods course

Our Assignment

- The subjects: a class of about 15 masters level students in nursing
- Constraints: a three-hour block of class time to work with
- Several students had not taken statistics or used statistical software
- Goals:
  - Not to teach stats or software – they're getting a statistics course
  - Get them to think about quantitative research from a practical research perspective – what the numbers mean in terms of real-world effects
  - Start thinking about variables and controls
  - Let them "get their feet wet" and conduct a simple research project
- Or, more simply: convert them

Methodology

- Ended up designing a program with three main components:

  1. The Lecture.
     Introduced important data and quantitative research concepts, talked in particular about use of health data.

  2. The Lab.
     Demonstrate running a simple set of analyses, then walk them through doing it themselves.

  3. The Assignment.
     Go play with data!

Their Assignment

- Variety of projects – in some cases quite sophisticated
  - Military nurse/epidemiologist looked at international data on health interventions and mortality
  - Community practitioner looked at characteristics of groups that don't access preventative care
  - Local service provision and hospital readmission rates
- Professor: "I have not had such an amazing outcome in papers such as these."

The Rematch

Further adventures in teaching quantitative research methods

Our New Assignment

- Expanded version of previous program
- Given three class sessions to work with
- The class this time was more than twice as large, and even fewer of them had taken statistics or used statistical software

Methodology, Round Two

- The "introduction to data" lecture I'd started the class off with previously was expanded to take up the first class session

- Assigned reading of a popular article on pitfalls of using observational studies in epidemiology

- Second session was Dan's applied statistics and SPSS tutorial

- Third class reserved for walk-in help

Their Assignment…

- Chief request after first version was more practice with stats/SPSS, so we complied

- Instead of the single, free-form assignment, gave them a set of questions with a prepared dataset as a preliminary assignment

- Intended to incorporate the "finding data" component into their final class essay
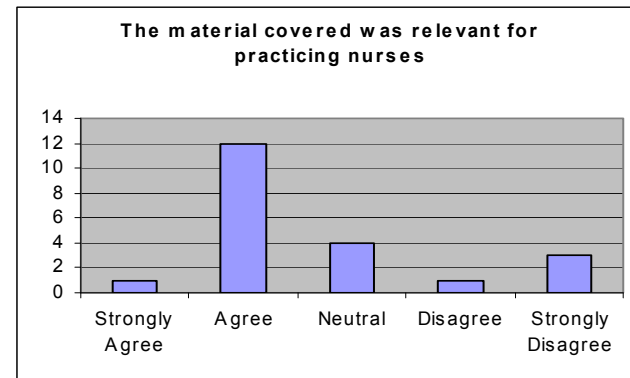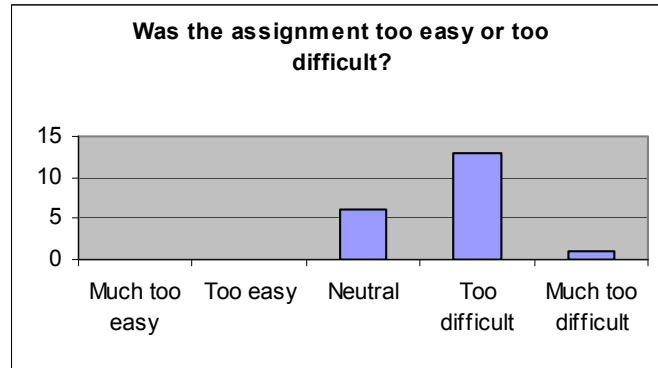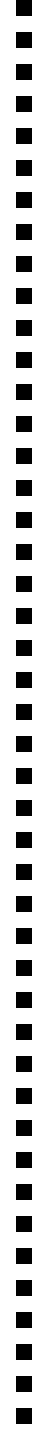
- That part got dropped…

Evaluation: What They Said

- "(The quantitative unit) was statistics, <u>not</u> quantitative research"

- "It was more like a stats class without having the theory"

- "It seemed like a STATS project instead of a research project"

Numeric feedback was mixed…

Was the assignment too easy or too difficult?

15	
10	
5	
0	

Much too easy | Too easy | Neutral | Too difficult | Much too difficult

The material covered was relevant for practicing nurses

14	
12	
10	
8	
6	
4	
2	
0	

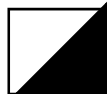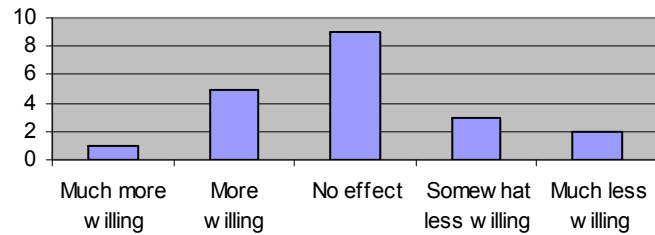Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree

The quantitative unit increased my comfort with reading and interpreting quantitative research articles
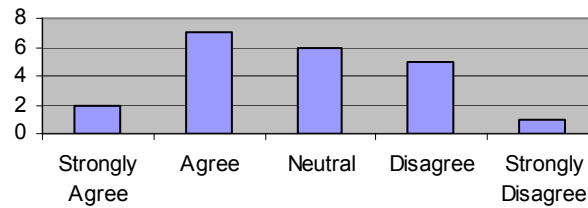
I am more / less willing to consider undertaking my own quantitative research project in the future

Some Lessons Learned

- Key lesson: focus on desired outcome
- Too much material can be distracting
- Spending too much time on an element can inflate its importance
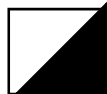- Spend the time – and the grades! – on the elements that you want to be retained

Fragments and Variations

Reduce, reuse, recycle

The Data Lecture Component

- Repeated and refined in several classes

- Focus on getting them to think about what might be available in their area of interest and who might have collected it

- Use handouts / web pages to point towards specific sources

- Doesn't only work for social science data – I've used the approach for GIS, environmental and engineering sources as well

The Lab

- Re-used in methods courses in psychology, social work, education…

- Keep It Simple, Stupid
  - Show them a few tools they can use to get results, and give clear rules on when to use each
  - Provide detailed handouts

- Thoroughly prepare dataset
  - clear variable names
  - easy to read, meaningful value labels
  - insulate them from issues like missing values declarations

- Allow time for plenty of one-on-one tutoring for those that require it

- Remind them that the statistics and software are tools for finding stuff out. Keep the focus on what the numbers represent.

There's Always Next Time

- One class lecture, one class hands-on
- Graded lab, but worth less and completed in class – with help as needed
- Skip the reading
- Revert to original assignment format – if class is large have them work in groups
- Evaluate and compare!