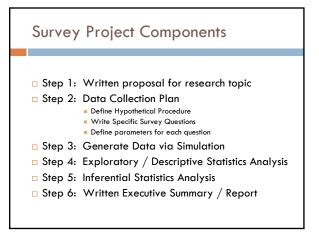


Introduction Where Do Statistics Come From? Statistical Thinking (Cobb, 1992) has been described as: understanding the need for data, the importance of data production, the omnipresence of variability, and the quantification and explanation of variability Simulation and Statistical Literacy / Thinking?

Background at Augsburg College Options for Business Administration Majors BUS 379 Intro Statistics for Business and Economics Fairly Traditional Syllabi / Content BUS 264 Statistical Literacy for Managers Combination of traditional statistics and critical thinking skills of Statistical Literacy course GST 200 Quantitative / Statistical Literacy Primary Audience – Students requiring QR Gen Ed skill from "non-quantitative" liberal arts majors

Add'l Augsburg College Background General Education Graduation Skills Requirement Starting Fall 2008, New two-tier system QF designation for foundational courses QA designation for application of skills QFA designation for courses which meet both requirements Course Project Requirements for QA Designation Student Generated Inquiry Application of foundational quantitative skills Written or oral presentation of results

Potential Dilemma / Solution Potential Dilemma: How to satisfy QA requirement with various audiences Course Content and Time Availability No support for two semester sequence Proposed Solution: Survey Project with Simulated Data Replace actual data collection with the Use of Computer Simulation / Random Number Generation



End Product — Simulation Program MS Excel spreadsheet program with VBA Macros Designed to generate data given student input Student questions must fit template of the assignment Current version for traditional courses 4 Binary Questions 2 Multiple Choice / Likert Questions 2 Continuous Variable Questions Student provided parameters assist in generating "realistic data"

| Continuous | Con

Simulation Program Outputs Program generates randomly generated sets of responses based on student inputs Sample size is pre-determined although it can be easily modified. (Important for significance testing) Excel formulas are designed to generate some relationships / correlations between variables.

Benefits of Simulated Survey Projects Individualized questions of interest created by students Reduction in time to gather actual data Increased student motivation through "realistic data" Discrete Components allow for instructor feedback in appropriate segments.

Elimination of convenience samples Focus on Exploratory Data Analysis and communication of results. (Students must learn to "read" what the data are telling them. Designed to allow for flexibility in application of various statistical tests. Excel Spreadsheet format allows for automation / aid in tabulation of data

Adaptations for Statistical Literacy Course Simulated Data provided in tabular format for analysis Allows for focus on Social Construction (Assembly) Spreadsheet format allows for examination of multiple "definitions" with the same simulated data Allows for analysis of confounding

Drawbacks of Simulated Surveys

- □ Assessment Time for individualized projects
- □ Rigid Template for Simulated Surveys
- □ Lack of Data Collection Experience

Further Improvements / Modifications

- More flexible survey template
- □ Improved correlations between survey variables
- $\hfill\Box$ Possible transition into web based application