

Using Surveys in Your Research



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Overview



- Surveys are an important tool that can help you to study the effect of new teaching strategies in your classroom.
- In this session, we'll look at some available survey instruments and give practical examples as to how these can be utilized in your research. Some of the tools to be introduced include:
 - Student Assessment of Learning Gains (SALG)
 - VARK
 - Biology Attitude Scale, and others.
- Resources for finding appropriate instruments and actual examples of student data will also be discussed.

Why Use Surveys?



- For this talk, I will use the term “survey” broadly to include instruments that obtain student responses related to a learning experience
 - Excluding concept or learning inventories that measure content understanding
- Surveys can provide insight into the educational experience of your students in the classroom
- You can utilize surveys that are already available to the educational community

or

- You can create your own surveys,

BUT....

Reliability and Validity



- Reliability

- Does the measurement tool measure something consistently?

- Validity

- Does the tool measure what it is supposed to measure?

“The process of establishing the reliability and validity of any instrument can take years of intensive work.”

Neil J. Salkind

Statistics for People Who (Think They) Hate Statistics

2004

Resources



- **Field-tested Learning Assessment Guide**
 - <http://www.flaguide.org/>
 - a resource for Science, Technology, Engineering and Mathematics (STEM) instructors
 - Contains fully-annotated assessments

Student Assessment of Learning Gains



- <http://www.salgsite.org/>
- The Student Assessment of their Learning Gains (SALG) website allows instructors to gather learning-focused feedback from students
 - Students rate how each component of the course helped them to learn

SALG Example



- BIOL 1710 – Blended Course Assessment
- Example of how such data might be used (next slides)

SALG Data – BIOL 1710 Blended*

(Fall 2007-Spring 2008)



- Student responses were positive on almost all questions asked (average response >3 on a 1-5 scale)
- Helpfulness of Course Components:
 - The most helpful aspects (% ranked as 4 or 5)
 - ✦ Weekly Online Quizzes (78.3%)
 - ✦ Online Course Modules (83.9%)
 - The least helpful aspects (% ranked as 1 or 2)
 - ✦ Recitation activities (24.8%)
 - ✦ Group work in recitation (25.3%)

SALG Data (continued)

(Fall 2007-Spring 2008)



- Improved Skills:

- The most gains in (% ranked as 4 or 5)
 - ✦ Working effectively with others (48.7%)
- The least gains in (% ranked as 1 or 2)
 - ✦ Writing reports (42.4%)

- Concept Understanding:

- The highest understanding in (% ranked as 4 or 5)
 - ✦ Cell types and cell structure (76.8%)
- The least gains in (% ranked as 1 or 2)
 - ✦ Glucose metabolism (23.8%)

Biology Attitude Scale

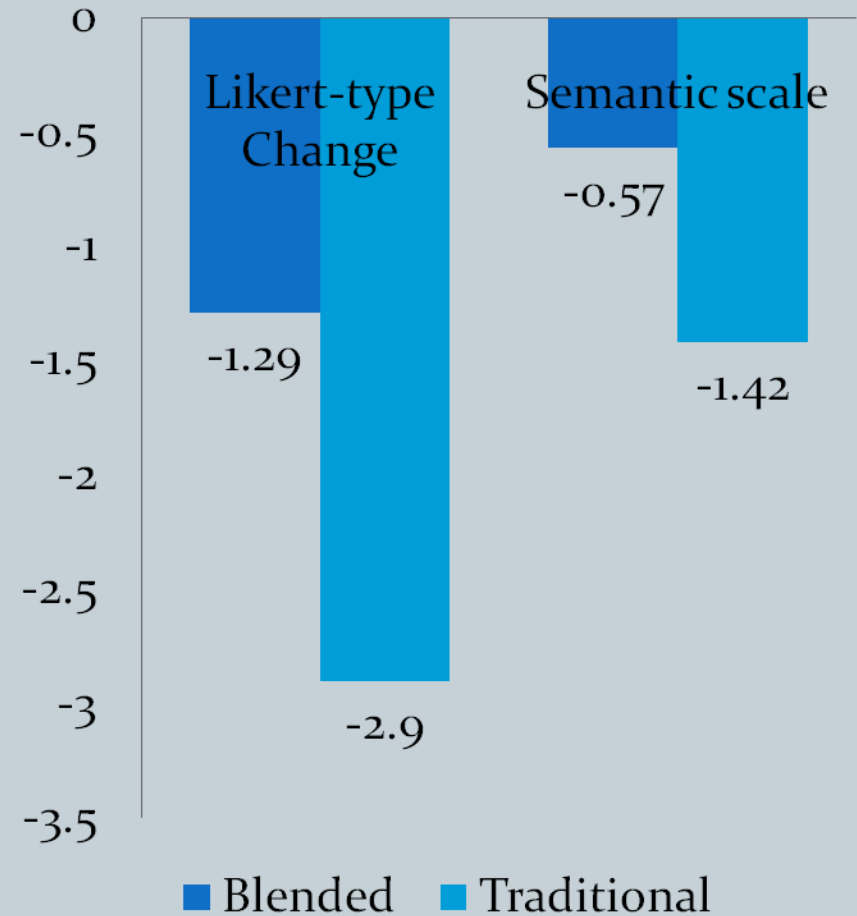


- http://www.flaguide.org/tools/attitude/biology_attitude_scale.php
- designed to measure students' attitudes toward biology
- Russell, J. & Hollander, S. (1975). A biology attitude scale. *The American Biology Teacher*, 37 (5), 270-273.

Biology Attitude Scale Example Data



- Compared means of change between pre- and post-test on the Biology Attitude Scale (two components: Likert-type scale and Semantic differential scale)
- Although both were negative changes, Blended students tended to be less negative (though not significantly so)



VAR K



- **Student Link:**
 - <http://iliad.cats.ohiou.edu/vark/>
- **Faculty Link:**
 - <http://www.vark-learn.com/english/index.asp>
- **Helps students identify their learning style from among Visual, Aural, Read/write, and Kinesthetic (VAR K)**
 - Can be used to assist students in learning strategies
 - Can be used to look at effectiveness of different teaching strategies with students who have a particular learning style

Making Your Own Surveys



- You can create your own surveys to answer specific questions in your course research
- Simple surveys will be the easiest to construct and use
- Yes/No or Likert-style questions can be enhanced by a free response comment option

Example “Do it yourself” Survey Data



- Students in the blended course were asked:

“If you were to start this course over again, would you prefer a traditional face-to-face format, or would you prefer the N-Gen (blended) redesign format you are experiencing?”

80% said they would take the blended course

(252 out of 315 completing the survey,
Fall 2007-Fall 2008)

Other Resources



- Bioliteracy Project
 - <http://bioliteracy.net/>
- The Carl Wieman Science Education Initiative
 - <http://www.cwsei.ubc.ca/>
- Biology Scholars Program
 - <http://www.biologyscholars.org/>

Your turn



- Audience Favorite or Suggested Resources

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