

Predicting the quality of an undergraduate course using the IDEA survey

M.J. Anderson, K.J. Stutts, M.M.
Beverly, and S.F. Kelley



Background

- The IDEA survey is a student questionnaire developed at Kansas State University with the ultimate goal to improve instruction using student feedback.
- IDEA survey contains questions pertaining to:
 - Course objectives
 - Teaching methods and styles
 - A description of the course



Objective

- To determine which of the survey questions in the IDEA survey were most important when predicting the overall course quality in an undergraduate courses.

If a child can't learn the way we teach, maybe we should teach the way they learn.

--Ignacio 'Nacho' Estrada



Materials and Methods

- A step-wise regression analysis was performed on IDEEA survey data from 27,423 courses spanning a six-year period.

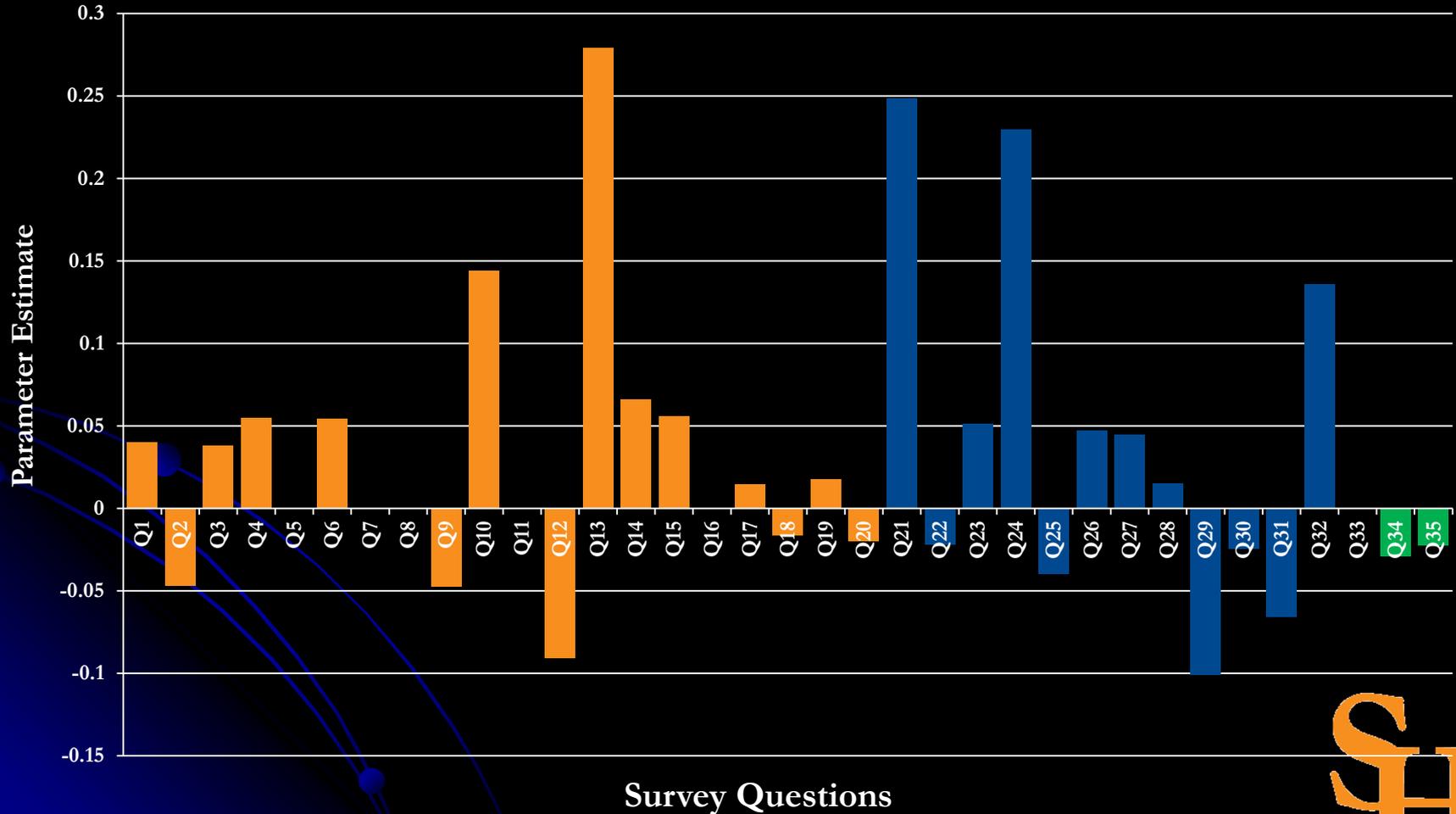
Materials and Methods

- Thirty-five of the 43 questions on the survey were included in the analysis.
- Eight questions were not included in the analysis because they involved students' preconceptions that could not be affected by the instructor during the course.

Results

- The analysis indicated that 29 of the 35 questions entered into the model were significant.
 - $r^2 = 0.8042$

Parameter Estimates of Individual Questions



Unrelated Questions

- Six questions were removed due to lack of correlation to overall course score.

5. Formed "teams" or "discussion groups" to facilitate learning
7. Explained the reasons for criticisms of students' academic performance
8. Stimulated students to intellectual effort beyond that required by most courses
11. Related course material to real life situations
16. Asked students to share ideas and experiences with others whose backgrounds and viewpoints differ from their own
33. Amount of reading

Positively Related Questions

- Of the 35 questions in the survey, 17 were positively correlated to the course quality.

13. Introduced stimulating ideas about the subject

21. Gaining factual knowledge (terminology, classifications, methods, trends)

24. Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course

10. Explained course material clearly and concisely

32. Acquiring an interest in learning more by asking my own questions and seeking answers

14. Involved students in "hands on" projects such as research, case studies, or "real life" activities

15. Inspired students to set and achieve goals which really challenged them

4. Demonstrated the importance and significance of the subject matter

6. Made it clear how each topic fit into the course

23. Learning to apply course material (to improve thinking, problem solving, and decisions)

26. Developing creative capacities (writing, inventing, designing, performing in art, music, drama, etc.)

27. Gaining a broader understanding and appreciation of intellectual/cultural activity (music, science, literature, etc.)

1. Displayed a personal interest in students and their learning

3. Scheduled course work (class activities, test, projects) in ways which encouraged students to stay up-to-date in their work

19. Gave projects, tests, or assignments that required original or creative thinking

28. Developing skill in expressing myself orally or in writing

17. Provided timely and frequent feedback on tests, reports, projects, etc. to help students improve

Negatively Related Questions

- Of the 35 questions in the survey, 12 were negatively correlated to the course quality.

29. Learning how to find and use resources for answering questions or solving problems
12. Gave tests, projects, etc. that covered the most important points of the course
31. Learning to analyze and critically evaluate ideas, arguments, and points of view
9. Encouraged students to use multiple resources (e.g. data banks, library holdings, outside experts) to improve understanding
2. Found ways to help students answer their own questions
25. Acquiring skills in working with others as a member of a team
34. Amount of work in other (non-reading) assignments
30. Developing a clearer understanding of, and commitment to, personal values
35. Difficulty of subject matter
22. Learning fundamental principles, generalizations, or theories
20. Encouraged student-faculty interaction outside of class (office visits, phone calls, e-mail, etc.)
18. Asked students to help each other understand ideas or concepts

Discussion

- Many of the top positively correlated questions are predictable.

13. Introduced stimulating ideas about the subject

21. Gaining factual knowledge (terminology, classifications, methods, trends)

24. Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course

10. Explained course material clearly and concisely

32. Acquiring an interest in learning more by asking my own questions and seeking answers

Discussion

- However, many questions that are negatively correlated should not be.

29. Learning how to find and use resources for answering questions or solving problems
12. Gave tests, projects, etc. that covered the most important points of the course
31. Learning to analyze and critically evaluate ideas, arguments, and points of view
9. Encouraged students to use multiple resources (e.g. data banks, library holdings, outside experts) to improve understanding
2. Found ways to help students answer their own questions

- What are we as instructors doing that causes this negative correlation?



Discussion

- We need to develop alternatives to the current methods that we are using pertaining to these questions with negative parameter estimates, so that students view these topics in a more positive light.
- By continuing to adapt our teaching methods, we can improve the experience of students during learning and the overall quality of our courses.

Conclusions

- Continue to hit on the positives.
 - These are things in which our current methods are, in our student's perspective, successful
- Need to focus on the negatives.
 - By improving our teaching methods in areas that currently negatively correlated then we may be able to alter students perceptions of those areas.