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What determines student satisfaction with university subjects? A choice-based approach

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ABSTRACT

In this paper, we report on a study of student satisfaction with university subjects and teaching. Quantitative analysis of student perceptions of university subjects traditionally has been based on instruments containing a list of items (statements) to which students respond in an item-by-item manner using Likert-type rating scales. The main purpose of this paper is methodological: we propose and apply a novel application of a discrete choice experiment (DCE) to evaluate and measure the individual contributions of various subject and teaching attributes on student satisfaction with higher education teaching experiences. We are not proposing the use of a DCE approach as an alternative to regular classroom evaluation exercises. Rather, we see the approach as complementary, especially because DCEs are an attempt to deal with rating scale related issues such as response styles and inter-item correlation. A representative Australia-wide sample of university students completed an evaluation ratings task (the “instrument”) and/or an evaluation DCE task (the “experiment”). Our results compare the findings of the instrument and experiment model estimations in terms of their ability to identify the relative importance of various evaluation items that drive student satisfaction. We also use a latent class analysis to explore differences in effects for sub-groups of students.

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1. Introduction

Student perceptions of university subjects and teaching have been used widely in higher education for the last few decades (Richardson, 2005a). Such perceptions typically are elicited with student evaluation of teaching (SET) questionnaires in actual or virtual classrooms, in written or on-line formats. There is a substantial literature in relation to SET and its inherently contentious issues (see, for instance, Denson et al., 2010, Greenwald, 1997, Haskell, 1997, Kulik, 2001, Marsh and Roche, 1997, Pounder, 2007, Seldin, 1993, Sproule, 2002, Wachtel, 1998). For example, one issue of debate pertains to what actually is evaluated. That is, the object of evaluation often is “teaching effectiveness” or “teaching quality” (“good teaching”), but it is not immediately obvious which elements impact teaching effectiveness and how, or whether, these can be assessed by students.

In contrast, Marsh (1984) and Marsh and Roche (2000) argue that eliciting student opinions about university teaching is

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useful and valid in relation to teaching quality. Yet, even if it is possible to identify the key drivers of teaching effectiveness and if student evaluations of teaching are deemed acceptable, reservations about the validity and interpretation of SET responses remain. More specifically, SET results may be affected by factors like grades, gender, class size, expectations, perceived subject difficulty and ‘halo’ effects (see, e.g., [Badri et al., 2006](#), [Darby, 2007](#), [Isley and Singh, 2005](#), [Koh and Tan, 1997](#), [Pounder, 2007](#), [Remedios and Lieberman, 2008](#)).

The research described and discussed in this paper proposes a new way to elicit, measure and model student satisfaction with university subjects. A subject here refers to a one-semester unit of university study, commonly called a “class” in the USA. The notion of student “satisfaction” suggests a buyer-supplier relationship between university and student whereby a provider gauges a client’s response to a product at the stage of pre-purchase (student attraction) or post-purchase (student retention). This concept of university students as customers has been discussed (among others) in the context of increased competition between universities, such as [Rolfe \(2002\)](#) and [Voss and Gruber \(2006\)](#). It may be the case that students are not necessarily in the best position to determine which aspects of subjects or teaching are in their best educational interest; hence, student satisfaction may not be the most pertinent evaluation objective for university education ([Richardson, 2005a](#)).

However, a major advantage of concentrating on student satisfaction is that it mitigates the teaching effectiveness issue alluded to earlier. Student satisfaction may or may not be correlated with teaching effectiveness, and we wish to make it clear that we make no claims about the latter. Indeed, [Bedgood and Donovan \(2012\)](#) discuss the difference between measuring student satisfaction and measuring teaching quality/student learning, so it seems prudent to avoid claiming any relationship between these two constructs. Moreover, we can justify a sole focus on measuring and modelling student “satisfaction” simply because many university SET instruments contain a summary evaluation item, which [Sproule \(2000\)](#) calls the “single-most-important question”, phrased in terms of the notion of satisfaction (“Overall, I was satisfied with the quality of this subject/unit/lecturer’s teaching”). Furthermore, Australia’s Course Experience Questionnaire, which is a performance indicator at a university program level based on student perceptions ([Richardson, 2012](#)), has a final item worded as ‘Overall, I was satisfied with the quality of this course.’ Thus, there clearly is university sector interest in “satisfaction”; hence, we see it as a construct worthy of investigation on its own.

Our research departs from traditional student satisfaction evaluation because most prior work has focused on evaluations at a university program level (see, for instance, [Ginns et al., 2007](#), [Ramsden, 1991](#)), but we use the university subject (class) itself as the level of analysis. [Denson et al. \(2010\)](#) provides a recent example of research into the drivers of Australian student satisfaction at a subject level.

A final and primary contribution of our research is methodological. Most SET instruments used in university evaluation practice and in higher education research commonly contain a list of items (statements) that ask students to report their level of agreement/disagreement on teaching and/or subject on an item-by-item basis. This typically involves Likert-type rating scales that range from “Strongly Disagree” to “Strongly Agree”. [Denson et al.’s \(2010\)](#) large-scale student satisfaction study of one year’s SET data at an Australian university is representative of much prior research in that it used such ratings scale responses. They used ratings for the final ‘overall satisfaction’ item in the evaluation instrument as the dependent variable that could be explained by various subject aspects (on a 1 to 4 category rating scale) plus student characteristics (covariates). A multivariate analysis showed statistically significant effects of subject items on student satisfaction.

Ratings responses are vulnerable to response bias due to response style differences ([Baumgartner and Steenkamp, 2001](#), [Dolnicar and Gruen, 2007](#), [Richardson, 2012](#), [Yorke, 2009](#)). This occurs when survey participants exhibit a consistent answering pattern irrespective of the actual questions asked. Examples of response styles include agreement tendency and consistent use of scale endpoints or midpoints. Response styles can lead to incorrect interpretations of responses to the evaluation items.

[Huybers \(2014\)](#) proposes Best Worst Scaling ([Finn and Louviere, 1992](#), [Marley and Louviere, 2005](#)) as an alternative to ratings responses for eliciting SET responses in a classroom environment. In the Best-Worst Scaling (BWS) approach, a “master” set of teaching and subject related items is systematically varied in experimentally designed subsets (comparison sets) using a balanced incomplete block design. Students choose the best/most applicable and worst/least applicable item in each sub-group. [Huybers \(2014\)](#) found that, compared with a conventional ratings approach, Best Worst Scaling had greater discriminatory ability; that is, it was able to better distinguish the most and least applicable teaching and subject aspects across various items in a SET instrument. This finding is consistent with other studies that compared Best Worst Scaling experiments and rating tasks (e.g., [Cohen, 2009](#), [Lee et al., 2007](#), [Lee et al., 2011](#)).

The main methodological innovation of this paper is to extend [Huybers’s \(2014\)](#) choice-based measurement (BWS) approach by using a discrete choice experiment (DCE, [Louviere et al., 2000](#)) to investigate the underlying drivers of student satisfaction in higher education. The DCE is used to vary teacher and subject related items over a relevant set of levels that produce choice sets in which participants have to evaluate and compare university subjects.

That is, any teacher or subject can be described by a combination of rating scale categories on the various teacher and subject items. The DCE provides a systematic way to assign combinations of the item levels to choice (or comparison) sets that allows one to estimate the parameters of various discrete choice models. In turn, the DCE we designed and implemented created an experimental task in which participants compare two subjects (choice options) described by a combination of rating scale values (levels) on all subject items; participants are asked to choose the one subject that they think would be more satisfactory. We compare the results from our DCE approach with the results of student evaluation responses obtained from a ratings based survey instrument using the same evaluation items and rating scale as were used in the DCE.

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