# Student Evaluation Instruments: The Interactive Impact Of Course Requirement, Student Level, Department And Anticipated Grade 

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#### Abstract

The examination of Student Evaluation Instruments (SEI) has generated a considerable literature. Interestingly, this extensive literature provides no clear guidance on how to interpret SEI results in order to make comparative evaluations of instructors' performances. The research presented in this paper draws upon six semesters worth of SEI responses for all courses in our school of business - a database of nearly 30,000 responses. The paper examines how core measures of teaching effectiveness - student evaluation of instructor's teaching ability and willingness to recommend the instructor - are affected by several factors. These factors include: the department from which the course was offered; whether the course was required by the core, the department or was an elective; the status of the student and the anticipated grade. Statistical analyses are conducted to examine and determine the impact of these factors and their interactions. The goal is to develop a system that can more accurately gauge instructors' performances as measured by the student evaluation instrument.


## INTRODUCTION

$\mathscr{F}$ncreasingly, colleges and universities are under the expectation to prove excellence in teaching. The ability to demonstrate such excellence in teaching and learning is being driven by public demand and accrediting agencies. Most institutions of higher learning have developed systems for measuring teaching effectiveness. These systems include a variety of approaches that include evaluation of instructional design, monitoring course management, and instructional delivery. This last factor can be evaluated by means of peer review and student evaluations. Student evaluation of instruction is generally acquired through a standardized instrument. Taken together, these mechanisms play a critical role in the academic life since they are crucial in the promotion and tenure processes. Seldin (1993) argued that student evaluation instruments (SEI) are the dominant factor used by administrators when they evaluate teaching effectiveness. Becker and Watts (1999) have argued that the measurement derived from SEIs contributed $50 \%$ to $60 \%$ of the overall evaluation of teaching effectiveness. Hobson and Talbot (2001) and Richardson (2005) have stated that universities use SEIs as their primary method for evaluating teaching effectiveness. Comm and Matthasiel (1998) found that $94 \%$ of business schools responding to a survey use SEIs as one means of evaluation instruction. This high proportion may be due to an assessment requirement of AACSB (1994).

## LITERATURE REVIEW

## Importance

Given their importance, it is not terribly surprising that the study of Student Evaluation Instruments has engendered a huge literature. Cashin (1995) stated that there were over 1,500 books and articles on SEIs. Wilson (1998) reported that since their first use, there have been over 2, 000 articles on this subject. Al-Issa and Sulieman
(2007) found 2,988 articles on SEIs published between 1990 and 2005. Therefore, it is not surprising that this method of evaluating teaching performance has gained widespread use in most universities and colleges (Hobson \& Talbot, 2001; Richardson, 2005) and is often the primary method used to evaluate classroom teaching performance (Yunker \& Sterner, 1988). Comm and Mathaisel (1998) indicate that almost all AACSB accredited business schools responding to a survey use Student Evaluation Instruments as an element in determining teaching effectiveness.

## Validity

Much of the SEI literature examines the validity of the SEI as a tool to assess teaching effectiveness (Clayson and Sheffet 2006; Glynn et al. 2006; Green et al. 1998; Soper 1973; Rodin and Rodin 1973; Sopher 1973; Morgan et al. 2003). Several studies tend to support the validity of SEIs (Aleamoni, 1999; Wachtel, 1998). However, there still exist serious questions as to whether SEIs should be used as a primary measure of teaching effectiveness. Also, there is the question of whether students are in a position to accurately evaluate the teaching capabilities of their professors. Some argue that students cannot evaluate [Caskin (1983); Selden (1984), Newton (1988); Bures, DeRidder and Tong (1990); and Richer (1996)].

That argument was predicated on students' inability to distinguish between attitudes toward the instructor and the instructor's actual effectiveness as a teacher. Clayson and Sheffet (2006) presented evidence of a strong relationship between students' perception of the instructor's personality and their evaluation of instructional effectiveness in marketing and business core courses. It was found [Aigner and Thum (1986)] that instructor's enthusiasm, along with other factors, exhibited significantly positive influences on an instructor's rating. Williams and Ceci (1997) found that SEI ratings are significantly influenced by instructors' personality factors. Clayson (1999) presented evidence that the majority of variance in SEI results were attributable to personality. Not all authors [Centra (1993) and Braskamp et. al. (1944)] agree with the notion that personality is a major determinant of SEI results.

Demographic factors have been included in many of the studies. Race and gender of instructors have also been investigated as possible factors. Smith and Anderson's (2005) study of female Hispanic faculty found that they received much lower scores on their SEIs than their Anglo counterparts.

Many researchers [Leslie, Kellams \& Gunne (1982); Gappa (1984); and Bruno (2003)] examined the employment status of the instructor and found that full-time faculty members generally received higher scores than part-time faculty.

Other researchers have looked at the impact of course workload on SEIs. Not surprisingly, several studies (Stapelton et al., 2001, and Paswan and Young, 2002) clearly indicated a negative relationship between increased course demands (materials, workload, and homework) and the results of student evaluations of their instructors. Course demands (as measured by hours per week required outside of class) were found by Aigner and Thum (1986) to have a significant negative impact.

## Course Type

For the purpose of this research, it is important to review research on the role that the course type plays on evaluations. Current research has shown a relationship between the student's reason for taking the course (requirement for the school core, requirement for the major, or an elective) and the student's perception of the professor. Elective courses are rated higher than non-elective courses (Marsh, 1987; Feldman, 1978). Required courses outside the student's major receive the lowest ratings (Marsh, 1987; Feldman, 1978). Boex (2000) identified that student-instructor interaction had a significantly positive impact on effectiveness ratings in core-level courses, but not for non-core level courses.

## Methodology Criticisms

The significant portion of the SEI literature has also been criticized for being methodologically flawed. Among several methodological problems identified by Marsh (1987) in this type of research were implying
causation from correlation, use of an inappropriate unit of analysis, and not properly accounting for the multivariate nature of SEIs and potential biases.

All of these varied factors support the issue that SEIs should not be the sole basis for evaluation. Green et al. (1998) recommend that accounting departments should reevaluate their SEIs to remove items that students cannot assess. Further, they note that SEIs should be designed to capture data on course materials and curriculum design/course development, as well as other relevant dimensions of effective teaching.

## METHOD

## Student Evaluation Instrument

As part of the Quinnipiac School of Business' quest for AACSB 15 years ago, we initiated an assessment program. Part of that program involved the development and use of a student evaluation instrument. The instrument has 21 close ended and two open-ended questions (provided in Appendix 1). In order to assure anonymity, no demographic questions, other than the student's status (freshman, sophomore, junior, senior or graduate student), are collected. Data are also collected on the categorization of the course: a business core, a major's core, or an elective. We also inquire the extent to which the student is keeping up with materials for the course and the expectation of their grade. The remaining 17 close ended questions focus on the student's perception of particular aspects of the course and their instructor's teaching ability. These questions are scored on a 5-point Likert-scale. Two items - students' evaluation of the instructor's Teaching Ability and whether the student would Recommend this instructor to a friend - are of particular importance during the evaluation process. This paper will singularly focus on the Teaching Ability score. This question is coded such that the more favorable the evaluation of the instructor's teaching ability, the higher the score (1-Poor~5-Excellent).

## Sample

We examined data collected from our Student Evaluation Instrument for six semesters (three years) for the entire School of Business. The results yielded nearly 30,000 useable responses across all business majors.

Our examination centered on two questions from our University's School of Business SEI - the students' evaluation of the instructor's Teaching Ability and whether the student would Recommend this instructor to a friend. At our institution, when evaluating a faculty member for continued employment, promotion and tenure, these two items take precedence in terms of importance.

## RESULTS

## Total Sample

Table 1 provides the number of observations, mean score, and standard deviation for the total sample by semester for the two Likert-scale questions of highest importance in our promotion and tenure process, Teaching Ability and Recommendation.

It should be noted that our evaluation instrument codes the courses by department; however, there are three sets of courses - Health Management, Business Law and Quantitative Methods - that are coded separately. We did not include these courses in our study since the instructors were not evaluated within the normal context of a departmental review. These three represent approximately $4 \%$ of the total sample. Table 3 provides percent of total observations for the six semesters analyzed.

## Comparison Measure

In Tables 2 and 3, we provide the mean score for Teaching Ability and Recommendation, respectively, for each semester by department. The last row in each table, School of Business, represents the number of courses given this designation. It includes our cornerstone and capstone courses along with several one credit courses. Faculty members from different departments teach these courses. Scores from these courses are included in their
evaluations; therefore, we have included them in our analysis. Data were not collected for these courses during the Fall 2002 semester.

Table 1: Teaching Ability and Recommendation Scores by Semester

|  | Teaching Ability |  |  | Recommend Teacher |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\underline{\text { Count }}$ | $\underline{\text { Mean }}$ | $\underline{\text { Std. Dev. }}$ | $\underline{\text { Count }}$ | $\underline{\text { Mean }}$ | $\underline{\text { Std. Dev. }}$ |
| Fall 2002 | 4,312 | 3.91 | 1.07 | 4,199 | 1.88 | 1.14 |
| Spring 2003 | 4,605 | 3.84 | 1.10 | 4,499 | 1.94 | 1.16 |
| Fall 2003 | 5,348 | 3.88 | 1.08 | 5,224 | 1.93 | 1.16 |
| Spring 2004 | 5,395 | 3.91 | 1.04 | 5,287 | 1.90 | 1.11 |
| Fall 2004 | 5,212 | 3.78 | 1.16 | 4,848 | 1.95 | 1.15 |
| Spring 2005 | 4,724 | 3.96 | 1.05 | 4,612 | 1.88 | 1.13 |
| Overall | 29,596 | 3.88 | 1.09 | 28,660 | 1.91 | 1.14 |

Table 2: Mean Scores for Teaching Ability by Semester and by Department

| Table 2: Mean Scores for Teaching Ability by Semester and by Department |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | F2002 | S2003 | F2003 | S2004 | F2004 | S2005 |
| Accounting | 4.00 | 3.94 | 3.74 | 3.89 | 3.90 | 4.11 |
| CIS | 4.11 | 3.87 | 4.11 | 4.18 | 4.14 | 4.14 |
| Economics | 4.04 | 3.93 | 4.09 | 4.10 | 4.02 | 3.92 |
| Finance | 3.43 | 3.66 | 3.67 | 3.97 | 3.60 | 3.86 |
| IB | 3.69 | 3.79 | 3.95 | 3.73 | 3.84 | 3.50 |
| Management | 3.83 | 3.66 | 3.63 | 3.96 | 3.86 | 4.02 |
| Marketing | 3.99 | 3.88 | 4.22 | 4.14 | 4.06 | 4.13 |
| School of Business |  | 3.58 | 3.55 | 3.39 | 2.82 | 3.86 |

Table 3: Mean Scores for Recommendation by Semester and by Department

|  | F2002 | S2003 | F2003 | S2004 | F2004 | S2005 |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| Accounting | 1.76 | 1.73 | 1.96 | 1.89 | 2.00 | 1.74 |
| CIS | 1.60 | 1.85 | 1.63 | 1.65 | 1.69 | 1.74 |
| Economics | 1.79 | 1.93 | 1.77 | 1.69 | 1.82 | 1.92 |
| Finance | 2.30 | 2.21 | 2.17 | 1.82 | 2.20 | 1.95 |
| IB | 2.16 | 2.03 | 1.92 | 2.10 | 1.99 | 2.32 |
| Management | 1.86 | 2.02 | 2.08 | 1.78 | 1.90 | 1.84 |
| Marketing | 1.94 | 2.01 | 1.59 | 1.73 | 1.85 | 1.68 |
| School of Business |  | 2.21 | 2.37 | 2.48 | 2.42 | 2.10 |

Obviously, use of a global standard would be preferable and easier, given the uniformity it would provide. However, the statistical differences between departments on both measures would bring into question the validity and, more importantly, fairness of using a single global measure. The same would be true if we found differences amongst the rank of the students (freshmen, sophomores, juniors, seniors and graduate students) or the nature of the course requirement (core requirement, requirement for major or elective). It would also be critical to identify if the students' anticipated grade might influence the outcomes on both measures. To address the question of whether there were significant variations, we conducted a Generalized Linear ANOVA test using SPSS. The results for the Teaching Ability measure are presented in Table 4, while the results for Recommendation measure are presented in Table 5.

Table 4: Results for GLM on Teaching Ability

| Effect | Sum of Squares | Df | Mean Square | F | Significance |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Corrected Model | 5780.79 | 722 | 8.01 | 7.96 | $>.001$ |
| Intercept | 4313.87 | 1 | 4313.87 | 4290.13 | >. 001 |
| Department | 30.12 | 11 | 2.78 | 2.72 | . 002 |
| Ranking | 6.94 | 4 | 1.74 | 1.73 | . 141 |
| Requirement | 31.95 | 4 | 7.99 | 7.94 | >. 001 |
| Grade | 52.28 | 4 | 13.07 | 13.00 | >.001 |
| Department Ranking | 97.94 | 39 | 2.51 | 2.50 | >. 001 |
| Department Requirement | 62.45 | 39 | 1.60 | 1.59 | . 011 |
| Department Grade | 76.46 | 43 | 1.78 | 1.77 | . 001 |
| Ranking Requirement | 38.59 | 16 | 2.41 | 2.40 | . 001 |
| Ranking * Grade | 14.10 | 16 | . 88 | . 88 | . 597 |
| $\begin{aligned} & \hline \text { Requirement } \\ & \text { Grade } \end{aligned}$ | 19.06 | 16 | 1.19 | 1.19 | . 271 |
| Department <br> Ranking <br> Requirement | 148.52 | 107 | 1.38 | 1.38 | . 006 |
| Department <br> Ranking * Grade | 129.81 | 120 | 1.08 | 1.08 | . 270 |
| Department Requirement Grade | 114.00 | 92 | 1.24 | 1.23 | . 065 |
| Ranking Requirement Grade | 68.52 | 46 | 1.49 | 1.48 | . 019 |
| Department <br> Ranking <br> Requirement <br> Grade | 150.78 | 147 | 1.03 | . 02 | . 417 |
| Error | 28788.48 | 28630 | 1.01 |  |  |
| Total | 476138.00 | 29353 |  |  |  |
| Corrected Total | 34569.26 | 29352 |  |  |  |

Table 5: Results for GLM on Recommendation

| Effect | Sum of Squares | df | Mean Square | F | Significance |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Corrected Model | 5777.39 | 683 | 8.46 | 7.53 | $>.001$ |
| Intercept | 1281.82 | 1 | 1281.82 | 1140.75 | $>.001$ |
| Department | 37.10 | 6.06 | 11 | 3.37 | 3.00 |
| Ranking | 5.54 | 4 | 1.52 | 1.35 | .001 |
| Requirement | 92.06 | 4 | 23.01 | .249 |  |
| Grade | 80.53 | 39 | 2.07 | 20.48 | $>.001$ |
| Department <br> Ranking | $*$ | 39 | 1.88 | 1.84 | .001 |
| Department <br> Requirement | $*$ | 73.25 | 100.63 | 22.16 | 16 |
| Department <br> Grade | $*$ | 16 | 1.39 | 1.67 | .005 |
| Ranking <br> Requirement | 24.89 | .99 | 1.23 | $>.001$ |  |
| Ranking* Grade | $*$ | 16 | 1.54 | 1.37 | .233 |
| Requirement <br> Grade | 24.68 | .589 |  |  |  |

Table 5: Results for GLM on Recommendation (continued)

| Effect | Sum of Squares | df | Mean Square | F | Significance |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Department <br> Ranking <br> Requirement | 165.95 | 104 | 1.60 | 1.42 | . 003 |
| Department <br> Ranking * Grade | 156.79 | 131 | 1.39 | 1.24 | . 046 |
| Department Requirement Grade | 131.57 | 82 | 1.61 | 1.43 | . 007 |
| Ranking Requirement Grade | 62.40 | 43 | 1.45 | 1.29 | . 095 |
| Department $*$ <br> Ranking $*$ <br> Requirement $*$ <br> Grade  | 149.62 | 136 | 1.10 | . 98 | . 553 |
| Error | 31147.94 | 27720 | 1.24 |  |  |
| Total | 141079.00 | 28404 |  |  |  |
| Corrected Total | 36925.33 | 28403 |  |  |  |

The results indicate that the Teaching Ability measure is significantly influenced by the department that offers the course, course's requirement, and by the students' anticipated grades. Taken individually, it would appear that the student ranking is not significant. The results further indicate that the Recommendation measure is significantly influenced by the department that offers the course and by the students' anticipated grades. It would appear that neither the student ranking nor the nature of the course's requirement are statistically significant.

The interaction effects also appear to be influenced heavily by what department the course was offered. These results provide strong evidence that a school-wide measure would be inappropriate.

## CONCLUSIONS

Particular attention should be given to the standard by which to measure performance. Our research findings indicate that there are significant differences across departments. As a result, for promotion and tenure decisions, consideration should be given to the use of department measures in evaluations rather than a universal measure, such as the overall school mean. Prior studies primarily focused on the SEIs instrument without analysis of the appropriate measurement standard.

This research provides empirical data to support the use of a more appropriate standard to adequately assess teaching effectiveness. The measurement standard (overall school versus department) must be considered in the evaluation process. In this way, the SEI evaluation process can more accurately appraise teaching ability. It is safe to say that student evaluation instruments will remain in use; however, how the standard by which they are measured may change as a result of considerations presented in this research.

## FUTURE RESEARCH

Although this research did not explore beyond the measurement standard, the data we collected allows us to investigate a variety of factors in future research. The existing literature appears to indicate that the requirement status of the course, and where it falls in the curriculum, impacts a student's perception and resulting evaluation of the instructor. Since course requirement status appears to impact ratings, consideration must be given to this mitigating factor when evaluating a faculty member.

With respect to the students' anticipated grades and their evaluations of the instructor's teaching, our future research could confirm prior research (Nelson and Lynch 1984; Mehdizadeh 1990; Stratton et al 1994; Isley and

Singh 2005; McPherson 2006) where lower evaluations resulted from lower anticipated grades and higher anticipated grades resulted in higher teaching evaluations.

## AUTHOR INFORMATION

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APPENDIX 1

| You are a: | Freshman | Sophomore | Junior | Senior | Graduate Student |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Is this course: | Required for Core | Required for Major | Elective |  |  |
| Rate the instructor's teaching ability in this class | Poor | Fair | Good | Very Good | Excellent |
| How are you doing in keeping up with assignments and readings - Percent complete: | 0-20\% | 21-40\% | 41-60\% | 61-80\% | 81-100\% |
| Expected Grade: | A | B | C | D | F |
| I have become more competent in this area due to this course. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Neither } \\ & 3 \end{aligned}$ | Disagree 4 | Strongly <br> Disagree 5 |
| I have increased my overall knowledge of the subject matter. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | Neither <br> 3 | $\begin{aligned} & \text { Disagree } \\ & 4 \end{aligned}$ | Strongly <br> Disagree <br> 5 |
| I feel challenged intellectually by this course. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Neither } \\ & 3 \end{aligned}$ | Disagree <br> 4 | Strongly Disagree 5 |
| The instructor presents the material too rapidly. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Neither } \\ & 3 \end{aligned}$ | Disagree <br> 4 | Strongly Disagree 5 |
| The instructor gives assignments are too difficult. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{array}{\|l} \text { Neither } \\ 3 \end{array}$ | Disagree <br> 4 | Strongly <br> Disagree 5 |
| The instructor is available to provide extra help. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Neither } \\ & 3 \end{aligned}$ | Disagree 4 | Strongly Disagree 5 |
| The instructor provides clear answers to the student questions. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | Neither <br> 3 | Disagree <br> 4 | Strongly Disagree 5 |
| The instructor encourages class discussion. | Strongly Agree 1 | $\begin{array}{\|l} \text { Agree } \\ 2 \end{array}$ | Neither <br> 3 | $\begin{aligned} & \text { Disagree } \\ & 4 \end{aligned}$ | Strongly <br> Disagree 5 |
| The instructor brings current ideas to the classroom. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Neither } \\ & 3 \end{aligned}$ | Disagree <br> 4 | Strongly <br> Disagree <br> 5 |
| The instructor has the course well organized. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Neither } \\ & 3 \end{aligned}$ | Disagree <br> 4 | Strongly Disagree 5 |
| The instructor summarizes main points and provides emphasis on material. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | Neither <br> 3 | Disagree <br> 4 | Strongly Disagree 5 |
| The instructor relates course concepts in systematic fashion. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | Neither <br> 3 | Disagree <br> 4 | Strongly <br> Disagree 5 |
| The instructor seems to enjoy teaching. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Neither } \\ & 3 \end{aligned}$ | Disagree <br> 4 | Strongly Disagree 5 |
| The instructor is friendly and considerate to students. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Neither } \\ & 3 \end{aligned}$ | Disagree <br> 4 | Strongly Disagree 5 |
| The instructor is enthusiastic about the course material. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { Neither } \\ & 3 \end{aligned}$ | Disagree <br> 4 | Strongly <br> Disagree 5 |
| I would recommend taking another course with this instructor to a friend. | Strongly Agree 1 | $\begin{aligned} & \text { Agree } \\ & 2 \end{aligned}$ | Neither <br> 3 | Disagree <br> 4 | Strongly Disagree 5 |

