

AC 2007-2172: DOES GPA HAVE ANYTHING TO DO REGARDING FACULTY EVALUATIONS??

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Does GPA have anything to do regarding faculty evaluations??

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Abstract

Student evaluation of faculty is the most widely used mechanism to examine the quality of teaching and effectiveness of professors. A research study was conducted in SPSU Construction Department to examine the teaching effectiveness. The spatial transferability of the faculty evaluation mechanisms, without regard to spatial socio-cultural differences, is discussed in this study based on the collected data and following a thorough literature review and statistical analysis. The result of this study is the extension of the previous year study. It was found that students' GPA has direct relations with their perceptions regarding teaching evaluations. Students with higher GPAs are against missing lectures by faculty and disapprove the acceptance of a lower class performance by faculty. Instead, they favor such course and faculty traits as having projects assigned to the course, providing ample office hours, lecturing clearly, real-life applications and faculty fairness.

Key Words: GPA, Teaching Effectiveness, Students, Faculty, Construction

Introduction

Finding an appropriate mechanism to evaluate teaching and its effectiveness has always been, and continues to remain, a difficult task. In a national study that tracked the use of student evaluations of faculty in 600 colleges between 1973 and 1993, the use of student evaluation increased from 20% to 86% (Seldin, P. 1993). Student evaluation of faculty has become the most prevalent mechanism to examine the quality and effectiveness of teaching (Lindenlaub, J and Oreovics, F., 1982; Haskell, R. 1988).

The philosophy behind the student evaluation of faculty is based on the following assumptions (OIT, 1999)

- Students have the responsibility of maintaining maturity and objectivity
- Faculty have the responsibility of seriously considering student input and implementing change as appropriate
- Administration recognize that such evaluations are useful as only one measure (not all) of teaching performance

Student evaluation of faculty is generally used to (McKeachie, W. 1996):

- Determine if instructional objectives are met effectively
- Identify effective and ineffective teaching practices for the purpose of awarding tenure and promotions
- Provide the feedback necessary for the improvement of teaching effectiveness

Many researches have been conducted to find the validity of students' ratings towards the teachings. Findings of these studies provide support for a number of conclusions about student evaluations (March 1984):

- Students' judgments correlate positively with those of faculty peers, administrators, alumni and trained external observers
- Students overall ratings of course quality and teaching effectiveness positively correlates with their learning in the course
- Students' years of college experience does not have a significant effect on their assessment of teaching effectiveness.

However, despite its widespread use and research support worldwide (Griffin 2004; Goldman 1993), student evaluation of faculty is viewed by many faculties as an infringement of academic freedom such as

- Is prime-facie evidence of administrative intrusion into the classroom
- Are often used as an instrument of intimidation forcing conformity to politically correct standards
- Create pressure for a self-policed lowered teaching standards and grading leniency
- Are responsible for a considerable amount of grade discrepancy and inflation
- Are misused for promotions, salary raises or continued employment
- Have the potential for manipulating the behavior of faculty
- Contrary to their original intent of improving teaching, do not eliminate poor or below average faculty but instead increases poor teaching practices
- Illustrate a mercantile philosophy of consumerism in class rooms which erodes academic standards
- Lead to inappropriate dismissal of faculty
- Constitute a threat to academic freedom

Methodology

The school of Architecture, Civil Engineering & Construction at SPSU includes three departments and has an undergraduate student enrollment of about 1100. This specific study is conducted in Construction Management program of about 350 undergraduate students in Fall 2005. A simple, yet structured questionnaire was designed to collect information for the analysis. The developed and pre-tested/modified questionnaire contained six student-related socio-academic questions; fifteen faculty teaching and performance related questions, and a final

question seeking students' opinion on the three most important characteristics of outstanding faculty. Out of 350 students, 133 completed questionnaires were obtained and were processed for the analysis.

Results of Previous Study

Recent study conducted by the author (Banik, 2006) found that the teaching performance evaluation of faculty by a large percentage of students was positively influenced when

- The entire course material was not covered during the semester
- A project was not assigned
- Late arrivals to class were permitted
- Students were allowed to talk each other during lectures
- Their absence from lectures was accepted
- The faculty was willing to lower the performance standard of the class

It was also found that the faculty and teaching evaluation of a large majority of students was influenced positively when a faculty:

- Tied the lecture material to real-life problems
- Was fair and just in grading
- Delivered lectures in a clear and understandable manner
- Was efficient in the use of class times
- Showed sympathy for and understanding of, students' personal problems.

Numerous institutions of higher education around the globe use student ratings to evaluate faculty performance and effective teaching. Developing an effective faculty evaluation system based on specific goals and objectives of the institution as well as socio-economic-cultural background of the student where the institution is located, what is the purpose of that institution and so on is important instead of borrowing common evaluation tool which was developed for other specific purposes. But developing an effective faculty evaluation system is a comprehensive process incorporating both cognitive (changing ideas), and normative re-educative, which would also address changing values and attitudes for specific location (Cashin, 1996). Transferred evaluation form (without modification) may not produce intended desired results when applied in a new institution.

This article emphasized to find the relationship between students' performance in terms of GPA with their perception of good teaching and bad teaching. How do students' GPA influence their teaching evaluation of faculty? Which group of students favors the acceptance of lower student performance, uncompleted course materials, and/or time flexibility in returning assignments? Who is against lowering class academic standards? Who is in favor of class punctuality and lecture efficiency?

In order to provide answers to these questions a correlation analysis was performed on the data. The correlation coefficient between any two variables, x and y , (r_{xy}), may be computed from the following equation.

$$r_{xy} = \frac{\text{Cov}(x \& y)}{[\text{Var}(x) \text{Var}(y)]^{0.5}}$$

$$= \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{[\sum_{i=1}^n (x_i - \bar{x})^2]^{0.5} [\sum_{i=1}^n (y_i - \bar{y})^2]^{0.5}}$$

Data Analysis and Results

Student Traits and Background

The study sample included 7 freshmen, 24 sophomores, 47 junior and the rest are seniors. On the average, a sample student has been enrolled in college for 2.8 years. The mean GPA for the freshmen was 2.8, sophomore 3.1 junior 3.3 and senior 3.05. Among the respondents, 27 students were female and the rest were male. From the Table 1, it is evident that majority of the students were in the university for a shorter period of time. It can be explained because many of the students were transferred students from other institutions and/or community colleges.

Table: 1 Total Number of Years in the University

Years	0-1	1-2	2-3	3-4	4-5	>5
Number of Students	34	30	30	20	7	2

Table 2: Number of Years Working Experience (any field)

Years	0-1	1-2	2-4	4-6	>6
Number of Students	17	31	23	19	30

Table 3: Current overall GPA

Years	2-2.5	2.5-3.0	3.0-3.5	3.5-4.0
Number of Students	12	47	34	21

From the Table 3, it is found that out of respondent students, about 18% of students have GPA more than 3.5 and 30% students have GPA between 3 to 3.5. A significant number of students (41%) have GPA between 2.5 to 3.0.

Student Responses

A category analysis was performed on the data to examine the sample students' responses to the survey questions. The fifteen teaching academic performance and behavioral questions began with the following statement. Results of ten academic related questions are shown in Table 4 and five behavior related questions are shown in Table 5.

Table 4: Distribution of responses to academic-related questions

S#	Variable Question	Definitely	Yes	To Some Extent	No	Not at all	Total
Q1	<i>My exam grades are higher than I really deserve.</i>	5	23	35	31	34	128
Q2	<i>Course materials are not fully covered.</i>	0	23	30	37	38	128
Q3	<i>No project is given in this course.</i>	4	17	49	18	39	127
Q4	<i>Lecture materials and assignments are tied to real-life applications.</i>	58	51	10	2	2	123
Q5	<i>She/He is fair and just in grading.</i>	57	39	26	3	2	127
Q6	<i>Students are allowed to arrive late to class.</i>	7	25	40	34	18	124
Q7	<i>Students are not prohibited from talking to each other during lectures.</i>	5	23	32	38	29	127
Q8	<i>Students are allowed to miss lectures.</i>	11	28	32	36	21	128
Q9	<i>There is no strict date for returning assignments.</i>	5	15	16	47	44	127
Q10	<i>She/He accepts lower standards for class performance.</i>	0	9	21	46	52	128

From Table 4, it is evident that students like to have full coverage of course materials, project in the course, assignments are related to real-life applications and fair in grading. Students don't like late arrival, talking each other, late acceptance of assignments and lower class performance.

From Table 5, it is clearly understood that students loved to have ample office hour, clear presentations, punctual and efficient of using lecture time and sympathy of students' problems.

Table 5: Distribution of responses to behavior-related questions

S#	Variable Question	Definitely	Yes	To Some Extent	No	Not at all	Total
Q11	<i>She/He provides ample office hours.</i>	36	58	20	9	2	125
Q12	<i>Lectures are delivered in clear and understandable manner.</i>	79	41	5	2	1	128
Q13	<i>She/He is punctual and efficient in the use of lecture time.</i>	79	45	3	1	0	128
Q14	<i>She/He has positive, friendly & gentle attitudes.</i>	76	46	4	2	0	128
Q15	<i>She/He shows sympathy understanding of student's problems.</i>	65	46	13	3	1	128

Correlation coefficients indicated that students with higher GPAs however, were against missing lectures by faculty ($\gamma_{xy} = 0.086$), and disapproved the acceptance of a lower class performance by faculty ($\gamma_{xy} = 0.156$). Instead, they favored such course and faculty traits as having projects assigned to the course ($\gamma_{xy} = 0.103$); providing ample office hours ($\gamma_{xy} = 0.080$); lecturing clearly ($\gamma_{xy} = 0.103$); real-life applications of lecture material ($\gamma_{xy} = 0.170$), and faculty fairness ($\gamma_{xy} = 0.155$). It should be noted herein that all correlation coefficients greater than 0.07 were statistically significant at the 95% confidence level, ($\alpha = 0.05$).

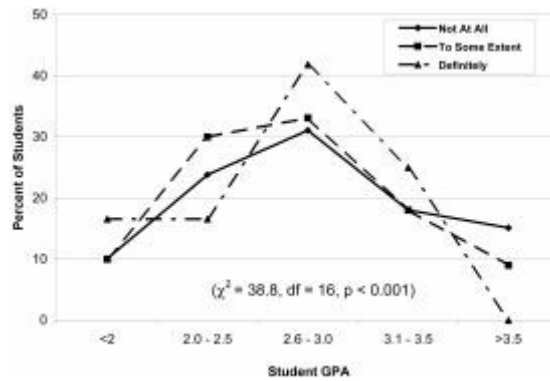


Fig. 1: Inflated Exam Grades and Student Evaluations by GPA

A common characteristic of the sample students' response-distributions (by GPA), was the similarity of the response curve to the normal distribution curve, as may be expected the majority of students had a GPA in the range of 2.5 to 3.5 (out of a 4.0 point scale), with a maximum frequency in the range of 2.6 and 3.

The impact of inflated exam grades on student evaluation of faculty is charted in Fig. 1. While none of the students in the 'more than 3.5 GPA' category were among those who would 'definitely' evaluate such a faculty trait positively, nearly 43% of responses of those with a GPA in the range of 2.6±3.0, would do so. Interestingly enough, only 10% of the students with the poorest academic performance (GPA<2.0) also selected this response option. The test of chi-square confirmed the statistical significance of differences in students' responses ($X^2=38.8$, df.16, $p<0.001$).

Again, as presented in Fig. 2, the students with a GPA of less than 2, mainly and those with a GPA of >3.5, did not evaluate a faculty negatively when a project was assigned to a course. Nearly a third of respondents with a GPA ranging from 2.6 to 3.0, stated that their evaluation of a faculty would be positively affected if he/she did not assign a project to the course. As the result of the chi-square test indicates, the difference in the student response to this question was statistically significant ($X^2=.30.3$, df.16, $p<0.01$).

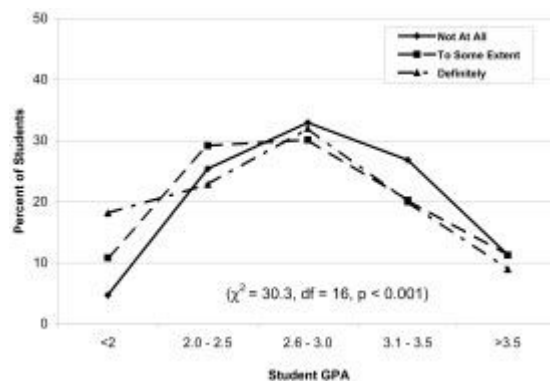


Fig. 2: Course Project and Student Evaluation by GPA

A nearly exact response distribution to that shown in Fig. 2, was also found to exist between the sample students' responses to the question of time-flexibility in returning assignments (late returns), and their evaluation of the faculty. While only 10% of the sample students with a GPA of more than 3.5 were for-and the same percentage were against, the provision of such a time-flexibility, nearly 32% of those with a GPA in the range of 2.6 ± 3.0 , were in favor, and another 33% were against, the late returning of the weekly assignments. These findings, along with the result of the chi-square test, are shown in Fig. 3.

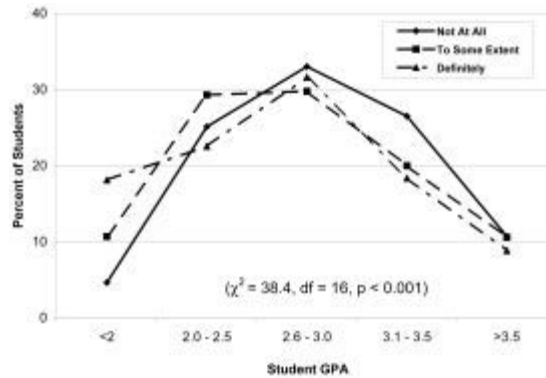


Fig. 3: Time Flexibility to Submit Assignment, by GPA

The distribution of the sample construction students' responses (by student GPA) to the question dealing with the faculty's acceptance of a 'lower class performance' (academically) is presented in Fig. 4. This skewed-to-the-right distribution indicates that the bulk of the sample students with low GPAs (2.0 ± 2.5), approved of such a faculty trait. But, interestingly enough, no one in the GPA > 3.5 category, evaluated a faculty positively when he/she accepted a lower academic performance for the class, in order to receive a higher evaluation rating from the students.

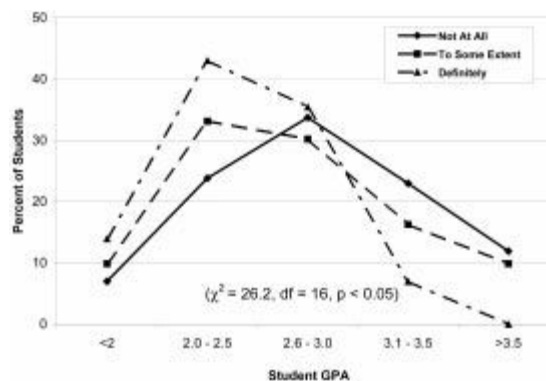


Fig. 4: Lowering Class Performance and Student Evaluations, by GPA

While the sample students with the best and the poorest academic performance records responded favorably to the positive impact of a faculty's friendly attitudes toward students, on their evaluations, 37, 34, and 30% of the sample students, with GPA of 2 ± 2.5 , 2.6 ± 3 , and

3.1±3.5, respectively, were of the opposite opinion concerning this attitudinal trait. The percentage of students who evaluated a faculty's friendly attitudes positively however was quite significant for all categories of GPA (Fig. 5).

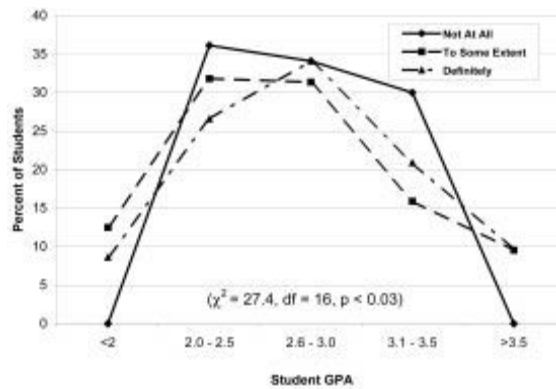


Fig. 5: Friendly, Positive Attitudes and Student Evaluations, by GPA

The provision of ample office hours was also viewed very favorably by all sample students. As presented in Fig. 6, the faculty evaluation of those students with a GPA between 2.0 and 3.5, was strongly and positively influenced by the faculty's provision of extended office hours. The data in Fig. 6 indicate that the best students do not need extended office hours, and the poorest academic performers also do not take advantage of this face-to-face opportunity. The statistical significance of differences in students' response to this question is also given by the result of the chi-square test, shown in Fig. 6.

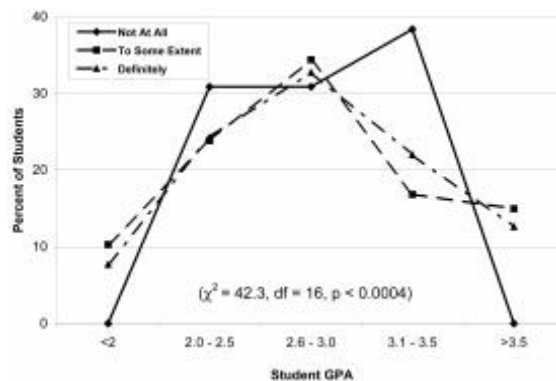


Fig. 6: Ample office Hours and Student Evaluations, by GPA

The differences in the sample students' responses to the other faculty performance-related measures however were not statistically significant (at the 95% confidence level), and thus are not presented and discussed in the paper.

Conclusions

Findings of the study have indicated that the teaching performance evaluation of faculty by students was positively influenced depending on their GPA. Students' GPA affected their evaluations of faculty and teaching significantly. Students with high GPAs were usually against the freedom to miss lectures, and the lowering of class performance standards. These students strongly favored the provision of a course project, ample office hours, real-life applications of lecture materials, and faculty's fairness in grading. The opposite was found to be true for students with poor academic performance records. The test of chi-square supported these trends.

Bibliography

- Banik, G. (2006) Students' attitude towards Construction Management Teaching and Professors, American Society for Engineering Education (ASEE) Annual Conference, Chicago, IL.
- Lindellaub, J. and Oreovics, A. (1982) A course evaluation guide to improve instruction, *Engineering Education*, 72(5), pp. 356-361.
- Koushki, P.A. and Kuhn, H. (1982) How reliable are student evaluations of teachers? *Engineering Education*, 72(5), pp.362-367.
- Haskell, R. (1988) Academic Freedom, tenure, and student evaluation of faculty: galloping polls in the 21st century, *Education Policy Analysis Archives*, 5(6), pp. 1-24.
- Selden, P. (1993) The use and abuse of student ratings of instruction, *The Chronicle of Higher Education*, A-40.
- OIT (1999) Student Evaluation of Faculty, Oregon Institute of Technology, Report No: *OIT-21-035*.
- McKeachie, W. (1996) The Professional Evaluation of Teaching-Student Ratings of Teaching, Occasional Paper No 33, *American Council of Learned Societies*, p.3.
- March, H. (1984) Students' evaluations of university teaching: dimensionality, reliability, validity, potential biases, and utility. *J. of Educational Psychology*, 76(5), pp. 707-754.
- Griffin, B. (2004) Grading Leniency, Grade discrepancy, and student ratings of instructions, *Comparative Education Psychology*, 29(4), pp. 410-425.
- Goldman, L. (1993) On the erosion of education and the eroding foundations of teacher education, *Teaching Education Quarterly*, 20, pp. 57-64.
- Cashin, W. (1996) Developing an effective Faculty Evaluation System, IDEA Paper No. 33, Center for Faculty Evaluation and Development, Kansas State University, Manhattan, KS, USA.

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