

**PENN STATE QUALITY OF INSTRUCTION 2011**  
**Undergraduate Students' Evaluations of Teaching Quality**  
**at University Park**

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**Introduction**

Undergraduate instruction is a central and critical part of the University's mission and a major reason for the existence of the Penn State academic community that is Penn State. Students, teachers, administrators, and the public are all interested in maintaining and enhancing the quality of instruction available, and a wide range of activities are, and historically have been, directed to this goal. Workshops, newsletters, seminars, mentoring programs, and formal instruction offered by the University through the Schreyer Institute for Excellence in Teaching and other venues seek to provide information and guidance in the use of new and emerging technologies as well as traditionally effective methods of instruction. Informal "bag lunches" and discussion groups, organized by colleges, departments, and interested faculty provide guidance and advice to novice and experienced faculty peers. Despite these efforts, questions still remain about their impacts: How do students themselves view the quality of instruction they receive?

In an effort to address these questions, a team of Penn State researchers surveyed a sample of undergraduate students on the University Park campus during the 2010-2011 academic year concerning their views of the quality of instruction they received at the University. This report describes some of the results of that study. Specifically, the current analysis has two goals:

- 1) To determine the perceptions that students have concerning the quality of instruction they have received at Penn State; and
- 2) To assess how differing factors are associated with students' evaluations of teaching quality.

**The Study**

To address these goals, an online survey of undergraduates at Penn State enrolled at the University Park campus of the University fall semester 2010 and spring semester 2011 was carried out. A random sample of 7,281 students was drawn from the University's Data Warehouse from the population of 31,103 students meeting these criteria. The sample members were contacted early in spring semester 2011 using their Access Account email addresses and invited to participate in an online survey dealing with their perceptions of instructional quality at the University. Three subsequent email reminders sent at approximately one week intervals were used encourage participation. A total of 1,837 students responded to the survey – a 25% response rate.

When the distributions of gender, class standing and age were compared with information available on the overall relevant population from the Data Warehouse, women, freshmen, and those under 20 ears of age were found to be overrepresented in the sample; men, older students, and those with senior class standing were underrepresented (Table 1).<sup>1</sup> To the extent that responses of these groups differ, generalizations to the total population based on these data could

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<sup>1</sup> All tables are in the Appendix.

be misleading. To adjust for response bias the sample data were weighted in regard to gender and class standing. The weighted data were not significantly biased with respect to age.

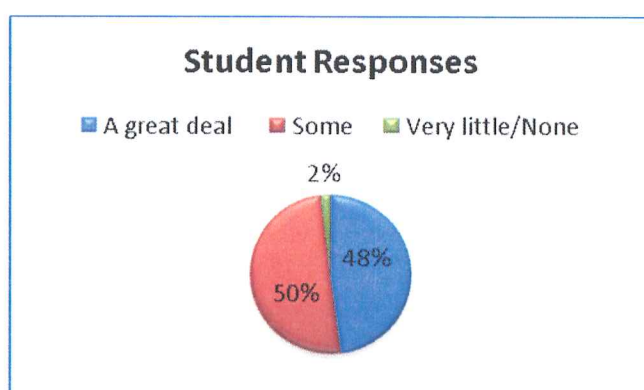
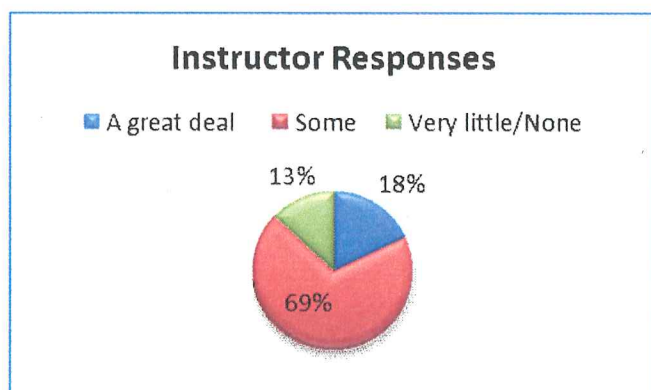
Students were asked about their overall evaluation of the instruction they had received at Penn State, the importance they believed should be given to student evaluations, and their ratings of the quality of teaching they had in a specific course, and other information. The relationships between course characteristics and student evaluations were explored and tested for statistical significance using contingency chi square analysis. Unless otherwise indicated only relationships found to be significant at the .05 level are discussed. To compare the strengths of these relationships, a measure of the closeness of the association (Cramér's V) was calculated in each case. Cramér's V varies from 0.00 (no association between the variables) to 1.00 (complete or perfect association). Thus, the higher the V, the stronger the relationship is between the two variables in question.

### Evaluations of Teaching Quality

Asking students to evaluate the quality of instruction in individual courses in which they were enrolled is widespread in academic circles. At Penn State, administration of the SRTE (Student Rating of Teaching Effectiveness) is a routine part of ending each semester in virtually every course. Although often criticized as being unreliable and incomplete indicators of teaching quality, these ratings are reported in faculty dossiers, and called into account in decisions related to faculty salaries, tenure decisions, and academic promotions.

In the current study, 48% of the students reported that such student ratings should be given "a great deal" of weight in evaluating the teaching effectiveness of faculty, and an additional 50% believed they should be given at least "some" weight. Virtually none (2%) of the students reported their ratings should have little or no weight in evaluating faculty teaching performance. The views of students in this regard differed from those reported by University Park instructors surveyed during the same semester. Among instructors, only 18% felt that "a great deal" of emphasis should be given to student evaluations and 69% believed that at least "some weight" was appropriate; 13% felt that student ratings of teaching effectiveness should receive "little or no weight."

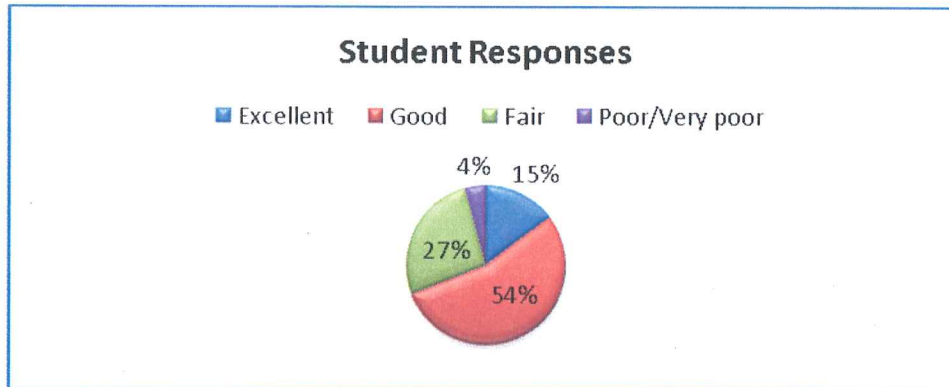
### How much weight should be given to students' opinions?



Asked about the general quality of all instruction they received during the previous semester (Fall 2010), students were overwhelmingly positive in their evaluations.

- 69% rated their instruction either as “excellent” (15%) or “good” (54%).
- 27% reported that overall the instruction was only fair.
- Only 4% felt the teaching was poor or very poor.

### Rating of Instructional Quality of All Fall 2010 Courses

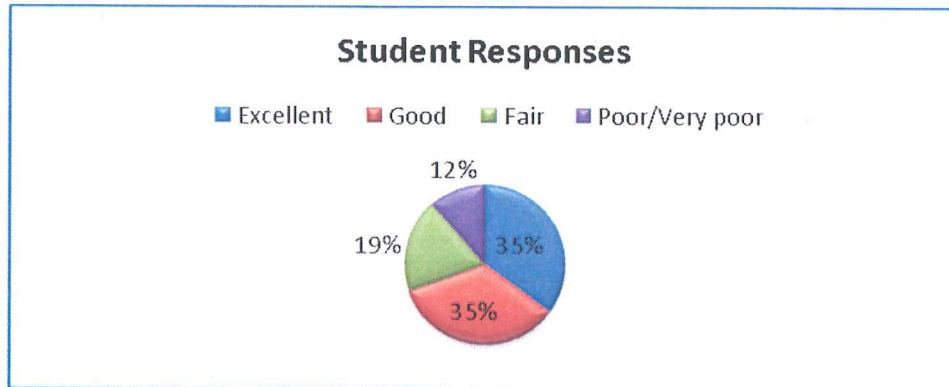


However, such an overall evaluation, in which students respond to a kind of “average” of their semester classes ignores the diversity in teaching quality they may have experienced during the period, and does not allow for more detailed assessment of the characteristics of individual courses that contributed to these general quality ratings.

To focus more specifically on an individual course, students were asked to rate as “excellent,” “good,” “fair,” “poor,” or “very poor” the quality of instruction they received in the course drawn at random from a list of all of the courses in which they had been enrolled the previous semester. Selection of the course to be evaluated was done by asking each student to list all of the classes in which he/she had been enrolled the previous semester. One of these was then randomly selected by the survey software and respondents were asked to rate the quality of instruction they experienced in that course. This procedure avoided the issue of students simply choosing to describe their “best” or “worst” experiences and provided a cross section of taught courses. Moreover, by asking for evaluation of a specific course rather than rating “overall” instruction, the likelihood that responses would reflect simple generalized stereotyping was reduced. Online courses were eliminated from this analysis. When responses were combined across the sample data, student evaluations were less likely to be overly affected by a single highly positive or negative experience — a situation that could also result in coloring their overall evaluations of the semester. Asking for information from the previous semester meant that subjects had the opportunity to reflect somewhat on their experiences.

- 70% of the students rated the selected course as either “excellent;” (35%), or “good” (35%).
- 19% reported it was only “fair.”
- 12% rated it as “poor” or “very poor.”

## Rating of Instructional Quality for the Selected Course



### Pedagogical Methods and Course Ratings

To explore whether specific instructor behaviors or practices were associated with how students rated the quality of instruction they received, students in the sample were asked how frequently the instructor in the selected course did each of the following:<sup>2</sup>

- Instructor demonstrated a thorough **knowledge** of the subject matter.
- Instructor was **well prepared**.
- Instructor made the subject matter **understandable**.
- Instructor was **enthusiastic** about teaching the course.
- Methods of evaluating student work were **fair**.
- Instructor **stimulated students to think**.
- Instructor maintained a **classroom atmosphere** conducive to learning
- Instructor used **technology** to enhance classroom learning.
- Instructor used group projects (**collaborative activities**) to promote learning.

Frequency of occurrence was measured in each case on a scale from 1 to 5 where code 1= never and 5=always. For this analysis, codes 4 and 5 were combined as “always or usually,” code 3 was interpreted as “sometimes”, and codes 1 and 2 combined meant “seldom or never.”

Most students reported that instructors “always or usually” demonstrated most of these positive elements in their teaching (Table 2). Use of technology and collaborative learning practices were the least frequently reported, but even for these, only a minority failed to use them at least sometimes.

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<sup>2</sup> These items were selected from a listing of 39 questions included on the current student survey and on the previously cited instructor study. These questions asked respondents to indicate the “importance” of each item for quality teaching. Factor analysis of these 39 items suggested the presence of eight dimensions or factors as follows: Instructor is: knowledgeable of the subject matter (including being well prepared), presents information with clarity, is enthusiastic, demonstrates fairness, encourages critical thinking, maintains a positive class atmosphere, uses instructional technology, and encourages collaborative learning. Previous analysis of these data found that most respondents judged the first six dimensions to be important for quality teaching; support for the last two was mixed. The individual items used in the current analysis were chosen to represent these dimensions.

- 86% of the students reported that the instructor in the rated course always or usually demonstrated a thorough knowledge of the subject matter; only 4% said this occurred seldom or never.
- 82% reported that the instructor was always or usually well-prepared; 7% indicated this happened seldom or never.
- 70% indicated the instructor always or usually made the subject matter understandable, while 13% reported this seldom or never occurred.
- 80% reported the instructor was at least usually enthusiastic about teaching the course; 7% felt this was seldom or never true.
- 78% felt the instructor was always or usually fair in evaluating student work; 10% indicated this was seldom or never the case.
- 70% always or usually stimulated students to think; 11% reported this seldom or never occurred.
- 78% felt the instructor at least usually maintained a classroom atmosphere conducive to learning; 8% reported this seldom or never happened.
- 66% always or usually used technology to enhance classroom learning; 16% seldom or never did so.
- 38% always or usually used group projects to promote collaborative learning; 32% seldom or never did so.

The more often these elements occurred in the course, the higher the student's evaluation of the quality of instruction (Table 3). Although **all** of these behaviors/elements were positively related to how students evaluated the course, the frequency with which the instructor "made the subject matter understandable" was the strongest determinant, followed by "stimulated students to think," and "maintained a classroom atmosphere conducive to learning," and "was enthusiastic about teaching the course." Frequency of using group projects (an aspect of collaborative learning) and the use of technology were the least relevant.

- 90% of those students who indicated the instructor always or usually made the subject matter understandable rated the class as excellent or good; only 1% rated it as poor/very poor. However, among those students who reported the instructor made the subject matter understandable only sometimes the percentage of excellent/good ratings dropped to 29%, and among those who felt it was seldom or never true, that percentage was just 8%.
- 87% of those who reported the instructor always or usually stimulated students to think rated the course as excellent/good; only 3% felt the course was poor/very poor. However, for courses where this occurred only sometimes, the corresponding figures were 40% and 15%. In instances where students were seldom or never stimulated to think, only 11% rated the course highly; 59% gave it a poor/very poor rating.
- 83% of the students reporting the instructor always or usually maintained a classroom atmosphere conducive to teaching rated the course as excellent/good; when this occurred only sometimes or seldom/never, the corresponding percentages were 30% and 4% respectively.
- 82% of those who indicated that the instructor was always or usually enthusiastic about teaching the course, reported the course was excellent/good, only 4% rated it as poor/very poor. In cases where the instructor was enthusiastic only sometimes, excellent/good rating

fell to 29%, with 23% saying it was poor. When enthusiasm was seldom/never present only 11% rated the course as excellent/good; 59% said it was poor/very poor.

- 81% of students reporting that the instructor was always or usually fair in evaluating student work rated the course as excellent/good; 40% of those reporting that fairness occurred only sometimes gave the course excellent/good evaluations. If fairness was seen as occurring seldom or never occurring, 17% still reported the course was excellent/good, but 57% indicated it was poor/very poor.
- 80% of those who indicated that the instructor was at least usually well-prepared rated the course as excellent or good, that figure declined to 13% for those who reported the instructor was seldom or never well-prepared.
- 78% of the cases where the instructor demonstrated a thorough knowledge of the subject matter usually or always rated the course as excellent/good; just 6% rated them as poor/very poor. When such knowledge was only sometimes demonstrated, the percentage of excellent/good ratings dropped to 23%, and among the few students (n=78) who reported the instructor seldom or never demonstrated knowledge of the subject matter, the percentage rating the course as excellent/good was just 9%.
- As frequency in the use of technology to enhance classroom learning increased from seldom/never, to sometimes, to usually/always, the percentage of excellent/good ratings increased from 43% to 58%, to 79%, with percentages of poor/very poor ratings declining from 35% to 18% to 5%.
- With increasing use of group projects to promote learning, the percentages of excellent/good ratings increased from 59% for those courses where group projects seldom or never occurred to 62% when such activities occurred sometimes, to 86% for course where such project occurred more often.

### **Structural Characteristics of the Course and Course Ratings**

Student evaluations of the quality of a course may be influenced by factors other than the actions of the instructor. Indeed conventional wisdom often suggests that such things as the mode of instruction, class size, instructor status, and whether the class is an elective or required can influence the way students rate a course. To explore these possibilities, students were asked to respond to the following questions:

- How many students were in this course? (fewer than 20; 20-49; 50-99; 100-299; 300 or more)
- What was the mode of instruction? (lecture; lecture and discussion; discussion/seminar; other)
- Who was the major instructor? (faculty or staff; teaching assistant/graduate student; other/don't know)
- How much choice did you have in deciding to take this course? (no choice/required; some choice/selected from several required; free elective)

There were statistical differences in how students rated a course in response to all of these characteristics (Table 4).

- Smaller classes tended to be more highly rated than larger ones. 80% of the classes with fewer than 20 students received excellent or good ratings and 73% of those enrolling 20-99



students, but only 61% of those with 100 or more students received excellent/good evaluations.

- Courses that combined lecture and discussions methods were the most highly rated with 81% of the students evaluating them as excellent/good, followed by discussion or seminar classes (68%), with 57% of the purely lecture classes receiving this high rating.
- Classes taught by faculty members received a higher percentage of excellent/good evaluations (70%) than did those taught by teaching assistants or graduate students (63%).
- 82% of courses that were free electives were evaluated as excellent/good compared to specifically required courses (65%) or those selected from a list of required courses (75%).

### **Student Characteristics and Rating**

Differences in the quality ratings given to courses depending upon the student's gender, class standing, home residence, number of credits in which he/she was enrolled, and overall grade point average (GPA) were explored. Only class standing was significantly related to course evaluation (Table 5).

- As class standing increased from freshman to sophomore to junior to senior, the percentages of good/excellent ratings increased from 65% to 68%, to 70%, to 75%.
- Males and females did not differ in how they evaluated the randomly selected course.
- The course ratings of students from Pennsylvania did not differ significantly from those coming from other states in the U.S. nor from students whose home residences lay outside the U.S.
- Semester credit load was not statistically associated with how students evaluated the selected course.
- In the sample, there was a slight relationship between all-University grade point average (as reported by the students themselves) and how they rated the quality of the instruction they received in the class, with the percentage of respondents rating the course as good/excellent increasing slightly with increasing GPA. However, the observed relationship was weak and not statistically significant at the .05 level.

### **Grades, Work, Difficulty, Learning and Course Ratings**

It was anticipated that student evaluations of course quality would also be influenced by outcomes and characteristics of the course itself, including the grade received, the students' perceptions of the amount of work required, the difficulty of the material, and the knowledge acquired relative to other courses the student had experienced. Grade received was reported by the student respondent. To obtain information on the other factors, they were asked to rate the course relative to other courses they had taken at Penn State on a scale of 1 (much lower) to 5 (much higher) in regard to:

- Amount of required work
- Degree of difficulty
- Amount learned

Student ratings were positively related to the grade received. Those receiving A or A- grades were the most likely to rate the course as “excellent” or “good,” with the percentages of such high ratings decreasing with declining grade-level (Table 6).

- 80% of those receiving A or A- grades rated the course as excellent/good; only 7% evaluated it as poor/very poor. For those receiving B+, B, or B- grades these figures were 65% excellent/good and 13% poor/very poor.
- Nearly half (49%) of those with C+, C, or C- grades rated the course as excellent/good; 23% rated it as poor/very poor.
- Although 33% of those students who received grades of D or F evaluated the course as poor/very poor, 39% gave it a fair rating, and 28% indicated it was an excellent/good course.

There was no statistically significant relationship between the amount of work that was required relative to other classes the student had taken and how he/she rated the quality of instruction in the evaluated course.

The relative difficulty of a course was related to rating of the class quality, but the relationship was not simple and linear. Courses viewed as having lower difficulty than other classes students had experienced and those with much higher difficulty levels had lower student ratings than did those with average difficulty levels.

- 61% of those with much lower and 60% of those with much higher difficulty levels relative to most other courses received excellent/good ratings.
- Those classes described as neither more nor less difficult (code 3 on the scale) were rated as excellent/good by 78% of the students.

When asked to indicate how much they felt they had learned in the class, there was a strong direct relationship between perceived learning and course evaluation.

- 96% of those students reporting they had learned much more (code 5) in the course relative to other courses they had taken rated the course as excellent/good.
- Of those who rated the amount they learned in the class much lower (code 1) or somewhat lower (code 2) than other courses, only 6% and 30% respectively gave it excellent/good ratings.

### **Summary and Discussion**

Although student voices are clearly not the only criteria that should be invoked for evaluating the quality of instruction, they are, and should be, important considerations as teachers seek to tailor course content, pedagogy, and the learning environment to the needs and interests of a diverse and changing student population. Students feel strongly that their opinions are important and should be taken into account. However, faculty members are often less likely to believe that a great deal of emphasis should be given to student views. Such a response may reflect a concern that students cannot be objective in evaluating courses, that extraneous course factors or students' personal attributes may influence the ratings given, and/or that disgruntled students who find the material difficult or perform poorly will take out their frustrations by giving low

teaching evaluations. Although such reactions can, and probably do occasionally occur, data from the current study suggest these things are far from the norm. Understanding the basis of student ratings can help to focus attention on those circumstances and conditions that appear most relevant to student ratings of instructional quality.

Student ratings of course quality were found to be related to the frequencies with which the instructor was seen as knowledgeable, well-prepared, clear in the presentation of material, enthusiastic, and fair -- all characteristics and behaviors deemed by both teachers and students and included in virtually all formal ratings of teaching quality such as Penn State's Student Ratings of Teaching Effectiveness (SRTE). However, the study findings went beyond a simple recitation of these ideas to a consideration of the relative importance of these and other attributes.

- Instructor knowledge, preparation, and fairness were clearly important considerations in how students rated a course.
- However, by far the most important element of instructor behavior was clarity of presentation -- the instructor's skill in making the subject matter understandable.
- The second most important element was the ability of the instructor to stimulate students to think -- to go beyond the specific course material and consider its broader meaning. The acquisition of critical thinking skills is (or should be) an important goal of a university or college education. It was noteworthy that students appeared to evaluate the quality of the instruction they received to include this broader meaning of education rather than simply emphasizing acquisition of specific subject matter content.
- Instructor's enthusiasm for teaching and ability to maintain a classroom environment conducive to learning were also related to students' evaluations of teaching quality. Both of these latter attributes suggest the importance of instructors' interpersonal and social skills, as well as their academic and intellectual knowledge.
- Although less important than other instructional elements addressed in the current study, the use of technology and the use of group projects to foster collaborative learning were both found to relate positively to how students rated a course.

Characteristics of the courses themselves, including class size, mode of instruction, status of the instructor and the extent to which students had a choice in enrolling were also related to how they rated course quality.

- Smaller classes, combined lecture and discussion formats, faculty teachers (rather than graduate students), and elective courses were more positively evaluated by students than were larger classes, the use of either lecture or discussion alone, teaching assistants as instructors, and required courses. However, the relationships of these factors to student evaluations were far less important than the instructor attributes and practices described above.
- Moreover, these course characteristics may be important precisely because they facilitate methods of teacher-student interactions that are deemed important elements of instructional quality. Thus, the higher ratings of smaller classes may reflect the importance of a personal interactive environment that facilitates discussion, allows teachers to more closely gauge the progress of individual students and assist in their understanding the material, and contributes to the emergence of a positive learning atmosphere.

- The higher ratings of faculty/staff teachers over graduate student instructors may be explained in part by the amount of previous teaching experience that faculty members likely have, and to their mastery of the subject matter. This combination of pedagogical skill and knowledge is likely visible to students and contributes to their more positive evaluations of faculty/staff.
- The ratings of elective as higher than required courses may simply reflect students' choices of subject matter that is intrinsically interesting to them, but electives also present opportunities to explore new and varied topics and thus can contribute to stimulating students to think more broadly about the implications and meanings of their knowledge – a valued criteria of instructional quality. As many students struggle to meet requirements and graduate early or on time, elective courses which are designed to provide a well-rounded and thought provoking experience often are thought of as “expendable.” However, this research suggests students value these course opportunities.

The nature of the outcomes and the work and difficulty involved was expected to relate to how students rated the quality of instruction in the course. Certainly, it seemed reasonable to expect that high grades (as indicators of successful teaching) would be expected to relate positively to how students evaluate the quality of instruction. Although this relationship was found in the current analysis, the strength of the association was far from perfect.

- Of those who received A or A- grades, one in five reported the course was only fair or poor, and those students who received low grades often evaluated the instruction positively. Thus, while a third of those who received grades of D or F evaluated the course as poor/very poor, 38% gave it a “fair” rating, and 29% indicated it was an excellent/good course.
- The commonly held belief that difficult courses and too much work will turn students “off” and result in low student ratings was not supported by these data. This study found no significant linear relationships between students' evaluations of teaching quality and either the amount of required work or course difficulty relative to other courses they had taken. Students did view difficulty as a relevant factor, but rigor and hard work did not appear to be the issue. Rather, either excessive difficulty or too little challenge seemed to frustrate students. Educators need to make this clear distinction between workload and difficulty. While challenging students and pushing them to achieve higher standards, it is important to make sure this is done in a way that does not discourage students by setting standards that are beyond their current capabilities.

Finally, and perhaps the most important and encouraging finding was that -- more so than workload, difficulty, grade received, and structural course conditions such as size, instructional mode, teacher status, and elective versus required, -- the strongest predictor of students' perceptions of instructional quality was the amount they believed that they had learned. More than 95% of those students who reported that their learning was much higher in the course relative to other classes they had taken at Penn State rated the course as excellent or good. Among those who reported they had learned much less, only 6% evaluated the course as excellent or good. Thus, notions that students are mainly motivated by course completion and advancement toward graduation were simply not supported by this research. A genuine priority of the students was to learn, and this was the central point on which they based their evaluations.

## APPENDIX

**Table 1. Distributions of gender, class standing, and age in the sample and the population of University Park students meeting the criteria for the study.**

Variables	Population	Sample	
	% (N=31,103)	Number of cases <sup>a</sup>	%
<b>Gender</b>			
Male	53.3	764	41.8
Female	46.7	1064	58.2
Total	100.0	1833	100.0
<b>Class Standing</b>			
Freshman (30 credits or less)	8.2	425	23.2
Sophomore (31-60 credits)	20.6	369	20.1
Junior (61-90 credits)	22.9	513	28.0
Senior (more than 90 credits)	48.3	526	28.7
Total	100.0	1833	100.0
<b>Age</b>			
Less than 20 years	23.7	678	37.0
20-21	47.5	859	46.9
22 years and older	28.8	296	16.1
Total	100.0	1833	100.0

<sup>a</sup>Number of cases in the sample varies from the total of 1837 because four students in the sample failed to answer these questions.

**Table 2. Frequency of occurrence of selected pedagogical methods.**

Instructor . . .	Frequency of Occurrence		
	Usually/Always	Sometimes	Seldom/Never
	-----%-----		
Demonstrated knowledge	86.1	9.5	4.4
Was well prepared	81.8	11.7	6.5
Made subject matter understandable	70.0	17.4	12.6
Was enthusiastic about teaching the course	79.7	13.1	7.2
Was fair in evaluating student work	77.6	12.8	9.5
Stimulated students to think	69.6	19.3	11.1
Maintained classroom atmosphere conducive to learning	78.3	14.1	7.6
Used technology	66.1	17.9	16.0
Used group projects	37.8	14.3	47.8

**Table 3. Relationships of the frequency of occurrence of selected pedagogical elements to course rating.**

Frequency of occurrence of elements	Course Rating			Cramér's V
	Excellent/ Good	Fair	Poor/ Very poor	
	-----%-----			
<b>Knowledgeable of subject matter</b>				.380***
Always/Usually	77.8	16.2	6.0	
Sometimes	23.4	43.1	33.5	
Seldom/Never	9.0	20.5	70.5	
<b>Well-prepared</b>				.412***
Always/Usually	79.7	15.6	4.7	
Sometimes	31.9	41.1	27.1	
Seldom/Never	12.8	19.7	67.5	
<b>Makes subject matter understandable</b>				.577***
Always/Usually	90.3	8.7	1.0	
Sometimes	28.7	52.8	15.9	
Seldom/Never	8.1	31.4	90.3	
<b>Enthusiastic about teaching</b>				.446***
Always/Usually	81.8	13.8	4.5	
Sometimes	28.8	48.1	23.2	
Seldom/Never	11.0	22.0	66.9	
<b>Fair in evaluating student work</b>				.402***
Always/Usually	81.1	14.4	4.5	
Sometimes	39.9	40.4	19.7	
Seldom/Never	16.6	26.6	56.8	
<b>Stimulates students to think</b>				.496***
Always/Usually	87.3	9.8	2.9	
Sometimes	39.5	45.9	14.6	
Seldom/Never	11.2	29.4	59.4	
<b>Maintains learning environment</b>				.476***
Always/Usually	83.3	13.5	3.2	
Sometimes	30.4	44.0	25.6	
Seldom/Never	3.7	27.6	68.7	
<b>Uses technology</b>				.268***
Always/Usually	79.3	15.4	5.3	
Sometimes	57.9	29.1	13.0	
Seldom/Never	43.0	22.2	34.9	
<b>Uses group work</b>				.201***
Always/Usually	85.4	9.9	4.5	
Sometimes	62.3	27.4	10.3	
Seldom/Never	59.1	23.6	17.3	

\*\*\*Significant .001

**Table 4. Relationships of structural course characteristics to o course rating.**

Course characteristics	Course Rating			Cramér's V
	Excellent/ Good	Fair	Poor/ Very poor	
	-----%-----			
<b>Class size</b>				.102***
< 20 students	79.9	12.7	7.4	
20-99 students	73.4	16.7	9.8	
100 or more students	61.7	23.8	14.6	
<b>Mode of Instruction</b>				.144***
Lecture only	56.5	25.8	17.7	
Lecture and discussion	81.3	13.4	5.3	
Discussion/ seminar	68.4	12.7	19.0	
<b>Instructor</b>				.084**
Faculty/ Staff	70.4	19.2	10.5	
Grad student/ TA	63.1	17.2	19.7	
<b>Choice</b>				.103***
No choice (Required)	64.7	21.2	14.1	
Selected from a required list	75.2	16.4	8.3	
Free elective	81.6	13.1	5.3	

\*\*\*Significant .001

\*\*Significant .01



**Table 5. Relationships of student characteristics to course rating.**

Student characteristics	Course Rating			Cramér's V
	Excellent/ Good	Fair	Poor/ Very poor	
	-----%-----			
<b>Gender</b>				.050
Male	69.0	18.2	12.9	
Female	70.5	19.7	9.8	
<b>Class standing</b>				.064*
Freshman	64.5	21.1	14.4	
Sophomore	67.6	19.5	13.0	
Junior	70.1	18.7	11.2	
Senior	74.8	16.9	8.3	
<b>Residence</b>				.049
Pennsylvania	68.7	19.0	12.4	
USA, not PA	72.7	18.2	9.0	
Outside USA	69.4	20.4	10.2	
<b>Semester credits</b>				.050
< 14	69.8	14.9	15.3	
14-15	68.4	20.8	10.8	
16-17	69.8	19.0	11.2	
18 or more	72.4	18.4	9.2	
<b>GPA</b>				.051
< 2.50	65.1	20.2	14.7	
2.50-2.99	66.4	23.4	10.2	
3.00-3.49	68.4	19.2	12.3	
3.50 & over	72.7	16.6	10.7	

\*Significant .05

**Table 6. Relationships of grade, work, difficulty, and amount learned to to course rating..**

Grade, Work, Difficulty, Learned	Course Rating			Cramér's V
	Excellent/ Good	Fair	Poor/ Very poor	
	-----%-----			
<b>Grade in course</b>				.203***
A, A-	79.6	13.8	6.6	
B+, B, B-	65.0	21.9	13.1	
C+, C, C-	49.0	28.5	22.5	
D, F	28.1	38.6	33.3	
<b>Amount of Work relative to other courses</b>				.063
1 Much lower	61.6	21.9	16.4	
2	63.0	24.9	12.1	
3	72.6	16.4	11.1	
4	71.4	18.2	10.4	
5 Much higher	68.0	19.6		
<b>Degree of Difficulty relative to other courses</b>				.121***
1 Much lower	60.8	18.9	20.3	
2	64.8	22.1	13.1	
3	77.7	15.2	7.0	
4	69.9	20.4	9.7	
5 Much higher	60.1	20.3	19.6	
<b>Amount Learned relative to other courses</b>				.429***
1 Much lower	5.7	27.3	67.0	
2	30.0	37.2	32.9	
3	63.3	26.8	10.0	
4	81.5	14.7	3.7	
5 Much higher	95.5	3.5	1.0	

\*\*\*Significant .001