AC 2009-1037: THE STUDENT PERSPECTIVE: THE QUALITY OF OUR EDUCATIONAL EXPERIENCE

Amanda O'Neill, Indiana University-Purdue University, Indianapolis
Jessica McCormick, Indiana University-Purdue University, Indianapolis
Patricia Fox, Indiana University-Purdue University, Indianapolis
Matthew Steinkamp, Indiana University-Purdue University, Indianapolis
Rachel Meyer, Indiana University-Purdue University, Indianapolis
Steven Brown, Indiana University-Purdue University, Indianapolis
Brandon Medcalf, Indiana University-Purdue University, Indianapolis
Nathaniel Greene, Indiana University-Purdue University, Indianapolis
The Student Perspective: The Quality of Our Educational Experience

Abstract

Are college students receiving the overall quality of education that postsecondary institutions strive to achieve? Many students have complaints not necessarily in terms of the technical component of the education, but in terms of presentation style, grading techniques, and instructor enthusiasm. Students also express frustration in the processes of progressing through the educational system, from program admission through graduation, and feel that there are breakdowns in communication with faculty. The issue at hand is to determine where these breakdowns and gaps occur, and adapt the current methods and mentalities in a fashion that closes these gaps.

Currently, faculty success is assessed in many ways, one of which is student reviews at the conclusion of each semester. Some students believe that their opinions will not be heeded, and thus do not participate in these evaluations that are administered by the School. However, it is necessary to have a valid measure of the effectiveness of technology, faculty, instruction, and staff. By providing students with a mechanism to give honest feedback, the administration can gain insight into gaps between the theoretical processes, and the actual flow through the educational system.

This student research paper will address the quality of the undergraduate student experience of students in terms of classroom and office interactions with faculty and staff. Overall perceptions of equality and fairness among students will also be discussed. This data was gathered from students within the Purdue School of Engineering and Technology at Indiana University-Purdue University Indianapolis (IUPUI) via an electronic survey. The results will be analyzed in comparison to the results of similar studies, should they exist, facilitated by school administration in order to determine whether a disparity exists in the answers given to fellow students and answers given to the School. Specific gaps in the engineering and technology college experience will be identified, and recommendations will be given for students, faculty, and administrators. Implications for policy, practice, and improvement will also be discussed.

Introduction

When entering the realm of higher education, students consider a variety of factors when deciding upon a college or university. Not only is the technical background and quality of the education extremely important, but students also consider the reputation that the institution has for success, as well as social factors.

Students who are dissatisfied with any of the above mentioned factors are less likely to be successful while progressing through the higher education system. Many schools have some system in place that is to monitor student satisfaction, typically in the form of assessment surveys at the end of each term. However, in many cases, students have no feeling that the information gathered on such instruments is actually evaluated once submitted, thus many don’t take the time to participate in the evaluation process.
As students ourselves, the researchers on this project, were interested to see if a higher response rate would be given if the assessment mechanism was administered by a peer. The data gathered closely followed the model used by school administration, in order to have a reliable comparison.

The responses to the student administered survey were analyzed to determine what areas students have the most concern in. Quantitative results will be given to administration and student governance organizations, at the conclusion of the analysis, in an effort to demonstrate a working relationship between student needs and desires for successful progression through the higher education system, and the current procedures and policies in place by the University.

The data was also analyzed in an effort to determine the areas in which students place the most emphasis, outside of curriculum concerns. For example, is faculty accessibility a primary objective, or is it simply the desire for an easy grade. It is not the intention of this research to insinuate that student evaluations should be considered a completely reliable indicator of success, but instead that there are areas of the higher education experience that deserve consideration beyond current standards.

**Research Problem**

This research seeks to identify if students are indeed receiving everything they need from school outside of course work. While education is mostly based on what is learned in the class setting, there are a great deal of factors to be considered outside of the class room. This research seeks to examine, from a students’ view, if they are getting everything they want and need from the School. If there are any gaps identified which deserve attention the proper measures can be taken. If areas are identified as being useful tools, but underutilized, this can also be addressed.

The research can apply to a vast spectrum of students. While it may be difficult to observe what is happening at various universities, it can be said that these results can be applied to a variety of institutions.

During this research questions will be addressed to heighten awareness within various aspects of education both within and outside the classroom. Data was gathered from current students across all levels of study (all graduate and undergraduate levels) and disciplines within engineering and technology. Results will show exactly what is being obtained from the college experience, and if students receive various services and assistance outside of class. The research seeks to determine what, if anything, can be improved so that students are more successful in college as well as post-graduation.

As current students the researchers have a bias. The researchers have personal assumptions on what this data provides. As students, the research team communicates with peers daily and receives feedback on their experiences, both positive and negative, with administration and professors. The research can be analyzed and recommendations can be made on where the collegiate experience lacks. The researchers do not intend to infer that students are the only relevant opinion and that the responsibility of education relies solely on the instructors. On the contrary students are equally responsible for the outcome and input into their education.
**Topic Significance**

If there are gaps between the theoretical processes and the actual flow through the educational system it is very important that the institution becomes aware and understands the underlying gaps. The school has conducted an evaluation mechanism at the conclusion of each semester for students to provide feedback on the course and the professors performance. Although this content assessment is in the place, students are not required to participate in this evaluation. Many students feel their opinions will not be taken into consideration and thus do not participate in the evaluations given by the school.

We have used data from students within the Purdue School of Engineering and Technology through an electronic survey. Along with the results from similar studies hosted by the school administration, this data will be analyzed to determine whether a gap exists between the data obtained by the school and the data obtained by the researchers. If indeed a gap does exist it is important that the students, faculty and administration will be made aware of it at the study’s conclusion.

If the data proves that a disparity exists, then the school as a whole can take the correct steps to close the gaps. The end result could greatly improve the students’ perspective of the quality of their educational experience. Closing the gap will also attract students and faculty to become more involved and enthusiastic about school projects and activities.

This new perspective can help not only students, but also professors and administration. If students become more involved with school, this in turn could attract professors to become more passionate about teaching. Student learning directly correlates to what professors teach, thus it is very important that professors enjoy their position and know how students feel about the experience they are receiving. Instructors need feedback to evaluate their teaching, thus it is imperative that students give good feedback and this is often not the case with evaluation given by administration. The process of giving and receiving feedback is governed by administration and should a gap be identified, policies could change. These policies could include ways feedback is collected and could also include classroom learning policies that might be interpreted as negative by students.

**Literature Review**

As students the researchers can appreciate the value of faculty evaluations. Such tools give students the ability to give feedback on the instructors and the quality of their teaching, as well as their overall interaction over the semester. At many institutions these reviews are a critical element of faculty tenure and promotion processes\(^5\). However, not all students choose to participate in faculty evaluations, for a variety of reasons. This article seeks to determine what factors might increase student response rates.

**Aims**

Student Teaching Evaluations serve both summative and formative purposes according to Hobson\(^4\). The formative being that in which students can provide feedback regarding rapport, exams/grading, workload, organization, etc. that allows faculty insight into how to make improvements and habit changes\(^1\). This data can be best used to change the operational settings...
of the classroom and the curriculum. The summative piece comes from the overall effectiveness of the instructor and the quality of the course for purposes of tenure, promotion and retention factors. Summative data is qualitative data that speaks of the personal characteristics of the faculty member.

Students are the heart and central focus of the higher education system. All quality measures should seek to assess the overall student learning, and development of the student. Student evaluations should encompass the entire experience in higher education not only the technical components.

Assessment Systems

Traditionally there are two methods of delivering end of the semester evaluations, online and in-class. The online version is becoming increasingly popular for a number of reasons. Schools that use in-class instruments only offer students one opportunity to give their feedback, and are spending quite a bit much more money ($568.60 vs $18.75 per version) than those offering online. The online option limits the influence that faculty members can have on the students. Polls of students show that there are few reports of students with difficulty utilizing online systems, and students state preference to using online assessments.

Low Response Rates

Low response rates could be attributed to several factors. Technological difficulties, for example, might increase student difficulty in accessing evaluations. Best response rates come from platforms that are safe, secure, easy to use, and where students are clearly reminded and instructed regarding the goals and objectives of the evaluation. Norris’s research compared existing online mechanisms with that of Survey Monkey. Students reported the latter was easier to access and use, thus the response rate was increase by 31 percent.

The complaints from students regarding online assessments are generally in terms of fear of lack of anonymity. Students fear repercussions from faculty and administration if their log-in information is revealed related to negative responses on the evaluations. As students are not shown the results of the evaluations given by administration, they feel no guarantee that faculty aren’t given names of students reporting their answers.

Teaching and Non-Teaching Factors

When students rate faculty it has been shown that both teaching and non-teaching related factors come in to play. Teaching related factors demonstrated by faculty include thorough knowledge of the subject, genuine interest in the subject, well-planned and organized class sessions, clear and understandable explanation, using relevant examples, and flexibility and concerns for student needs. There are also many non-teaching factors that impact how faculty are rated by students. These include class designation, gender, grade expectations, cultural background, major, course level difficulty, student performance, student knowledge regarding the disbursement of the ratings results, and student’s opinions about the value of student ratings.
Faculty Concerns

Some faculty are concerned that they will receive poor scores primarily due to the fact that students want ‘friendship’ and ‘easy’ classes with their instructors. Some faculty who do not have ‘easy’ grading scales fear low scores and thus a negative impact on tenure and promotion proceedings. Cohen suggests that assessments must be very articulate and not make references to relationship/emotional contexts. Faculty/course reviews should have questions worded very specifically for purposes of evaluating the teaching methods and course content, not the individual rapport that a particular student had with an instructor. Some faculty fear that students who have not actually attended class will participate in the evaluations, skewing the results.

A 1989 study by the Carnegie Foundation asked faculty to identify their primary interest, 30% indicated research while 70% indicated teaching. “Similarly, in a study of more than 35,000 faculty members conducted by the Higher Education Research Institute in 1991, 98% of the respondents stated that being a good teacher was an essential goal, yet only 10% believed that their institutions rewarded good teaching.” If the faculty feel that a higher premium is placed on research, then perhaps low teaching evaluations are result of misguided efforts and lack of emphasis on student development.

In Aultman’s study a faculty member shares that she enjoyed opening herself up to feedback prior to the end of the semester. In her mind this made her more of a real person to the students, especially when they saw that she really addressed their concerns in class the next time it was in session. This method would allow the current class of students to benefit from an assessment mechanism, as opposed to giving feedback at the end of the course and hoping that the instructor changes their methods for the next batch of students.

Another major area that some faculty demonstrate concern in is that there is no universally accepted criteria for effective teaching. There are personal factors to be concerned with, thus straight student responses are not a measure of effectiveness.

Research Methodology

In order to properly define students’ perceived shortcomings in the quality of classroom and departmental experiences, qualitative and quantitative research was conducted. Students currently are given course outcome surveys to evaluate the material learned in a specific course. Valuable information impacting this issue is excluded from these surveys that can assist the institution in its educational practices. This research was conducted to determine where the organization can enhance students’ overall academic experience.

The researchers are students from various backgrounds in engineering and technology with an interest in furthering engineering and technology education. The researchers seek to determine in what areas the quality of an education can be improved. The information gathered ultimately will not only benefit the researchers as they continue their education, but the school, faculty, and institution.

Method of Data Collection

Data was collected through a survey administered directly to all interested undergraduate and graduate students of the School of Engineering and Technology, regardless of major, by the
researches on a voluntary basis, 330 students chose to participate. Appendix 1 contains a comprehensive list of all degrees offered by the School. The survey was created using an online survey tool, allowing a greater number of students to participate. Administering the survey online also helped to ensure confidentiality and anonymity. The entire student population within the engineering and technology was notified and informed of the survey through mass emails, fliers, posters, word of mouth and other forms of campus communication. On campus participation was facilitated in pre-designated computer labs. A secure link will also be created for students to complete the survey during their own time.

Research Questions

Research questions were compiled within three categories “Exams, Quizzes & In the Classroom,” “Availability, Advisors & Instructors, In the Office,” and “Diversity.” The questions are:

1. Exams, Quizzes & In the Classroom
   a. Do your instructors use Oncourse effectively?
   b. Are exams, quizzes and homework returned in a timely manner?
   c. Are exams, quizzes and homework designed/written at the appropriate level for the course level (ex: 100, 200, 300, etc)?
   d. Are exams, quizzes and homework graded fairly?
   e. Is the approach your instructors use to teach the material appropriate for the level of the course?
   f. Do your instructors’ expectations match the level of course they teach?
   g. Are your instructors on time to class?
   h. Are your instructors enthusiastic about teaching?
   i. Do your instructors care about the classes they teach?
   j. Do your professors present information appropriately and effectively? (chalkboard, overhead, PowerPoint)?
   k. Do instructors incorporate new technology and innovations into the classroom?
   l. Do your professors keep you up to date with technology and technology trends?

2. Availability, Advisors & Instructors, In the Office
   a. Are your instructors available during their posted office hours?
   b. Do your instructors respond to emails and phone calls in a timely manner?
   c. Do your instructors care about the students in their classes?
   d. Was the transition from freshman advising to advising in your department simple?
   e. Are your instructors accommodating to your academic needs?
3. Diversity
   a. Do instructors treat all students fairly and equally?
   b. Do advisors treat all students fairly and equally?
   c. Does staff treat all students fairly and equally?
   d. Do instructors have a good understanding of cultural differences?
   e. Do advisors have a good understanding of cultural differences?
   f. Does staff have a good understanding of cultural differences?

Research Tool Testing

Survey questions were tested first with the American Society of Engineering Education (ASEE) student chapter members who are all students in engineering and technology. These students all took part in the administration of the course assessment outcome survey. The researchers feel these students have an understanding of the information we are attempting to gain. The questions were also provided to a cross-section of faculty and staff for review. Faculty and staff input is necessary because they possess greater insight into survey distribution and analysis.

To analyze this information, answers will be compiled by question. The research team then computed the statistics which relate to these sets. Each question was reviewed and analyzed regardless of how well it relates to the other answers.

Data Analysis

All graphs show a comparison between the responses to a given question and the average response to a group of similar questions. Since some respondents skipped some questions, all graphs show the number of respondents for each answer normalized by the number of respondents for each question. The respondents’ answers are shown in blue while the average is shown in red.

Q1. In the Classroom

This section of the survey focused on more of the day-to-day operations of the classroom. This included interactions between students and their professor, use of classroom resources, and their interpretation of their classroom experience.
Figure 1: Are your instructors on time to class?

The biggest stand-out from this question is that a far greater than average number of respondents said they “Strongly Agree”. The number who said they “Strongly Agree” were 2.1 standard deviations greater than the average for this group of questions.

Figure 2: Do your professors keep you up to date with technology and technology trends?

The biggest disparity from this question is that a far greater than average number of respondents said they had no strong opinions on this question, instead choosing “Neutral”. The number who said they were “Neutral” was 1.6 standard deviations greater than the average for this group of questions.
Figure 3: Do your instructors care about the classes they teach?

A far greater than average number of respondents said they “Disagree”. The number who said they “Disagree” were 1.4 standard deviations greater than the average for this group of questions.

Figure 4: Is the approach your instructors’ use to teach the material appropriate for the level of the course?

What stands out most when analyzing this question is that a far greater than average number of respondents said they “Agree”. The number who said they “Agree” was 1.3 standard deviations greater than the average for this group of questions.
Figure 5: Do instructors incorporate new technology and innovations into the classroom?

The biggest discrepancy from this question is that a far greater than average number of respondents said they “Neutral”. The number who said “Neutral” were 2.2 standard deviations greater than the average for this group of questions. Also, it is unusual that all of the responses fall 1.1 or more standard deviations away from the mean. (There is a ~0.5% chance of this happening randomly)

Figure 6: Are exams, quizzes and homework returned in a timely manner?

A far greater than average number of respondents said they “Disagree”. The number who said “Disagree” were 1.8 standard deviations greater than the average for this group of questions.
Q2: In the Office

This section of the survey focuses on instructor’s interactions with students outside of the classroom. Topics such as office hours, email response, phone call responses, and the transition from Freshman Advising to the advising in a department are discussed. The following questions relate to topics outside of the technological realm.

Figure 7: Do your instructors care about the students in their classes?

A notable point on this chart is that far greater than average number of respondents said they “Strongly Agree”. The number who said “Strongly Agree” was 1.6 standard deviations greater than the average for this group of questions.
A far greater than average number of respondents said they “Strongly Disagree” with this question. The number who said “Strongly Disagree” were 1.7 standard deviations greater than the average for this group of questions. Also, it is unusual that 4 out of the 5 responses fall 1.2 or more standard deviations away from the mean.

*Figure 8: Was the transition from Freshman advising to advising in your department simple?*
**Q3. Fair and Equal Treatment of Students**

This section of the survey focuses on the way students are treated by employees at School of Engineering and Technology at IUPUI. Positive relationships with these employees are key in order to successfully complete a degree. The following data shows the survey results when students were asked three different questions relating to whether students believe that the school’s instructors, advisors, and staff treat all students fairly and equally. The answer options were as follows: ‘strongly agree’, ‘agree’, ‘neutral’, ‘disagree’, and ‘strongly disagree’. The data from each question is shown in relation to the average response given for each possible answer.

![Figure 9: Do instructors treat all students fairly and equally?](image)

Figure 9 shows the survey response students had about whether they feel their instructors equally and fairly treated their students. The data shows that the responses to this question were similar to that of the average.

In this section of the survey, students were also asked how fair and equal advisors and staff were treating students in the school. The responses to both of these questions were comparable to that of Figure 9 in that they were similar to the average response. Overall, this data shows that students are being treated the same by instructors, advisors, and staff when it comes to fairness and equality.
Q4. Do the following have a good understanding of cultural differences?

This section of the survey focuses on the ways students of different cultural backgrounds are treated by employees at the School of Engineering and Technology at IUPUI. The following data shows the survey results when students were asked three different questions relating to whether students believe that the school’s instructors, advisors, and staff have a good understanding of cultural differences. The answer options were as follows: ‘strongly agree’, ‘agree’, ‘neutral’, ‘disagree’, and ‘strongly disagree’.

Figure 10: Do instructors have a good understanding of cultural differences?

Figure 10 shows the survey response students had about their instructors. This data shows a strong statistical similarity between the responses of the students and the average response.

In this section of the survey, students were also asked how well they felt their advisors and staff understood cultural differences. The responses to both of these questions were comparable to that of Figure 10 in that they were similar to the average response.

Recommendations

Recommendations for Students:

- Be familiar with current processes and expectations in regards to technology and curriculum requirements.
- Do not use evaluation mechanisms as a method of retribution for personality conflicts.
- Understand the importance of the overall usefulness of the evaluation process and its long term goals and affects.

Recommendations for Faculty:

- Do not ‘bribe’ students or attempt to sway evaluations using grading tools as rewards.
• Encourage students to be open and honest in feedback, recognizing the usefulness of evaluation tools for professional development.
• Recognize the importance of factors in the educational environment that students evaluate above and beyond technical components.

Recommendations for Administrators:
• Provide a method of transparency in regards to end of semester evaluations; ensuring students that the feedback they provide does not disappear and is used.
• Promote and environment that fosters the confidentiality of the evaluation system.
• Utilize feedback from students as a valuable tool for faculty evaluation.

Conclusions

Overall, the respondents provided overwhelmingly positive responses in their survey answers. A vast majority in almost all categories and questions said they either “Agreed” or “Strongly Agreed”. This shows at very least contentment by the respondents with respect to their experience in the classroom, in the office, of fair and equal treatment of students, and with cultural diversity. With all of that said, though, the data collected does suggest that there are some areas where improvement is desired.

When asked about their experience in the classroom, respondents were most positive about their instructors’ punctuality when attending class, their instructors’ attitude towards the subject matter, and their instructors teaching at the appropriate level for the class. This area is in alignment with the research done by Hobson and Aultman in regards to summative and formative evaluation\(^1,4\). Conversely, respondents rated their instructors relatively lower when it came to keeping up-to-date with current technology, incorporating new technology and innovations into the classes, and returning materials (homework, quizzes, etc.) to the students. These results are a direct formative evaluation, which should be given adequate attention\(^4\). This shows that students pleased with their instructors in most respects but would like to see a technology available in the classroom to reflect advances in technology in commercial and industrial settings.

While respondents were asked about their “in the classroom” experience, it is understood that that is only one part of the interaction between the student and the University and that the student’s experience “in the office” is also important to gauge. In the office setting, respondents rated instructors highest in caring about the students in their class. This shows that students feel that they have a good rapport with their instructors even outside of the classroom setting. On the other hand, respondents rated the transition from freshman advising to department-specific advising much more poorly. This shows a disconnect between the instructors ability to be instructors and their ability to be advisors which is not generally surprising considering that there are both teaching and non-teaching factors to be considered as described by Peterson\(^6\).

When it came to the fair and equal treatment of students by instructors, advisors, and staff, responses did not vary much from one group to another. In general, most respondent rated each group very highly. These have no bearing on the quality of these groups; simply how biased
they are interpreted as being. To that extent, no group appears to be perceived as being biased towards or against any group.

The final aspect examined was the quality of understand of cultural by instructors, advisors, and staff. The variation in the results between these groups was very slight. Most of the respondents replied favorably to these question, however, it was relatively less favorable when compared to the results from other sections throughout the survey. This could show that while these groups are proficient, it may be worthwhile to become more familiar or conscious of the numerous and varied cultures that interact in the university environment.

While overall the responses were positive, there are areas for improvement. Looking at the results relatively shows these to include increased effort to bring new technology and innovations to the classroom, better bridge the gap between freshman and department-specific advising, and bring to the attention of IUPUI employees the cultural differences that are experienced by a diverse student body.

The researchers were not able to gain access to the survey administered by the Administration at IUPUI in time for completion of this project. Continued investigation will allow insight for comparative analysis. A noticeable lack of existing data also is evidence that there is a great need for investigative research into this area. It is crucial that faculty and administration be provided an accurate and honest measurement of student feedback. Another survey, similar to this one, would be useful for determining how these issues trend over time.

**Bibliography**

Appendix 1

ENGINEERING

Bachelor of Science in Mechanical Engineering
Bachelor of Science in Electrical Engineering
Bachelor of Science in Computer Engineering
Bachelor of Science in Biomedical Engineering
Bachelor of Science in Motorsports Engineering
Bachelor of Science in Engineering
Master of Science in Mechanical Engineering
Master of Science in Electrical and Computer Engineering
Master of Science in Biomedical Engineering

TECHNOLOGY

Bachelor of Science
Major: Organizational Leadership & Supervision
Computer & Information Technology
Computer Graphics Technology
Interior Design Technology
Electrical & Computer Engineering Technology
Mechanical Engineering Technology
Biomedical Engineering Technology
Construction Engineering Management Technology
Computer Engineering Technology
Bachelor of Science in Music Technology
Master of Science in Technology
Master of Science in Music Therapy
Master of Science in Music Technology